CORNERSTONE
International Community College of Canada

Module 1
WMADP 201 Java Programming - MADP 201

Activity 4

Due: 10:30pm, Thursday, June 27th, 2019

Requirements

- This is a group assignment. Do it in a group of 2.
- Please use meaningful name for your variables and functions
- Try to reuse your solutions as much as possible.

Group:

- Student 1's name:
- Student 2's name:

Problem1

In this problem you are going to design an object-oriented model for an educational portal using Java. Through this portal the students can register as a new user and also login to the portal through a registration and login view respectively and perform some actions that are available to them.

Write a java class for each of the following entries:

- Account
- Student
- GeneralTranscript
- CurrentSemesterTranscript
- StudentProfile
- Course
- Manager

- Draw the object diagram for each of the above entities.
- You need to define states and behaviours for the above classes. Before you decide what states or behaviour methods to consider for each object, read the rest of this problem and figure out what states and behaviours you can define for each of the classes.

The class **Account**: Each student is going to have one account. At the beginning the student should register with a username and a password to create an account.

- The username must be at least 6 characters long.
- The password must be at least 6 characters and at least one digit character in it.

The class **Student**: Each student is defined as following:

- A number, which shows the admission year of the student.
- A number, which shows the number of year in university.
- A general transcript, which will show all the courses the student has taken so far since in the school.
- A semester transcript, which will show all the courses the student is taking in the current semester.
- A profile which contains some personal information about the student

The class **StudentProfile**: Once a new student registers, a profile is created for the student. The profile contains the following information:

  - StudentID
  - Firstname
  - Lastname
  - Gender
  - Address
  - Country of Origin
  - Age
  - Year of Admission

The class **GeneralTranscript**: The general transcript shows all courses the student has taken. For each course, the name of the course, the code of the course, the grade the student had received in the course and number of units and the number of semester in which the course is taken is shown. The General Transcript include the courses the student has taken in the current semester.

The class **CurrentSemesterTranscript**: Similar to General Transcript but only contains the courses the student has taken in the current semester.

The class **Course**: Each course consists of the following information:

- Course's name
- Course's code
- Course's number of units
- Student's grade: if the course is not taken yet, the default value is -1.
- The number of semester the course is taken. If the course is not taken yet, this value is 0.

The class **Manager**: There is one instance from the class **Manager** which represents the manager of the college. The Manager class, has the following properties:

- firstName
- lastName
- Title

Note1: You are not limited only to above classes. If needed, feel free to create your own classes too. But your application should at least include the above classes.

Note2: Your application does not need to keep any offline data (it does not need to write to the file and read from the file).

The Flow of the application: Here you are going to create a text-based application. No graphical UI is needed for this project.

The application contains several views and a main menu. (all text-based) as following:

Login View: Once you run the program, the following view is shown to the user:

****

Please enter your account to login:

****

Username:

Password:

Not registered yet? Type "Register" and press enter to start the registration process!

If the username and password were correct then the program prints the following message and keeps the message on screen for 2 seconds and then prints the main menu. If the username or password was wrong then the program informs the user using the following error message and asks the user to try again.

If username and password were correct:

****

Welcome to Cornerstone International College of Canada.

****

If the username or password was wrong:

****
Your account does not exist. Please try again!
****

If the user enters "Register" and press enter key, then the registration process is shown to the user as following. As a result of registration, a new account and a profile is generated for the student and the student should be able to login, next time without having to register again. Upon registration, you should create a random 8 digit number as the studentID.

****
Welcome to Cornerstone International College of Canada.
****

Please enter your first name:
Please enter your last name:
Please enter your gender [M/F/O]:
Please enter your country of origin:
Please enter the year of admission:

Please enter your age:

Please enter a username [At least 6 characters]:
Please enter a password [At least 6 characters with at least one digit]:

Thanks, your account and profile has been created successfully. Welcome Aboard [The name of the student]

Once the user successfully entered his/her username and password the program shows the above welcome message for 2 seconds and then prints the following main menu:

****
Select from the options:
****

—-[1] Print my enrolment certificate
—-[2] Print my courses
—-[3] Print my transcript
—-[4] Print my GPA
—-[5] Print my ranking among all students in the college
—-[6] List all available courses
—-[7] List all students
—-[8] Show My Profile
—-[9] Logout

-—[10] Exit

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Enter the number corresponding to each item to proceed:

If the student enters 10, the application will terminate otherwise it will perform the corresponding action and will print the main menu again as long as the student has not entered 10 (which is Exit).

