Core Java

Assignment-1

Name: Poojan G Patel

Part- I (Basic Program)

Q1:

Code:

import java.util.Scanner;  
  
public class ArithmaticOperation {  
 public static void main(String[] args) {  
 int choice;  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter two numbers:");  
 int a = sc.nextInt();  
 int b = sc.nextInt();  
 System.*out*.printf("\n 1.Addition \n 2.Multiplication \n 3.Subtraction \n 4.Divide \n 5.Remainder");  
 System.*out*.printf("\n Enter your choice:");  
 choice = sc.nextInt();  
 switch (choice)  
 {  
 case 1: System.*out*.printf("\n Addition of two number is: %d",a+b);  
 break;  
 case 2: System.*out*.printf("\n Product of two number is: %d",a\*b);  
 break;  
 case 3: System.*out*.printf("\n Subtraction of two number is: %d",a-b);  
 break;  
 case 4: System.*out*.printf("\n Divide: %d",a/b);  
 break;  
 case 5: System.*out*.printf("\n Reaminder after dividing two number is: %d",a%b);  
 }  
  
 }  
}

Q2:

Code:

import java.util.Scanner;  
  
public class Average {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter any five numbers:");  
 float a = sc.nextInt();  
 float b = sc.nextInt();  
 float c = sc.nextInt();  
 float d = sc.nextInt();  
 float e = sc.nextInt();  
 System.*out*.printf("\n Average of five number is: %f", (a+b+c+d+e)/5);  
 }  
}

Q3:

Code:

import java.util.Scanner;  
  
public class DecimalToBinary {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter decimal number:");  
 int a = sc.nextInt();  
 System.*out*.printf("\n Binary representation is: %s",Integer.*toBinaryString*(a));  
 }  
}

Q4:

Code:

import java.util.Scanner;  
  
public class BinaryToDecimal {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 String binary;  
 System.*out*.printf("\n Enter binary number:");  
 binary = sc.next();  
 int decimal = Integer.*parseInt*(binary,2);  
 System.*out*.printf("\n Decimal representation is: %d",decimal);  
 }  
}

Q5:

Code:

import java.util.Scanner;  
  
public class SumOfDigit {  
 public static void main(String[] args) {  
 int number, digit, sum=0;  
 Scanner sc = new Scanner(System.*in*);  
  
 System.*out*.printf("\n Enter a Number: ");  
 number = sc.nextInt();  
  
 while(number!=0)  
 {  
 digit = number%10;  
 sum = sum + digit;  
 number = number/10;  
 }  
  
 System.*out*.printf("\nSum of Digit is %d",sum);  
  
 }  
}

Q6:

Code:

import java.util.Scanner;  
  
public class CompareTwoNumber {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter two numbers:");  
 int a = sc.nextInt();  
 int b = sc.nextInt();  
 if(Integer.*compare*(a,b)==0)  
 {  
 System.*out*.printf("\n Two numbers are equal");  
 }  
 else  
 {  
 System.*out*.printf("\n Two numbers are not equal");  
 }  
 }  
}

Q7:

Code:

import java.util.Scanner;  
  
public class CountLSD {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter String:");  
 String string = sc.next();  
 char[] ch = string.toCharArray();  
 int letter = 0;  
 int space = 0;  
 int number = 0;  
 for(int i=0;i<string.length();i++)  
 {  
 if(Character.*isLetter*(ch[i]))  
 {  
 letter++;  
 }  
 else if(Character.*isSpaceChar*(ch[i]))  
 {  
 space++;  
 }  
 else if(Character.*isDigit*(ch[i]))  
 {  
 number++;  
 }  
 }  
 System.*out*.printf("\n String is: %s",string);  
 System.*out*.printf("\n Letter: %d",letter);  
 System.*out*.printf("\n Space: %d",space);  
 System.*out*.printf("\n Number: %d",number);  
 }  
}

Q8:

Code:

public class EvenOdd {  
 static public void even()  
 {  
 for(int i=0;i<=20;i++)  
 {  
 if(i % 2 == 0)  
 System.*out*.printf("\n Even Number: %d",i);  
 }  
  
 }  
 static public void odd()  
 {  
 for(int i=0;i<=20;i++)  
 {  
 if(i % 2 != 0)  
 System.*out*.printf("\n Odd Number: %d",i);  
 }  
 }  
 public static void main(String[] args) {  
  
 *even*();  
 *odd*();  
 }  
}

Q9:

Code:

public class SumofPrime {  
 public static void main(String[] args) {  
 int count, sum = 0;  
 for(int number = 1; number <= 100; number++)  
 {  
 count = 0;  
 for (int i = 2; i <= number/2; i++)  
 {  
 if(number % i == 0)  
 {  
 count++;  
 break;  
 }  
 }  
 if(count == 0 && number != 1 )  
 {  
 sum = sum + number;  
 }  
 }  
 System.*out*.printf("The Sum of Prime Numbers from 1 to 100 is: %d ",sum);  
 }  
}

