Basic

1. Write a program which creates a class `Student` with the following Data Members
`rollNum, studName, mark1, mark2, mark3, totalMarks`
Methods
`setStudDetails()` – which sets the values to all the data members except `totalMarks`.
`calculateTotal()` - which calculate the totalMarks
`displayStudDetails()` – which displays `rollNum, studName and totalMarks`
Create a class `StudentDemo` to test the functionality of `Student` class

2. Create a class `Account` with `accountNumber, custName, balance and interest rate`. create method `calculateInterest()` which will calculate interest and add to `balance`. create a method to `displayAccountDetails()`

3. Create a class `Account` with the attributes `accountNo, custName, accountBalance` and
methods
`setAccountDetails()` which set the values to these attributes.
`withdraw()` which subtracts the given amount from the available `balance`
`deposit()` which adds a given amount to the available `balance` and
`dispAccountDetails()` which displays `accountNo, custName, accountBalance`.
Create a class `Main1` which contains the main() method to test the functionality of `Account` class.

4. Create a class `Student` with attributes `rollNo, Name, marks1, marks2, marks3, totalMarks.`
create a method `getTop3Student()` which accepts a list of Students and returns an array of 3 top students with the highest percentage.

Advanced

Practice Problems: Classes and Objects (Chapters 5 and 6)

1) The Java class called `Holiday` is stated below. An object of class `Holiday` represents a holiday during the year. This class has three instance variables:

- `name`, which is a `String` representing the name of the holiday
- `day`, which is an `int` representing the day of the month of the holiday
- `month`, which is a `String` representing the month the holiday is in

a) Write a constructor for the class `Holiday`, which takes a `String` representing the name, an `int` representing the day, and a `String` representing the month as its arguments, and sets the class variables to these values.

b) Write a method `inSameMonth`, which compares two instances of the class `Holiday,` and returns the Boolean value `true` if they have the same `month`, and `false` if they do not.

c) Write a method `avgDate` which takes an array of base type `Holiday` as its argument, and returns a `double` that is the average of the `day` variables in the `Holiday` instances in the array. You may assume that the array is full (i.e. does not have any `null` entries).

2) The class Movie is stated below. An instance of class Movie represents a film. This class has the following three class variables:

- `title`, which is a `String` representing the title of the movie
- `studio`, which is a `String` representing the studio that made the movie
- `rating`, which is a `String` representing the rating of the movie (1 star, 2 star etc)

```
public class Movie {

      private String title;

      private String studio;

      private String rating;

}
```

a) Write a constructor for the class `Movie`, which takes a `String` representing the title of the movie, a `String` representing the studio, and a `String` representing the rating as its arguments, and sets the respective class variables to these values.

b) Write a second constructor for the class Movie, which takes a `String` representing the title of the movie and a `String` representing the studio as its arguments, and sets the respective class variables to these values, while the class variable `rating` is set to "5 star".

c) Write a method `get5StarMovies`, which takes an array of base type `Movie` as its argument, and returns a new array of only those movies in the input array with a rating of "5 star". You may assume the input array is full of `Movie` instances. The returned array need not be full.