**ENED 1091: Team Project**

**Spring 2017**

**Description:**

The City of DEE needs a system to monitor the water level in its water tank. Use Lab 7 as a starting point for what you need to do. Assume the water tank is cylindrical with a radius of 5 meters and a height of 20 meters. You’ll need to set the initial water level in the tank. You’ll be given one or several flow rate out files (gal/min). You will use these files to test your monitoring system. You can be as creative as you want but you must be able to at least solve the problems given in Lab 7.

**Requirements:**

In order to demonstrate that you have understood the material covered in this class, your program must meet several requirements.

1. The GUI must have at least two components that were not used in the FirstGUI tutorial.
2. ***Each member*** of the team is required to write the code for at least one of the callback functions in the GUI you create which includes (at a minimum) one use of the following:

* Conditional structure (IF Else or Switch)
* Looping structure (For or While)
* Array or vector

1. The GUI must actually work.
2. The GUI should be effective in teaching the concept your team has chosen.
3. The GUI should allow for significant user interaction and be engaging for the intended audience.
4. The GUI should be user friendly and easily understandable. If appropriate, you could include an information pushbutton or a help pushbutton to explain what the GUI does or how to use the GUI.
5. The GUI should be creative. You don’t get many points for creativity if you just re-create an earlier lab assignment and throw in a slider.
6. The GUI should look professional. Color can be very effective, but can also be very distracting depending on what you do.

**Assessment:**

Your projects will be assessed using the following rubric:

|  |  |
| --- | --- |
| **Aspect** | **Points** |
| Project Plan Submitted | 5 |
| Functionality:   * Is the GUI an effective teaching tool for the chosen concept and intended audience? * Does the program work? | 15 |
| Engagement:   * Is the GUI engaging? * Is the GUI user friendly? | 15 |
| Complexity:   * Does the GUI have at least two components that were not in the tutorial? * Did the team make good choices in selecting the components to demonstrate the concept? | 15 |
| Creativity and Appearance:   * Is the concept for the GUI creative? * Is the appearance of the GUI professional? | 15 |
| Demonstration:   * Did the demonstration work? | 5 |
| Final Report:   * Does the report have all of the required sections? * Is the description well written? | 15 |
| Individual Score:  Each team member will receive an individual score based on the peer evaluations and the T.A. assessment of participation | 15 |
| **Total:** | 100 |

**Schedule and Milestones:**

1. Week of March 27th:
   1. Break up into teams (no more than 3 students) and choose a team leader.
   2. Decide on a topic for your team GUI.
   3. Do a preliminary layout for the GUI using GUIDE.
   4. Review the PowerPoint called Guide to GUIs posted on Blackboard. In particular, look at the sample code for the various components that you have chosen for your GUI (sliders, radio buttons, tables, … ) and make sure that you understand how the code for these components works.
   5. Decide how to split out the coding for the project.
   6. Complete and submit the Project Plan document posted on Blackboard.
   7. Start Coding.
2. Week of April 3rd
   1. Work on Project. The team leader should send the .m and .fig file to all team members. Team members can then work on various parts of the code. The team leader should be the “keeper of the code” and simply paste in code developed by the other members of the team. Everyone needs to agree on common variable names.
   2. Demonstrate progress on the project to your T.A.
3. Week of April 10th :
   1. Work on Project
   2. Share projects with a partner team to gain feedback on your GUI
   3. Work on incorporating feedback into your GUI
   4. Demonstrate progress on project to your T.A.
4. Week of April 17th:
   1. Demonstrate the finished product during recitation to T.A. and instructor.
   2. Write the final report.
   3. Team leader submits the final report and the code (this includes .m file and .fig file and any other files needed to run the GUI) uploaded to Blackboard by team leader. Please put in zipped folder if you have a lot of files.
   4. Peer evaluations submitted by all members of the team (see Team Project Folder for form).

**Final Report Requirements:**

One side of one 8.5x11 piece of paper. No handwriting on the paper. It must be well written with no misspelled words, no slang, and use engineering terminology. Any equations must be computer generated. Your paper should provide the following:

1. A section providing instructions for how to use the GUI.
2. A section describing the individual contributions of each team member to the development of the project.
3. A section describing any challenges that your team faced and what you learned from the project.