Simulation of the U.S. Presidential Election Game

Project Report

By Group 6 -
Lee Martie, Hsiao-Hsuan Yu, Ankit Jasuja,
Madhusudan C.S., Nikhil Rao and Vijay Krishna Palepu

Contents

1. Introduction

The objective of the project was to take the first steps in designing the user interface of a Web based game version of an existing US presidential elections board game created by Jean-Claude Falmagne.

2. The Details of the Board Game

This project is based on a board game on the U.S. Presidential Elections.

2.1 The Board Game

The board game, as presented in Prof. Jean-Claude Falmagne's slides during the initial client presentation, was designed to simulate this entire process of the election taking into account the static nature of the board. The U.S. Presidential Election board game had a form very similar to that of Monopoly. In the board game, the players had to visit the different states in the U.S. which were represented along the borders of the board. They could move to different states by the throw of the dice which induced the idea of chance into game. The users could do one of many things during every visit to the state, such as engaging in a debate, holding a press conference, giving a public speech and so on. These actions could help them gain more votes in that particular state. The questions for the debate and the press conference were chosen by a moderator for the game. The players could advertise through various forms of media such as newspapers, televisions and so on during their visits to certain states in order to gain more votes in those states. The board also had a special type of square marked with a "?" called chance squares. When a player visited a chance square on the board, he would pick up the first chance card from a set of chance cards and follow the instructions on the card. This would effectively translate to some change in his number of votes as indicated by the card. The game also had black cards distributed among the players of the game that they could use against their opponents. This corresponded to negative campaigning by one candidate against another, and playing a black card against a candidate would result in a loss of resource for that candidate. This was the overall set up of the board game.

The primaries phase of the election was simulated by playing the game for 55 minutes. During the last 5 minutes, each player was allowed to place some last minute advertisements to get more votes. This first 60 minutes of the game play constituted the primaries phase of the election and was the focus of our design and testing for our web interface version.

The conventions phase in the board game was simplified to counting the number of votes that each player won for each state and the player with the higher number of votes for a state would simply win all the delegates for that state. A candidate who possessed more than 50% of the total delegates from all the states combined for a party would be chosen as the presidential candidate from that party. If there was no candidate with a 50% majority, then ballot resolution was done to resolve the situation. The presidential candidate would then choose the vice-presidential candidate to run with him. The last two players not nominated could choose to contest in the election as independent or progressive candidates.

The Presidential Campaign phase was very similar to the Primaries phase of the game. Each candidate could challenge other candidates for debates, and the winners and the losers of the debate would win or lose votes correspondingly. Other rules such as going around the board, participating in speeches, press conferences, the idea of chance cards and blank cards, advertising and so on were all identical to those of the primaries phase.

During the election day phase, the total count of votes for each candidate for each state was counted exactly as in the case of primaries and the winner was declared as the president along with his vice-president.

2.2 Our Version

The immense rise in popularity of video games has turned them into one of the most sought after forms of entertainment today. The advent of Internet gaming has revolutionized the video game industry . This was the motivation to build an online version of the U.S. Presidential Election of the game.

The goal of this project was to build the wire-frames of the intended user interface of the Internet version of the U.S. presidential elections game. Given the size of the team and the time constraints that we have to complete this project within a 10 week quarter at UCI, we clearly set the scope of the project. Since the last two phases of the election i.e. the presidential campaign and the election day are very similar to the first two phases i.e. the primaries and the conventions, the user interfaces for the latter two phases of the election can easily be constructed from the wire-frames for the first two phases if required during the actual final design. Therefore, we planned to only focus on the first two phases of the election. This is exactly what we have achieved at the end of this project.

Although some of the ideas or guidelines on how the Internet version of the game should work were presented initially, the structure of the game was not concrete. So the first half of the project schedule involved laying out the concrete plan of how the game should work in the online version. The next section gives all the details about the way the game is set up: the assumptions made, the conventions chosen, the rules of the game itself and the way we intend it to be played.

3. Assumptions About the Web Game Version

The game is designed to be an online multi-player real-time game which simulates the US presidential election. By real-time we mean that, unlike the board version of the game where each player takes a turn, here all the players play the game simultaneously without waiting for others turn to get over. This means that each player can almost always perform the actions in parallel, with a very few exceptions. The exceptions are the type of things like events which should be attended by multiple candidates. The debates are one such example for an exception. All the players who have accepted the debate challenge should attend the event simultaneously at the same time, at the same place. It is up to the players to decide how they will reach the debate forum at the right time.

Usually, the winner of the game is elected at President of the United States. However in our narrowed design scope of just the primaries and conventions, the victory is achieved by the player who wins the nomination of a party during the party's convention after the primaries phase. However, we observed that the final election of the president in the board game is very similar to this, and our design can easily be extended.

To start the game, each player chooses the political party he wants to play for. The player can either use the real money to buy "fun money" for playing the game. The players can win the game by gaining votes and taking the lead in the individual states. The votes are collected either by visiting the states and making political appearances, speeches, holding conferences, and winning debates.

Like the board version of the game the first two phases are for a total duration of 60 minutes: a 55-minutes **primaries phase** and a 5-minutes **conventions phase**.

3.1 The Primaries
- In the **primaries phase**, candidates can either purchase (see **[Bank&Purchasing]**) political advertisement or travel (see **[Travel]**) across America to participate in various events to gain votes. Different candidates can visit different states as per their wish.
- Random events can happen to any candidate player during the primaries. These chance events may or may not be favorable to the player, and ultimately they translate into a gain or loss of votes for the player they happen to.
- During the primaries, each player can also play the black cards from his deck of black cards against his opponents. At the end of the primaries, the black cards which have not been used are returned to the bank.
- At the end of the game (in our case this is the Primaries), money that is not spent by the player at the end of the game rolls over to the subsequent games he plays!

3.2 Travel
- A player has to travel to a state to attend various events happening there and also to gain votes.
- The player can travel between the states during the entire duration of the primaries.
- To travel to a particular state from the a candidate's current location, they must choose a mode of transport.
    - A player can travel to different places by train or by road.
    - Trains or road transport are slow.
    - If the player has enough money, he can buy or charter a plane and travel faster. However, expending monetary resources to travel faster , presents a time vs money trade-off to candidates and adds a strategic element to the game.