Q10:

Code:

import java.util.Arrays;  
import java.util.Scanner;  
  
public class SwapArrayElements {  
 public static void main(String[] args) {  
  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter size:");  
 int size = sc.nextInt();  
 int [] array = new int[size];  
 for (int i=0;i<size;i++)  
 {  
 System.*out*.printf("\n Enter %d element",i+1);  
 int n = sc.nextInt();  
 array[i] = n;  
 }  
 for (int i=0;i<size;i++)  
 {  
 System.*out*.printf("\n %d Array Elements: \n %d",i+1,array[i]);  
 }  
 int temp = array[0];  
 array[0] = array[array.length-1];  
 array[array.length-1] = temp;  
  
 System.*out*.println("\n New array after swaping the first and last elements: "+ Arrays.*toString*(array));  
  
  
  
 }  
}

Q11:

Code:

import java.util.Scanner;  
  
public class CountEvenOdd {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter size:");  
 int size = sc.nextInt();  
 int [] array = new int[size];  
 for (int i=0;i<size;i++)  
 {  
 System.*out*.printf("\n Enter %d element",i+1);  
 int n = sc.nextInt();  
 array[i] = n;  
 }  
 int count\_odd =0, count\_even = 0;  
 for(int i = 0; i < size; i++)  
 {  
 if(array[i] % 2 == 1)  
 count\_odd++;  
 else  
 count\_even++;  
 }  
 System.*out*.printf("\n Count of Odd Numbers: %d",count\_odd);  
 System.*out*.printf("\n Count of Even Numbers: %d",count\_even);  
  
 }  
}

Q12:

Code:

import java.util.Scanner;  
  
public class PalindromeNumber {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
  
 System.*out*.printf("\n Enter a Number: ");  
 int number = sc.nextInt();  
 int ognumber = number;  
 int rNum = 0;  
 int remainder;  
  
 while (number != 0) {  
 remainder = number % 10;  
 rNum = rNum \* 10 + remainder;  
 number /= 10;  
 }  
 if (ognumber == rNum)  
 {  
 System.*out*.printf("\n Number is Palindrome Number");  
 }  
 else  
 {  
 System.*out*.printf("\n Number is not Palindrome Number");  
 }  
 }  
}

Q13:

Code:

import java.util.Scanner;  
  
  
public class AddWithoutOperator {  
 static int add(int number1, int number2)  
 {  
 for (int i=1;i<=number2;i++)  
 {  
 number1++;  
 }  
 return number1;  
 }  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
  
 System.*out*.printf("\n Enter a Number 1: ");  
 int number1 = sc.nextInt();  
 System.*out*.printf("\n Enter a Number 2: ");  
 int number2 = sc.nextInt();  
 System.*out*.printf("\n Addition of %d and %d is %d",number1,number2,*add*(number1,number2));  
 }  
}

Q15:

Code:

import java.util.Scanner;  
  
public class SumOfDiagonal {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter Number of Row:");  
 int row = sc.nextInt();  
 System.*out*.printf("\n Enter Number of Column:");  
 int column = sc.nextInt();  
 int arr[][] = new int[row][column];  
 System.*out*.printf("\n Enter Elements:");  
 for (int i=0;i<row;i++)  
 {  
 for(int j=0;j<column;j++)  
 {  
 arr[i][j] = sc.nextInt();  
 }  
 }  
 System.*out*.printf("\n Matrix is:");  
 for (int i=0;i<row;i++)  
 {  
 System.*out*.printf("\n");  
 for (int j=0;j<column;j++)  
 {  
 System.*out*.printf("%d \t",arr[i][j]);  
 }  
 }  
 int principal = 0, secondary = 0;  
 for (int i = 0; i < row; i++) {  
 for (int j = 0; j < column; j++) {  
  
 if (i == j)  
 principal += arr[i][j];  
  
 if ((i + j) == (column - 1))  
 secondary += arr[i][j];  
 }  
 }  
  
 System.*out*.printf("\n Sum of Primary Diagonal Elements: %d",principal);  
 System.*out*.printf("\n Sumo of Secondary Diagonal Elements: %d",secondary);  
  
  
 }  
  
}

PART-II

Q1:

public class ArithOperationCommand {  
 public static void main(String[] args) {  
 if(args.length == 0)  
 {  
 System.*out*.printf("\n Please pass the arguments!");  
 }  
 else  
 {  
 int a = Integer.*parseInt*(args[0]);  
 int b = Integer.*parseInt*(args[2]);  
 String str = args[1];  
  
 switch (str)  
 {  
 case "+":  
 System.*out*.printf("\n Addition of %d and %d is %d",a,b,a+b);  
 break;  
 case "-":  
 System.*out*.printf("\n Subtraction of %d and %d is %d",a,b,a-b);  
 break;  
 case "\*":  
 System.*out*.printf("\n Multiplication of %d and %d is %d",a,b,a\*b);  
 break;  
 case "/":  
 System.*out*.printf("\n Division of %d and %d is %d",a,b,a/b);  
 break;  
 }  
 }  
 }  
}

