Programming Practice Lab

Assignment 5

CO3: Understand and implement OOP features through C++ Programming
CO4: Design and implement the solution following OOP paradigm

1. There are number of students. For every student roll (unique), name is to be stored. For each subject, subject code and name is to be stored. A student can opt for number of subjects. System should be able to maintain student list, subject list and will be able to answer: i) which student has selected which subjects and ii) for a subjects who are the students.
   Design the classes and implement. For list consider memory data structure.

2. In a library, for each book book-id, serial number (denotes copy number of a book), title, author, publisher and price are stored. Book-id and serial number together will be unique identifier for a book. Members are either student or faculty. Each member has unique member-id. Name, e-mail, address are also to be stored. For any transaction (book issue or return), members are supposed to place transactions slip. User will submit member-id, book-id, and serial number (only for book return). While processing a transaction, check the validity of the member. While issuing, availability of a copy of the book is to be checked. While returning a book, it is to be checked whether this copy was issued to the member or not. A student member can have 2 books issued at a point of time. For faculty members it is 10. Transaction information is to be stored like date of transaction, member-id, book-id, serial number, returned or not. An entry is made when book is issued and updated when the book is returned.
   Design the classes and implement. For list consider memory data structure.

3. Employee has unique emp-id, name, designation and basic pay. An employee is either a permanent one or contractual. For permanent employee salary is computed as basic pay+ hra (30% of basic pay) + da (80% of basic pay). For contractual employee it is basic pay + allowance (it is different for different contractual employee). An employee pointer may point to either of the two categories and accordingly the salary has to be created.
   Design the classes and implement.

4. Each cricketer has name, date of birth and matches played. Cricketer may be a bowler or batsman. For a bowler, number of wickets taken, average economy is stored. For a batsman, total runs scored, average score is stored. A double wicket pair is formed taking a bowler and a batsman. An all-rounder is both a bowler and batsman. Support must be there to show the details of a cricketer, bowler, batsmen, all-rounder and the pair.
   Design the classes and implement.