3.3 Bank & Purchasing
- A player can purchase political advertisements.
- A player can also purchase or lease airplanes in the game from the bank.
- A player who runs out of money and has to make a payment can borrow money from the bank. However, if he is in debt at the end of the primaries phase, the debt magnitude translates to lost votes.
- Candidates can hire consultants for help during a press conferences. Typically, they are hired to help answer questions from the press.

3.4 Parties
- The game has two parties.
- Each player should begin the game by joining one of the two parties.
- A player can switch parties only once.

3.5 Debates
- Candidates can challenge other candidates to a debate that are located in the same state.
- The player who is being challenged can either choose to accept or reject the challenge of the debate.
- Rejecting the challenge results in that player losing the 500,000 votes.
- If the challenger loses the debate, he will lose 500,000 votes.
- When a debate has been accepted by a player, it is his responsibility to be at the venue at that particular time. Failing to do so will lead to him losing the votes he already has.
- Candidates win votes if they answer the debate question correctly.

3.6 Press
● Candidates can hold press conferences in their state.
● In a press conference, the candidate answers the questions asked by the media.
● The candidate wins or loses votes depending on the correctness of his response.
● Candidate can hire consultants and ask them for help during the press conference.

3.7 Black Cards
● The black card presents the possibility of negative campaigning in the game.
● A player may play one of their black cards against another candidate and cause a loss of resources (votes, money, plane, etc...) against whom he it.
● A black not used during the primaries automatically returns to the bank at the end of the primaries phase.

3.8 Chance Cards
● Chance cards are random system generated events in our game.
● They introduce the factor of luck in to the game.
● They translate into a gain or loss of votes.

3.9 The Conventions
● At the beginning of the **conventions phase**, the system automatically computes the number of votes each player has won in each state.
● Per party, the player with the highest number of votes in a state wins all delegates for that state. The total number of delegates each player has won is computed and the player with the highest number of delegates is nominated as the presidential candidate from their party. The candidate must have a simple majority (more than 50% of the total) to be nominated.
    ○ If there is no simple majority, then a ballot resolution is done by the means of a debate between the players running under that party. The player who loses the debate can choose to surrender all his delegates to another candidate. This has to be done by negotiations outside the game. Usually the candidate who gets all these delegates accepts to make this losing candidate his running mate for the post of the vice-president in return.
● Players not nominated as a Presidential or as a Vice Presidential candidate have the option of running jointly on an independent or a progressive ticket.

3.10 Ballot Resolution Debate For The Conventions Phase
● The player must answer the debate question correctly.
● If only one player answers the question correctly she wins the debate.
● Otherwise, another debate question is given for each player.
● Debate can also take place between vice-presidential candidates, with the same rules.

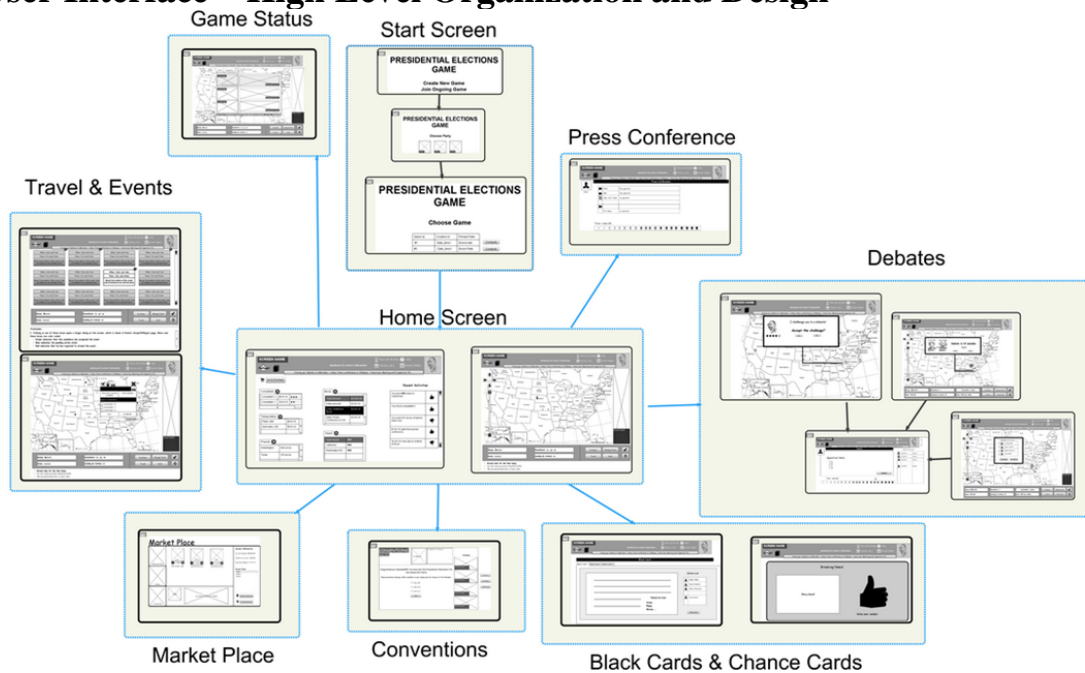# 4. The User Interface – High Level Organization and Design

Figure 1 High Level Organization

The user interface wire-frame for the project essentially consists of a set of screens. The screens were developed by first dividing the game into functional blocks, and then designing screens for them accordingly. Some of the game's functionalities required separate dedicated screens, while other functionalities only needed overlays or pop-up screens over the home screen. We have tried to base the layout of the screens on those of popular online Role Playing Games such as Warcraft and FarmVille. Irrespective of the functionality of the screen, nearly all the screens had a standardized template featuring some identical global elements. Figure 2 illustrates one such element which was featured on all of the screens that were related to the "Primaries" phase of the game.
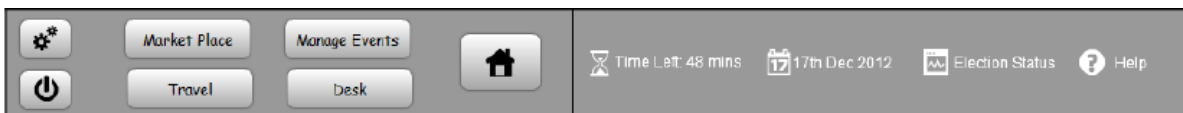

Figure 2 UI Element: Infromation Bar

We shall now discuss the various functional blocks of the game and the design of the screens within these blocks.

1.   **Start Screens:** These are the screens that first greet a player and are typical of any computer based game. These include screens for starting a new game, configuring the game, joining an existing game and so on. They serve as an entry point into the actual game.

