STUDENT-PROPOSED AI PROJECT

OVERVIEW

This assignment will require you to implement a computer program on an AI topic of your choice. You must propose the project to your instructor for approval before you may begin the work.

THE PROGRAM

Implement a program in a language of your choice to solve an AI computing problem. Your program must execute on sample data that you provide and that the instructor is free to change to evaluate your program further.

VISUALIZATION

Your program must use appropriate visualizations to show final and/or intermediate results.

DELIVERABLES

Your project submission should follow the instructions below. Any submissions that do not follow the stated requirements will not be graded.

1. Follow the submission requirements of your instructor, as published in *Canvas* under the first module.
2. You should have at a minimum the following files for this assignment:
    a. source code for the program in C, C++, Java, or Python
    b. Makefile (if the program is implemented in C or C++)
    c. README (instructions to compile the program and run it)
    d. Report (PDF only)

You should use appropriate code refactoring techniques to improve the readability and maintainability of your code. Your program will be evaluated according to the steps shown below. Notice that I will not fix your syntax or runtime errors. However, they will make grading quick!

1. Program compilation with a Makefile in C or C++ or javac.
    - If errors occur during compilation or if the program crashes during execution, there will be a substantial deduction. The instructor will not fix your code to get it to compile.
2. Perform several evaluations with the input of the grader's choosing. At a minimum, the tests will answer the following questions.
    - Is your program executing on the provided data and producing an expected result?
    - Is your program producing the expected result?
    - Is your program capable of handling new data and producing the expected result?
    - Is your program visualizing the result appropriately so that the result can be evaluated?

REPORT

The report is a PDF-converted document that must contain the following information:

- A description of the problem that you solve. You must provide enough information so that anybody can read the description and understand the problem reasonably well and its relevance to the class and society, in general.
- A description of the program and the method that it uses to solve the problem.
- A description of the results, including as applicable any tables that summarize performance measurements.
- Conclusions from your work on this project. The conclusions should cover, among other things, your assessment of why your results are strong or weak and what the next steps in the project could be.
- A list of references cited in the report.

The descriptions should be concise. The report itself should be no longer than 4-5 pages.

DUE DATE

The project is due as indicated in the schedule in the syllabus and calendar in *Canvas*. Upload your complete solution to the dropbox as a zip file. I will not accept submissions emailed. Upload ahead of time, as last-minute uploads may fail.

GRADING

This project is worth 100 points in total. The rubric used for grading is included below. Keep in mind that there will be deductions if your code does not compile or crashes or is otherwise poorly documented or organized.

Project Submission	Perfect	Deficient	
Canvas	5 points zip file has been uploaded	0 points nothing is uploaded	

Compilation	Perfect	Good	Deficient
README	5 points clear instructions provided	3 points missing or unclear instructions	0 points README is missing
compilation	10 points no errors, no warnings	7 points some warnings	0 points errors
program execution	10 points runs, no crashes, accepts input, no memory leaks	7 points runs, no crashes, accepts input, some memory leaks	0 points crashes or fails to accept user input

Documentation & Program Structure	Perfect	Good	Attempted	Deficient
documentation & program structure	5 points follows documentation and code structure guidelines	3 points follows mostly documentation and code structure guidelines; minor deviations	2 points some documentation and/or code structure lacks consistency	0 points missing or insufficient documentation; code structure is poor; review sample code and guidelines

program	Perfect	Deficient		
implementation	15 points program runs and produces the expected output.	0 points missing files, incomplete		
solution	15 points appropriate AI methods have been used in the solution	0 points no AI methods have been used		
report	**Perfect**	**Good**	**Attempted**	**Deficient**
content	25 points report provides detailed background, discussion of methods, results, and conclusions		13 points report lacks some details in background, discussion of methods, results, or conclusions	0 points report is missing
readability	5 points the report is legible; there are no or few grammatical errors			0 points the report has several grammatical errors, or the report is missing
references	5 points references have been provided; the report cites the references			0 points no references have been provided or the references are not cited in the text or there is no report

I will evaluate your solution as insufficient if your code does not compile or crashes immediately. Be sure your code compiles and executes.