DEPARTMENT OF COMPUTER & INFORMATION SYSTEMS ENGINEERING
BACHELORS IN COMPUTER SYSTEMS ENGINEERING

Course Code: CS-115
Course Title: Computer Programming
Complex Engineering Problem
FE Batch 2024, Fall Semester 2024
TERM PROJECT

Course Learning Outcome

CLO 2: Apply basic programming language structures (Taxonomy level C3).

Complex problem-solving attributes (CPA) covered (as per PEC - OBA manual – 2019)

- **CPA-1 Depth of analysis required:** Have no obvious solution and require abstract thinking, originality in analysis to formulate suitable models.
- **CPA-2 Level of interaction:** Require resolution of significant problems arising from interactions between wide ranging or conflicting technical, engineering or other issues.
- **CPA-3 Familiarity:** Can extend beyond previous experiences by applying principles-based approaches.

Problem Statement

Develop a software application in Python using the basic concepts and structures of computer programming. The details of the application to be developed are given in the file CS-115 CP CEP Problem Description.pdf, which is enclosed with this document (see Google Classroom).

Instructions and Guidelines

1. Students can work in groups of 3 at maximum. Group work and coordination carries marks, therefore the project cannot be done individually.
2. All project group members must belong to the same practical group.
3. For submission, put all your files (code files, data files, and documentation files) in a folder with the following naming convention: CS24XXX, where XXX represents the roll number in 3 digits of any one group member. For example: CS24042. Zip the folder and then submit. In case of non-compliance, the assignment will not be graded.
4. Your assignment will be graded on the attached rubrics, file titled CS-115 CP CEP Grading Rubric.doc (see Google Classroom).
5. The code must be easy to read and follow. Provide concise and useful comments generously.
6. Organize your code in functions and files.
7. You can add any additional features to the project to make it distinct and stand out.
8. You may use any built-in and standard library functions, however use of external library/package is not allowed except for GUI (if used).
9. You can refer to any web resources or books. Do refer the resource(s) in your report.
10. You may include a *.txt* file, called README, including any instructions for the user of your application. For example, you can include information (if applicable) like which file contains the main/starting code, administrator username and password, list of GUI packages to be installed, etc.
11. The project will be graded for 10 marks in theory on material uploaded on Google Classroom.
12. Final lab exam will also be conducted on the same project where you will demonstrate working of the project and answer relevant questions.

Deliverables

Submit the following, latest by **November 25, 2024 (16:30 hrs)**:

1. Python code of the application on Google Classroom. Also attach the related data files.
2. You are required to bring the softcopy of the application for final assessment in lab exam. Bring your laptop with custom installations if the development environment is not IDLE or PyCharm.
3. Report in hard copy (submit in Computation lab) as well as softcopy (submit on Google Classroom) formats organized as follows:
   - Text containing the following (organize in headings):
     - Problem Description
     - Distinguishing features of your project
     - Flow of your project (preferably flow chart), detailing how to use the software
     - Most challenging part for you while working on the project
     - Any new thing learnt in Python while working on the project
     - Individual contributions of each group member in the project
     - Future expansions, if any
     - List of references, if any
   - At least 3 test case runs. Screen shots can also be attached.

   - While compiling the report, keep the following in mind:
     - Attach the provided rubric on **top** of your report, with names and roll numbers filled in.
     - No need for any other title page, the rubric sheet will serve as the title page.
     - Use font size of 12 and/or 14 for headings, and 11 for regular text.
     - Font style should be Times New Roman.