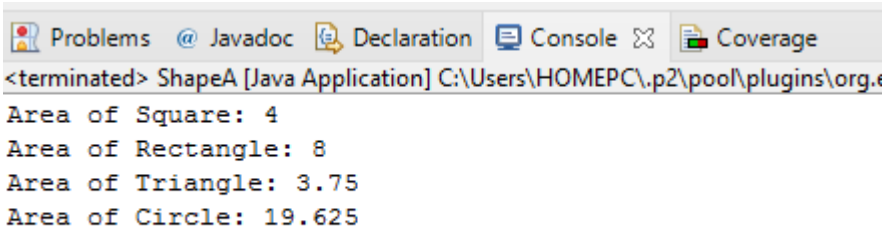
1. Area of different shapes using overloaded functions

```
package sample;


public class ShapeA {
	int area(int side)
	{
		return side*side;
	}
	int area(int l,int b)
	{
		return l*b;
	}
	double area(double b,double h)
	{
		return (0.5*(b*h));
	}
	double area(double r)
	{
		return (3.14*r*r);
	}


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

```
            ShapeA obj=new ShapeA();

            System.out.println("Area of Square: "+obj.area(2));

            System.out.println("Area of Rectangle:
"+obj.area(2,4));

            System.out.println("Area of Triangle:
"+obj.area(2.5,3.0));

            System.out.println("Area of Circle: "+obj.area(2.5));


      }


}
```

Output



2. Create a class 'Employee' with data members Empid, Name, Salary, Address and constructors to initialize the data members. Create another class 'Teacher' that inherit the properties of class employee and contain its own data members department, Subjects taught and constructors to initialize these data members and also include display function to display all the data members. Use array of objects to display details of N teachers.

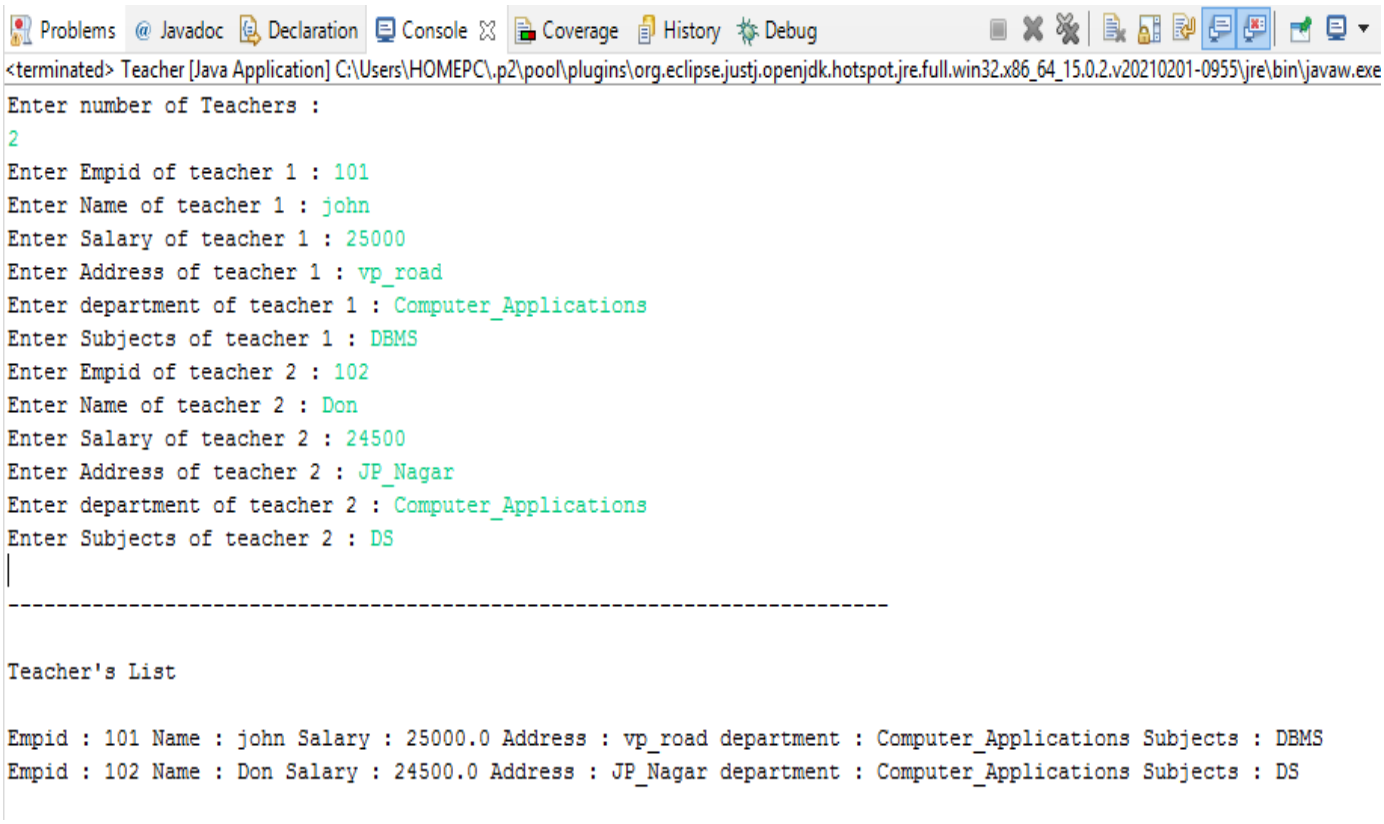
```
package sample;


