Fans Versus Votes:

A Comparative Voting eLearning Tool Utilising Internet Fandom

by

John Kirwan

A thesis for the Huston School

MA in Digital Media

Supervisor: Dr. Attracta Brennan

August 2018

Contents

Statement of Originality

'I, _____, do hereby declare that this work that is submitted for assessment is my own and that due credit has been given to all sources of information contained herein according to the rules that govern the Huston School of Film & Digital Media. I acknowledge that I have read and understood the Code of Practice dealing with Plagiarism and the University Code of Conduct of the National University of Ireland, Galway and that I am bound by them.'

Date

_____

Main project website address- https://www.fansvsvotes.com/

Second project website address- https://dnd.fansvsvotes.com/

Abstract

Voters may not be familiar with voting and electoral systems outside of those they have participated in. This can keep people from engaging with and understanding the impact of voting systems on results. Can the internet's Fandom phenomenon be utilised to create an interactive demonstration of diverse voting systems that users[1] may learn from?

Fans Versus Votes project ran from June 4th-June 18th as a comparative election. Users voted for their favourite television shows under three voting systems Majoritarian, Mixed and Proportional. The results from each election demonstrated the extent to which voting systems determine the outcome of elections, with only four of twelve winning candidates appearing across the three systems.

This demonstrated that the Fans Versus Votes site was a useful eLearning tool. However, the results indicated that Fandoms were not able to replicate political affiliations fully. Additionally the discerning nature of Fandoms proved to make the promotion of the project difficult.

A second more focused project was launched to test if the broad nature of the first project dampened participation. It also deployed an improved version of the tool that automatically showed the results.

[1] Throughout this text user is used to refer exclusively to those individuals that participated in the Fans Versus Votes Project, where voter is used in reference to broader discussion and other experiments.

1. Introduction

The ways in which we vote have a heavy impact on how we view democracy and voting. Whether we are voting for who will run the country or for our favourite performers. The Internet has long opened up new ways and reasons for people to vote, many of these are simply polling communities for their favourite character, movies, episode etc. Almost all of these are simple Majoritarian polls where the most votes win. However the Internet's fondness for polls might be utilised to bring awareness of other voting systems and the impact they can have on the outcome of an election.

In discussions about voting people often bring up the importance of voting, issues of constituency boundaries, easy registration to vote and many other issues. Why we vote is a well-worn topic of discussion. How we vote is given less attention, but is of no less importance. A single difference in the method used to vote has tremendous impact and not only on the outcome of an election, but also affects the entirety of how politics is approached (Blumenau, 2016), (Sanz,2016). When the impact of voting systems is brought up it is typically post-election by commentators arguing that campaigning would be run differently under such a system. While this is true, it highlights why more work needs to be done into the effects of comparative voting.

Naturally changing a country's voting system is a major undertaking, however it is not impossible. The issue that inevitably any activist group is faced with is simple; lack of familiarity and understanding of how changing a voting system changes outcome. In the past this was a difficult problem to deal with beyond simple discussion, however in the internet age there are new methods available to generate awareness with active participation.

The Fans versus votes project was designed to help people learn about different voting systems through participation in an election for their favourite television shows. Fandom is the name for communities that develop around various artistic works, most commonly television shows and pop culture. It is defined as, "the social structures and cultural practices created by the most passionately engaged consumers of mass media properties" (Jenkins, 2015). This phenomenon has expanded and changed in recent years, becoming significantly more active and accessible in the internet age (Hills, 2013).

Where Fandom enters this scenario is in sidestepping the immediate political issues of participants and focusing solely on the voting systems, without having voter focus on their political ideology. While experiments have been run with a focus on comparing voting systems in an actual election situation, this project cannot do that for a number of reasons: primarily the difficulty of ensuring that those online are aware of the politicians that could be involved and secondly, it would be difficult to prevent users from seeing the project through their current political lens and so not engaging with the voting system; which is this project's area of interest.

Fandoms are similar enough to the subjectivity and interest levels people have in politics, particularly for television shows. There are rivalries between shows. Fans have

preferences in genres. People invest a not insignificant amount of their lives into a television show they like, especially if they also interact with the Fandom of that show online. Fans of a show can stay loyal to it, even if has been off air for years, as was most famously demonstrated by the original Star Trek (Fiske, 1992). Therefore Fandoms may act as a stand in for political attitudes. Thus allowing the project to focus on the practical aspects of each voting system, without having participants consider their political ideology.

The aim of this project is to firstly create an easy to use system to demonstrate these different voting systems and their effects. Preferably this system would be relatively easy to change and alter for future projects. The project's secondary aims are to see if television Fandom is an appropriate stand in for political parties and observe if there is any interesting information pertaining to Fandom in the candidates elected by each system.

2. Literature Review

The three broad type of voting systems we are looking at are: Majoritarian where voters get one vote to decide one candidate, Mixed where voters vote for their local representative and their political party and Proportional where voters rank candidates by preferences with their vote being transferred as candidates are eliminated. These systems and their variations are described in David Farrell's *Electoral Systems* (2012).

The history of voting experiments is broadly covered by André Blais' et al. *Voting Experiments (2016)* covers a large number of past experiments and their methodologies, the later chapters on candidate viability in voting experiments and candidate viability in runoff voting systems were of particular importance for developing the project, as the method for choosing candidates had to be able to mimic the real world. If the candidates lacked viability for a genre the project would not be an accurate replication of an election.

Jean-François Laslier's *The Euro Vote Plus Experiment* (2015) served as the main paper to refer to in relation to the timeframe needed to run the experiment and running a voting experiment online. The Euro Vote Plus was an experiment run during the 2014 elections for Members of the European Parliament, it had voters vote in three different systems for the candidates in their area and ran over three weeks. Much of the limitations of this experiment are shared by this project. However, the focus is different as Euro Vote Plus focused mainly on effects of different types of Proportional Representation in relation to the Pan-European parties, rather than Fans versus Votes focus on the broader spectrum of voting systems.

Rogers et al. 2017 study on *Social Pressure and Voting* is a field experiment that shows the effect of intra-community pressure on voting. A neighbourhood mailer increased voter turnout in later months, regardless if it was worded in a partisan or non-partisan manner, which could not be attributed to later contact with campaigns. This paper provides much of the reasoning behind Fandoms being a usable stand-in for political affiliation, as Fandom community pressure may have a similar effect in encouraging voting. However, it also highlights a significant issue for the project because the mailer came from within the community, meaning any awareness campaign would require prominent figures in the fan community spreading the word.

Trading places (Yonk et al., 2010) counted ballots from a USA Republican Party special election and re-counted them using various counting rules and voting systems. This paper shows the impact of voting systems and counting rules on outcome, making the argument that who decides what rules and systems are used has significant power.

Information on a variety of voting systems was gleaned from David Farrell's, *Electoral Systems* which details both the systems and ballots for a number of different systems across various democracies. The book also contains details on ballot papers which were used as a reference for designing the Fans versus Votes ballot. Particularly the language used as the ballot papers language had to be clear and concise. The ballot structures were also

important so that users of the Fans Versus Votes site would be guided through the vote and not be confused.

For the creation of the Fans Versus Votes voting system it was important to know the size of electorates, number of candidates that ran and political parties. This information was gained from Adam Carr's *Election Archive* for the political systems of the three countries; Ireland, The United Kingdom and New Zealand going back over five elections.

Information on the rules for running the different elections and counting results was gained from government sources: the Citizens Information website for Ireland and the respective Electoral Commissions for the UK and New Zealand. These sources detailed the formulae behind the voting systems and calculations to determine winners.

John Fiske's' 1992 paper *The Cultural Economy of Fandom* served as much of the basis for the expectations of Fandom. However, due to it being written prior to the advent of the modern Internet, Matt Hill's 2013 paper *Fiske's 'Textual Productivity' and Digital Fandom* was vital in seeing how Fiske's earlier ideas could be updated for the modern era. The main issue that these papers bring up for this project is the premise that fans are discerning, it is likely that the project will be seen as a cynical attempt at gathering data. This may be unavoidable without damaging the integrity of the ballot by adding images and elements from the shows themselves to demonstrate interest. Doing this would add unavoidable slant and bias to the ballot and as a result should not be done.

3. Design Process

There were several key stages in developing the Fans vs. Votes project, including designing the voting system, designing the ballot, designing the website and preparing the launch. Testing and feedback on the design of the project was sought at roughly two week intervals. Testers would work through the current version of the website and voting form giving feedback on areas they found confusing or unclear, as well as design elements that could be improved.

3.1 The Fans Versus Votes System

The most important part of designing the voting system was to ensure that each individual system was comparable to the other two voting systems and all three were understandable to users. For this reason, three countries were chosen to serve as models for the three voting systems. With Ireland being the model for the Proportional voting, it was decided that English speaking island nations with a political history rooted in the British Empire were preferred candidates due to their similarities. This led to New Zealand being chosen for the Mixed system and Great Britain for the Majoritarian system. With the three systems chosen New Zealand served as the starting point to make each system comparable to each other as it contained elements of the two other systems.

As New Zealand's parliament has 120 seats, $1/10^{th}$ of that number served as the number of 'winners' that each voting system could return. $1/10^{th}$ was chosen due to the limited pool of candidate televisions shows. As the Proportional system required three seats per constituency at minimum, this gave us four constituencies.

New Zealand's parliament is elected by voters choosing a representative and a chosen party. However, it has special Maori districts that could not be replicated in this project (Electoral Commission, NZ, 2018). Additionally, with 59% of the seats in New Zealand (Carr, 2018) being directly elected this posed an issue. If two representatives were elected per constituency, testers described the Mixed system as too similar to the Majoritarian system and this resulted in confusion. This was due to the genre vote looking like a simple and strange replacement for one of the Majoritarian systems votes.

Instead it was one representative per constituency and one vote per party. The eight party-list winners would be determined by party list, assigned according to the percentage of the vote using the Sainte-Laguë formula[2], the method used by New-Zealand to assign seats (Honikel, 2018). Representative candidates were the most highly rated show on

[2] Also known as the Webster Method in the USA, is a highest quotient method used in voting systems. The formula is as follows, **Quotient=C/2s+1**, where Vis the total number of votes that party received, and s is the number of seats that have been allocated so far to that party, initially 0 for all parties

Metacritic according to users, with the list being ordered by the user rating multiplied by the number of users who had rated.

