Assignment Day7:

Question 1:Abstract class assignment

- Create an abstract Java class with the name Animal.
- Inside this class define following 3 methods

```
1. public abstract void makeNoise();

2. public void eat(){
    System.out.println("Animal is eating");
}

3. public void walk(){
    System.out.println("Animal is walking");
}
```

Create 3 child classes for the above Animal class :

1. Dog
2. Cat
3. Tiger

Override makeNoise method in all these child classes as follows:

```
1. Inside Dog:
      System.out.println("Barking...");

2. Inside Cat:
      System.out.println("Meaw...");

3. Inside Tiger:
      System.out.println("Raoring...");
```

Inside the Dog class place another method:

```
public void handShake(){
  System.out.println("Dog is handshaking");
}
```

Create a Demo class and define the following method inside the Demo class:

```
public Animal[] getAnimals()
```

Inside the above method return array of 3 Animal class array with the initialized object with Dog, Cat, Tiger class.

from the main method of Demo class call the above method and from each Animal call all the methods: (eat, walk, makeNoise) and from the Dog object call the handShake() method also.

Question2:

Create a Student bean class having the following properties

Instance variables:

private roll: int

private String name

private int marks

private char grade

Instance Methods:

Provide suitable constructors, and following methods:

public displayDetails(): void

private calculateGrade(): char

if marks ≥ 500 : Grade is A

if marks < 500 and ≥ 400 : Grade is B

if marks <400 : Grade is C

Override the toString() method to print all the details of Student class.

inside the displayDetails() method, create the Student class object by taking (roll, name, marks) from the user and call the calculateGrade() method to get the Grade of the student.

Create another class Demo in which create two Student objects, and invoke the displayDetails(). It should also display the student grade.

Question 3:

Create a class *Student* that has:

Instance Variables:

name: String,

address: String

Methods:

abstract: getPercentage( )

static getTotalNoStudents( )

Constructors: Initialize name and address

Create a class *ScienceStudent* that inherits from *Student*

Instance Variables:

phisicsMarks,

chemistryMarks,

mathsMarks

Class Variable: (static variable)

noOfStudents: Integer

Method *getPercentage* Computes and returns the percentage of marks (Max marks for a subject :100)

Create a class *HistoryStudent* that inherits from *Student*

Instance Variables:

historyMarks,

civicsMarks

Class Variables: (static variable)

noOfStudents: Integer

Method *getPercentage* Computes and returns the percentage of marks (Max marks for a subject :100)

Note: take all 3 marks of students, name and address should be taken from the user.

Create a general class *AllStudents*. In this class create some history, science students. Assign marks. Show the percentage of marks for each student. Also find the total number of students.

Question 4:

Explain about an abstract method and an abstract class with an example.