Final Project   CS152 – Computer Programming Fundamentals

Instructor: M. Wolverton

Items Due

- **Final Project Code** (84%) – zip entire IntelliJ IDEA project directory.
- **Presentation** (16%) – Live presentation to the class with demonstration and visual aids.

Technical Objectives

Create an interactive Java application of your choosing. It must meet the following technical criteria. You must also verbally outline your project to me.

Interactivity (12%)

Your application must have a graphic user interface implemented in Java FX, and have some meaningful run-time interactivity.

Structure (44%)

Classes – Your source code should contain at least four classes in their own .java files.
- One class must contain main( ) and extend javafx.application.Application
- At least two of your classes must be instantiated as objects. Every instantiated class must have a custom constructor
- You may optionally have one utility library count toward your four classes. This class will contain only static methods. It must contain at least five static methods to count toward your four required classes.

Data Structures – Your source code should make non-trivial use of at least one Array, 2D Array, ArrayList, or HashSet
- Use of this structure must include for or while loops to iterate through them for some non-trivial purpose.

File I/O (12%)

Your application must both <u>save</u> and <u>load</u> some type of data to plain text or .properties file.

Code Length (16%)

Your application should be at least 400 lines of code in length.
- Code length includes white space and comments, but abuse of either to pad length will be penalized.
- You may space method declarations apart with blank lines and add blank lines where it aids readability.

Presentation

You must present your work in a brief verbal presentation. You should assume your audience will be fellow programmers (familiar with object orientation) but not necessarily familiar with Java or Java FX APIs. Your presentation should meet the following criteria.

Length

Speak about your project and related programming topics for <u>10-15 minutes</u>.

Visual Aids

Prepare 2-6 slides or other visual aid exhibits. Summaries, diagrams and flow charts are decent ideas.

Program Demonstration

Show your program running live to help summarize what you made.

Required Content

Project Summary – Summarize what you made and how users interact with it. Describe all planned major features, including ones you did not get to. Describe how far you got with the current version and what currently works.

Code Structure – Comment on the code structure you implemented in your project. Describe the classes used, and the most significant methods and fields in them. Be broad here, you're trying to describe overall function and how the code connects together. Don't focus on algorithms yet. You should pay extra attention to items coded by you, and defer credit for items handled by the core Java, Java FX APIs, or templates.

Algorithm(s) – Go into detail about the most interesting or important logic you coded. Visualization systems, Physics, Input, Flow Control, Timing - describe the important algorithm behind your code and how they work in principle.

Reflection – Comment on your own personal experience or growth. Was some part of this particularly challenging or enjoyable for you? Did you learn something or did this project reinforce some important lesson? Did you need to restructure something?

Questions

Be willing to answer questions about your work from me or the audience. Be prepared for technical questions as well.