Department of Computer Science and Software Engineering,

School of Software and Electrical Engineering

SWE20004 Team Project A

Semester 1 2021

Introduction

This is a team project and worth 50% of your final grade. It intends to evaluate your understanding and practical skills on C++ programming skills with the knowledge of variables, constants, stream input/output, output formatting, assignment statements, expressions, sequence and selection (if/switch statements). There are two main tasks you are asked to finish in this Assignment.

In this Assignment, you are required to implement a practical application based on State electoral commission E-system. You have to design and program E-system, where the assessment involves project brief, project demonstrate (Team based - 25%) and a final project report (Team based - 25%) along with a peer assessment. This particular project task is for project coding and demonstration which is assessed 25% of your unit grades. Always engage in discussion forum and further announcements for the project related matters which will be available in Canvas. You are responsible for checking Canvas on a regular basis to stay in formed with regards to any updates about the project.

Academic Integrity

The submitted assignment must be Teamwork, and any parts that are not created by you must be properly referenced. Plagiarism is treated very seriously at Swinburne University of Technology. It includes submitting the code and/or text copied from other students, the Internet or other resources without proper references. Allowing others to copy your work is also plagiarism. Please note that you should always create your coding even if you have very similar ideas with other students.

Plagiarism detection software will be used to check your submissions. Severe penalties (e.g., zero mark) will be applied in cases of plagiarism. For further information, please refer to the relevant section in the Academic Integrity Information at https://www.swinburne.edu.au/current-students/manage-course/exams-results-assessment/plagiarism-academic-integrity/.

General Requirements

This section contains the general requirements which must be met by your submitted project. **Marks will be deducted if you fail to meet any of the following general requirements.**

- You must include code-level comments in your resource file to explain the key parts of

your code.

- You must follow the instructions given in each task (team based) to complete the corresponding task.
- You must submit your project related submissions (code, demonstration and report) before the due date mentioned in the canvas project submission page.

Task 1 — Create a Primary Database

To start with, create a primary database with voter table and a candidate table as shown below. Add at least 10 different field names on both. You need to input sample datasets (create at least 10 to 15 datasets).

Voter Table

Field Name	Data Type	Description
Voter ID	Integer	Login ID for Voter
Name	Var Char	Name of the Voter
Age	Integer	
Suburb	Var Char	
Status		

Candidate Table

Field Name	Data Type	Description
Symbol	Var Char	Party symbol
Name	Var Char	Name of the Voter
Age	Integer	
Suburb	Var Char	
Count	Integer	

Requirements:

- This assignment must be written in C++
- Your code must have appropriate comments including your name and student number, the name of the .cpp file, the purpose of the program, brief explanations of variables and explanations of any code, which is not obvious to another programmer.
- Include a block (multiline) comment summarising the input, output and local variables used in your program.
- Include a block comment stating any equations, and test data.
- Use appropriate and descriptive variable and constant identifiers.
- All code should be placed in the main function.
- Project report: Write a brief (no more than several pages) report, which illustrates your program design (algorithm or flowchart, identification of variables, constants) and include evidence of testing – screen shots or pasted output text, and the contents of the .cpp file.

Task 2 — Analyse the status

In this module, you are asked to analyse the status of all candidates while people are voting in different suburbs of Melbourne at different time slots.

This challenge is about using a collection (list) of integers and allowing the user to select options from a menu to perform operations on the list.

Your program should display a menu options to the user as follows:

P - Print numbers for a particular candidate (for example candidate 1 or candidate 2)

A - Add number of votes to a candidate (with an existing voter ID)

S - Display the smallest number of votes candidate

L - Display the largest number of votes candidate

Q - Quit

Enter your choice:

The program should only accept valid choices from the user, both upper and lowercase selections should be allowed.

- If an illegal choice is made, you should display, "Unknown selection, please try again" and the menu options should be displayed again.
- If the user enters 'P' or 'p', you should display all of the elements (ints) in the list.
- If the list is empty you should display "[] - the list is empty"
- If the list is not empty, then all the list element should be displayed inside square brackets separated by a space.

  For example, [1 2 3 4 5]
- If the user enters 'A' or 'a' then you should prompt the user for an integer to add to the list which you will add to the list and then display it was added. For example, if the vote enters to candidate x You should display, "Candidate ".

  Duplicate list entries are OK
- If the list is empty you should display, "Unable to calculate the mean - no data"
- If the user enters 'S' or 's' you should display the smallest element in the list. For example, if the list contains [2 4 5 1], you should display, "The smallest number is 1"
- If the list is empty you should display, "Unable to determine the smallest number - list is empty"
- If the user enters 'L' or 'l' you should display the largest element in the list. For example, if the list contains [2 4 5 1], you should display, "The largest number is 5"
- If the list is empty you should display, "Unable to determine the largest number - list is empty"
- If the user enters 'Q' or 'q' then you should display 'Goodbye" and the program should terminate.

Before you begin. Write out the steps you need to take and decide in what order they should be done.

Think about what loops you should use as well as what you will use for your selection logic.

This exercise can be challenging! It may likely take a few attempts before you complete it -- that's OK!

Finally, be sure to test your program as you go and at the end.

Hint: Come up with your own ideas!