As the four New Zealand Constituencies elect twelve representatives the Proportional system must do the same. Ireland's Proportional voting system had no issues fitting into the model. The number of votes needed to win depended on how many votes were in the constituency and winners were determined by eliminating the lowest scoring candidate and moving those votes to the next available preferred candidate. This was repeated until three winner candidates remained (Citizens Information, 2018).

Under Great Britain's Majoritarian voting system, just one candidate could be elected per constituency (Electoral Commission, UK, 2018). The author decided that the best way to make this equivalent to constituencies that had to return three winners was to group the candidates by seniority, which for Fans Versus Votes meant grouped by number of seasons followed by total number of episodes. In the Majoritarian system, each constituency will contain a Junior, Regular and Senior seat to be filled. Metacritic user scores were not used in this case as newer shows tended to have much larger numbers of user ratings and higher ratings since Metacritic became more frequently used. This led to older well known shows ending up in the junior category and newer shows in the senior. This gap confused initial testers before the season/episodes ranking was used.

To determine the number of parties in the Fans Versus Votes system, an average was taken between the three countries of political parties who achieved more than 5% of the vote in the past five elections. This led to seven parties which were represented by the seven genres of scripted shows. To replicate the split between major and minor parties, the top three genres, Action/Adventure, Comedy and Drama, had ten candidates, with the Sci-fi having seven, Fantasy having five and Horror having three candidates. This was done in proportion to the number of shows in each genre.

Candidate shows had to be on going, or have aired in the past year. They were selected by being the top rated shows by user rating on Metacritic, starting with the genres with the least shows and ending with the genre with the most shows. This was done to ensure that smaller genres didn't lose their few candidate shows to the broader genres the show also fell under i.e. A Comedy/Sci-fi show would usually fall under Sci-fi first. This prevented issues such as the Fantasy genre losing Game of Thrones to Drama or Action Adventure. As they were deemed a poor fit, *Westworld* was moved from the Fantasy to Sci-fi and *Daredevil* from the Sci-fi genre to Action/Adventure. Table 1 on the next page shows the full candidate list.

Finally, the constituencies were named after direction-noun combinations, East River, Central Bay, South Town and West Village. This felt more in keeping with the constituency names of the three countries.

Table 1-Candidate List

Name	Party	District	Metascore	Userscore
The Walking Dead	**Action/Adventure**	**Central Bay**	8.2/25	8.1/2641
Longmire	**Action/Adventure**	**Central Bay**	67/17	9.1/187
Jessica Jones	**Action/Adventure**	**East River**	81/32	8.1/1226
Arrow	**Action/Adventure**	**East River**	73/25	8.1/1094
Luke Cage	**Action/Adventure**	**South Town**	79/30	8.1/954
Mike Tyson Mysteries	**Action/Adventure**	**South Town**	75/6	8.4/34
Strikeback	**Action/Adventure**	**South Town**	64/12	8.4/65
The Last Kingdom	**Action/Adventure**	**West Village**	78/15	8.2/159
Daredevil	**Action/Adventure**	**West Village**	75/22	8.8/1598
TrollHunters	**Action/Adventure**	**West Village**	69/7	8.2/56
Archer	**Animation**	**East River**	8.8/12	9.1/218
Rick and Morty	**Animation**	**South Town**	85/8	9.4/307
Bob's Burgers	**Animation**	**substitute**	78/4	8.5/47
The Simpsons	**Animation**	**West Village**	92/7	9.0/113
Better Call Saul	**Comedy**	**Central Bay**	78/43	8.5/1043
Silicon Valley	**Comedy**	**Central Bay**	86/9	8.7/250
Arrested Development	**Comedy**	**Central Bay**	88/17	9.4/257
Fargo	**Comedy**	**East River**	96/33	9.3/831
Curb Your Entusiasm	**Comedy**	**East River**	91/5	8.9/115
It's Always Sunny in Philidelphia	**Comedy**	**East River**	84/4	9.1/128
Atlanta	**Comedy**	**South Town**	90/36	8.6/353
South Park	**Comedy**	**South Town**	64/17	8.6/361
Modern Family	**Comedy**	**West Village**	86/27	8.7/636
Bojack Horseman	**Comedy**	**West Village**	90/7	8.9/369
House of Cards	**Drama**	**Central Bay**	76/25	8.9/1180
Sherlock	**Drama**	**Central Bay**	91/24	9.1/788

Suits	**Drama**	**Central Bay**	61/17	8.7/540
Narcos	**Drama**	**East River**	77/20	9.0/622
The Americans	**Drama**	**East River**	95/28	8.9/241
Mind Hunter	**Drama**	**South Town**	79/25	8.3/374
The Crown	**Drama**	**South Town**	81/29	8.5/244
Mr. Robot	**Drama**	**West Village**	79/24	8.7/877
The Leftovers	**Drama**	**West Village**	80/22	9.0/369
Orange is the New Black	**Drama**	**West Village**	86/19	8.4/270
Outlander	**Fantasy**	**Central Bay**	73/34	8.3/289
Legion	**Fantasy**	**East River**	82/40	8.4/527
Game of Thrones	**Fantasy**	**East River**	91/25	9.3/2282
Supernatural	**Fantasy**	**South Town**	59/2	8.9/909
The Good Place	**Fantasy**	**West Village**	87/10	8.2/106
Ash vs. The Evil Dead	**Horror**	**Central Bay**	75/25	8.8/379
American Horror Story	**Horror**	**East River**	65/23	8.3/695
Stranger Things	**Horror**	**South Town**	76/34	8.9/2032
The X Files	**Horror**	**sub**	70/14	8.7/221
Humans	**Sci-Fi**	**Central Bay**	72/25	8.2/155
Black Mirror	**Sci-Fi**	**Central Bay**	82/23	8.8/386
The Orville	**Sci-Fi**	**East River**	36/21	8.2/805
Westworld	**Sci-Fi**	**South Town**	74/43	8.8/1175
Doctor Who	**Sci-Fi**	**South Town**	76/9	8.3/328
Dirk Gently	**Sci-Fi**	**West Village**	62/14	8.8/208
The Expanse	**Sci-Fi**	**West Village**	77/5	9.1/164

3.2 Architecture

In addition to HTML, CSS, jQuery and PHP, other sources of software were needed for aspects of the project, including:

- The Bootstrap library to create the basic structure of the website. (Otto et al. 2018)
- Kay Ess' Social Media buttons to fit the websites footer. (Ess, 2018)
- Dave Furfero's *Jquery UI Touch Punch* to ensure drag and drop functionality was retained on mobile devices. (Fufero,2018)
- The PHP and jQuery code for the Website can be seen in Appendix 2.

3.2 The Ballot

The ballot consisted of a form with each voting system under a different tab, linked by next and previous buttons. Each section had a short description, which explained what the user had to do and the voting system similar to a real world ballot paper. Each tab's data was also stored in different linked tables in a SQL database.

Figure 1-Majoritarian Voting Form Section

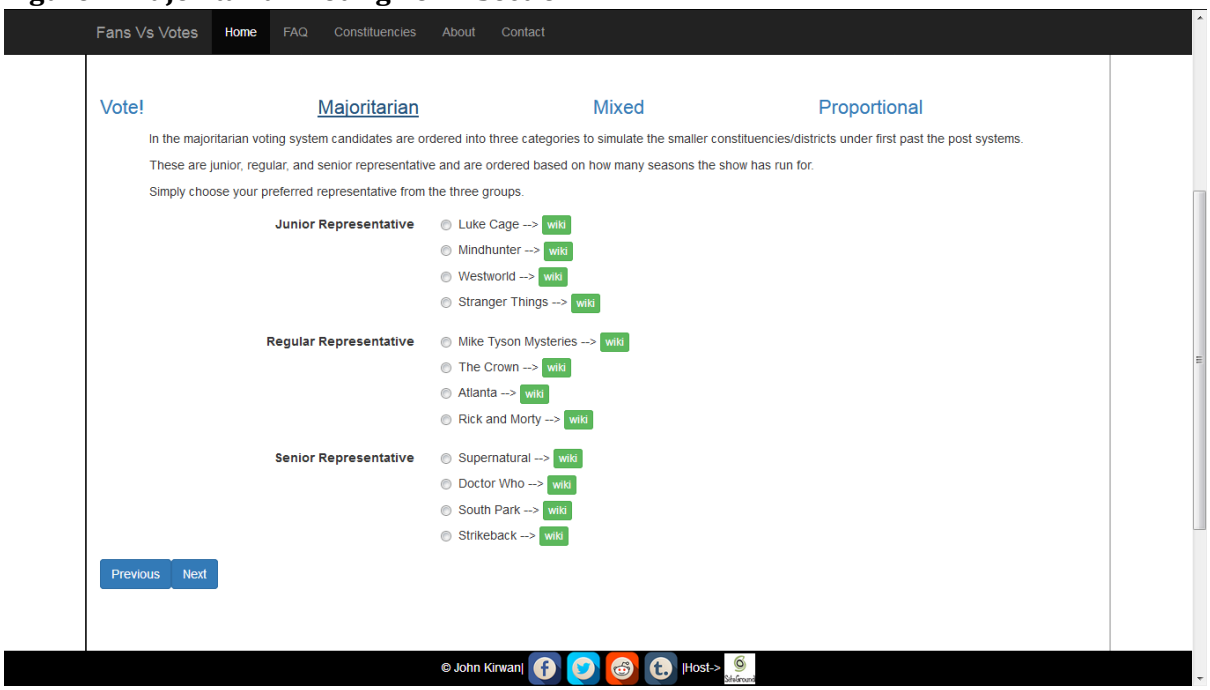
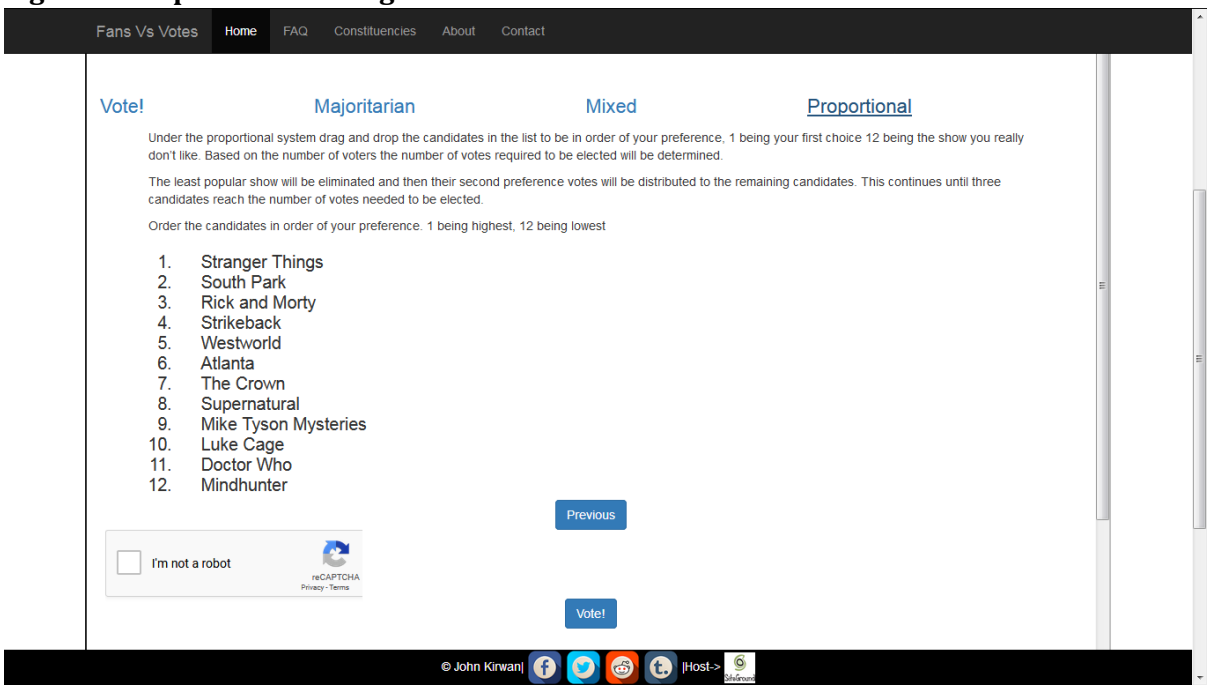


