



Department of Software Engineering Object Oriented Programming LAB ASSIGNMENT 5

Section: T

Instructor Name: Faiza Khadim

Total : 30 Points and Weightage: 5

Instructions:

- This Assignment is related to **file handling**.
- All program codes should be written in C/C++ by using Dev C++/ Visual studio compiler for coding.
- Plagiarism in the work is professional dishonesty which leads to **strict disciplinary** action and **zero in grading of assignment**.
- Assignment evaluation is totally based on **viva**.
- **Deadline : 11-May-2021**

Library Book Loan System

Requirements

- There are 4 types of users: Students, Staff, Faculty and Library Staff
- Every Customer has a library account.
- There is a limit on number of books a customer can borrow
- Each book is loaned for some number of days (may be different for each customer)
- A fine per day per book is due after the due date
- Customer cannot borrow if a fine is due
- The fine increases at a percentage after some days
- Customer can search the Library Book Catalogue
- Each book has the following information stored in the system: Status (loaned or not), Book Title, Authors, a short description of the book, Library Code, ISBN, Publisher name and publish date.
- Location (rack #, shelf # etc.) of a book can be found out from its Library code
- Library Staff can see any customer account: loaned out books, fine due etc.
- Library Staff can search, by account number, first name, last name for a customer account.
- The search on a customer can return more than one results.
- On payment of the fine the restriction on borrow is lifted.
- Customer can search a book by any of its attributes e.g., Book Title.
- The Book Search result can return multiple matches.
- All the attributes of the book are shown on the search results.
- Each Customer is issued a library card.

Activity 1: Design (Zero if any C++ or similar used here)[15 % marks]

1. Identify the objects and their properties and operations of the objects identified in part 1 above. [5 % marks]
2. Design full diagram in terms of objects of above part 1. [10 % marks]

Activity 2: Coding [15 % marks]



1. Write a C++ program that implements the algorithm of activity 1 and Test your program with enough examples to demonstrate the working of your project [15 % marks]

Topics that must be included

- Encapsulation
- Information hiding
- Inheritance
- Polymorphism (operator overloaded and virtual function)
- Abstraction
- File handling
- Composition or aggregation

Must Cater the following otherwise zero marks

- No global variables
- Descriptive names for all classes, variables and functions
- Comments to explain your logic• Please explain if you choose to pass by reference
- Follow this convention for accessors and mutators. Only in special cases you will violate these rules and will have to explain the reason.
 - Return_type getVariablename(); Only the first letter of the variable name should be capital, rest should be same as the actual variable e.g. int getId() for a variable id.
 - void setVariablename(data_type variable); Only the first letter of the variable name should be capital, rest should be same as the actual variable e.g., void setId(int i) for a variable id.

Deliverables (Soft copy)

- your initial name with .CPP file
- A pdf document contains the activity 1, code and screen print out of test runs.

GOOD LUCK ☺