

AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH (AIUB)
Faculty of Science and Technology (FST)
Department of Computer Science (CS)
Object Oriented Programming 1
Assignment on Association

Project/Program Organization (Each file contains only one java class)

- We will create individual folder/directory for each program or project.
- We will develop each class in a separate file.

Develop Following Java classes:

Note: Student must follow the exact name of class, member variables, and functions as well camel notions.

1.Account	String accName String acid int balance	Member variables declare private
	2 Constructor (Empty, valued)	
	deposit(int amount)	
	Withdraw(int amount)	
Additional part		
	transfer(int amount, Account receiver)	Transfer amount from one account to an- other account

2.Book	String bookName String bookAuthor String bookId String bookType int bookCopy // how many copy	Member variables declare private
	2 Constructor (Empty, valued) void showInfo() void addBookCopy(int x)// how many copy of book	
	To count the total number of book object use static modifier to count book object. If static is covered in your theory class only then you precede this.	
	static int bookCounter static void showTotalBookInfo()	

3.Contact	String personName String personId int age String mobileNumber; Char gender // M or F	Member variables declare private
	2 Constructor // empty and valued void showPersonInfo() void detectMobileOperator() // it will show GP or Robi or Banglalink depend upon the operator	

4.Mobile	String mobileOwnerName String mobileNumber // SIM number String mobileBalance String mobileOSName boolean lock // true means phone is lock false means unlock	
	2 constructor void showInfo() void recharge(int amount) void callSomeone(int timeDuration) // per minute cost=1 taka	Lock has to be false to show or recharge or call someone, so check the lock flag/Boolean variable

5.Library Reuse Book Class	String libName String libAddress Book [] books int totalBook;	Member variables declare private
	2 constructors (empty and valued) void showLibInfo() // show library info and all book info as well void addNewBook(Book book) // add a new book into lib void addNewBookCopy(Book book, int copy)	

6.Address-Book Reuse Contact Class	String ownerName String info Contact [] listOfContact totalContact	
	2 constructor (empty and valued) void showAllContactInfo() void addContact(Contact con)	

Up-gradation of Account class		
7.Account	accId, accName, accBalance use all the previous methods and constructors (just copy from that class)	
<p style="text-align: center;">Additional part</p> <p style="text-align: center;">(We want to preserve history of transactions for each account object. To do so we need to develop one more class name Transaction)</p>		
8.Transaction	Account sender Account receiver int amount String additional- Info 2 constructors showInfo()	
In the Account class use one/two more member variable to store transaction information and necessary member functions.		
	Transaction [] listOfTransaction //member variable int totalNumberOfTransaction // mem- ber variable void addTransaction(Account sender, Account re- ceiver, int amount) void showAllTranscation()	

Bonus Part

Now we want to reuse our **Account** class. The scenario is every student object has an account.

Tasks that you have to do:

1. If a student deposit a book after certain duration then for each day 10 taka will be charged by the library authority.
2. Student can pay that amount (charged amount) from his/her bank account to the library account. So the library also has an account.
3. Show the total amount a student paid to the library.
4. Show the total amount library gets from the students (total charged amount).
5. But if any student has any valid reason for delay then the librarian can excuse the charged amount. Librarian can excuse full or partially (%).

In this program we want to reuse our last developed **Library** and **Student** Class. Our objective is to develop the scenario, where student can take maximum 5 books (for 5 days each) at a time from the library, and return these books.

Tasks that you have to do:

1. Show all the borrowed book information of a student from student class
2. Show all the student name and book information from library class, which are currently borrowed by students.
3. Preserve borrowed history of student object, which he/she takes in his/her lifetime.
4. Preserve borrowed history of book objects that are taken by students.