OOPD Assignment

Complex Object

1:

```
import java.util.Scanner;

class Disk
{
	final double pi = 3.1415926;
	double radius;
	Disk(double r)
	{
		radius=r;
	}
	double diskarea()
	{
		return (2*pi*radius);
	}
}
class Sheet
{
	final double pi = 3.1415926;
	double length;
	Sheet(double l)
	{
		length=l;
	}
	double sheetarea(double r)
	{
		return (2*pi*r*length);
	}
}

public class Cylinder {

	Disk disk_obj;
	Sheet sheet_obj;
	double cylinder_area(double disk_ar,double sheet_ar )
	{
		return ((2*disk_ar) + sheet_ar);
	}

	public static void main(String[] args) {
		Cylinder cylinder=new Cylinder();
		double rad,len,area_cylinder;
		Scanner sc=new Scanner(System.in);
		System.out.println("enter radius");
		rad=sc.nextDouble();
```

```
            System.out.println("enter length");
            len=sc.nextDouble();
            cylinder.disk_obj = new Disk(rad);
            cylinder.sheet_obj = new Sheet(len);

      area_cylinder=cylinder.cylinder_area(cylinder.disk_obj.diskarea()
, cylinder.sheet_obj.sheetarea(rad));
            System.out.println("Area of 1 disk is "+
cylinder.disk_obj.diskarea());
            System.out.println("Area of sheet is "+
cylinder.sheet_obj.sheetarea(rad));
            System.out.println("Area of Cylinder is "+ area_cylinder);

      }

}
```

2:

```
import java.util.Scanner;

class FirstClass
{
      int compartments;
      int people=4;
      FirstClass(int num){
            compartments=num;
      }
      int total_seats(){
            return(compartments*people);
      }
}
class SecondClass
{
      int compartments;
      int people=6;
      SecondClass(int num){
            compartments=num;
      }
      int total_seats(){
            return(compartments*people);
      }
}
public class Train {
      FirstClass first_class_comp;
      SecondClass second_class_comp;

      public static void main(String[] args) {
            // TODO Auto-generated method stub
```

```
            Train toytrain = new Train();
            int first_comp,second_comp,total_seating;
            Scanner sc = new Scanner(System.in);
            System.out.println("Enter number of first class
compartments (maximum 5)");
            first_comp=sc.nextInt();
            while (first_comp>5) {
                  System.out.println("Train can have maximum 5 first
class compartments. Please Re enter");
                  first_comp=sc.nextInt();
            }
            toytrain.first_class_comp = new FirstClass(first_comp);
            System.out.println("Enter number of second class
compartments (maximum 8)");
            second_comp=sc.nextInt();
            while (second_comp>8) {
                  System.out.println("Train can have maximum 8 second
class compartments. Please re enter");
                  second_comp=sc.nextInt();
            }
            toytrain.second_class_comp=new SecondClass(second_comp);
            total_seating = toytrain.first_class_comp.total_seats() +
toytrain.second_class_comp.total_seats();
            System.out.println("Seating capacity of First Class :
"+toytrain.first_class_comp.total_seats());
            System.out.println("Seating capacity of Second Class :
"+toytrain.second_class_comp.total_seats());
            System.out.println("Seating capacity of Train :
"+total_seating);
      }
}
```

Inheritance

1:

```
import java.util.Date;

public class Vehicle {
      int RegistrationNo;
      int Year_of_Manufacturing;
      String Fuel_type;
      String Color;
      String Owner;
      Date Service_date;

      void Update_Owner(String s)
      {
            this.Owner = s;
```

```
	}

	void Update_servicing_date(Date date)
	{
		this.Service_date = date;
	}

}

public class Truck extends Vehicle{
	int Capaciy;
	String Permit;
	Date Pollution_Check_Date;
	String Driver_Name;

	void Update_Pollution_Check_Date(Date date)
	{
		this.Pollution_Check_Date = date;
	}

	void Update_Driver_Name(String dname)
	{
		this.Driver_Name = dname;
	}

}
```

2:

```
public class Accounts {
	int balance;
	int account_number;
	String account_holder_name;
	String address;

	void Withdrawal(int amount)
	{
		//Withdrawal Logic!!
	}

	void Deposit(int amount)
	{
		//Deposit logic!!
	}

	void Display()
	{
		//Display method!!
	}
```

```
}

class SavingsAccount extends Accounts{
      int rate_of_interest;

      void Calculate_balance()
      {
            //calculation logic!!
      }
}
```