Figure 2-Proportional Voting Form Section



The constituencies appeared as tabs either side of the page, from which the user was directed to choose. The first tab was for details i.e. email address, whether or not the user wished to be emailed the results and the follow-up questionnaire. The users were fully informed that after submission of the thesis, their email addresses would remain for only five years on an encrypted USB drive. The receipt of the results and the questionnaire were opt-in systems.

The Majoritarian tab consisted of three radio button groups for the junior, regular and senior representative elections. Each candidate's name was linked to its Wikipedia page. The Mixed tab consisted of two radio button groups, for representative and party votes; each party had a button after its name that linked to the party list.

The Proportional tab was significantly different. Initially, there were versions where the user picked from a list associated with each preference; however this proved to be slightly confusing as well as taking significantly longer than the other systems. A second version had the user drag the candidate name into a box associated with the vote, but this worked very poorly on many mobile phones. The final version was a drag and drop list. The candidates appeared in a random order and could be re-ordered into the users preferred candidates by dragging and dropping them higher or lower, with the associated number changing as they were moved up and down the list. This last tab also had a Google captcha that existed to prevent any potential bots and other security issues.

Once the user clicked the vote button, the data was arranged into a JSON array and sent by AJAX request to a PHP script. The user was then redirected to a thank you page that had an exit poll, so they could see some info before results were in. The PHP and jQuery code for this can be found in Appendix 2.

Candidates were chosen on the 26th of May from Metacritic. A random number generator was used to assign them to constituencies in order to remove any personal bias. This randomness led to some interesting and diverse constituencies from which it was not easy to pick winners.

4. The Fans Versus Votes Website

The Fans Versus Votes website was hosted by the Siteground hosting company. Various options were explored to create the website however, after some experimentation it was decided that a simple bootstrap site would be mobile friendly as well as easy to code; as bootstrap provided highly usable HTML, CSS and JS libraries. These libraries made the creation and design of the site a streamlined process.

The website FansVsVotes.com consisted of a header with links to main pages and a sticky footer with social media buttons for Facebook, Reddit, Tumblr and Twitter. The advantage of a sticky footer was that users could easily post to social media after they voted. A blue and red banner above the page contents highlighted the projects relations to politics.

Figure 3-Main Page with Banner

Website pages were created to explain the project in more depth, including a frequently asked questions section that was compiled from early testers, an about page that explained the project more fully, a constituencies page to list the candidates running and a contact page.

The main page explained the project as concisely as possible with instructions on what to do. To either side of this welcome tab were two constituencies, each of which had its own form in an iframe to minimise the appearance of redirection on mobile.

Other pages included the thank you page, the questionnaire and the results page which replaced the original main page when the project was finished.

4.1 Launch

The Fans Versus Votes website was launched on June 4th and ran till June 18th. This time proved essential as initial efforts to spread the world were ineffectual. Word about the project was disseminated through the social media websites during the two weeks the project ran on, Twitter, Reddit and Tumblr. These three social media platforms were chosen due to their associations with Fandoms and worldwide usage.

Over three hundred tweets were sent out over the two weeks, consisting of tweets aimed at the shows involved, networks with shows involved, political parties and activist groups for voter reform. The tweets contained the hashtags for the shows and other relevant hashtags including #fansvsvotes. Twitter did not have much effect, even when the tweeting was increased from the initial smaller campaign. Tumblr also proved ineffective, despite several posts with the many relevant hashtags and information. This was presumably due to the reliance on both the sites with connections between users in determining who saw a post/tweet and how much prominence it was given for an individual user.

Reddit proved to be the most successful avenue for communication. While the main hubs for televisions shows and political discussions were unwilling to have information about the project posted, preferring instead for advertising to be bought, the smaller subreddits for each show were more welcoming and they participated in small but consistent numbers. Several refused to take part, including those aimed at Doctor Who and Rick and Morty fans. The better response typically came from the subreddits of shows that had just had their first season or had been cancelled recently. This may be a result of either established fan communities being more discerning in their interactions due to the breadth of content or due to fans of finished and newer shows having more investment in the community.

Bringing awareness to the project proved to be quite challenging due to a number of factors. First and foremost were the issues of time constraints and finance. It was difficult to create a large campaign that had fan-sites and news sites bring attention to FanvsVotes.com in the time frame and budget available. The frequent response received was for the project to buy advertising space. This meant an aggressive social media campaign was the only option.

Twitter, as a platform, proved for the most part to be highly ineffective. Two reasons for this are simply that Twitter as a marketing platform tends to favour established properties and personalities, which is a time consuming endeavour. There is also the speed at which Twitter feeds change, which means that without responses a tweet can quickly disappear from a user's feed. The efficacy of Twitter was unaffected by time of day, hashtags or retweets. Tumblr which has a somewhat similar setup also proved ineffective.

Reddit proved to be mostly effective, with 70% of subreddits up-voting the topic and some users responding to the topic. However, there remained issues, first was that the larger subreddits insisted upon advertising being purchased and a single moderator of a

number of subreddits deleting posts after several days. Some subreddits also had blanket bans on anything related to self-promotion or not solely related to the television show. Reddit proved effective for this topic due to the broad range of shows involved; however a more targeted audience could have caused issues and rendered Reddit ineffectual for promotion.

An interesting side effect of Reddit is being able to track specific interests from fans of a television show and that television show's results in the vote. Surprisingly there was virtually no correlation. This might disprove that fan affiliations are strong enough to mimic political affiliations. For example, despite their being no response from the Game of Thrones subreddit the show got a huge number of votes and in contrast The Orville subreddit which had the highest upvotes for the topic and comments did quite poorly.

5. Results

The tables following show the electoral counts for each voting system

Count Tables

Table 2- Majoritarian count

Majoritarian					
Junior		**Regular**		**Senior**	
Ash vs. the Evil Dead	2	Arrow	4	American Horror Story	10
Better Call Saul	8	Atlanta	4	Archer	11
Dirk Gently	9	**Black Mirror**	10	**Arrested Development**	8
Fargo	18	Bojack Horseman	7	**Doctor Who**	8
Humans	1	Curb Your Enthusiasm	11	House of Cards	4
Jessica Jones	17	Daredevil	9	**It's Always Sunny in Philadelphia**	13
Legion	4	**Game of Thrones**	25	Modern Family	4
Luke Cage	1	Mr.Robot	3	**Orange is the New Black**	12
Mindhunter	5	Narcos	4	South Park	7
Sherlock	11	Outlander	3	Strikeback	1
Stranger Things	9	**Rick and Morty**	9	Suits	5
The Good Place	9	Silicon Valley	9	Supernatural	6
The Last Kingdom	5	The Crown	8	The Americans	11
The Leftovers	10	**The Expanse**	15	The Simpsons	11
The Orville	5	Longmire	0	The Walking Dead	5
Westworld	7	Mike Tyson Mysteries	0	TrollHunters	5

Table 3-Mixed Count

Mixed	
American Horror Story	7
Archer	4
Ash vs. the Evil Dead	1
Better Call Saul	4
Black Mirror	11
Bob's Burgers	0
Daredevil	4
Dirk Gently	6
Fargo	4
Game of Thrones	15
House of Cards	2
Jessica Jones	8
Luke Cage	2
Mindhunter	3
Modern Family	3
Mr.Robot	6
Narcos	3
Outlander	3
Rick and Morty	2
South Park	1
Stranger Things	6
Supernatural	3
The Good Place	9
The Orville	3
The Simpsons	2
The Walking Dead	0
The X-files	5
Westworld	5