2.   **Home Screen:** This consists of two screens, the Candidate View screen and the Candidate's Desk screen. The home screen uses a ware room metaphor..

- **The Candidate View screen** consists of an interactive map of the United States. The players interact with this map and they are depicted on this map according to their location. This screen serves as a hub for most of the interactions with the system as well as for navigating to other screens.
- **The Candidate's Desk screen** presents the player with summarized information about his election impact, finances, resources, consultants, recent activities and so on. Players can view more detailed information about all these factors as well which is presented as an overlay.

3.   **Game Status:** This is a single overlay screen which presents the player with information about the standings of all the players in the game along with other relevant information such as a candidate's party, location, current activity, etc.

4.   **Travel and Events:** Travelling and events have been grouped together as a functional unit because the main purpose of travel in this game is to attend events in various locations. The travel overlay is activated by selecting a destination on the map. The player can choose a mode of travel i.e. flight, railroad, or car and the consultants he would to travel with him. The Events Center is a screen dedicated to the management of various events in the game. In this screen, players can view a complete list of upcoming events as well as their specific details. They can then choose to either attend an event or to skip it.

5.   **Market Place:** We use a marketplace metaphor to describe this screen, which basically deals with transactions and purchases. The Market Place consists of three separate sub entities:
- **The bank view**: In the bank view, players can take loans and purchase shares, bonds, and so on.
- **The commodities view:** In commodities view, players can purchase commodities such as aircraft to aid them in their election campaign.
- **The consultants view**: In consultants view, players can view information about the different consultants available and hire the ones they wish to.

6.   **Debates:** In these screens, players can challenge other players to debates or be challenged to debates themselves. Debates can be initiated by the player, other players, or by the system. The player is required to answer some questions correctly in order to win the debate and the associated reward.

7.   **Press Conference:** In the press conference screen, the player is presented with a variety of questions that are posed by different journalists. The player's answer to these questions will determine the kind of political impact he or she has, both in that particular state as well as in the country as a whole.

8.   **Black Cards and Chance Cards:** Every player is allocated a fixed number of Black Cards. Black Cards At any point in the game, players can play one of these cards against an opponent through the Black Card screen. This screen includes detailed descriptions of the Black Cards available to the player. Chance cards are nothing but random events that occur during game play. They are represented in the game design by a pop-up screen which describes the scenario and its implications. These events may have a positive impact or a negative impact on a player's campaign.

9.   **Conventions:** The Conventions are the second phase of the game. The Conventions Screen is a multi-view screen whose content changes depending on the standings of the player and his competitors

in the elections. If the player obtains the required majority, he is declared the winner and allowed to choose a Vice-Presidential candidate. If no majority is obtained, the screen switches to a debate mode to help decide the winner. If the player finishes the debate round with the least number of votes, he is eliminated and the screen switches to a spectator mode which allows the player to view an on-going debate between the remaining contestants.

5. User studies

Note: we use the words: user, tester, and participant synonymously in our user study related content.

User Recruitment Process

First, we set testing locations to conduct our user studies. Five tests were set to be conducted in ICS2 110 at UCI, and one was set to be conducted in the fifth floor lobby of DBH at UCI. Next, we created a schedule (using Doodle) to set the range of times that at least two members could be available to conduct a user study. Next we developed our recruitment strategy. Our strategy was to recruit college students we either directly knew, work with, or attended one of our classes at UCI. We took a direct "approach and ask" strategy to recruit our participants on UCI's campus. When pitching our user study offer to each participant, we told them directly in 2 or 3 sentences about the user study we are conducting and then directly afterwards informed them there would be a Starbucks gift card reward for their participation. At this point, all prospective participates agreed to participate and gave us their email address so we could email them of acceptable times for their participation. A few days later we emailed the available time slots to each of our potential participants, and we asked them to choose one that was acceptable. We mostly followed the template email located in Appendix 2 (Template Email) .

The prospective participants then replied with the time slot they would like to take, and we then confirmed their assignment by replying to their email. We then changed their status from prospective participant to test subject. Test subject 1 was a roommate of one of our team members, test subjects 2,4,5,6 all worked in a lab of one of our team members, and test subject 3 attended our HCI class. A few days later, we informed test subjects 2-6 that they would also be receiving a movie ticket for their help and many were visible excited to receive this information. The movie ticket was used as extra incentive for our test subjects to complete their user study, because the results from our pilot test indicated the user tests may go over one hour.

User Tester Demographics

We targeted younger college students because most of the people we could ask to participate fit this profile. To create a good mix of participants for this demographic, we tried to recruit users: from different counties, of difference sexes, and from the undergraduate and graduate programs (See Appendix Figure A, B, C). We had an age range from 21 - 36 as can be seen from the line graph in (See Appendix Figure A). Based on the ESA 2011 Demographic and Usage Data Report (see Appendix for ref 1), the average American gamer age is 37. This means we tested the younger half of gamers in America and that our results are relevant for this group.

User Test Setup

To try to recreate the same conditions for each user test and to ensure a smooth test run, we developed an experimental script (Appendix 4) that controls the setup and steps each of our team members would execute during the user test.

User Test Greeter Script

To ensure each test subject receives the same instructions for completing the user study, we prepared an greeter script ([Appendix 4](#)) for a team member to read aloud to the test subject before they begin.

User Tests
We tested for players' ability to use our interface to: acquire critical information when playing the game, to use this information to make actions in the game, and to see the result of their actions. We tested this by asking test subjects to complete a series of important scenarios using our wire-frames. Specifically, using our wire-frames we tested for the player's ability to: accept debate challenges (Scenario 1), challenge others to a debate (Scenario 2), join debates between other players (Scenario 3), hold press conferences (Scenario 4), play black cards (Scenario 5), manage events (Scenario 6 & 6b), to travel (Scenario 8), obtain critical information from their candidate's desk (Scenario 9), to hire consultants and take out banks loans (Scenario 10), to evaluate potential profits information for land owned (Scenario 11), and to participate in the conventions phase (Scenario 12).

Scenario Construction
Each scenario consisted of a set of questions and tasks for the users to answer and do, respectively. For each scenario we provide the user their role in the game (presidential candidate) and the context of the game in which they are in. Answering questions involved a combination of: information finding, interaction, and/or mental calculation. See DVD for our scenarios.

