UNIVERSITY OF THE WEST INDIES
CAVE HILL CAMPUS
Department of Computer Science, Mathematics & Physics

COMP2611 - Data Structures

Project Assignment #1

DEADLINE DUE DATE : Sunday 15 October, 2023 – at Midnight.

Objective:

In this project assignment, you will now build on the work that you have done in the two previous assignments by adding the functionalities of the linear ADTs to your.

Remember that your program should be created using wxWidgets and should be executed in Linux OpenSUSE!

Method:

1. A comma-delimited text file (Clients.txt) is provided with records of clients who booked their travels with the Pelican Travel Agency. The records contain fields of:
   Client number
   First and surnames
   Type of booking (web, telephone, walk-ins, other)
   Time of booking (Spring, summer, fall, winter)
   Trip destination.

2. Using the text file as input, your program is required to read the individual records from the file and to populate the ADTs with the entire record, using the client number as the key field, in this manner:

   (i) **Queue** - All records
   (ii) **Deque** - All records (alternating enqueue operations)
   (iii) **Priority Queue** - All records
   (iv) **Stack** - All records

   The input file should **NOT** be hard-coded into your program. Where sort order is required, it should always be noted in this assignment that sort means **Ascending Order**.

3. In the display functions, the records should be displayed one record per line.

4. The output results of all the menu functions should be displayed in the main text box within your GUI.

5. When the file is opened, ALL the ADTs should be immediately populated with the records, and the contents of each record should be **immediately** displayed in that main textbox.

6. From Assignment #2, the **File** menu item should have the sub-menus of **Open File**, **Save File**, **Save As** and **Exit**. When **Open File** is clicked, the **system fileOpen dialog** should be opened with the option to display files of type: **Data (*.dat), Text (*.txt)** and

All (*.*). The user must also be able to type in the file name in the filename textbox. Once the contents of a file are displayed or the result of some processing is displayed, the menu selections of **Save File** and **Save As** should open the corresponding dialogs to perform the desired task. **Save As** should allow the user to specify a file name and file type into which the contents can be saved. These two functions should only save the contents of the main textbox. **The code for these functions will be provided to you.**

7. When the **Display File** menu item is clicked, the entire content of the text file should be displayed in the display textbox if a file has been previously opened. If no file is open, then a dialog box with an appropriate error message should be activated.

8. Before each display operation is carried out, the display textbox should be cleared.

9. The operation indicated by the sub-menu item should then be carried out on that particular ADT **ONLY**. The other ADTs should NOT be affected by the operations on another ADT.

10. The **Exit** menu item is to close the program

11. The **About** menu item should produce a dialog box with suitable information about the programmer, the program, and the architecture of the machine the program is running on.

12. When the cursor is placed on a sub-menu option, a description of the menu option should be displayed in the first partition of the status bar, as was required in Assignment #2. At all other times, the string, "**Ready…**" should be displayed.

13. Replace the GUI caption with "**COMP2611 – Pelican Travels Database".**

SUBMIT:

Your project should contain a separate header file for each of the ADTs (i.e. Queue.h, PQueue.h Deque.h and Stack.h,) as well as a source code file (**.cpp**) which contains your progam with the wxWidgets code. All the files should be submitted as a **ZIP** file with your ID number as the name and "**-01**" appended to the number (e.g. **123456789-01.zip**) through the portal on the COMP2611 course's page on eLearning. You may also use the portal to continually save your zipped project as a **draft**, as you are developing your code. Previous versions of your submissions will be overwritten and only the latest version will be kept.

You may use any version of Linux to create your code but **Double-Check** that your program code can be compiled in **OpenSUSE on the machines in CSL1 or CSL2**.

DEADLINE DUE DATE :
Sunday 15 October, 2023 - No Later Than Mid-Night.

No late assignments will be accepted – No extension will be granted!

Tips:

1. Start working on your project immediately and plan to finish at least a week in advance of the deadline date. Avoid, at all costs, trying to submit your assignment on the day of the deadline.
2. Build your code incrementally. Add one functionality at a time. At every stage in your code development, you should have a working project. In the unlikely event you did not complete the assignment by the due date, submit what you have completed and make sure those parts are working. **Projects that do not compile will be given an automatic zero and will not be assessed any further.**
3. Save your work often and maintain multiple backup copies. At the very least, make a backup copy for each new addition you make in your project.