Genre	**Votes**	**seats**	**Vote Share**
Action/Adventure	9	1	7.37
Animation	5	0	4.01
Comedy	19	2	15.57
Drama	27	2	22.13
Fantasy	17	2	13.93
Horror	7	1	5.73
Sci_Fi	38	4	30.1
	122		
	15 votes equal seat		

Table 4- Proportional Count in Central Bay

Candidate	**Count 1**	**Count 2**	**Count 3**	**Count 4**
Arrested Development	**1 Eliminated Transfer to Black Mirror**			
Ash vs Evil Dead	**1 Eliminated Transfer to Black Mirror**			
Better Call Saul	4	4	4	**6 ELECTED**
Black Mirror	5	**7 ELECTED** **Transfer 1 Surplus to Silicon Valley**		
House of Cards	**0 Eliminated**			
Humans	**0 Eliminated**			
Longmire	**0 Eliminated**			
Outlander	3		**3 Eliminated Transfer 2 to Better Call Saul** **1 to Silicon Valley**	
Sherlock	**1 Eliminated Transfer to Silicon Valley**			
Silicon Valley	3	4	5	**6 ELECTED**
Suits	4	4	4	4
The Walking Dead	**0 Eliminated**			
Total votes	**22 quota 6**			

Table 5-Proportional Count East River

Candidate	Count 1	Count 2	Count 3	Count 4	Count 5
American Horror Story	4	5	7	8	
Archer	4	6	**6 Eliminated Transfer 3 to Jessica Jones 2 to Always Sunny** **1 to American Horror Story**		
Arrow	**2 Eliminated Transfer 2 to Archer**				
Curb Your Enthusiasm	3	**3 Eliminated Transfer 2 to Jessica Jones 1 to Always Sunny**			
Fargo	2 **Eliminated Transfer 1 to Jessica Jones 1 to Always Sunny**				
Game of Thrones	**13 ELECTED** **Transfer 1 surplus to Always Sunny**				
It's Always Sunny in Philadelphia	3	7	9	11	**12 ELECTED**
Jessica Jones	4	8	10	**13 ELECTED**	

				Transfer 1 surplus to Always Sunny	
Legion	**2 Eliminated Transfer 1 to Jessica Jones 1 to Always Sunny**				
Narcos	3	**3 Eliminated Transfer 1 to Always Sunny** **2 to American Horror Story**			
The Americans	**2 Eliminated Transfer 1 to Jessica Jones 1 to Always Sunny**				
The Orville	**2 Eliminated Transfer 1 to Jessica Jones** **1 to American Horror Story**				
Total	**44 quota 12**				

Table 6- Proportional Count South Town

Candidate	**Count 1**	**Count 2**	**Count 3**
Atlanta	2	2 **Eliminated Transfer 1 to Mindhunter 1 to Supernatural**	
Doctor Who	2	**3 Eliminated 1 to Westworld** **2 to Supernatural**	
Luke Cage	**0 Eliminated**		
Mike Tyson Mysteries	**0 Eliminated**		
Mindhunter	2	4	5
Rick and Morty	**1 Eliminated Transfer to Strange Things**		
South Park	**1 Eliminated Transfer to Stranger Things**		
Stranger Things	4	**6 ELECTED**	
Strikeback	**1 Eliminated Transfer to MindHunter**		
Supernatural	3	4	**6 ELECTED**
The Crown	**1 Eliminated Transfer to Doctor Who**		
Westworld	5	5	**6 ELECTED**
Total	**22 Quota 6**		

Table 7-Proportional Count West Village

Candidate	**Count 1**	**Count 2**	**Count 3**	**Count 4**	**Count 5**
Bojack Horseman	**1 Eliminated Transfer to Dirk Gently**				
Daredevil	2	2 **Eliminated Transfer 1 to Dirk Gently** **1 to Leftovers**			
Dirk Gently	5	6	8	9	**10 ELECTED**
Modern Family	**0 Eliminated**				
Mr.Robot	**0**				
Orange is the New Black	2	2 **Eliminated Transfer to The Good Place**			
The Expanse	9	9	9	**11 ELECTED transfer 1 surplus to Dirk Gently**	
The Good Place	5	5	7	9	**9 ELECTED**
The Last Kingdom	2	2 **Eliminated Transfer 1 to Dirk Gently** **1 to Leftovers**			

The Leftovers	6	6	8	**8 Eliminated**	
The Simpsons	**0**				
Trollhunters	4	4	**4 Eliminated Transfer 2 to Good Place** **1 to Expanse**		
Total	**36 quota 10**				

Election Result tables

Table 8-Majoritarian results

Constituency	East River	Central Bay	South Town	West Village
Junior	Fargo	Sherlock	Stranger Things	The Leftovers
Regular	Game of Thrones	Black Mirror	Rick and Morty	The Expanse
Senior	It's Always Sunny in Philadelphia	Arrested Development	Doctor Who	Orange is the New Black

Table 9-Mixed Results

Action/Adventure	Daredevil			
Comedy	Arrested Development	Fargo		
Drama	Sherlock	Narcos		
Sci-Fi	The Expanse	**Black Mirror** (Central Bay)	Dirk Gently	Westworld
Fantasy	**Game of Thrones** (East River)	**The Good Place** (West Village)		
Animation	None			
Horror	**Stranger Things** (South Town)			

Table 10-Proportional Results

Constituency	East River	Central Bay	South Town	West Village
Seat 1	Game of Thrones	Black Mirror	Stranger Things	The Expanse
Seat 2	Jessica Jones	Better Call Saul	Westworld	Dirk Gently
Seat 3	It's Always Sunny…	Silicon Valley	Supernatural	The Good Place

5.1 Election

The election itself showed some interesting results on how the voting systems affected outcome. Of the twelve winners in each system only four were shared among all three voting systems: Game of Thrones, Black Mirror, Stranger Things and The Expanse. When just comparing the Majoritarian and Mixed systems this increased to six with Fargo and Arrested Development. This clearly shows that the voting system used has a significant impact on the outcome of an election. The genres of Comedy, Drama and Sci-fi tended to be the main winners in all three systems.

However, under the Proportional system, a number of interesting trends became apparent. The Drama Genre failed to gain a single seat due to the low number of transferred votes. This indicated that fans of a Drama show will rank the show very highly, whereas non fans will rank it lowly. This may be due to the added time investment required in Drama shows.

The inverse of this occurred with Comedy shows. Few Comedy shows were ranked as a first preference under the Proportional system, however they received the bulk of transfer vote all the way to the last counts allowing them to steadily increase their vote share. This could be due to the lower time investment required from Comedy shows.

The last effect that had significant impact under the Proportional system was the major gains made by the Sci-fi and Fantasy genres. Under ranked voting Sci-fi received a third of the seats and Fantasy a quarter. There may be two reasons for this; first fans of the Sci-fi and Fantasy genres may identify more with these two genres due to their more specific elements rather than the more broad genres of Drama or Action/Adventure(after all there are Sci-fi and Fantasy conventions but not Drama and Comedy conventions). The second possibility is that while such shows have many fans, these fans don't tend to rank these shows as their favourites. However, once they had the option to rank shows this greatly increased Fantasy and Sci-fi shows ability to win. This effect was also seen in the Mixed system with party voting, but to a lesser extent.

Other interesting effects were the difficulty of Action/Adventure shows to win a seat. This may be due to the selection method used. Due to the Action/Adventure genre having the most shows, its candidates were chosen last. However, many of those candidates were still well known and popular shows.

5.2 Questionnaire

The questionnaire was only linked by email to those who opted-in. It consisted of ten Likert scale statements. Users rated the statements from strongly disagree to agree. This feedback was anonymous with no identifying information.

On the preference for voting systems the data was clear, users were ambivalent towards the Majoritarian system, were fonder of the Mixed system, but were very enthusiastic about Proportional system. Overall, users found the system clear to use and felt they had learned from it and most users were unsurprised at the overall results.

In terms of users being happy with the results from each voting system, user preference matched their preferences for the systems. Majoritarian was neutral, Mixed more liked and Proportional preferred. Lastly, most users felt that this project served as a useful learning tool.

Both the questions and the responses can be seen in Appendix 1.

6. Second Project

A second project was conceived to improve on specific areas of the main project, namely the original voting system and to act as a test case to see if a more focused narrow project might yield better participation results.

While the website remained much the same, the new ballot was broken into sections where upon voting, a table of results ordered by the number of votes was immediately sent to the user. For the Proportional system, this was achieved by counting higher ranked votes as having a value equal to all candidates and each vote thereafter reducing by one in value, until the last ranked vote had a value of one. Thus, in a four candidate vote, the highest preference would be ranked as a four and the lowest as a one. The sum total of all votes was then divided by the number of candidates, giving their ranking.

The Fandom chosen was the Dungeons and Dragons Fandom, particularly the question of which player races and classes were most preferred. Due to a lack of effective grouping for the candidates into party analogues, the Mixed system of voting was removed. The main question for this project was if a more focused question posed to Fandoms might be more effective than the original projects broad question.

A smaller questionnaire was also provided. This questionnaire was not designed for determining the viability of this project, but instead to get feedback on the second version of the voting system for possible future incarnations.

The response for this project was significantly improved, meeting the number of participants of the first experiment in a manner of days instead of weeks. The project also showed similar results for the winning candidates, with only a small amount of crossover between the two systems of voting.

The new system encourages far more interaction with and between the Fandom, due most likely to the speed at which results were provided. The topic of voting, despite being a matter of frequent discussion, was well received. This demonstrates that the low engagement of the first project was most likely the Fandom discerning that the project was of little benefit to their community.

7. Conclusion

The core question of this paper was whether or not Fandoms could be utilised to create an interactive demonstration of diverse voting systems from which users could learn. The responses to the questionnaire indicated that the project as designed did work as an eLearning tool which teaches users about the different voting systems and their effects.

It is somewhat unclear if the users lack of surprise at the results indicates that they were familiar with the differences already or simply saw the winners they expected. From the difficulty in engaging Fandoms in this project through social media, it may be that the phenomenon of internet Fandom is too fickle to be used in this way, or that the project was simply too broad in scope to gain interest.