Scenario Analysis for Recommendations
We used a benchmark of 70% average accuracy for the entire group of test subjects for a scenario, to mark that scenario as problematic or not. The 70% benchmark was used based on the expertise of Rubin and Chisnell in there book (see Appendix [ref 2](#) on page 258. If the average accuracy rate was at or above 70%, then the scenario was not problematic. Average accuracy rates below 70% are marked problematic. For example, if the average accuracy rate for scenario X was 60% then we would mark it as problematic. Further, if the average accuracy rate for all users for a particular question is below 70%, then we would mark that question as problematic. We then use the wire-frames used in problematic scenarios and for problematic questions, as places in our design to make recommended redesigns. Note, we decided not to recover mouse clicks from our videos our use time bench mark data for our analysis, because of the amount of useful information we gained using the accuracy benchmarks of the testers answers.

General Feedback from Notes and Video
In general users: did not like scrolling, wanted feedback indicating the the result of making an action, were not sure about the utility of graphical aids, did not like and often could not perform mathematical calculations mentally, were confused by redundant information, where confused about the click-ability of some icons, wanted tool tips and more button labels, were confused by inconsistent icons given the same information.

User Test Results
We marked the correctness of answers, given by our test subjects, to questions for each scenario. From this raw data we were able to generate the average accuracy rate for all questions in each scenario for the entire group of test subjects, as is shown by the bar chart Figure 3. The y-axis gives the scenario numbers and the x axis gives the average accuracy rate for the entire group of test subjects.
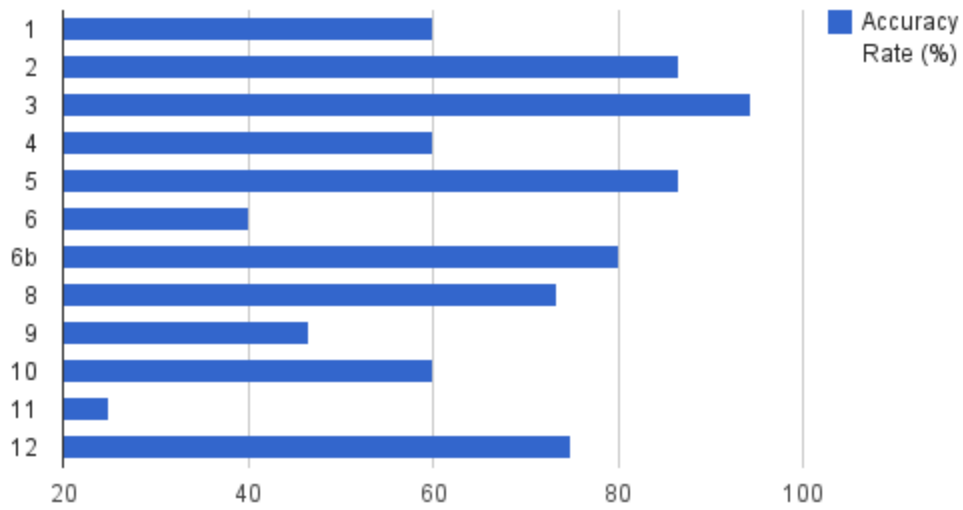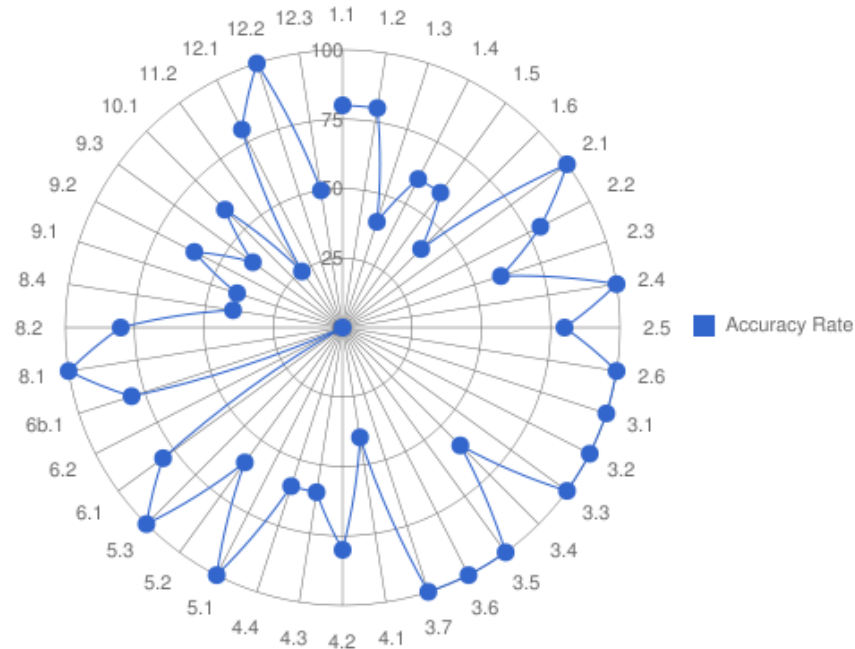
Figure 3 Avg Group Accuracy per Scenario

Figure 4 Avg Group Accuracy per Question

From this bar chart we can see that Scenarios 1, 4, 6, 9, 10, and 11 are problematic (given our 70% benchmark mentioned above). We focus on these scenarios for constructing our recommendations in the recommendations section.

Further, from our raw data we were able to generate the average accuracy rate for each question for the entire group of test subjects (as is shown in the radar chart in Figure 4). Each question is labeled around the circumference of the radar chart and is named using the format: <Scenario Number> . <Question Number>. Each circle labels an accuracy rate. The accuracy rate for each question for the entire group is plotted on the radius line from the question label to the circle's origin. So we can see then those questions: 1.3, 1.4, 1.5, 1.6, 2.3, 3.4, 4.1, 4.3, 4.4, 5.2, 6.2, 8.4, 9.1, 9.2, 9.3, 10.1, 11.2, and 12.3 are problematic questions. We used problematic questions to focus our recommendations for problematic scenarios. We also addressed some problematic questions regardless if the scenario they were asked in was problematic. One example of doing this is for the question "How many votes will you win if you submit the right answer?" which was ask for 1.3, 2.1, 3.4, 4.3, because we found that it was continuously problematic across scenarios 1 - 4, however only scenarios 1 and 4 were problematic.

