

Testing Documentation

Electronic Voting System

Group C

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SYSTEM CONSTRAINTS

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1 Test Approach

The testing follows the guidelines set out in the PMP section 7.8.

2 Detailed Testing Information for the Database Connection

The testing of the code for the database followed the guidelines set out in the Project Management Plan. The coder writes the test driver and does the debugging. Then another member of the project group reviews the code and runs tests for a certain amount of time.

The cases that were needed to be checked were:

1. Do all interfaces connect with the database on every attempt to access it?

Expected answer: Yes

Test result: Yes

2. Can tables be removed and created without anomalies occurring?

Expected answer: Yes

Test result: Yes

3. Can constituencies, candidates (Presidential and General) and referendums be added to and removed without fault?

Expected answer: Yes

Test result: Yes

4. What happens if someone tries to remove constituencies, candidates, referendum questions that don't exist?

Expected answer: Problem recognized, exception thrown, and printed on screen.

Test result: Problem recognized, exception thrown, and printed on screen.

5. Can two voters with the same registeredId be added?

Expected answer: Problem recognized, exception thrown, and printed on screen.

Test result: Problem recognized, exception thrown, and printed on screen.

6. What happens if the database program attempts to add voters from a file that doesn't exist?

Expected answer: Problem recognized, exception thrown, and printed on screen.

Test result: Problem recognized, exception thrown, and printed on screen.

7. What happens if the database program attempts to read voters from an unformatted file?

Expected answer: System recognises unformatted files.

Test result: Different errors given on different text files.

8. Can results be generated for a constituency that doesn't exist?

Expected Answer: No

Test result: No

9. Are the correct results generated for referendums over given constituencies, and over Ireland?

Expected answer: Yes

Test result: Yes

10. Are the results generated for presidential elections correct?

Expected answer: Yes

Test result: Yes

11. Are the results generated for general elections correct?

Expected answer: Yes

Test result: Yes

12. Are the results generated for presidential elections correct if the result is drawn?

Expected answer: Yes

Test result: Yes

13. Are the results generated for general elections correct if the result is drawn?

Expected answer: No

Test result: No

14. Does the GVote table grow dynamically depending on the constituency with the most candidates running for election?

Expected answer: Yes

Test result: Yes

15. Does the PVote table grow dynamically depending on the number of candidates running for presidential election?

Expected answer: Yes

Test result: Yes

16. What happens if you try to generate results for a constituency that does not exist?

Expected answer: Empty vector returned.

Test result: Empty vector returned.

3 Detailed Testing Information for the Setup Utility and Results Program

The testing of the code for the Setup utility and Results program followed the guidelines set out in the Project Management Plan. The coder writes the test driver and does the debugging. Then another member of the project group reviews the code and runs tests for a certain amount of time.

The cases that were needed to be checked were:

Setup Utility

1. What happens if the setup program can't open a connection to the database?
Expected Answer: Displays error and exits.
Actual Answer: Displays error and exits.
2. Can a voter login before the start button is pressed?
Expected Answer: Yes if voters have been added since the end button was pressed.
Actual Answer: Yes if voters have been added since the end button was pressed.
3. Can a voter login after the end button is pressed?
Expected Answer: Yes if voters have been added since it was pressed.
Actual Answer: Yes if voters have been added since it was pressed.
4. What happens if you attempt to edit a constituency without selecting one?
Expected Answer: Displays an error asking you to select one.
Actual Answer: Displays an error asking you to select one.
5. What happens if you attempt to remove a constituency without selecting one?
Expected Answer: Displays an error asking you to select one.
Actual Answer: Displays an error asking you to select one.
6. What happens if you attempt to edit a candidate without selecting one?
Expected Answer: Displays an error asking you to select one.
Actual Answer: Displays an error asking you to select one.
7. What happens if you attempt to remove a candidate without selecting one?
Expected Answer: Displays an error asking you to select one.
Actual Answer: Displays an error asking you to select one.
8. Is the edit election menu displaying all the constituencies?
Expected Answer: Yes
Actual Answer: Yes
9. Is the edit constituency menu displaying the correct number of seats?
Expected Answer: Yes
Actual Answer: Yes
10. Is the edit constituency menu displaying all the candidates in the constituency?
Expected Answer: Yes
Actual Answer: Yes
11. Is the edit presidential menu displaying all the presidential candidates?
Expected Answer: Yes
Actual Answer: Yes
12. What happens if you attempt to enter a constituency with no name?
Expected Answer: Displays an error and asks you to enter a name.
Actual Answer: Displays an error and asks you to enter a name.