There were interesting findings aside from the core question. One of the most interesting involves the genres of shows. The dominance of Sci-fi and Fantasy may have to do with those genres themselves having a more defined fan base in comparison to others. Both genres bring specific ideas of content and forms of escapism with them that other genres may not have as strongly associated with them due their broad range. The party vote in the Mixed system points to this explanation in particular. Sci-fi as a genre had 8% more of the votes than Drama, whilst Fantasy was within 1.5% of Comedy. Fantasy near doubled the votes of Action/Adventure and Sci-fi quadrupled its vote share over Action/Adventure.

The performance of the Drama and Comedy genres in the Proportional system also points to some interesting preference among users. Drama shows struggled to gain more votes past the first round, where Comedy shows consistently did well on vote transfer. This might make an interesting topic for its own study.

The other finding of interest was in the lack of support for shows despite significant traffic coming out from communities dedicated to that show. The main example of this is the post to The Orville Subreddit which got 50 upvotes on the promotional post, despite the show doing poorly in the election (“*The Orville….”, 2018).* This points to internet users participating in multiple Fandoms. That this happens indicate that contributing to Fandoms is an online pastime, with few users participating strongly in one Fandom in particular. This is not entirely surprising, but is important to bear in mind for future research into online Fandom. As the bar for participation is so low, online Fandoms may not relate to subcultures as they once did, as outlined out in Fiske’s research.

The second project demonstrated that the Fans Versus Votes system can be improved upon further to be more responsive, as well as modular, allowing for more tests of the project to be run at a faster rate. This second version of the system also demonstrates that part of the issues with the original project can be solved by a system that responds to users faster, allowing for greater discussion in the Fandom. It is possible that by sparking discussion this will pass a discerning Fandom’s judgement, as creating discussion is of use to the community. The original project could not spark discussion due to the delay between voting and feedback.

7.1 Future Research

Three key areas of further research are apparent from the results. The most important is refinement of the project as a whole. This includes the targeting of a group or Fandom with a specific question in which they are interested, as well as careful consideration into how well awareness of the project can be spread to that community. Additionally, work into more immediate feedback is necessary to maintain interest and spark discussion. Although this is mostly resolved by the second project, there remain some areas that can be developed, such as showing the proportion of first, second, etc. votes for each candidate.

Other areas of note primarily involve Fandoms, particularly the differences between a possible 'Fandom' genre such as Sci-fi and a broad genre like Action/Adventure. From the results seen in the Proportional system, there is room to research the reason for the stark contrast in vote transfers between Drama and Comedy. It may be the case that time investment is a significant factor. However, it might also be an issue that most television watchers only have enough energy to commit to Drama shows, compared to typically lighter Comedy shows.

Future research relating to this project will also wish to look into alternatives to Fandoms as a stand in for politics, or ensure that more time is allotted to creating a more competitive atmosphere for the project's duration.

8. References

Blais andré et al. *Voting Experiments*. 1st ed., Springer, 2016.

Blumenau, Jack et al. "Open/Closed List And Party Choice: Experimental Evidence From The UK". *British Journal Of Political Science*, vol 47, no. 04, 2016, pp. 809-827. *Cambridge University Press (CUP)*, doi:10.1017/s0007123415000629.

Carr, Adam. "Psephos - Adam Carr's Election Archive". *Psephos.Adam-Carr.Net*, 2018, http://psephos.adam-carr.net/countries/b/britain/. Accessed 26 June 2018.

Carr, Adam. "Psephos - Adam Carr's Election Archive". *Psephos.Adam-Carr.Net*, 2018, http://psephos.adam-carr.net/countries/n/newzealand/. Accessed 26 June 2018.

Carr, Adam. "Psephos - Adam Carr's Election Archive". *Psephos.Adam-Carr.Net*, 2018, http://psephos.adam-carr.net/countries/i/ireland/. Accessed 26 June 2018.

Citizens Information. "Proportional Representation". *Citizensinformation.Ie*, 2018, http://www.citizensinformation.ie/en/government_in_ireland/elections_and_referenda/voting/proportional_representation.html. Accessed 26 June 2018.

"Elections In Australia, Ireland, And Malta Under The Single Transferable Vote". 2000. *University Of Michigan Press*, doi:10.3998/mpub.16507. Accessed 26 June 2018.

Electoral Commission, NZ. "Electorates". *Electoral Commission*, 2018, http://www.elections.org.nz/voting-system/electorates. Accessed 26 June 2018.

Electoral Commission, UK. "Electoral Commission | UK Parliamentary General Election In Great Britain". *Electoralcommission.Org.Uk*, 2018, https://www.electoralcommission.org.uk/i-am-a/electoral-administrator/uk-parliamentary-elections. Accessed 26 June 2018.

Ezrow, Lawrence. "The Variance Matters: How Party Systems Represent The Preferences Of Voters". *The Journal Of Politics*, vol 69, no. 1, 2007, pp. 182-192. *University Of Chicago Press*, doi:10.1111/j.1468-2508.2007.00503.x. Accessed 26 June 2018.

Farrell, David M. *Electoral Systems*. 2nd ed., Sage, 2012.

Fiske, John. "The Cultural Economy of Fandom." In *The Adoring Audience: Fan Culture and Popular Media,* edited by Lisa A. Lewis, (1992) 30–49. London: Routledge.

Furfero, Dave. "Jquery UI Touch Punch - Touch Event Support For Jquery UI". *Touchpunch.Furf.Com*, 2018, http://touchpunch.furf.com/. Accessed 26 June 2018.

Hills, Matt. "Fiske's 'textual productivity'and digital fandom: web 2.0 democratization versus fan distinction." *Participations* 10.1 (2013): 130-153.

Honikel, Michael. "Calculator To Convert Votes Into Seats – Staatsrecht.Honikel.De". *Staatsrecht.Honikel.De*, 2018, https://staatsrecht.honikel.de/en/sainte-lague-schepers-verfahren.htm?seite=sitzzuteilungsrechner. Accessed 26 June 2018.

Jenkins, Henry et al. *Participatory Culture In A Networked Era*. 1st ed., Polity, 2015.

Kay, Ess. "40 Free Advanced Flat Social Media Icons (Pngs) - A Graphic World". *A Graphic World*, 2018, http://uiconstock.com/download/40-free-advanced-flat-social-media-icons-pngs/. Accessed 26 June 2018.

Laslier, Jean-François et al. "The Eurovoteplus Experiment". *European Union Politics*, vol 16, no. 4, 2015, pp. 601-615. *SAGE Publications*, doi:10.1177/1465116515580180. Accessed 26 June 2018.

Otto, Mark and Bootstrap contributors. "Bootstrap". *Getbootstrap.Com*, 2018, https://getbootstrap.com/. Accessed 26 June 2018.

MetaCritic.com. "Action & Adventure TV Shows". *Metacritic*, 2018, http://www.metacritic.com/browse/tv/genre/date. Accessed 26 June 2018.

"MMP - How It Works, Quiz & Calculator : Sainte-Laguë Allocation Formula". *Web.Archive.Org*, 2018, https://web.archive.org/web/20060410130617/http://www.elections.org.nz/mmp/sainte_lague.html. Accessed 26 June 2018.

Myerson, Roger B. "Theoretical Comparisons Of Electoral Systems". *European Economic Review*, vol 43, no. 4-6, 1999, pp. 671-697. *Elsevier BV*, doi:10.1016/s0014-2921(98)00089-0.

Parliment, UK. "Voting Systems In The UK". *UK Parliament*, 2018, https://www.parliament.uk/about/how/elections-and-voting/voting-systems/. Accessed 26 June 2018.

Pearson, Roberta. "Fandom In The Digital Era". *Popular Communication*, vol 8, no. 1, 2010, pp. 84-95. *Informa UK Limited*, doi:10.1080/15405700903502346.

Rogers, Todd et al. "Social Pressure And Voting: A Field Experiment Conducted In A High-Salience Election". *Electoral Studies*, vol 46, 2017, pp. 87-100. *Elsevier BV*, doi:10.1016/j.electstud.2017.02.004.

Sanz, Carlos. "The Effect Of Electoral Systems On Voter Turnout: Evidence From A Natural Experiment". *SSRN Electronic Journal*, 2016. *Elsevier BV*, doi:10.2139/ssrn.2856967.

"The Orville Is Representing Sci-Fi In My Project On Voting!". *Reddit*, 2018, https://www.Reddit.com/r/TheOrville/comments/8qrz56?sort=confidence. Accessed 26 July 2018.

Whitelock, Amy et al. "The Influence Of Promotional Activity And Different Electoral Systems On Voter Turnout". *European Journal Of Marketing*, vol 44, no. 3/4, 2010, pp. 401-420. *Emerald*, doi:10.1108/03090561011020499.

Yonk, Ryan et al. "Trading Places". *Public Choice*, vol 146, no. 3-4, 2010, pp. 341-351. *Springer Nature*, doi:10.1007/s11127-010-9593-x.

Appendix 1: Questionnaire

The Majoritarian system had the junior, regular and senior representatives and you chose out of four candidates in each race.

I Feel the majoritarian voting system is a good System.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly Agree **(Repeat under all Questions)**

2-The Mixed system had you vote for a representative and a genre/party.

I Feel the mixed voting system is a good System.

3-The Proportional system was the drag and drop list that had you rank all shows in order of preference.

I Feel the Proportional voting system is a good System?

4-I found the form was clear and easy to follow.

5-I learned about voting systems and their consequences as a result of this project.

6-I was surprised by the differences in results between the voting systems

7-I was happy with the results from the Majoritarian system.

8-I was happy with the results from the Mixed system.

9-I was happy with the results from the Proportional system.