Post Questionnaire Results
We were able to get some significant feedback on some of our post questionnaire questions. Most users: found the game to be moderately difficult, thought that the game had a proper blend of fun and learning, thought that school going children would enjoy the game, did not know if professionals would like it, and thought it was adequate for learning and enjoyment between in the 15-25 age range.

6. Recommendation for changes
Now we will be recommending changes in our designs based on the data, both quantitative and qualitative, that we gathered from the user studies.

a) *Screen Scroll should not be required*
Our initial screen design consisted of two information bars - below and above the Elections Map as shown in Figure 5. In two test studies, User 1 (Pilot Tester) and User 5, we were forced to use the screen resolution of 1024x768 against 1024x960 due to infrastructural constraints. However, this uncovered a major issue with the screen design which we did not expect. Users had often to scroll down to view the information bar at the bottom.
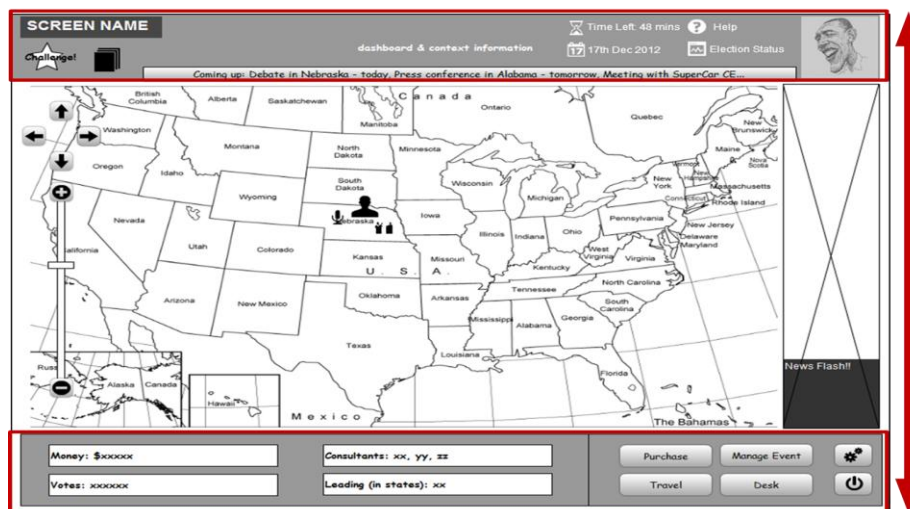

Figure 5 Original Information Bars

Our recommendation for this would be to present the information in one single view. This can be done by dynamically adjusting the map size based on the size of the screen/window in which the game is loaded. We would also recommend reorganization of the information bars, which would involve combining them into one single information and control panel. This would reduce the space taken up by two separate information bars.

Furthermore, our initial tasks and questions forced users to look at the information located in the bottom bar. However, later we introduced tasks which would require them to use the options in the top bar. This was not intentional. We found that users in general struggled to access the information in the top bar once they were accustomed to looking at the information at the bottom bar. The mock up below is our redesign for integrating the top and bottom bar.
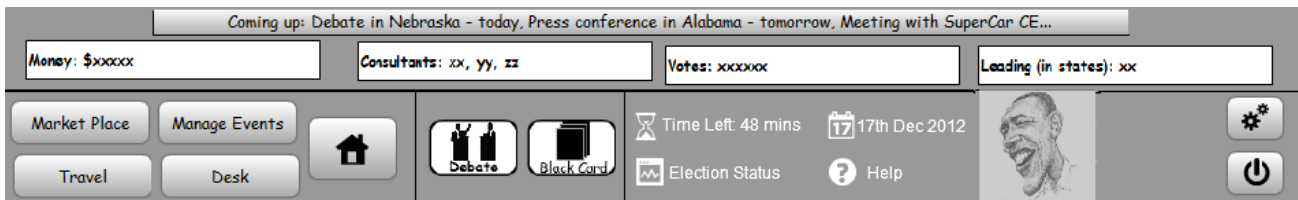

Figure 6 Mock up Recommendation For Information Bar

b) *Feedback, Confirmations and Learning Curve*

Users were not given appropriate feedback in the interface after they performed an action. For instance in a debate or press conference, when their participation was over, they were redirected to the home screen. They expected feedback about their action and its consequences (possibly in terms of the number of votes they gained or lost).

We asked them questions based on those actions they performed and then measured the accuracy of the answers that they gave. For instance, after they participated in a debate or press conference, we asked them to report on their voter count. The graph below shows the tester accuracy for the same question: "How many votes do you have now?", but in different contexts. Questions 1.5, 2.5 and 3.6 were asked after the user participated in a debate (1.5 means the 5th question of the 1st scenario and so on). Question 4.4 was asked after a press conference.
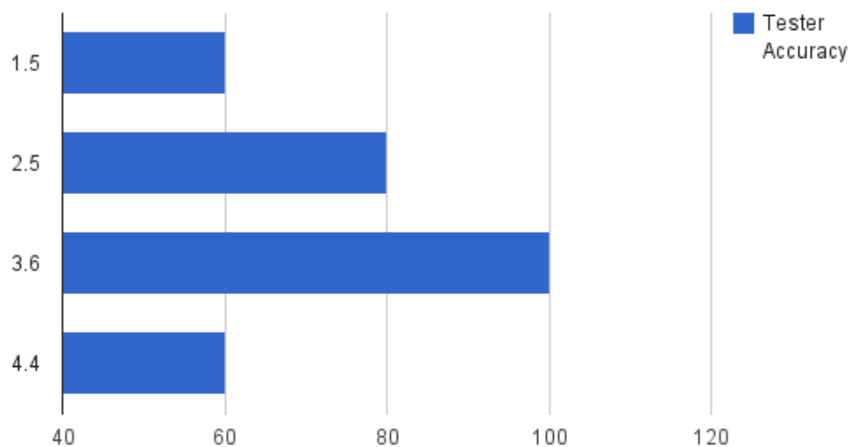

Figure 7 Group Accuracy for "How many votes do you have now?"