import java.util.*;
```

```
class Employee {

     int empid;

     String name,address;

      double salary;

     public Employee(int empid, String name, String address,
double salary) {

          this.empid = empid;

          this.name = name;

          this.address = address;

          this.salary = salary;

     }

}


public class Teacher extends Employee

{

String subject,department;


public Teacher(int empid, String name, String address, double
salary,String department,String subject ) {

     super(empid, name, address, salary);

     this.subject = subject;

     this.department = department;

}


void display()

{

    System.out.println("Empid : "+this.empid+" Name :
"+this.name+" Salary : "+this.salary+" Address :
"+this.address+" department : "+this.department+" Subjects :
"+this.subject);
```

```
}
public static void main(String[] args) {
	// TODO Auto-generated method stub
	Scanner sc=new Scanner(System.in);
	int n;
	System.out.println("Enter number of Teachers : ");
	n=sc.nextInt();
	Teacher obj[]=new Teacher[n];
	 for(int i=0;i<n;i++) {
	    int j = i+1;
	    System.out.print("Enter Empid of teacher "+j+" : ");
	    int Empid = sc.nextInt();
	    System.out.print("Enter Name of teacher "+j+" : ");
	    String Name = sc.next();
	    System.out.print("Enter Salary of teacher "+j+" : ");
	    double Salary = sc.nextDouble();
	    System.out.print("Enter Address of teacher "+j+" : ");
	    String Address = sc.next();
	    System.out.print("Enter department of teacher "+j+" :
");
	    String department =sc.next();
	    System.out.print("Enter Subjects of teacher "+j+" : ");
	    String Subjects =sc.next();

	  obj[i] = new Teacher(Empid, Name, Address, Salary,
department, Subjects);
	 }
```

```
        System.out.println("\n-------------------------------------
-------------------------------------\n");
      System.out.println("Teacher's List \n");



      for(int i=0;i<n;i++) {
           obj[i].display();
      }



}


}
```

Output



3. Create a class ‘Person’ with data members Name, Gender, Address, Age and a constructor to initialize the data members and another class ‘Employee’ that inherits the properties of class Person and also contains its own data members like Empid, Company_name, Qualification, Salary and its own constructor. Create another class ‘Teacher’ that inherits the properties of class Employee and contains its own data members like Subject, Department, Teacherid and also contain constructors and methods to display the data members. Use array of objects to display details of N teachers.

```
package sample;


import java.util.Scanner;

class Person

{

	String name,gender,address;

	int age;

	public Person(String name, String gender, String address, int age) {

		super();

		this.name = name;

		this.gender = gender;

		this.address = address;

		this.age = age;

	}

}

class Employee extends Person {

	int empid;

	String company_name,qualification;

	 double salary;

	public Employee(String name, String gender, String address, int age,
int empid, String company_name,

			String qualification, double salary) {

		super(name, gender, address, age);

		this.empid = empid;
```

```
            this.company_name = company_name;

            this.qualification = qualification;

            this.salary = salary;

      }


}


 class Teacher extends Employee

{

String subject,department;

int teacherid;

public Teacher(String name, String gender, String address, int age, int
empid, String company_name,

            String qualification, double salary, String subject, String
department, int teacherid) {

      super(name, gender, address, age, empid, company_name, qualification,
salary);

      this.subject = subject;

      this.department = department;

      this.teacherid = teacherid;

}




void display()

{

      System.out.println("....Personal details...");

    System.out.println(" Name : "+this.name+" Gender : "+this.gender+" Age
:"+this.age);

      System.out.println("...Employee details....");

      System.out.println("Empid : "+this.empid +" company_name :
"+this.company_name+" Salary : "+this.salary+" Address : "+this.address+"
qualification : "+this.qualification);

      System.out.println("...Teacher's details...");
```

```
    System.out.println(" teacherid : "+this.teacherid+ " department :
"+this.department+" Subjects : "+this.subject);