10-I think that this project is an effective eLearning tool for voting systems

11-Other Comments

1.1 Table of Questionnaire Responses

Primary-K	Question-1	Question-2	Question-3	Question-4	Question-5	Question-6	Question-7	Question-8	Question-9	Question-10
3	Disagree	Agree	Strongly_agree	Agree	Strongly_agree	Agree	Disagree	Disagree	Agree	Agree
4	Agree	Strongly_agree	Agree	Agree	Neutral	Neutral	Agree	Agree	Agree	Strongly_agree
5	Disagree	Neutral	Strongly_agree	Disagree	Neutral	Disagree	Disagree	Neutral	Strongly_agree	Agree
6	Disagree	Neutral	Strongly_agree	Agree	Neutral	Neutral	Disagree	Neutral	Agree	Agree
7	Disagree	Agree	Strongly_agree	Agree	Neutral	Disagree	Neutral	Agree	Strongly_agree	Agree
8	Disagree	Agree	Strongly_agree	Agree	Strongly_agree	Disagree	Agree	Strongly_agree	Disagree	Strongly_agree
9	Agree	Disagree	Agree	Strongly_agree	Agree	Agree	Agree	Neutral	Agree	Agree
10	Agree	Agree	Strongly_agree	Agree	Strongly_agree	Strongly_agree	Agree	Agree	Strongly_agree	Strongly_agree
11	Agree	Agree	Strongly_agree	Agree	Strongly_agree	Agree	Agree	Agree	Strongly_agree	Strongly_agree
12	Agree	Agree	Strongly_agree	Agree	Strongly_agree	Strongly_agree	Agree	Agree	Strongly_agree	Strongly_agree
13	Neutral	Agree	Strongly_agree	Strongly_agree	Neutral	Agree	Neutral	Neutral	Neutral	Neutral
14	Agree	Agree	Agree	Agree	Agree	Neutral	Agree	Agree	Agree	Strongly_agree
15	Agree	Disagree	Agree	Strongly_agree	Neutral	Agree	Agree	Agree	Agree	Strongly_agree

Appendix 2: Code

2.1-PHP connection for inserting the votes into the database

```
<?php
error_reporting(-1);
header('Access-Control-Allow-Origin: *');
//define important variables first
$username="XXXXXXXXX";
$password="XXXXXXXXX";
$database="fasnvsvo_STV";
$url="fansvsvotes.com/thanks.html";
$secret="XXXXXXXXXXXXXX";
$response=$_POST["captcha"];
$IP_Address = $_SERVER['REMOTE_ADDR'];
$verify=file_get_contents("https://www.google.com/recaptcha/api/siteverify?secret={$secret}&response={$response}");
$captcha_success=json_decode($verify);
if ($captcha_success->success==false) {
$answer="No";
}
else if ($captcha_success->success==true) {
$answer="Yes";
}

//unpack array and define for SQL
$arrayPost = $_POST['arrayPost'];
$Email_Address = $arrayPost['Email_Address'];
```

```
$Results=$arrayPost['Results'];
$Questionaire=$arrayPost['Questionaire'];
$Junior=$arrayPost['Junior_Representative'];
$Regular=$arrayPost['Regular_Representative'];
$Senior=$arrayPost['Senior_Representative'];
$Representative=$arrayPost['Representative'];
$Party=$arrayPost['Party'];
$Constituency=$arrayPost['Constituency'];
$votes= $arrayPost['votes'];
//define vote array variables
foreach($votes as $vote) {
  $id = $vote['id'];
  $value = $vote['value'];
  //echo $id." ".$value;
}
//connect to database
$mysqli_connect = new mysqli("localhost", $username, $password, $database);

if ($mysqli_connect->connect_error) {
  die("Connection failed: " . $mysqli_connect->connect_error);
}

//Insert all votes and details into the database
$mysqli_query = "INSERT INTO `Details`(`Email_Address`, `IP_Address`, `Time`, `Results`,
`Questionaire`, `Constituency`, `Captcha`)
VALUES ('".$Email_Address."','".$IP_Address."',Now(),'".$Results."'
,'".$Questionaire."','".$Constituency."','".$answer."');";
$mysqli_query .= "INSERT INTO `Majoritarian`(`Email_Address`, `Constituency`, `Junior`,
`Regular`, `Senior`)
VALUES ('".$Email_Address."','".$Constituency."','".$Junior."','".$Regular."','".$Senior."');";
```

```
$mysqli_query .= "INSERT INTO `Mixed`(`Email_Address`, `Constituency`, `Representative`, `Party`)
 VALUES ('".$Email_Address."','".$Constituency."','".$Representative."','".$Party."');";
$mysqli_query .= "INSERT INTO `Proportional`(`Email_Address`, `Constituency`, `VOTE_1`, `VOTE_2`, `VOTE_3`, `VOTE_4`, `VOTE_5`, `VOTE_6`, `VOTE_7`, `VOTE_8`, `VOTE_9`, `VOTE_10`, `VOTE_11`, `VOTE_12`) VALUES ('".$Email_Address."','".$Constituency."'
,'".$votes['0']['value']."','".$votes['1']['value']."','".$votes['2']['value']."','".$votes['3']['value'].
"','".$votes['4']['value']."','".$votes['5']['value']."','".$votes['6']['value']."','".$votes['7']['value']
."','".$votes['8']['value']."','".$votes['9']['value']."','".$votes['10']['value']."','".$votes['11']['val
ue']."')";

if ($mysqli_connect->multi_query($mysqli_query) === TRUE) {
   echo "New records created successfully";
} else {
   echo "Error: " . $mysqli_query . "<br>" . $mysqli_connect->error;
}

$response = array("status"=>"success");
echo json_encode($response);
//ensure response during testing
?>
```

2.2- Javascript used for the ballot page

```
//randomise the order of the proportional voting list
var ul = document.querySelector('#sortable');
for (var i = ul.children.length; i >= 0; i--) {
   ul.appendChild(ul.children[Math.random() * i | 0]);
}
$(document).ready(function () {
//create the array for the proportional voting list
var voteArray = [];
var i=1;
$("#sortable > li").each(function() {
let li = $(this);
let value = li.attr("value");
let id= li.attr("data-id");
   voteArray.push({"id":id,"value":value});
   i++;
});
//make value of each list item shift when moved up or down the list
   $('ol').sortable({
      axis: 'y',
      update: function (event, ui) {
      voteArray = [];
      $("#sortable > li").each(function() {
let li = $(this);
let value = li.attr("value");
let id= li.attr("data-id");
   voteArray.push({"id":id,"value":value});
```

```
    i++;
});
    }
    });
//Create full array of form data to be sent on click of the submit button
    $(document).on("click","#submit",function() {
        let arrayPost = {
            "votes":voteArray,
            'Email_Address': $('#Email_Address').val(),
'Results': $(".Results:checked").val(),
'Questionaire': $(".Questionaire:checked").val(),
'Junior_Representitive': $(".Junior_Representitive:checked").val(),
'Regular_Representitive': $(".Regular_Representitive:checked").val(),
'Senior_Representitive': $(".Senior_Representitive:checked").val(),
'Representitive': $(".Representitive:checked").val(),
'Party': $(".Party:checked").val(),
'Constituency':$('#Constituency').val()};
//Make the Email Address required as it is the primary key
 $('#Email_Address').each(function() {
                    if ($(this).val().length === 0) {
                        $(this).css('border', '2px solid red');
                        alert('Email address is required');
                        e.preventDefault();
                    }
                });
//Send Ajax Request, then redirect to the thank you page
        $.ajax({
            url:"bridge/Vote.php",
            data:{ 'arrayPost':arrayPost, 'captcha':grecaptcha.getResponse()},
```

```
            type: "POST",
            async: true,
            cache: false,
            //data:JSON.stringify(voteArray) ,
            dataType:'json',
            complete: function(data) {
                  window.location = '/Thanks.html';
            },

        });
    });
});
//Make list items draggable
        $('#li').draggable();
//Make Next and previous buttons bring users to next tab
          $('.btnNext').click(function(){
  $('.nav-tabs > .active').next('#sub').find('a').trigger('click');
});

  $('.btnPrevious').click(function(){
  $('.nav-tabs > .active').prev('#sub').find('a').trigger('click');
});
```