These scenarios 1-4 were performed one after another and none of them provided the testers with a feedback about their action once their task was over. Now, the testers struggled with a 60% accuracy to find out what their new vote count was in the 1st scenario. This accuracy however improves over the next two turns while participating in debates, to the point that it reaches 100%. This learning curve suggests there is enough feedback for them to learn, but more explicit feedback could make learning easier. Further, when they were asked the same question after the press conference scenario, where again they won/lost votes, their accuracy dropped to 60%. The differences between the scenarios, are that in debates the questions are given to you, while in press conferences you can choose them, and you are not competing with an opponent in a press conference. The similarities between debates and press conferences are that candidates are answering questions and winning/loosing votes, making the basic functionality very similar. The slight change in context of the press conference scenario and the drop of accuracy rate to 60%, suggests that our feedback to the user was not enough to support the user in this context switch. Furthermore, they repeatedly kept asking for the feedback on what happened on each of scenarios after their debates/press conference was over. Thus there is a correlation between the data and the qualitative feedback that we got from the users.

Based on this correlation we would recommend more appropriate and explicit feedback be provided to the users after each task in the form of a summary or confirmation screen. We also think that this will reduce the learning curve of the users, since the data will be clearly presented to them in as many words: *"Congratulations! You won 330,000 votes. Your Voter Count now is 830,000!"*

A similar problem was observed in Scenario 5, where testers were asked to play Black Cards. They were asked about the Black Cards that they had played. However, since were not given a clear feedback about it and were taken back to the home screen, they were confused and this is reflected in our data: Testers were able to correctly state the black card they played with only 60% accuracy. To avoid such a problem, we recommend the use of a confirmation message which presents the user with the Black Card he chose to play and asks him to confirm the same.

c) *Graphical Aids and Text*

🎥	CNN	has question
🎥	BBC	has question
📄	New York Times	no question
🎥	Fox News	no question

Figure 8 UI Element: Press Organization Listing

In Scenario 4 for Press Conferences, we presented the users with a listing of the news organizations present and pointed out those who had questions to ask as shown in Figure 8. We placed the names of the news organizations next to generic icons. The text indicating that a specific news organization had a question was presented in plain text without any icons. We asked the users two questions when they came to this screen. a) How many journalists have question in the conference? and b) How many different news organizations are present?

The users answered the first question with a 40% accuracy while the second question with a 80% accuracy. Our rationale here is that the users did better on the question which had a icon associated with the text that they were looking at for answering the question, as compared to the text which had no icon. Note, that the icons used here were general, i.e. they were not organization specific, but represented if it was an organization, television news channel, or a newspaper. This alone seems to have been enough.

Thus graphical information in the form of icons can be incorporated here in order to show who has questions and who does not. Also, we suggest that such icons be shown for only those news organizations which have questions.

This might suggest that graphical aids are useful, however we did encounter a peculiar case where we found the use of such aids was actually counterproductive. We presented the testers with text based and graph based information together displaying values of land properties (both original and current) they owned in the game. We then asked the following question: *Which of your properties has seen the biggest relative rise in value in terms of percentage?* We also asked the users if they found the graphical data useful or not. We assume that all those who said that they found the graphical data useful, focused on it more than the text. Surprisingly, all people who found the graphical data useful answered the above question incorrectly. User 2 found the graph to be difficult and decided to not answer the question. User 5, was the only user who said that the graph did not help him and he used the textual information instead. Further, user 5 explicitly emphasized this point. He was the only user to get the answer correct. He reported that the graph lacked the exact numbers which made it hard for him to accurately answer the questions. Actual numbers, on the other hand, he said helped him be more accurate. We originally assumed that the graphical aids would help users. Most of the users even thought that the graphical aids were useful. However, in reality it was counterproductive.

Since the users preferred using the graph, we would recommend the inclusion of more numbers on the actual graph. This would be a better strategy to help them make complex calculations which might be required while playing the game.
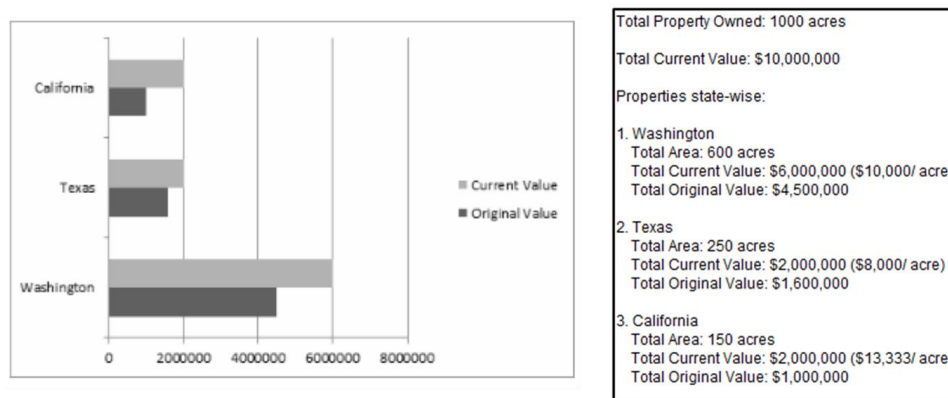

Figure 9 UI Element: Graphical and Textual Aids for Land Properties

d) *Options: Attend, Decline, and Go Back*

In the Event Screen, users can look up the pending events and decide whether or not to join the event. In original design, we assumed that users would like to either 1) click on the "*Attend*" button if they find

the events that they want to join or 2) close the event by closing the window if they are not interested in the displayed event and look to another event. Figure 10 shows our original design.

However, the Scenario 6b opinion response shows that more than half of the testers answered that *they would like a REJECT button to reject the event if they don't want to attend the event.* Besides, most of the testers also prefer a *Go Back button to ignore the event option* without attending or declining. In this scenario, user opinions reveal the user need for switching to different event options without making any decision. However, these results disagree with our previous assumption that showing all of the decline, go back and close window button at the same time might be confusing to the users. Based on the user opinions, we would recommend that both the decline and go back buttons should be considered in the interface design since users should feel confident in exploring or switching between different options before making a decision.
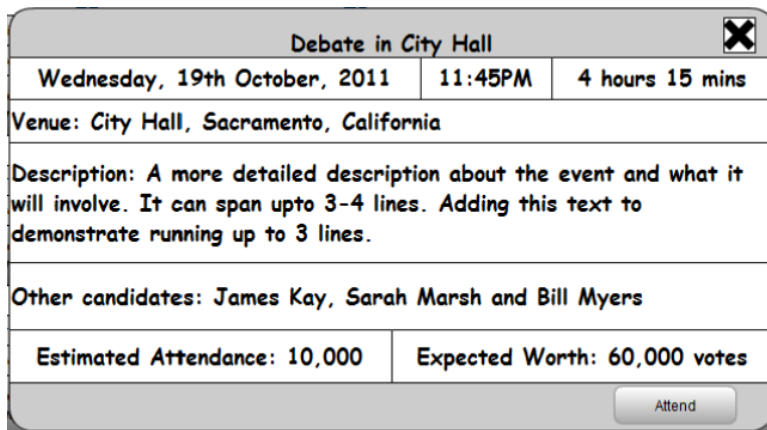

