Mini Project   Application Programming   CCGC 5003

Introduction

Mini-Project   **CCGC5003**   **Application Programming**

This is group project and most cases team of 2 group members is formed. This project uses Python as programming environment to design build and test application that integrates database with user interface. This project is presented in four phases. Minimum requirement of this project includes:

i)   Define project scenario (having multiple use-cases) which includes collecting, saving, retrieving and processing multiple object (customers, clients, bank-account holders, students, faculty, vehicles, library membership, airline passengers, items in shopping-cart, etc.) information. Object/User activities (e.g. customers' interaction with the business, clients' activities, business-to-business application, bank-account transactions, students and course registration, faculty teaching and research activities, vehicle registration, library membership and items checkout or items returns, paying late fee for late library material return etc.) are defined and input and output activities are identified and displayed

ii)   Design of database system. Minimum requirement is to design using at least 5 main tables implemented in database. Each table will have at least 5 to 6 key values (primary, composite or combination) or important fields (one or more data types may be used). Explain the design using E-R diagrams or EERD. This section is the 'model' (in MVT architecture). Based on the scenarios or use-cases defined in part i) above, data entity (with fields) is defined in database tables.

iii)   Design UI that integrates with at least 5 to 6 different scenarios or use-cases defined in part i) above. Each activity (or use-case) is integrated with complete application. There are UI options available to initiate an activity from an integrated UI module. Based on the scenario or use-case defined above (in part i)), UI is initiated that has various widgets/UI components to support the scenario defined for this project. The UI uses different widgets or UI components including labels, entry (text box), checkbox, radio buttons, buttons, and scrollable text area. This section of the project is 'view' part (in MVT architecture)

iv)   'Model' and 'View' planes are activated together using control (in MVT architecture) plane. As events take place in the event-driven 'view' plane, various functions perform activities in control plane to ensure execution to achieve scenarios defined in part i) above. For example, in Library Management System, when button is pressed after having radio button to select new library member, function opens a frame with the fields pertaining to adding new library member. Similarly, in the same Library Management System, when a radio button to check-out library material is selected and button is pressed, respective page opens where library member can enter

membership information and the information of library material from a list of material provided (which is retrieved from the database – both membership information and library material information). Information is validated (material is correct and library member is authenticated).

Phase – I

Requirements:

Phase-I is the project identification and inception phase. In this phase the group will identify the project and layout overall project plan.

In the project inception phase, the group will identify the

a) Group members and Group name
b) Project title
c) Minimum five different and unique scenarios (or five different use cases that are defined) as part of the main project and explain business flow defining the integration of these five use cases (or scenarios). Eventually, these use cases (scenarios) integrates web user interfaces with the databases in the subsequent phases of the project
d) Based on the requirements (use cases) identify (name) the database tables (at least one table for each use case or scenario but there may be more than one database tables for each scenario)
e) Define the fields (or column names) and their data types for each of the tables defined in part (d) above. There must be at least five or more fields in each of the tables given in part (d) above
f) Summarize the overall project and role of each group member

Due date: Phase-I   Monday, October 27th, 2025 (11:59 PM).

Phase-I is submitted, one report per group.

The project report must not be more than three pages (excluding the title page that shows the section number, group members' names and title of the project)

All four phases of the project is 20% of the course grade. Phase-I of the project is 2% of the course grade.

Rubric for Phase-I:

a) Project inception, brief description and title: 5 Marks
b) Minimum 5 scenarios (use cases)   10 Marks
c) Minimum five table names   10 Marks
d) Minimum five fields (column names and data types) per table

                                                            10 Marks

e) Summary – explaining the project and role of each member

                                                            5 Marks

     Total: 40 Marks (2% of the course grade)

Project (including phase-I, phase-II, phase-III and phase-IV) is 20% of the course grade