2.3 PHP for improved voting system, displaying results after voting

```
<?php

error_reporting(-1);

header('Access-Control-Allow-Origin: *');


//Send necessary connection information


$username="fasnvsvo_VorianS";

$password="NapoleonX1y2z3q0";

$database="fasnvsvo_STV";

$url="fansvsvotes.com/thanks.html";

$IP_Address = $_SERVER['REMOTE_ADDR'];

//expand and assign variable to the array

$arrayPost = $_POST['arrayPost']; //or $vote = $_REQUEST['vote'];

$Majoritarian= $arrayPost['Majoritarian'];

$votes= $arrayPost['votes'];

foreach($votes as $vote) {

  $id = $vote['id'];

  $value = $vote['value'];

}

//assign numerical values dependent on array position


${$votes['0']['value']}= 12;

${$votes['1']['value']}= 11;

${$votes['2']['value']}= 10;

${$votes['3']['value']}= 9;

${$votes['4']['value']}= 8;

${$votes['5']['value']}= 7;

${$votes['6']['value']}= 6;
```

```
${$votes['7']['value']}= 5;
${$votes['8']['value']}= 4;
${$votes['9']['value']}= 3;
${$votes['10']['value']}= 2;
${$votes['11']['value']}= 1;

//connect to the database

$mysqli_connect = new mysqli("localhost", $username, $password, $database);

if ($mysqli_connect->connect_error) {
  die("Connection failed: " . $mysqli_connect->connect_error);
}
//run Insert query for sql database

$mysqli_query = "INSERT INTO `Classes`(`P_Key`, `IP_Address`, `Time`, `Barbarian`, `Bard`,
`Cleric`, `Druid`, `Fighter`, `Monk`, `Paladin`, `Ranger`, `Rogue`, `Sorcerer`, `Warlock`,
`Wizard`, `Majoritarian`)
VALUES (DEFAULT,'".$IP_Address
."',Now(),'".$Barbarian."','".$Bard."','".$Cleric."','".$Druid."','".$Fighter."','".$Monk."','".$Pala
din."','".$Ranger."','".$Rogue."','".$Sorcerer."','".$Warlock."','".$Wizard."','".$Majoritarian."')
";
//Retained multi-query in case additional table/data were desired
if ($mysqli_connect->multi_query($mysqli_query) === TRUE) {

} else {
  echo "Error: " . $mysqli_query . "<br>" . $mysqli_connect->error;
}
$mysqli_connect->close();
```

```
//Close connection to ensure that Select data is up to date including users vote when retreiving it for display


$mysqli_connect = new mysqli("localhost", $username, $password, $database);


if ($mysqli_connect->connect_error) {
  die("Connection failed: " . $mysqli_connect->connect_error);
}
//Run two select queries to get number of votes for the proportional system and then the Majoritarian system
 $query1 = "SELECT SUM(`Barbarian`) AS 'Barbarian', SUM(`Bard`) AS 'Bard', SUM(`Cleric`) AS 'Cleric', SUM(`Druid`) AS 'Druid', SUM(`Fighter`) AS 'Fighter', SUM(`Monk`) AS 'Monk', SUM(`Paladin`) AS 'Paladin', SUM(`Ranger`) AS 'Ranger', SUM(`Rogue`) AS 'Rogue', SUM(`Sorcerer`) AS 'Sorcerer', SUM(`Warlock`) AS 'Warlock', SUM(`Wizard`) AS 'Wizard' FROM `Classes` WHERE 1 ";
  //assign result to a variable
  $result1 = mysqli_query($mysqli_connect, $query1) or die(mysqli_error(errr));
  //fetch result as an associative array
  $row1 = mysqli_fetch_array($result1) or die(mysqli_error(errr));


 $query2 = "SELECT SUM(CASE WHEN `Majoritarian` = 'Barbarian' THEN 1 END) AS 'BarbarianT' ,SUM(CASE WHEN `Majoritarian` = 'Bard' THEN 1 END) AS 'BardT',SUM(CASE WHEN `Majoritarian` = 'Cleric' THEN 1 END) AS 'ClericT',SUM(CASE WHEN `Majoritarian` = 'Druid' THEN 1 END) AS 'DruidT',SUM(CASE WHEN `Majoritarian` = 'Fighter' THEN 1 END) AS 'FighterT',SUM(CASE WHEN `Majoritarian` = 'Monk' THEN 1 END) AS 'MonkT',SUM(CASE WHEN `Majoritarian` = 'Paladin' THEN 1 END) AS 'PaladinT',SUM(CASE WHEN `Majoritarian` = 'Ranger' THEN 1 END) AS 'RangerT',SUM(CASE WHEN `Majoritarian` = 'Rogue' THEN 1 END) AS 'RogueT',SUM(CASE WHEN `Majoritarian` = 'Sorcerer' THEN 1 END) AS 'SorcererT',SUM(CASE WHEN `Majoritarian` = 'Warlock' THEN 1 END) AS 'WarlockT',SUM(CASE WHEN `Majoritarian` = 'Wizard' THEN 1 END) AS 'WizardT' FROM Classes ";
  //assign result to a variable
  $result2 = mysqli_query($mysqli_connect, $query2) or die(mysqli_error(errr));
  //fetch result as an associative array
```

```
  $row2 = mysqli_fetch_array($result2) or die(mysqli_error(errr));

if ($mysqli_connect->multi_query($mysqli_query) === TRUE) {

} else {
   echo "Error: " . $mysqli_query . "<br>" . $mysqli_connect->error;
}
//close connection

$mysqli_connect->close();

//Returns two tables using the Select data to graphically represent the current votes in the PhP database
?>
<div class="col-md-6">
<h2>Result:</h2>
<table>
<thead>
<tr>
   <th>Classes</th>
   <th>Votes</th>
</tr>
</thead>
<tbody  class="results1">
<tr>
<td>Barbarian:</td>
<td>
<img src="parties/Barbarian.gif"
width='<?php
echo(400*round($row1['Barbarian']/($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$ro
```

```
w1['Druid']+$row1['Fighter']+$row1['Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rog
ue']+$row1['Sorcerer']+$row1['Warlock']+$row1['Wizard']),78)); ?>'

height='20'></td><td class="sortnr">

<?php $number1 = ($row1['Barbarian'])/78;

echo number_format($number1, 1, '.', ''); ?>

</td>

</tr>

<tr>

<td>Bard</td>

<td><img src="parties/Bard.gif"

width='<?php
echo(400*round($row1['Bard']/($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$row1['D
ruid']+$row1['Fighter']+$row1['Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rogue']+$
row1['Sorcerer']+$row1['Warlock']+$row1['Wizard']),78)); ?>'

height='20'></td><td class="sortnr">

<?php $number2 = ($row1['Bard'])/78;

echo number_format($number2, 1, '.', ''); ?>

</td>

</tr>

<tr>

<td>Cleric:</td>

<td><img src="parties/Cleric.gif"

width='<?php
echo(400*round($row1['Cleric']/($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$row1['
Druid']+$row1['Fighter']+$row1['Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rogue']+
$row1['Sorcerer']+$row1['Warlock']+$row1['Wizard']),78)); ?>'

height='20'></td><td class="sortnr">

<?php $number3 = ($row1['Cleric'])/78;

echo number_format($number3, 1, '.', ''); ?>

</td>

</tr>

<tr>
```

```
<td>Druid:</td>

<td><img src="parties/Druid.gif"

width='<?php
echo(400*round($row1['Druid']/($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$row1['
Druid']+$row1['Fighter']+$row1['Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rogue']+
$row1['Sorcerer']+$row1['Warlock']+$row1['Wizard']),78)); ?>'

height='20'></td><td class="sortnr">

<?php $number4 = ($row1['Druid'])/78;

echo number_format($number4, 1, '.', ''); ?>

</td>

</tr>

<tr>

<td>Fighter:</td>

<td><img src="parties/Fighter.gif"

width='<?php
echo(400*round($row1['Fighter']/($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$row1
['Druid']+$row1['Fighter']+$row1['Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rogue']
+$row1['Sorcerer']+$row1['Warlock']+$row1['Wizard']),78)); ?>'

height='20'></td><td class="sortnr">

<?php $number5 = ($row1['Fighter'])/78;

echo number_format($number5, 1, '.', ''); ?>

</td>

</tr><tr>

<td>Monk:</td>

<td><img src="parties/Monk.gif"

width='<?php
echo(400*round($row1['Monk']/($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$row1['
Druid']+$row1['Fighter']+$row1['Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rogue']+
$row1['Sorcerer']+$row1['Warlock']+$row1['Wizard']),78)); ?>'

height='20'></td><td class="sortnr">

<?php $number6 = ($row1['Monk'])/78;

echo number_format($number6, 1, '.', ''); ?>
```

```
</td>

</tr><tr>

<td>Paladin:</td>

<td><img src="parties/Paladin.gif"

width='<?php
echo(400*round($row1['Paladin']/($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$row1
['Druid']+$row1['Fighter']+$row1['Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rogue']
+$row1['Sorcerer']+$row1['Warlock']+$row1['Wizard']),78)); ?>'

height='20'></td><td class="sortnr">

<?php $number7 = ($row1['Paladin'])/78;

echo number_format($number7, 1, '.', ''); ?>

</td>

</tr><tr>

<td>Ranger:</td>

<td><img src="parties/Ranger.gif"

width='<?php
echo(400*round($row1['Ranger']/($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$row1
['Druid']+$row1['Fighter']+$row1['Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rogue']
+$row1['Sorcerer']+$row1['Warlock']+$row1['Wizard']),78)); ?>'

height='20'></td><td class="sortnr">

<?php $number8 = ($row1['Ranger'])/78;

echo number_format($number8, 1, '.', ''); ?>

</td>

</tr><tr>

<td>Rogue:</td>

<td><img src="parties/Rogue.gif"

width='<?php
echo(400*round($row1['Rogue']/($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$row1['
Druid']+$row1['Fighter']+$row1['Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rogue']+
$row1['Sorcerer']+$row1['Warlock']+$row1['Wizard']),78)); ?>'

height='20'></td><td class="sortnr">

<?php $number9 = ($row1['Rogue'])/78;
```

```
echo number_format($number9, 1, '.', ''); ?>

</td>

</tr><tr>

<td>Sorcerer:</td>

<td><img src="parties/Sorcerer.gif"

width='<?php
echo(400*round($row1['Sorcerer']/($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$row
1['Druid']+$row1['Fighter']+$row1['Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rogue
']+$row1['Sorcerer']+$row1['Warlock']+$row1['Wizard']),78)); ?>'

height='20'></td><td class="sortnr">

<?php $number10 = ($row1['Sorcerer'])/78;

echo number_format($number10, 1, '.', ''); ?>

</td>

</tr><tr>

<td>Warlock:</td>

<td><img src="parties/Warlock.gif"

width='<?php
echo(400*round($row1['Warlock']/($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$row
1['Druid']+$row1['Fighter']+$row1['Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rogue
']+$row1['Sorcerer']+$row1['Warlock']+$row1['Wizard']),78)); ?>'

height='20'></td><td class="sortnr">

<?php $number11 = ($row1['Warlock'])/78;

echo number_format($number11, 1, '.', ''); ?>

</td>

</tr><tr>

<td>Wizard:</td>

<td><img src="parties/Wizard.gif"

width='<?php
echo(400*round($row1['Wizard']/($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$row1
['Druid']+$row1['Fighter']+$row1['Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rogue']
+$row1['Sorcerer']+$row1['Warlock']+$row1['Wizard']),78)); ?>'

height='20'></td><td class="sortnr">
```

```
<?php $number12 = ($row1['Wizard'])/78;
echo number_format($number12, 1, '.', ''); ?>
</td>
</tr>
<td>Total Votes:</td>
<td>
<?php
$number13 =
(($row1['Barbarian']+$row1['Bard']+$row1['Cleric']+$row1['Druid']+$row1['Fighter']+$row1['
Monk']+$row1['Paladin']+$row1['Ranger']+$row1['Rogue']+$row1['Sorcerer']+$row1['Warlo
ck']+$row1['Wizard'])/78);

echo number_format($number13); ?>
</td>
</tbody><tbody class="sorted1">
</tbody></table>
</div>

<div class="col-md-6">
<h2>Result:</h2><table>
<thead>
<tr>
  <th>Classes</th>
  <th>Votes</th>
</tr>
</thead>
<tbody  class="results2">
<tr>
<td>Barbarian:</td>
<td>
```

```
<img src="parties/Barbarian.gif"

width='<?php
echo(400*($row2['BarbarianT']/($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row
2['DruidT']+$row2['FighterT']+$row2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['
RogueT']+$row2['SorcererT']+$row2['WarlockT']+$row2['WizardT']))); ?>'

height='20'></td><td class="sortnr1">

<?php echo $row2['BarbarianT']; ?>

</td>

</tr>

<tr>

<td>Bard:</td>

<td><img src="parties/Bard.gif"

width='<?php
echo(400*($row2['BardT']/($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row2['Dr
uidT']+$row2['FighterT']+$row2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['Rogu
eT']+$row2['SorcererT']+$row2['WarlockT']+$row2['WizardT']))); ?>'

height='20'></td><td class="sortnr1">

<?php echo $row2['BardT']; ?>

</td>

</tr>

<tr>

<td>Cleric:</td>

<td><img src="parties/Cleric.gif"

width='<?php
echo(400*($row2['ClericT']/($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row2['D
ruidT']+$row2['FighterT']+$row2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['Rog
ueT']+$row2['SorcererT']+$row2['WarlockT']+$row2['WizardT']))); ?>'

height='20'></td><td class="sortnr1">

<?php echo $row2['ClericT']; ?>

</td>

</tr>

<tr>
```

```
<td>Druid:</td>

<td><img src="parties/Druid.gif"

width='<?php
echo(400*($row2['DruidT']/($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row2['D
ruidT']+$row2['FighterT']+$row2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['Rog
ueT']+$row2['SorcererT']+$row2['WarlockT']+$row2['WizardT']))); ?>'

height='20'></td><td class="sortnr1">

<?php echo $row2['DruidT']; ?>

</td>

</tr>

<tr>

<td>Fighter:</td>

<td><img src="parties/Fighter.gif"

width='<?php
echo(400*($row2['FighterT']/($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row2['
DruidT']+$row2['FighterT']+$row2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['Ro
gueT']+$row2['SorcererT']+$row2['WarlockT']+$row2['WizardT']))); ?>'

height='20'></td><td class="sortnr1">

<?php echo $row2['FighterT']; ?>

</td>

</tr><tr>

<td>Monk:</td>

<td><img src="parties/Monk.gif"

width='<?php
echo(400*($row2['MonkT']/($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row2['D
ruidT']+$row2['FighterT']+$row2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['Rog
ueT']+$row2['SorcererT']+$row2['WarlockT']+$row2['WizardT']))); ?>'

height='20'></td><td class="sortnr1">

<?php echo $row2['MonkT']; ?>

</td>

</tr><tr>

<td>Paladin:</td>
```

```
<td><img src="parties/Paladin.gif"
width='<?php
echo(400*($row2['PaladinT']/($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row2['
DruidT']+$row2['FighterT']+$row2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['Ro
gueT']+$row2['SorcererT']+$row2['WarlockT']+$row2['WizardT']))); ?>'
height='20'></td><td class="sortnr1">
<?php echo $row2['PaladinT']; ?>
</td>
</tr><tr>
<td>Ranger:</td>
<td><img src="parties/Ranger.gif"
width='<?php
echo(400*($row2['RangerT']/($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row2['
DruidT']+$row2['FighterT']+$row2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['Ro
gueT']+$row2['SorcererT']+$row2['WarlockT']+$row2['WizardT']))); ?>'
height='20'></td><td class="sortnr1">
<?php echo $row2['RangerT']; ?>
</td>
</tr><tr>
<td>Rogue:</td>
<td><img src="parties/Rogue.gif"
width='<?php
echo(400*($row2['RogueT']/($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row2['
DruidT']+$row2['FighterT']+$row2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['Ro
gueT']+$row2['SorcererT']+$row2['WarlockT']+$row2['WizardT']))); ?>'
height='20'></td><td class="sortnr1">
<?php echo $row2['RogueT']; ?>
</td>
</tr><tr>
<td>Sorcerer:</td>
<td><img src="parties/Sorcerer.gif"
width='<?php
echo(400*($row2['SorcererT']/($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row2
```

```
['DruidT']+$row2['FighterT']+$row2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['RogueT']+$row2['SorcererT']+$row2['WarlockT']+$row2['WizardT'])); ?>'

height='20'></td><td class="sortnr1">

<?php echo $row2['SorcererT']; ?>

</td>

</tr><tr>

<td>Warlock:</td>

<td><img src="parties/Warlock.gif"

width='<?php
echo(400*($row2['WarlockT']/($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row2['DruidT']+$row2['FighterT']+$row2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['RogueT']+$row2['SorcererT']+$row2['WarlockT']+$row2['WizardT'])); ?>'

height='20'></td><td class="sortnr1">

<?php echo $row2['WarlockT']; ?>

</td>

</tr><tr>

<td>Wizard:</td>

<td><img src="parties/Wizard.gif"

width='<?php
echo(400*($row2['WizardT']/($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row2['DruidT']+$row2['FighterT']+$row2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['RogueT']+$row2['SorcererT']+$row2['WarlockT']+$row2['WizardT'])); ?>'

height='20'></td><td class="sortnr1">

<?php echo $row2['WizardT']; ?>

</td>

</tr>

<td>Total Votes:</td>

<td>

<?php


echo
($row2['BarbarianT']+$row2['BardT']+$row2['ClericT']+$row2['DruidT']+$row2['FighterT']+$r
```

```
ow2['MonkT']+$row2['PaladinT']+$row2['RangerT']+$row2['RogueT']+$row2['SorcererT']+$r
ow2['WarlockT']+$row2['WizardT']); ?>


</td>

</tbody><tbody class="sorted2">

</tbody></table>

</div>
```

