



THOMPSON RIVERS UNIVERSITY

SENG 3210– Applied Software Engineering

VoxChoice

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- The table of contents should be automatically generated by selecting "References/ Table of Contents." Remember that the table of contents should not have an entry of the "Table of Contents" itself.
- Proofread the text for typing and grammar mistakes.
- Follow the IEEE Bibliography style for the references by selecting "References/ Citations & Bibliography/ Style".

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1 Introduction

The VoxChoice project has the goal of making voting and decision making within a group more practical. The project is based on an online polling system that will allow the users to express their opinions remotely and privately on a variety of different topics. Furthermore the system will allow users to create polls which they can edit the enter, edit prompts and invite people to participate in the survey.

Background Information:

There is a strong need for the ability to gather opinions and reach a democratic consensus in educational settings (SENG 3210 classroom), but also in other settings like corporate boardrooms, family, and social circles. Currently, existing polling services like Google Forms and SurveyMonkey are dedicated to a browser-based format, and there is a need for a mobile application version to accommodate the large mobile user base. VoxChoice is envisioned to provide an alternative for Android that allows for more than just the *Study Tour Decision* testcase but would also extend to many more applications.

Rationale:

The rationale behind VoxChoice originates from the gap in polling applications for the mobile user base. The project seeks to develop a solution tailored to the Android platform. VoxChoice aims to improve voting or polling-based decision-making by offering a convenient and accessible platform designed for users to express their opinions through participation in the voting process. The envisioned solution aims to allow users to participate as both an administrator who could create polls, prompts, invite users, and see results, but also as a user to participate in surveys. This is meant to be used beyond the educational setting and is envisioned to accommodate a larger domain of possibilities.

Overview of Following Sections:

The following sections of this document will delve into the different aspects of the development and documentation of the VoxChoice project.

- 1) Project Overview: Provides detailed description of the project scope, objectives and the requirements that were considered in the making of the project.
- 2) Project Learning Outcomes: Describes the skills that were acquired and developed through the creation, designing, developing and implementing the project.
- 3) Project Requirements: Provides details of the key features and functionalities of the solution, along with non-functional requirements and constraints.

- 4) Summary of Deliverables: Provides details for the expected project outcomes, including design, implementation, testing, documentation, project management, presentation, and the project poster.

2 Design Problem

2.1 Problem Definition

The problem at hand originates from the necessity of a decision making mechanism within our group in SENG 3210 with many diverse opinions. With the upcoming summer study tour, reaching a consensus can be challenging. The proposed solution, VoxChoice, aims to facilitate a democratic and inclusive decision-making process by enabling remote voting on various topics, starting with the selection of the study tour destination. Moreover, the problem extends beyond simple decision-making. The project also addresses the need for a system that can be easily used by individuals with limited access. VoxChoice aims to transform the way decisions are made within groups making the process more inclusive, efficient, and secure. The ultimate goal is to create a platform that not only serves the immediate needs of the SENG 3210 class but also sets a precedent for future collaborative decision making scenarios. This solution seeks to bridge the gap between different opinions, providing a platform for every user's voice to be heard and considered equally, thus enhancing the decision making process within educational and potentially other organizational settings.

2.2 Design Requirements

2.2.1 Functions

- User registration and authentication to the users to ensure security and uniqueness of the profiles.
- Secure login with usernames and passwords through a built in authentication system
- remote access on android platform
- Administrators have the ability to create new polls and edit existing polls
- Provides users with the ability to vote in the topic of their choice
- Real-time dashboard displaying comprehensive statistics on active polls.

2.2.2 Objectives

- Ensure quick response time and communication time when using the app
- Promote equity, diversity, and inclusion within the platform
- enable users to access the platform remotely, allowing them to participate from any location
- incorporate user feedback constantly and improve platform features accordingly
- The platform must be user-friendly and accessible, ensuring a seamless experience for all users, regardless of their proficiency.
- Secure data is protected and users have the right to have their privacy maintained
- The platform must encourage people to vote through an engaging environment

- Must be aesthetically pleasing with ease of use in mind when developing UI
- Must be reliable with little crashes
- provide administrators with the ability to manage discussion topics effectively
- administrators should be able to easily navigate through different polls, manage participant responses.

2.2.3 **Constraints**

- Must be developed by March 25th 2024
- limited to android studios
- Regulatory laws of Canada related to voting platforms in Canada.
- funding and resources to maintain and improve the platform
- software exportation policies and regulatory constraints

3 Solution

This section will provide an account of some solutions your team brainstormed to implement the project. Some solutions might not have all the desired features, and some might not satisfy the constraints or both. These solutions come up in your mind while you brainstorm ways of implementing all the features while meeting the constraints. Toward the end, select a solution that you think has all the features and satisfies all the constraints. Remember that an engineering design is iterative in nature!

