King Abdulaziz University
Faculty of Computing and Information Technology
Computer Science Department

CPCS202, 1ˢᵗ Term 2020 (Fall 2020)
Assignment #1 - FCIT Library System
Assigned: Sunday, 29ᵗʰ September, 2019
Due: Tuesday, 8ᵗʰ October, 2019

Purpose:
      The purpose of this assignment is to test a student's ability in applying his knowledge of primitive data types and selection statements to some real world problems

Read Carefully:

- This program is worth 7% of your final grade.
- **WARNING**: This is an individual assignment; you must solve it by yourself. Any form of cheating will result in receiving **– 4%** (less than zero) in the program.
- The deadline for this project is by **11:00 PM on Tuesday, Oct 8ᵗʰ, 2019.**
- LATE SUBMISSION: you are allowed to make a late submission, but there is a penalty. If you submit **within 24 hours** of the due date (so on Wednesday by 11:00PM), you will receive a 25% deduction. You will NOT be able to submit after this date/time.
- This assignment must be submitted online via blackboard
- If Page 1 of 5file is empty or you upload the wrong file, it will be solely your responsibility, and your grade will be **zero**.

Assignment #1 – FCIT Library System

FCIT has provided its faculty members, staff, postgraduate and undergraduate students the facility to borrow books from its library. Your job is to develop a basic application to help them manage the library's basic functionality. Please read the description below to understand what is required

A. Main Menu

When your application starts, it should display the following menu

```
-----------------------------------------------------
                  Welcome to KAU Library
-----------------------------------------------------
Enter 1 for Borrowing Books
Enter 2 for Returning Books
Enter any other number to quit
Enter your choice:
```

There are two choices available to the user – He can either *borrow* a book or *return* a book. A user has to enter 1 to access the Borrow menu and 2 to access the Return menu. If the user enters any other number the application should quit by displaying the following message

```
-----------------------------------------
*** Thank you for Visiting ***
-----------------------------------------
```

B. Borrowing a book

If a user enters 1, your application should display the following message

```
-----------------------------------------------------
                  BORROWING/RETURNING MENU
-----------------------------------------------------
Enter 1 for Faculty Members:
Enter 2 for Staff
Enter 3 for PhD/Master Student
Enter 4 for Undergraduate Student
Enter any other number to quit
Enter your choice:
```

If the user enters a choice other than 1, 2, 3 or 4, the application should display the following error message and quit.

```
Wrong selection of member type!
-------------------------------------------
*** Thank you for visiting ***
-------------------------------------------
```

Otherwise, it should ask the user to enter his 8 digit ID (all digits) and the number of books as follows

```
Enter your ID: 12345678
Enter the number of books being borrowed: 34
```

For each designation, only a certain maximum number of books are allowed as given in Table 1.

If the user enters more books than those allowed for his category, the following error message should be displayed. The program should terminate after displaying the message.

```
Sorry! Number of books exceeds the allowed quantity!
```

Table 1: Borrowing Information

Designation	# of books Allowed	# of days allowed	Penalty
Faculty	10	120 days	50 % of price
Staff	8	90 days	40% of price
PhD/Masters Student	6	30 days	30% of price
Undergraduate Student	3	15 days	20% of price

If the user enters the correct number of books it should ask the user to enter his ID. The ID is a 8 digit number. It should then display the summary for the user

```
-------------------------------------------------------
              BORROWING/RETURNING MENU
-------------------------------------------------------
Enter 1 for Faculty Members:
Enter 2 for Staff
Enter 3 for PhD/Master Student
Enter 4 for Undergraduate Student
Enter any other number to quit
Enter your choice: 3
Enter your ID: 12345678
Enter the number of books being borrowed: 3
-------------------------------------------------------
             INFORMATION DETAILS FOR BORROWING
-------------------------------------------------------
Identity number : 12345678
Member Category : Postgraduate Student
Number of borrowed books : 3
Number of allowed books : 6
Number of allowed days : 30
-------------------------------------------
*** Thank you for Visiting ***
-------------------------------------------
```

C. Returning a book

If the user chooses 2 in the menu, it should display the following menu

```
-------------------------------------------------------
              BORROWING/RETURNING MENU
-------------------------------------------------------
Enter 1 for Faculty Members:
Enter 2 for Staff
Enter 3 for PhD/Master Student
Enter 4 for Undergraduate Student
```

```
Enter any other number to quit
Enter your choice:
```

If the user enters a choice other than 1, 2, 3 or 4, the application should display the following error message and quit.
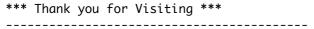
```
Wrong selection of member type!
-------------------------------------------
*** Thank you for visiting ***
-------------------------------------------
```

Otherwise, the application should ask the user to enter his ID, the number of books he is returning, the number of extra days he held the book.

There are two cases here depending on what the user enters for the number of extra days

1) If he enters 0 as the number of extra days, the following should be displayed after

```
Enter your ID: 12345678
Enter the number of books returning: 3
Enter the number of extra days: 0
-------------------------------------------
Information Details for RETURNING
-------------------------------------------
Identity Number : 12345678
Member Category : Staff
Number of books returned : 3
Number of allowed days : 90
Number of extra days : 0
-------------------------------------------
*** Thank you for Visiting ***
-------------------------------------------
```

2) If he enters a number more than 0 as the number of extra days, the user should be asked the price of the books and the penalty should be calculated based on the information provided in Table 1. The following should then be displayed.

```
Enter your ID: 12897654
Enter the number of books returning: 2
Enter the number of extra days: 25
Enter the total price of books (in SAR): 250
-------------------------------------------
Information Details for RETURNING
-------------------------------------------
Identity Number : 12897654
Member Category : Undergraduate Student
Number of books returned : 2
Number of allowed days : 15
Number of extra days : 25
Total price of books (in SAR) : 250.0
Penalty : 50.0SAR
You exceeded the allowed period! The penalty is 20% of the price of the books.
-------------------------------------------
```

```
    *** Thank you for Visiting ***
    -----------------------------------------
```

Grading Details

Your program will be graded based on the following criteria:

1) Adhering to the implementation specifications as listed in this document
2) Your algorithmic design
3) Correctness
4) Your program should include a header comment with the following information: your name, **email**, course number, section number, assignment title, and date.
5) Your program should look EXACTLY like the sample output given in this document.
6) The grade distribution-
   a. Menus 15%
   b. Input and Input Validation 15%
   c. Return and Borrow procedures 30% each
   d. Other 15%

Deliverables

You are required to submit one Java file containing the Java code. It should be named using the following convention (If the file is not named in this format, you will lose points)

<p style="text-align:center">SectionName_StudentId_AssignmentNumber.java</p>

Example: A student in section LA with ID 1110348 should name his file : *LA_1110348_1.java*

Suggestions:

- Read and fully understand this document BEFORE starting to code!
- Next, design your algorithm using pseudo code or flowchart (you don't need to submit these)
- Once the solution is 100% clear to you, then start coding
- You can use the Java statement *System.exit(0);* to exit from the program

<p style="text-align:center">START EARLY!</p>