2.4 Javascript for improved voting system, displaying results after voting

```
$(document).ready(function(){


//Randomise the Proportional voting Lists


var ul = document.querySelector('#sortable');
for (var i = ul.children.length; i >= 0; i--) {
   ul.appendChild(ul.children[Math.random() * i | 0]);
}
//Describe the voting array
var voteArray = [];
var i=1;
$("#sortable > li").each(function() {
let li = $(this);
let value = li.attr("value");
let id= li.attr("data-id");
   voteArray.push({"id":id,"value":value});
   i++;
});
//Have voting array update values when dragged up or down
   $('ol').sortable({
      axis: 'y',
      update: function (event, ui) {
      voteArray = [];
      $("#sortable > li").each(function() {
let li = $(this);
let value = li.attr("value");
let id= li.attr("data-id");
   voteArray.push({"id":id,"value":value});
```

```
    i++;
});
    }
    });
//Describe data to be sent on click of submit button

    $(document).on("click","#submit",function() {
        let arrayPost = {
            "votes":voteArray,
            'Majoritarian': $(".Majoritarian:checked").val()
        };
//Send Ajax query

        $.ajax({
            url:"bridge/Classes.php",
            data:{arrayPost},
            type: "POST",
            //data:JSON.stringify(voteArray) ,
            cache : false,
                success: function(data) {

//return the response data and insert it into the wrapper div

            $('#wrapper').html(data);

//reorder the response table from highest to lowest number of votes

    $('.results1 > tr').sort(function (a, b) {
    return +$('td.sortnr', b).text() > +$('td.sortnr', a).text();
```

```
}).appendTo('.sorted1');

//reorder the secondvresponse table from highest to lowest number of votes

$('.results2 > tr').sort(function (a, b) {
   return +$('td.sortnr1', b).text() > +$('td.sortnr1', a).text();
}).appendTo('.sorted2');
   },
   error: function(xhr, error){
      alert('Error! ' + error);
   }
      });

});
});
//Repeat process twice for the second two votes for playable races

var ul = document.querySelector('#sortable1');
for (var i = ul.children.length; i >= 0; i--) {
   ul.appendChild(ul.children[Math.random() * i | 0]);
}

var voteArray1 = [];
var i=1;
$("#sortable1 > li").each(function() {
let li = $(this);
let value = li.attr("value");
let id= li.attr("data-id");
   voteArray1.push({"id":id,"value":value});
```

```
    i++;
});
    $('ol').sortable({
        axis: 'y',
        update: function (event, ui) {
        voteArray1 = [];
        $("#sortable1 > li").each(function() {
let li = $(this);
let value = li.attr("value");
let id= li.attr("data-id");
    voteArray1.push({"id":id,"value":value});
    i++;
});
    }
    });
    $(document).on("click","#submit1",function() {
        let arrayPost = {
            "votes":voteArray1,
            'Majoritarian1': $(".Majoritarian1:checked").val()
        };


        $.ajax({
            url:"bridge/Races.php",
            data:{arrayPost},
            type: "POST",
            //data:JSON.stringify(voteArray) ,
            cache : false,
                success: function(data) {
            $('#wrapper1').html(data);
```

```
    },
    error: function(xhr, error){
        alert('Error! ' + error);
    }
        });
     });


var ul = document.querySelector('#sortable2');
for (var i = ul.children.length; i >= 0; i--) {
    ul.appendChild(ul.children[Math.random() * i | 0]);
}

var voteArray2 = [];
var i=1;
$("#sortable2 > li").each(function() {
let li = $(this);
let value = li.attr("value");
let id= li.attr("data-id");
    voteArray2.push({"id":id,"value":value});
    i++;
});
    $('ol').sortable({
        axis: 'y',
        update: function (event, ui) {
        voteArray2 = [];
        $("#sortable2 > li").each(function() {
let li = $(this);
let value = li.attr("value");
```

```
let id= li.attr("data-id");
   voteArray2.push({"id":id,"value":value});
   i++;
});
   }
   });
   $(document).on("click","#submit2",function() {
      let arrayPost = {
         "votes":voteArray2,
         'Majoritarian2': $(".Majoritarian2:checked").val()
      };

      $.ajax({
         url:"bridge/Volos.php",
         data:{arrayPost},
         type: "POST",
         //data:JSON.stringify(voteArray) ,
         cache : false,
             success: function(data) {
         $('#wrapper2').html(data);
   },
   error: function(xhr, error){
      alert('Error! ' + error);
   }
      });
    });
//Make the list items draggable

    $('#li').draggable();
```