3.1 Solution 1

Write a brief description of your first solution and provide the reasons for not selecting this one.

3.2 Solution 2

This is an improved solution but might not be your final solution. Give a brief description of this solution here.

3.3 Solution 3

This is an improved solution but might not be your final solution. Give a brief description of this solution here.

3.4 Final Solution

This is the final solution. Explain why it is better than other solutions. You may use a table for comparison purposes. After providing the reason for selecting this solution, detail it below.

This is the final solution. Explain why it is better than other solutions. You may use a decision matrix chart for comparison purposes.

Table I Decision matrix chart for the considered alternatives

| | | Solutions | | | | | |
|-------------|--------|------------|---------------|------------|---------------|----------------|---------------|
| | | Solution 1 | | Solution 2 | | Final Solution | |
| Criteria | Weight | Score | Partial Score | Score | Partial Score | Score | Partial Score |
| Criterion 1 | 0.40 | 6/10 | 0.240 | 6/10 | 0.240 | 7/10 | 0.280 |
| Criterion 2 | 0.25 | 3/5 | 0.150 | 4/5 | 0.200 | 5/5 | 0.250 |
| Criterion 3 | 0.20 | 9/15 | 0.120 | 12/15 | 0.160 | 9/15 | 0.120 |
| Criterion 4 | 0.15 | 9/10 | 0.135 | 6/10 | 0.090 | 8/10 | 0.120 |
| Sum | 1.00 | | 0.645 | | 0.690 | | 0.77 |

3.4.1 Features

Give an account of all the features your prototype has and which functions or methods will enable those features. These features may be tabulated (with a title) for improved comprehension. For example, the structure of the program developed, including

- The specifications of the classes defined, and the public/private member functions/variables inside - explain as far as possible why your team makes such choices
- The flow of execution. (It is good to include a flow chart to illustrate it.)
- Testing of your program, which shows
 - How you validate your program, i.e. confirm that the solution is correct.
 - Write all test cases.

3.4.2 Environmental, Societal, Safety, and Economic Considerations

Explain how your engineering design took into account environmental, societal and economic considerations. It may include how your design has positive contributions to the environment and society. What type of economic decisions have you made? How did you make sure that the design is safe to use etc?

3.4.3 Limitations

Every product has some limitations, and so is the case with your design product. Highlight some of the limitations of your prototype here.

4 Team Work

4.1 Meeting 1

Time: Feb 15, 2023, 5:00 to 8:00 pm

Agenda: Introduction, Design

| Team Member | Previous Task | Completion State | Next Task |
|------------------|---------------|------------------|-----------|
| Eric Jacob | N/A | 100% | UI |
| Felix Beauchemin | N/A | 40% | Design |

4.2 Meeting 2

Time: Feb 25, 2023, 10:00am to 2:00 pm

Agenda: Design, UI, solutions

| Team Member | Previous Task | Completion State | Next Task |
|------------------|---------------|------------------|---|
| Eric Jacob | UI | 80% | UI, running application, Solutions |
| Felix Beauchemin | Solutions | 100% | Team Work, Project management, running application, Solutions |

4.3 Meeting 3

Time: March 10, 2023, 12:00pm to 5:00 pm

Agenda: UI, running application, Solutions, Team Work, Project Management, running application, Solutions

| Team Member | Previous Task | Completion State | Next Task |
|------------------|---|------------------|---|
| Eric Jacob | UI, running application, solutions | 80% | Final Testings, make the app visually aesthetic |
| Felix Beauchemin | Team Work, Project management, running application, Solutions | 50% | Conclusions |

4.4 Meeting 4

Provide a similar description here.

5 Project Management

Provide a Gantt chart showing the progress of your work here. Mention all the tasks along with their predecessors. Provide the slack time of each task and identify the critical path.

6 Conclusion and Future Work

- Summarize the experience gained in the project. Mention all the design functions and objectives that you achieved while satisfying the constraints.
- While keeping the limitations of your prototype, provide recommendations for future design improvements. Indicate how your program can be extended and improved if more time is allowed.

7 Self Reflection

When you complete this project, reflect on the process. For example, you can answer the questions such as, What I did? (explain what you or your group did to finish your project.) What I enjoyed: (write about what you liked most about the project) What I found difficult: (write about any part of the project you found hard to do.) What really worked: (write about any part that you thought worked well). Next time: (write what you would do differently next time).

8 References

- Use the IEEE reference style.
- Do not put any reference if it is not cited in the text.

9 Appendix

Include the screenshots of the results of executing your program captured from the screen, and the program code screenshots. If you want to provide additional information, use this appendix.