}



}


public class Main {


      public static void main(String[] args) {
            Scanner s=new Scanner(System.in);
            int n;
            System.out.println("Enter number of Teachers : ");
            n=s.nextInt();
            Teacher obj[]=new Teacher[n];
             for(int i=0;i<n;i++) {
                  System.out.println("Enter the person name:");
                        String nam1=s.next();
                        System.out.println("Enter the Gender: ");
                        String gen1=s.next();
                        System.out.println("Enter the Address: ");
                        String adr1=s.next();
                        System.out.println("Enter the Age:");
                        int age1=s.nextInt();
                        System.out.println("Enter the Employee id: ");
                        int id1=s.nextInt();
                        System.out.println("Enter the Company name: ");
                        String cname1=s.next();
                        System.out.println("Enter the Salary:");
```

```
                        double sal1=s.nextDouble();
                        System.out.println("Enter the  Qualification:");
                        String qu1=s.next();

                        System.out.println("Enter the Teacher id: ");
                        int tid1=s.nextInt();
                        System.out.println("Enter the  Department:");
                        String dept1=s.next();
                        System.out.println("Enter the Subject:");
                        String sub1=s.next();

                        obj[i]=new
Teacher(nam1,gen1,adr1,age1,id1,cname1,qu1,sal1,sub1,dept1,tid1);
             }
             System.out.println("\n-----------------------------------------
-------------------------------\n");



           for(int i=0;i<n;i++) {
               obj[i].display();
           }


      }


}
```

Output

```
------------------------------------------------------------------------

....Personal details...
 Name : john Gender : male Age :23
...Employee details....
Empid : 1001 company_name : XYZ Salary : 24000.0 Address : vpc_road qualification : B.E
...Teacher's details...
 teacherid : 2001 department : CS Subjects : DBMS
....Personal details...
 Name : Don Gender : Male Age :25
...Employee details....
Empid : 1003 company_name : XYZ Salary : 28000.0 Address : Ring_Road qualification : B.E
...Teacher's details...
 teacherid : 2005 department : CS Subjects : DS
```

4. Write a program has class Publisher, Book, Literature and Fiction. Read the information and print the details of books from either the category, using inheritance.

```
package sample;

import java.util.Scanner;


   class Publisher {

         String Pubname;


  Publisher()

  {

         Scanner s=new Scanner(System.in);

         System.out.println("Enter publisher name");

         Pubname=s.next();

  }

  }

  class Book extends Publisher

  {

         String title, author;

         int price;
```

```
 Book()
 {
        Scanner s=new Scanner(System.in);
        System.out.println("Enter Title of the book");
        title=s.next();
        System.out.println("Enter Author's name");
        author=s.next();
        System.out.println("Enter price");
        price=s.nextInt();
 }
 }
class Literature extends Book
{
Literature()
{
        System.out.println("Literature Books");
}
 void display()
 {
        System.out.println("Publisher name: "+Pubname);
        System.out.println("Title of the book: "+title);
        System.out.println("Author's name: "+author);
        System.out.println("Price: "+price);
 }

}
class Fiction extends Literature
{
Fiction()
```

```
{
        System.out.println("Friction Books");
}
void display()
{
        super.display();
}

public static void main(String args[])
     {
           int n;
           Scanner s=new Scanner(System.in);

           System.out.println("Enter the No of literature book: ");
           int a=s.nextInt();
           Literature L[]=new Literature[a];
           for(int i=0;i<a;i++)
           {
                 L[i]=new Literature();
           }

           System.out.println("Enter the No of Fiction book: ");
           int b=s.nextInt();
           Fiction F[]=new Fiction[b];
           for(int i=0;i<b;i++)
           {
                 F[i]=new Fiction();
           }
           int no;
           System.out.println("Enter your choice of book");
```

```
            no=s.nextInt();
            int type =no;
            switch (no)
            {
            case 1:
                  System.out.println(".....Details of literature books");
                  for(int i=0;i<a;i++)
                  L[i].display();
                  break;
            case 2:
                  System.out.println(".....Details of fiction books");
                  for(int i=0;i<b;i++)
                  F[i].display();
                  break;
            default:
                  System.out.println("Wrong input");
            }
      }
}
```

```
The_Great_Gatsby
Enter Author's name
Fitzgerald
Enter price
580
Literature Books
Enter the No of Fiction book:
1
Enter publisher name
goodreads
Enter Title of the book
Beloved
Enter Author's name
Toni_Morrison
Enter price
390
Literature Books
Friction Books
Enter your choice of book
1
.....Details of literature books
Publisher name: abc
Title of the book: Pride_and_prejudice
Author's name: Jane_Austen
Price: 400
Publisher name: abc
Title of the book: The_Great_Gatsby
Author's name: Fitzgerald
Price: 580
```