The user enters a number between 1 and 9 every time to perform the corresponding functionality.

- Print my enrolment certificate: If the user entered '1', the program prints the following information from the user in the following format. And then prints the main menu again.

  Dear Sir/Madam,

  This is to certify that Mr. Peter Brown with student id 7813007 is a student at semester 1 at CICCC. He was admitted to our college in 2011 and has taken 1 course(s) so far. Currently he resides at 850 West Vancouver, Vancouver.

  If you have any question, please don't hesitate to contact us.
  Thanks,
  [Manager's name: ???],

- Print my courses: If the user entered '2', the program prints all the courses the student has taken in the following format. And then prints the above main menu again.

  Hi Mr. Peter Brown,
  You have taken the following courses so far:
  1) **MADP101: Objective-C**
  2) **MADP202: Project Management**
  3) **MADP301: Java Programming**
  4) **MADP401: Android Programming [Current semester]**

- Print my transcript: If the user entered '3', then the program prints the transcript of the user in the following format and then prints the above menu.

Hi Mr. Peter Brown,
Here is your general transcript:

1) **MADP101: Objective-C: 80**

2) **MADP202: Project Management: 45**
3) **MADP301: Java Programming: 64**
4) **MADP401: Android Programming: 70 [Current semester]**
   YOUR GPA IS: 64.75

Here is your current semester transcript:

1) **MADP401: Android Programming: 70 [Current semester]**
   YOUR Current Semester GPA IS: 70

- Print my GPA: If the user entered '4', then the program prints the gpa of the student in the following format and then prints the above main menu.

  Hi Mr. Peter Brown,
  Your overall GPA is 64.75
  Your current semester's GPA is 70

- Print my ranking among all students in the college: If the user enters '5', the program will find the rank of the student based on his/her gpa and print it and then print the above main menu.

  Hi Mr. Peter Brown,
  Your overall GPA is 64.75 and therefore your rank is 3.

- List all available courses: If the user entered '6', the program will print the list of all available courses in the college in the following format and then print the menu.
  The following courses are offered in CICCC:

  1) **MADP101: Objective-C: 3 units [Not taken]**
  2) **MADP102: Object-Oriented Programming: 2 units [Not taken]**
  3) **MADP201: Problem Solving: 1 units [Not taken]**
  4) **MADP202: Project Management: 3 units [Not taken]**
  5) **MADP301: Java Programming: 3 units [Taken at semester 1]**
  6) **MADP302: Web Development: 2 units [Taken at semester 2]**
  7) **MADP401: Android Programming: 2 units [Taken at semester 4]**
  2) **MADP402: iOS Applications: 3 units [Taken at semester 3]**

- List all students in the college: If the user enters '7', the program will print the list of all students in the college in the following format and then print the menu.
  There are 4 students in CICCC as following:
  1) **Peter Brown: 7813007**

2) **Joseph Rod: 812345**
3) **Cristina Li: 8012333**
4) **Adams Wang: 7812999**

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- Show My Profile: If the user entered '8', the program will print the profile of the student in the following format:
  Name: Mr. Peter Brown
  StudentID: 7813007
  Gender: Male
  Address: Vancouver
  Country of Origin: CANADA
  Age: 31
  Year of Admission: 2016
  Overall GPA: 64.75
  Courses Taken So far: MADP101: Objective-C, MADP202: Project Management, MADP301: Java Programming , MADP401: Android Programming [Current semester]

- Logout: If the user entered '9', the program will print the login menu and let the user login again with the same or different account.
- Exit: If the user entered '10', the program terminates.

w files to run and demo your program.