Q2:

public class MultiplicationCommandLine {  
 public static void main(String[] args) {  
 if(args.length == 0)  
 {  
 System.*out*.printf("\n Please pass the arguments!");  
 }  
 else  
 {  
 int number = Integer.*parseInt*(args[0]);  
 for(int i=1;i<=10;i++)  
 {  
 System.*out*.printf("\n %d \* %d = %d",number,i,number\*i);  
 }  
 }  
 }  
}

Q3:

public class SmallestCommandLine {  
 public static void main(String[] args) {  
 if(args.length == 0)  
 {  
 System.*out*.printf("\n Please pass the arguments!");  
 }  
 else  
 {  
 int a = Integer.*parseInt*(args[0]);  
 int b = Integer.*parseInt*(args[1]);  
 int c = Integer.*parseInt*(args[2]);  
  
 if(a<b && a<c)  
 {  
 System.*out*.printf("\n %d is less than %d and %d",a,b,c);  
 }  
 else if(b<a && b<c)  
 {  
 System.*out*.printf("\n %d is less than %d and %d",b,a,c);  
 }  
 else  
 {  
 System.*out*.printf("\n %d is less than %d and %d",c,b,a);  
 }  
  
  
 }  
 }  
}

Q4:

public class PrimeCommandLine {  
 public static void main(String[] args) {  
 if(args.length == 0)  
 {  
 System.*out*.printf("\n Please pass the argument!");  
 }  
 else  
 {  
 int number = Integer.*parseInt*(args[0]);  
 int m = number/2;  
 int flag=0;  
 if(number==0||number==1)  
 {  
 System.*out*.printf("\n %d is not prime number",number);  
 }  
 else  
 {  
 for(int i=2;i<=m;i++)  
 {  
 if(number%i==0)  
 {  
 System.*out*.printf(" %d is not prime number",number);  
 flag=1;  
 break;  
 }  
 }  
 if(flag==0)  
 {  
 System.*out*.printf(" %d is prime number",number);  
 }  
 }  
 }  
 }  
}

Q5:

public class PalindromeCommandLine {  
 public static void main(String[] args) {  
 if (args.length == 0)  
 {  
 System.*out*.printf("\n Please pass the argument!");  
 }  
 else  
 {  
 int remainder,sum=0,temp;  
 int number = Integer.*parseInt*(args[0]);  
 temp=number;  
 while(number>0)  
 {  
 remainder=number%10;  
 sum=(sum\*10)+remainder;  
 number=number/10;  
 }  
 if(temp==sum)  
 System.*out*.printf("\n %d is palindrome number",number);  
 else  
 System.*out*.printf("\n %d is not palindrome",number);  
 }  
 }  
}

Q6:

import java.util.Scanner;  
  
class staff\_details  
{  
 String name,birth\_date,desig;  
 float salary;  
 staff\_details(String name, String birth\_date, String desig, float salary)  
 {  
 this.name = name;  
 this.birth\_date = birth\_date;  
 this.desig = desig;  
 this.salary = salary;  
 }  
 void display()  
 {  
 System.*out*.printf("\n Name: %s \n Birth Date: %s \n Designation: %s \n Salary: %f",name,birth\_date,desig,salary);  
 }  
}  
public class Staff {  
 public static void main(String[] args) {  
 float max\_sal=0;  
 Scanner sc = new Scanner(System.*in*);  
 staff\_details sd[] = new staff\_details[2];  
 for(int i=0;i<2;i++)  
 {  
 System.*out*.printf("\n Enter Name:");  
 String name = sc.next();  
 System.*out*.printf("\n Enter Birth Date:");  
 String birth\_date = sc.next();  
 System.*out*.printf("\n Enter Designation:");  
 String desig = sc.next();  
 System.*out*.printf("\n Enter Salary:");  
 float salary = sc.nextFloat();  
 sd[i] = new staff\_details(name,birth\_date,desig,salary);  
 }  
 for(int i=0;i<2;i++)  
 {  
 sd[i].display();  
 }  
 for (int i=0;i<2;i++)  
 {  
  
 if(sd[i].salary > max\_sal)  
 {  
  
 max\_sal = sd[i].salary;  
 }  
 }  
 for (int i=0;i<2;i++)  
 {  
 System.*out*.printf("\n Employee with highest Salary:");  
 if(sd[i].salary == max\_sal)  
 {  
 System.*out*.printf("\n Name: %s \n Birth Date: %s \n Designation: %s \n Salary: %f",sd[i].name,sd[i].birth\_date,sd[i].desig,sd[i].salary);  
 }  
 }  
  
