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CSCI 142
(all sections)
Spring 2022
Term Project

Term Project

Contract due: Monday 3/21/2022 11:59pm
Project due: Wednesday 4/27/2022 11:59pm

Contents

Project

You will develop a non-trivial program of your choice in Java Swing and present it to the class by the end of this course. The goal of this project is to demonstrate that you understand how to build a non-trivial OOP program with a Java Swing GUI front end. A contract agreement between you and the instructor is required. Your term project needs to be of sufficient complexity to be approved. Ideally it will utilize many of the concepts and Java syntax that you have explored in this course. **Group projects are not allowed in order to ensure you challenge yourself sufficiently.**

Here is the URL to setup your GitHub Classroom repository for this project:
https://classroom.github.com/a/BGjcuiqH

(a) Contract Agreement

Please don't forget: **your instructor must sign off on your proposed project before you can begin working on it!** Please complete the contract at the end of this document and email it directly to your instructor. Once all functionality is agreed upon, your instructor will sign and email it back to you. Once signed by both parties, commit and push this contract to your project repository.

If needed, note that various programs can open and edit PDF files, including: Microsoft Word, Google Drive, and many free online editors. If necessary, you can also screenshot, print, type / hand write, scan / capture the contract to edit it. Only the contract portion of this document is required to be filled out and returned.

(b) Minimum Requirements

Your term project program must include:

- Something that you are interested in (an intrinsic motivator)
- An original project (not an extension of a project from CSCI141)
- A Java Swing front-end GUI
- *At least* 2 of the following ADTs: List, Tree, Stack, Queue, Priority Queue, Deque, Map, Set
- *At least* 5 distinct custom classes that you code in separate files
- One sort algorithm coded from scratch
- Persistent data that is saved and read from a file(s); in other words, you should be able to exit the program and reopen it and the data is still there.

(c) Presentation

A presentation is required for you to present your work. It will give you public speaking experience and highlight your accomplishments. All presentations will be held virtually online. **Make sure you can share your screen over Zoom** (practice if necessary). Given the number of students, you will be limited to 5-10 minutes of speaking time. Please speak quickly; do not present slides; do not show your code (we simply do not have enough time). Instead, run your program, demo all functionality, and talk about it. Cover these points:

- Interact with the GUI and tell us what works and what doesn't work
- Show the files where the persistent data is saved out to and read in from
- Show input validation handling bad input from the user or file(s)

Project Ideas

The goal of this project is to demonstrate that you understand how to build a non-trivial OOP program with a Java Swing GUI front end... however... **the best projects come from developers who have an inherent interest or intrinsic motivation in completing them.** Therefore, you are required to propose your own project idea to ensure you will be interested in it. Think of something (anything!) that you enjoy or have an interest in: hobby, topic, concept, idea, anime, dream, wish, career goal, curiosity, story, rumor, game, tool, phrase, activism, etc., and then propose your term project program around that.

Here are some generic examples of sufficiently complex programs. **Do not propose these exact projects.** They are simply examples of complexity. Propose one of your own project ideas with similar or more complexity.

- A persistent, editable, file-backed collection of some type of objects (e.g. students, clients, events, TODO tasks, inventory, reviews, destinations, etc.) with data encrypted or stored in JSON or XML file(s)
- A tool that can help or compliment some industry / process / game (e.g. traveling, shopping, cooking, exercise, retail, building, study, analytics, measurements and scientific and or engineering calculations, mass conversions, tax preparation, complex scientific calculator, etc.)
- A system / tool that helps with some sort of philanthropy (e.g. pollution, climate change, animal rescue, adoption, navigation of resources, self reporting, scholarship, etc.)
- A live streaming system (e.g. feed for RSS / Atom, Twitter, Reddit posts, etc.) which parses JSON or XML from URL, with additional functionlity beyond just reading posts
- A complex paint / drawing program w/ many tools, brushes and ability to save and load drawings
- A simple polished video game (e.g. card game, turn based game, dungeon crawler, 2D overhead, side-scroller, etc.)
- etc. (there are an infinite set of possibilities)

Submission

You will first email your proposed term project contract to your instructor by the contract due date. Once signed off on, you will commit and push your code changes (at least weekly) to your individual GitHub Classroom repository for this assignment. Please commit and push early and often to demonstrate your work ethic and progress. Your weekly participation will be graded. You will also commit and push your final contract and all resources used in your program. Please do not reference any hard-coded absolute file paths, as these paths do not exist on the grader's system; use relative paths instead.

Rubric

Task	Percentage
Using more than 10% of code from an existing Java project (online or provided)	Instant 0
General attempt at completing your project	35%
Minimum requirements implemented	30%
Program compiles completely and runs w/out crashing	5%
Contract submitted on time	10%
Weekly contributions to your term project GitHub repository	10%
Presentation professionalism and thoroughness	10%
Total	100%

Contract

DEVELOPER name (printed clearly):

DEVELOPER agrees to design and develop a Java Swing program (and present it) with the following functionality for the Term Project in this course.

DEVELOPER agrees to design and program at least 90% of the algorithms and code required for this proposed project by their self. Up to 10% of the code may come from online sources, but only if commented with a URL to the original online source.

DEVELOPER agrees to seek help by searching the Internet, consulting the Java Docs, getting help from computer science tutors, asking on Discord, or talking to the instructor directly.

Proposed project functionality:

DEVELOPER signature:

Instructor signature: Date: