You Choose Team Project

CPSC 1302K - Fall 2026

Teams can be up to a total of 3 students.

Purpose

The purpose of this assignment is to use the programming skills we have learned to develop a program that addresses a real-world problem. Additionally, you get to incorporate AI tools to enhance your code. Outside of a classroom, whether you go to work for a company or start your own business, you will use programming to develop solutions to problems that have not been previously coded. Part of your job will be to identify problems and apply computational thinking to develop solutions. For this project, you must write Java code that uses all of the following to solve a real-world problem:

- Javadocs (can use AI to assist)
- Class inheritance (using classes that you/your team wrote)
- A collection (array, `ArrayList`, `Vector`, etc.)
- Input validation
- Exception handling
- Files
- Testing (e.g., unit testing, can use AI to assist)

Practice in these fundamental computer science skills as well as in real world problem solving are essential for success in future courses.

Proposal

Identify a problem that you or a team member encounters in their daily or weekly routine that a Java program would help with. You should identify a specific problem that can be addressed in a small application, working prototype or a proof of concept. When you've identified what you want to work on, review the posts in the You Choose Team Project Topics Discussion. If your idea matches an existing idea, then think of a new idea. If your idea does not closely match one already chosen, then have one team member make a brief post with the title of your project and a short explanation. Separate from the Discussion post, write a proposal (approximately one to two paragraphs) listing your team members and your selected problem. Include multiple (two to four) solutions for addressing the problem. Solutions can include those that are not possible yet. Include the benefits and disadvantages of each solution. Indicate which solution your team will implement and why it was selected. For your solution, identify what will be the input(s) (for example, files, a user typing, etc.) and what will be the output(s). Also, indicate what the inheritance hierarchy would be (e.g., UML diagram)

for your chosen solution (including what is unique to each class), what collection (array, ArrayList, etc.) that you're planning on using and how you're going to incorporate files. Here's a potential outline for your proposal:

Project title
Team members' names, their roles and what each one will do on the project
Background
Problem statement
Potential Solution #1 (with advantages and disadvantages)
Potential Solution #2 (with advantages and disadvantages)
Potential Solution … (with advantages and disadvantages)
Chosen solution:
Inputs and output
Use of inheritance (also include name of parent class and child classes [make sure there is an "is-a" relationship] and unique fields of each one)
Use of file(s)
Use of one or more collections (arrays, ArrayList, etc.)

Your proposal must be approved by your instructor before moving on to coding your solution. Submit one per team in one of the following formats: .txt, .doc, .docx, or .pdf. **Submit in CougarVIEW by Saturday, November 7th at 10:00 PM**.

Proposal Grading Criteria **(30 points)**

a. Lists all team members' names
b. Demonstrates the ability to construct a clear problem statement with evidence of many relevant contextual factors as it relates to real world scenarios. (Contextual Factors: Constraints (such as limits on cost), resources, attitudes (such as biases) and desired additional knowledge which affect how the problem can be best solved.) [1 point]
c. Identifies multiple possible solutions to the problem that apply within a specific context. [1 point]
d. Identifies advantages and disadvantages for each possible solution. [2 points]
e. Identifies the chosen solution that the team will implement (and why it was chosen). [1 point]
f. Identifies the input(s) and output(s) of solution. [3 points]
g. Identifies incorporating inheritance [5 points], collection(s) [1 point] and files [1 point]
h. Team member's evaluations [15 points]

Code & Supporting Files

Write a Java program that implementation a solution to the problem identified in the proposal. Utilize all the coding elements listed above. Your program needs to be able to run on my (Mac) computer (so use only relative file names, etc.). You may use AI to assist you (if desired) in writing all of the class and method Javadocs. Additionally, if you choose to use an AI tool to help with the unit testing, use the Junit framework. Include all prompts to AI used with your submission. **Also submit any files needed to run your program**. **Submit in CougarVIEW by Saturday, December 5th at 10:00 PM**.

Code & Supporting Files Grading Criteria (170 points)

a. Addresses address the problem selected and provide a solution
b. Uses all of the Java elements listed above. For child classes, each one needs to have at least one unique field/instance data or overridden method.
c. Execution is robust (meaning it can gracefully handle invalid and random inputs) and runs without errors (syntax, runtime, and logic) [so use input validation, etc.]
d. Provides a usable interface. (Does the user know what is expected of them in terms of input? Can the user understand the output?)
e. Code is properly documented with Javadocs at the top of each code file and with explanations throughout the code where necessary. Additionally, each method has a Javadoc with a description, parameters, and return value (when applicable).
f. Tests are included in their own file (for example, `UserInterfaceTest.java`). Uses the Junit framework if using AI tools to enhance.
g. The most useful project for CSU students will receive up to 5 bonus points!
h. Team members' evaluations [85 points]

Note, have one team member submit each assignment and the other team members submit something that just indicates who submitted the assignment. This will allow for feedback in CougarVIEW.

Presentation

For this assignment, **as a team**, you get to create a presentation of your product. Your audience for this is other Java developers (your classmates). Your presentation needs to include the following:

a) Motivation for why you chose this problem
b) A brief walk through of your code (less than 5 minutes)
    a. Hardest part to code

b. Part that you're most proud off

c) Footage of your code running

You may consider using UML diagrams.
Each team member must speak in the presentation.
Your team can either 1) present your presentation during the final exam time or 2) you can record the presentation (and we'll watch it during the final exam time). Free screen-capturing options include video conference software (for example, Zoom, Google Meet, Teams, etc.) and other programs.

Presentation Submission

Each team member needs to submit something to the presentation Assignment in CougarVIEW to allow for feedback. If your team is recording a video, then have just one team member upload it or an accessible link to it. The other team members can submit a simple statement of *who* uploaded the presentation / video. If your team will be performing the presentation live, then submit something to CougarVIEW to enable feedback. Submissions are **due in CougarVIEW by Saturday, December 5th at 10:00 PM**.

Presentation Grading Criteria (40 points)

If submitting a recorded video, video runs and has sound (if video, please review the entire video before submitting). Additionally, presentation includes all the elements listed in the task description. Half of the points will be based on your team members' evaluations.

This culminating project allows you to apply the concepts learned throughout the course. Consequently, authorized sources are limited. Additionally, you are encouraged to work extensively with your team members. Other authorized sources include the TA, CSU CS tutors and Dr. Carroll.

Related Assignments

- You Choose Team Project Team Evaluations (a CougarVIEW Quiz)
- You Choose Team Presentation Team Evaluations (a CougarVIEW Quiz)