Figure 10 UI Element: Pop Up for Event Information

e) *Shortcuts*
These are two recommendations for providing shortcuts in the hierarchy of screens for navigation purposes.

 i. *Clicking the Events Ticker Bar should take you to Manage Events.*
On the home page there is an Events ticker, very similar to that an HTML Marque, which displays a constant feed of upcoming events for the candidate to attend. In Scenario 6, we asked the users to find all the events available to them. We expected them to go to the Manage Events Screen by clicking the button as in the information bar below, which is available on the Home Page.
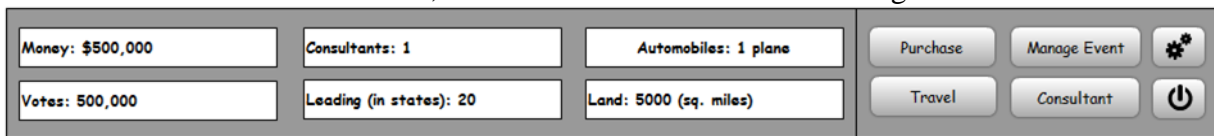

Figure 11 UI Element: Bottom Information Bar

However, our testers struggled using the Manage Events button to complete Scenario 6's task. Instead they tried to access the page by clicking the Events Ticker, which seemed to be showing some form of events with its "*Coming Up*" label. We recommend allowing user to click on the Events Ticker to navigate to the Manage Events page. This aligns with Human Computer Interaction guidelines of efficient Web Navigation as well.

Figure 12 UI Element: Events Ticker

ii. *Links for Bank and Consultant Hiring Services at the Home Page and Desk*
As discussed in the User Design Section earlier, we used a market place metaphor for grouping all screens related with money and purchasing of resources. Thus, this resulted in the inclusion of the Bank and the Consultant Hiring Screens in the Market Place. We asked the testers to take a loan from the bank, and then to hire a consultant with this money. This however was not intuitive enough for our users. Below are the comments that they made while navigating to the bank.

User 3: "How am I supposed to get to the bank?" (while hovering the mouse over the Market Place Button. Goes to the Desk instead.)
User 4: "Take a bank loan? Maybe go to the Market Place. With a bank you would think of a monetary place. With a market you think to purchase stuff." (Goes to the Market Place correctly.)
User 5: "I do not see a loan as a purchase." (Does go to the Market Place. Relates a market to be a place where you buy things). He also said, "There should be a Get a Loan or Get further Funding on your desk"
User 6: "I was just guessing, with market, money comes to my mind." (However, he does not read the labels for the Bank and the Loans clearly and moves back.)

The users correlated a market a place more strongly to purchase or buy goods than they did to a bank. However, most of them did go to the Market Place correctly in search of a bank loan. One of them even guessed it correctly. The Desk seemed to be the fall back option for people when they were faced with such a problem, and User 5 even suggests that a link for getting a loan or funding should be placed in the Desk, as it has been done for making a purchase.

Based on this feedback and the Human Computer Interaction Guidelines for effective Web Navigation, we recommend that additional links be provided for the Bank and Hire Consultants at the Desk and at the Home Page. An alternate approach for the same would be to split the Bank and the Hire Consultant Screens from the Market Place and keep the Market Place only for purchasing. That however, would still entail the additional buttons for the two entities in question.
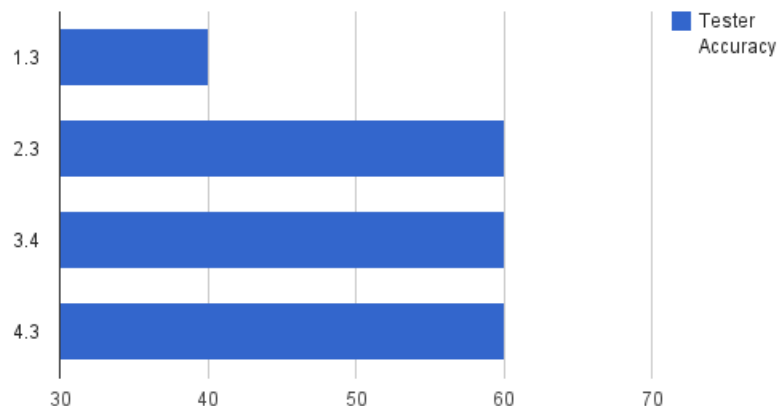

Figure 13 Group Accuracy for "How many votes will you win if you submit the right answer?"

f) *Timer or Votes Left*

Figure 13 shows different accuracy rates of the same question asked in different scenarios: *How many votes will you win if you submit the right answer?* Testers needed to find this out by looking at the timer on screen as shown in the Figure 14.

Timer: 330,000 votes left

Figure 14 UI Element: Votes Degradation Bar

However, as we can see from the test results, 60% is the highest accuracy rate we got among different scenarios, which is not a satisfactory outcome. Some of the tester feedback points out that the combination of *Timer* label and remaining votes is quite confusing because the tester expected to see how much time left instead of number of votes left. Therefore, based on the user test results in these scenarios, we suggest removing the "Timer" label and keep the number of remaining votes which keeps counting down so that players can easily understand that they are running out of time because of the decreasing remaining votes.

g) *Shift from Votes to Delegates*
It became very difficult for User 2 to understand that in the conventions phase he was supposed to compete for delegates and not votes, like he had done for the major portion of the game (i.e. the primaries). He was so confused that he actually went on to say that the conventions phase of the game should not even be there. While this was an exception and no other player expressed anything similar, we do feel compelled to include a recommendation for this, primarily due to the level of confusion experienced by User 2. We in principle recommend the narration of the story of the US Presidential Elections while the game is being played, which gives such explanations. We did this in the form of instructions and context for scenarios and their tasks, but it this was clearly not enough. Perhaps a story needs to be spun around the entire game, like it is done in most role playing games today.