13. What happens if you try and give a constituency the same name as an already existing constituency?

Expected Answer: Displays an error and asks you to enter a different name.

Actual Answer: Displays an error and asks you to enter a different name.

14. What happens if you try to add a candidate with no name?

Expected Answer: Displays an error and asks you to enter a name.

Actual Answer: Displays an error and asks you to enter a name.

15. What happens if you try to add a candidate with the same name as an existing one in the same constituency?

Expected Answer: Displays an error and asks you to change the name.

Actual Answer: Displays an error and asks you to change the name.

16. In a different constituency?

Expected Answer: Allows you to add the candidate.

Actual Answer: Allows you to add the candidate.

17. What happens if you try to add a candidate with no party?

Expected Answer: Allows you to add the candidate.

Actual Answer: Allows you to add the candidate.

18. No image?

Expected Answer: Allows you to add the candidate.

Actual Answer: Allows you to add the candidate.

19. Does the edit Referendum button display all the referendums?

Expected Answer: Yes

Actual Answer: Yes

20. What happens if you attempt to edit a referendum without selecting one?

Expected Answer: Displays an error and asks you to select one.

Actual Answer: Displays an error and asks you to select one.

21. What happens if you try to remove a referendum without selecting one?

Expected Answer: Displays an error and asks you to select one.

Actual Answer: Displays an error and asks you to select one.

22. What happens if you try to add a referendum without a title?

Expected Answer: Displays an error and asks you to add a title.

Actual Answer: Displays an error and asks you to add a title.

23. Without a question?

Expected Answer: Displays an error and asks you to add a question.

Actual Answer: Displays an error and asks you to add a question.

24. With a title that already exists?

Expected Answer: Displays an error and asks you to change the title.

Actual Answer: Displays an error and asks you to change the title.

25. With a question that already exists?

Expected Answer: Displays an error and asks you to change the question.

Actual Answer: Displays an error and asks you to change the question.

26. Does the read voters from file button actually read voters from file?

Expected Answer: Yes

Actual Answer: Yes

27. What if the file doesn't exist?

Expected Answer: Displays an error saying the file doesn't exist.

Actual Answer: Displays an error saying the file doesn't exist.

28. Does the save voters to file actually save voters to file?

Expected Answer: Yes

Actual Answer: Yes

29. What if the file doesn't exist?

Expected Answer: Creates it.

Actual Answer: Creates it.

30. What if the file already exists? Is it over written?

Expected Answer: Yes

Actual Answer: Yes

31. What happens if you enter a non number character in the voter number field?

Expected Answer: Displays an error and asks for a number.

Actual Answer: Displays an error and asks for a number.

32. If you enter an already existing number?

Expected Answer: Displays an error and asks for a different number.

Actual Answer: Displays an error and asks for a different number.

33. No number?

Expected Answer: Displays an error and asks you to fill all fields.

Actual Answer: Displays an error and asks you to fill all fields.

34. No pin?

Expected Answer: Displays an error and asks you to fill all fields.

Actual Answer: Displays an error and asks you to fill all fields.

35. No pass?

Expected Answer: Displays an error and asks you to fill all fields.

Actual Answer: Displays an error and asks you to fill all fields.

36. No constituency?

Expected Answer: Displays an error and asks you to fill all fields.

Actual Answer: Displays an error and asks you to fill all fields.

37. A constituency that doesn't exist?

Expected Answer: Displays an error and asks you to enter a different one.

Actual Answer: Displays an error and asks you to enter a different one.

38. The same pin and pass?

Expected Answer: Allows the same pin and pass.

Actual Answer: Allows the same pin and pass.

