

**American International University- Bangladesh**

**CSC 1205: Object Oriented Programming 1 (JAVA)**

**CO4 Evaluation**

**Project Concluding Report**

**Spring 19-20**

**Group ID: 01**

**Project Title: Library Management System.**

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**Introduction:**

*Why you are doing this project? (No more than 60 words)*

**Answer:** The project was our final term project with JAVA programming language also this project will serve the purpose of a library to be digital. Also, the project has inspired to work with such more project in future and it also helped to create a clear base about practical implementation of JAVA programming language.

**Problem Analysis:**

*What kind of problem is being solved with this project? Who will use this application?*

*(No more than 60 words)*

**Answer:** The project solved the problem of the whole library management of a university. The project will have all the information of the books, patron, library and librarian’s information in it. The project will also have book borrow and return information, so all the information is stored in one place and can be searched easily and so, the project will solve long searching manually in papers and also save time and make library easier to not only the management’s people but also patrons.

**UI Design Analysis:**

*How will the users interact with this application? How can it be improved?*

*(No more than 60 words)*

**Answer:** Currently it does not have any graphical user interface so the user has to use the command prompt to interact with the system. The user will have their options to choose from many of them. By choosing options and giving information the user will interact with the system.

Currently the application does not have GUI and database connection but in future by adding these the application can be improved.

**Logical Analysis:**

*How much logic has been applied in this application? Are the applied logics working properly? Is there any logical limitations?*

*(No more than 100 words)*

**Answer:** Many simple logics had been applied in this application. The application has its own exception handling logic. There are also many arrays of objects which are basically the main working source of this application. In this application uniqueness of a user is kept by not giving multiple user a single id this logic is working perfectly. Also, before borrowing and returning books it is checked that the patron is able to borrow or return that book. Also, number of copies of the book is considered in borrowing books. History of all borrow and return is saved for future use.

All the logics that are used in this application is working perfectly.

**OOP Concept Analysis:**

*What are the OOP principles used in this project? How have been they applied? Explain the OOP concepts used in this application (No more than 3 sentences per concept)?*

*(No more than 160 words)*

**Answer:** All three of OOP principles was used in this project.

**Encapsulation:** All the codes and data were bind together in the classes and protected by access control. By this the security of code and data were provided also the complex parts of the applications were

hidden from the user. All the variable which are needed to be protected for misuse they were made private and protected by encapsulation.

**Inheritance:** Here many classes are inherited by many other classes. Child classes are extending the parent classes and using the functionality which they needed. For inheritance in multiple classes the feature in common need not to rewrite again in the child class they can easily excess the parent classes by inheritance. Such as patron was extended by teacher and student.

**Polymorphism:** Here polymorphism was obtained by method overriding. In the application there are many abstract classes and interfaces their method was overridden and thus polymorphism was obtained. By method overriding we are using same method differently in different classes.

All three of OOP principle worked here together and showed the power of OOP.

**Impact of this Project:**

*What impact this project will have on the society and economy? How will people be benefitted from your project?*

(Maximum 80 words)

**Answer:** By this project in every university/school/college we can have a modern library system, we can also create online platform for library via this application. We can create a modern society via this. The library users can easily find their preferred book and can see their status at the library. Then library management will also be easy as the management information can be easily found. Also, economically this application will help very much as it will save time and also easy to use for all the people the complexity of the manual library system will be gone and we will have a modern and economically grown society.

The people who use library and also the people who are connected with library will be very much benefitted by this library management application. User can easily search a book and borrow it and library management people can easily find the user information and provide them their services.

**Limitations and Possible Future Improvements:**

(Maximum 80 words)

**Answer:** There are some limitations in this application. As it does not have any graphical user interface (GUI) it should be run on command prompt also it does not have any database connection so, data are stored in array and files which are much complex and for searching in array with linear search it will take time. It is currently useable for limited users because in array we can’t store much data because index is limited so, for this we need database connection. And for GUI we can’t it yet on the devices without command prompt.

This application will be improved much in future with GUI and database connection then we can launch it in many devices.

***[Note: Make sure that your report is maximum 3 pages (including cover page).]***