APPENDIX

1. References

ref 1.   Entertainment Software Research Association, The 2011 Essential Facts about the Computer and Video Games Industry

ref 2.   Jeffrey Rubin and Dana Chisnell, *Handbook of Usability Testing: How to Design, and Conduct Effective Tests*, 2nd Edition, John Wiley & Sons

2. Template Email

```
Hi <participant name>,

I want to thank you for helping out with my HCI user test.
It will not last longer than an hour and it can be taken in our lab.There will be a
Starbucks gift card reward! But, more importantly I will
owe you a future favor .

Essentially, the user test will entail giving feedback & answering
questions on the design and interactions of
some black and white wire frames for a presidential election game.

Let me know what times are best for you
between Wednesday - Friday and I'll try to make it happen.
Here is a rough schedule:
Wed: between 11am - 8pm.
Thursday: 9am - 11am, 1pm - 2pm, 3pm - 8pm.
Friday: Anytime (its Veteran's Day)
Thanks!

-<tester name>
```

3. Figures

Tester Ages

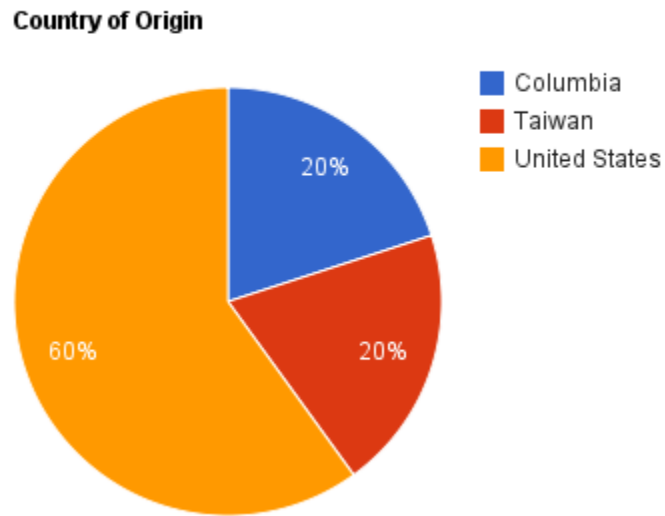**Figure A. Tester Demographics: Age**

Country of Origin

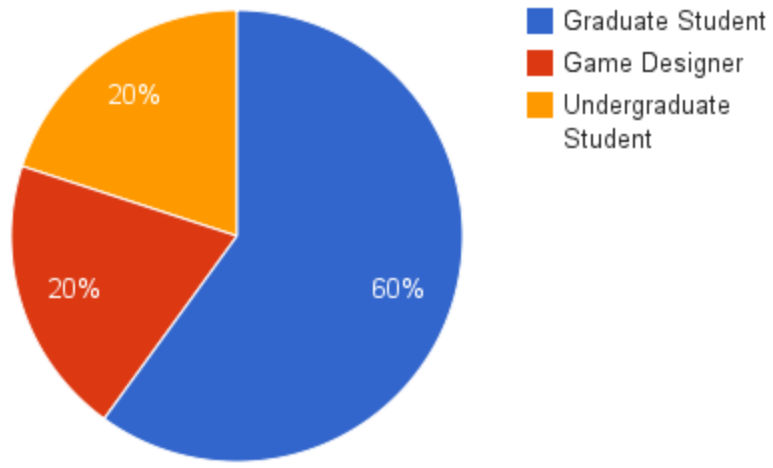**Figure B. Tester Demographics: Country of Origin**

Tester Occupations

Figure C. Tester Demographics: Tester Occupations

4. Experimental Script and Greeter Script

Experimental Script

1. **Before the user testing begins**
1. Get the access to the lab where the user testing will be conducted
2. Start the work station that will be used for testing and set its resolution to 1024x768.
3. Login to the hotgloo system, enter the review mode and keep the system ready for starting the experiment.
4. Have the questionnaire sheet printed, other stationary like pens and paper ready
5. Keep the tasks instructions, questions for the interview ready.
6. Start the screen recording and audio recording software and keep them ready to start recording.
7. Have the tasks/scenarios to be given to each subject sorted.

1. **When the tester arrives**
1. Help them get on to the work station.
2. Explain the motivation behind building this game and what this game is all about
3. Explain the procedure we are following for user testing and tell them the time it takes for each step in the process.
4. Show them the hotgloo review screen and introduce it at a very higher level
5. Take their consent for recording their actions and voice.

1. **The experiment - Pre-task testing phase**
1. Start the screen and audio recorders.
2. Hand them out the initial questionnaire to complete and tell them the time they have to complete it.
3. Once the tester completes the questionnaire, give them the instructions about the tasks that they are going to carry out at a very high level as written in the instructional material.

1. **The experiment - Task testing phase**
1. Display the task the user should carry out.
2. Ask them if they have any questions about the task, answer the questions and ensure that they do not have any more questions before they begin testing the task.
3. Let them perform the actual task given.
4. At the end of the task, ask them the questions listed for each task.
5. Repeat these steps until all the tasks for the subject is complete.

1. **The experiment - Final questionnaire**
1. Ask the questions from the final questionnaire orally.
2. Record their responses.

1. **Conclusion**
1. Check if the video and audio was recorded correctly.
2. Run through this document once again to make sure that we have carried out all the tasks listed here for ourselves.
3. Thank the subject for helping us out with testing our designs.
4. Hand them the gift cards.

Instructional Materials

"Hello. Thank you for agreeing to be a part of this study. My name is XXXXXX and this is XXXXX. May I please have your consent form? Thank you.

"For the rest of the session I'll be working from a uniform script to ensure that my instructions are the same for everyone who participates in this study.

"I'm here to understand what users think of the wire-frame for a new web application currently under development. A wire-frame is essentially a mock-up of a website used for preliminary design. Please note that this is not a finished product. It is a simple design and is in black and white. It has a limited set of functionalities. Please avoid judging the application on the basis of these factors.

"During the session, I will ask you to use the wire-frame to perform a variety of tasks and will observe you while you perform these tasks. Please try to perform these tasks as you normally would.

"Please try and think aloud while you're working. Feel free to tell me whatever is going through your mind. Please understand that we are not testing you, and that there is no such thing as a wrong answer. Your doing this helps us understand what works and what doesn't work in this wire-frame.

"Please be completely honest in your feedback- I need to know exactly what you think and not what you think I want to hear. Our goal is to improve the system with your help. My associate XXXXX is here to learn and take notes.

"The whole session will take about 30 minutes.

"Do you have any questions before we begin?"

NOTE: Refer to the DVD for Scenario Descriptions, Statistics and Raw Data