39. Does it actually add voters?

Expected Answer: Yes

Actual Answer: Yes

40. Does the view results button open the results program?

Expected Answer: Yes

Actual Answer: Yes

41. Does the program actually update candidates, constituencies, referendums to database?

Expected Answer: Yes

Actual Answer: Yes

Results Program

1. Does it display all the constituencies?

Expected Answer: Yes

Actual Answer: Yes

2. Does it display the current electorate count?

Expected Answer: Yes

Actual Answer: Yes

3. Correct quota?

Expected Answer: Yes

Actual Answer: Yes

4. Number of seats?

Expected Answer: Yes

Actual Answer: Yes

5. Elect candidates correctly?

Expected Answer: Yes

Actual Answer: Yes

6. Display all the candidates?

Expected Answer: Yes

Actual Answer: Only those elected

7. Display all the referendums?

Expected Answer: Yes

Actual Answer: Yes

8. Display the correct referendum results?

Expected Answer: Yes

Actual Answer: Yes

4 Detailed Testing Information for the Web Page PHP and JavaScript

The testing of the code for the Web page PHP and JavaScript followed the guidelines set out in the Project Management Plan. The coder writes the test driver and does the debugging. Then another member of the project group reviews the code and runs tests for a certain amount of time.

The cases that were needed to be checked were:

1. On every attempt to access the database does the PHP succeed in connecting to the database?

Expected answer: Yes

Test Result: Yes

2. If a user has a right to access information in the database, is this right guaranteed?

Expected answer: Yes

Test Result: Yes

3. If a user does not have the right to access information in the database, are they prevented from doing so?

Expected answer: Yes

Test Result: Yes

4. If a person has the right password, Pin number but the wrong Voter ID are they prevented from access the database?

Expected answer: Yes

Test Result: Yes

5. If a person has the right Voter ID, Pin number but the wrong password are they prevented from accessing the database?

Expected answer: Yes

Test Result: Yes

6. If a person has none of the three required pieces of information, are they prevented from accessing the database?

Expected answer: Yes

Test Result: Yes

7. Is the correct information stored in the correct fields?

Expected answer: Yes

Test Result: Yes

8. When accessed is the correct information updated?

Expected answer: Yes

Test Result: Yes

9. When information is placed in the database, is it guaranteed to be the same the next time it is accessed?

Expected answer: Yes

Test Result: Yes

10. If a user logs in and then logs out of the site, are they still able vote at a later stage?

Expected answer: Yes, once the voter did not cast his/her votes he/she can log in as many times as he/she wants.

Test Result: Yes, only if the voter did not cast a vote previously.

11. What happens if the user enters a wrong combination of Voter ID, pin number and password?

Expected answer: The voter should not be able to log in

Test Result: If any of the three bits of information is incorrect the user will be stopped from logging in.

12. What happens if the user doesn't enter any data in the three required fields?

Expected answer: The voter should not be able to log in

Test Result: If any of the three bits of information is incorrect or missing the user will be stopped from logging in.

13. What happens is the database is offline?

Expected answer: The correct error message should be displayed

Test Result: When the database was offline the message "Couldn't select database. Please try again later".

14. What happens is the connection to the database is lost?

Expected answer: The correct error message should be displayed

Test Result: When the database was offline the message "Couldn't connect to server.".

15. What happens if the voter chooses not to vote and wants to spoil the vote?

Expected answer: The votes will be entered into the database as "NULL", and counted as spoiled votes.

Test Result: The user vote will be confirmed, and counted as a spoiled vote.

16. After clicking Confirm on the selection page can the voter recast his/her votes?

Expected answer: Yes, the voter can recast them once he/she doesn't click confirm votes on the confirm page.

Test Result: Yes, the voter can recast them once he/she doesn't click confirm votes on the confirm page.

17. After clicking Confirm on the Confirm page can the voter recast his/her votes?

Expected answer: No, The voter finalises the votes by clicking that button

Test Result: No, the voter's votes were sent to the database and recorded votes.

18. What happens when you click back in a browser after voting?

Expected answer: The webpage should restrict the back button showing what previous voters have voted for.

Test Result: The back button is disabled, stopping the user from seeing prior votes, keeping them on the current page.

19. Can many people access the web site at the exact same time?

Expected answer: Yes

Test Result: Yes

5 Integration and Acceptance Testing

Integration and acceptance testing was done over a period of approximately 2 weeks before the project end date. At each stage when a new feature was added to the application, the entire application was tested to ensure that the new feature functioned properly and that it did not have a detrimental effect on other aspects of the system.

Generally this testing was done without finding any major flaws.