  
 }  
}

Q7:

import java.util.Scanner;  
  
class bank\_details  
{  
 String name,ac\_no;  
 float balance;  
 bank\_details(String name, String ac\_no, float balance)  
 {  
 this.ac\_no = ac\_no;  
 this.name = name;  
 this.balance = balance;  
 }  
 void withdraw()  
 {  
 float amt;  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter amount:");  
 amt = sc.nextFloat();  
 balance = balance - amt;  
 System.*out*.printf("\n Available Balance: %f",balance);  
 }  
 void deposit()  
 {  
 float amt;  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter amount:");  
 amt = sc.nextFloat();  
 balance = balance+amt;  
 System.*out*.printf("\n Available Balance: %f",balance);  
  
 }  
}  
public class Bank {  
 public static void main(String[] args) {  
 int choice,ch;  
 Scanner sc = new Scanner(System.*in*);  
 do {  
 System.*out*.printf("\n 1.Accept \n 2.Exit");  
 System.*out*.printf("\n Enter choice:");  
 choice = sc.nextInt();  
 switch (choice)  
 {  
 case 1: System.*out*.printf("\n Enter Name:");  
 String name = sc.next();  
 System.*out*.printf("\n Enter Account No:");  
 String ac\_no = sc.next();  
 System.*out*.printf("\n Enter Balance:");  
 float balance = sc.nextFloat();  
 bank\_details b = new bank\_details(name,ac\_no,balance);  
 do {  
 System.*out*.printf("\n 1.Withdraw \n 2.Deposit");  
 System.*out*.printf("\n Enter choice:");  
 ch = sc.nextInt();  
 switch (ch)  
 {  
 case 1: b.withdraw();  
 break;  
 case 2: b.deposit();  
 break;  
 }  
 }while(ch!=3);  
  
 break;  
  
  
  
 }  
 }while(choice!=2);  
  
 }  
}

Q8:

import java.util.Arrays;  
import java.util.Scanner;  
  
public class AscendingNumber {  
 public static void main(String[] args) {  
 int arr[] = new int[5];  
 for(int i=0;i<5;i++)  
 {  
 arr[i] = Integer.*parseInt*(args[i]);  
 }  
 Arrays.*sort*(arr);  
// for(int i=0;i<5;i++)  
// {  
// for(int j=1;j<5;j++)  
// {  
// if(arr[i] > arr[j])  
// {  
// int temp = arr[i];  
// arr[i] = arr[j];  
// arr[j] = temp;  
// }  
// }  
//  
// }  
 for(int i=0;i<5;i++)  
 {  
 System.*out*.println(arr[i]);  
 }  
  
 }  
}

Q9:

import java.util.Scanner;  
  
public class RowColumnSum {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter Number of Row:");  
 int row = sc.nextInt();  
 System.*out*.printf("\n Enter Number of Column:");  
 int column = sc.nextInt();  
 int arr[][] = new int[row][column];  
 System.*out*.printf("\n Enter Elements:");  
 for (int i=0;i<row;i++)  
 {  
 for(int j=0;j<column;j++)  
 {  
 arr[i][j] = sc.nextInt();  
 }  
 }  
 System.*out*.printf("\n Matrix is:");  
 for (int i=0;i<row;i++)  
 {  
 System.*out*.printf("\n");  
 for (int j=0;j<column;j++)  
 {  
 System.*out*.printf("%d \t",arr[i][j]);  
 }  
 }  
  
 System.*out*.printf("\n Row Wise Sum:");  
 for (int i=0;i<row;i++)  
 {  
 int rsum = 0;  
 for(int j=0;j<column;j++)  
 {  
 rsum = rsum + arr[i][j];  
 }  
 System.*out*.printf("\n Row : %d Sum: %d",i+1,rsum);  
 }  
 System.*out*.printf("\n Column Wise Sum:");  
 for (int i=0;i<column;i++)  
 {  
 int csum = 0;  
 for(int j=0;j<row;j++)  
 {  
 csum = csum + arr[j][i];  
 }  
 System.*out*.printf("\n Column : %d Sum: %d",i+1,csum);  
 }  
 }  
}

Q10:

import java.util.Scanner;  
  
public class ProductOfMatrix {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 int prod = 1;  
 System.*out*.printf("\n Enter Number of Row:");  
 int row = sc.nextInt();  
 System.*out*.printf("\n Enter Number of Column:");  
 int column = sc.nextInt();  
 int arr[][] = new int[row][column];  
 System.*out*.printf("\n Enter Elements:");  
 for (int i=0;i<row;i++)  
 {  
 for(int j=0;j<column;j++)  
 {  
 arr[i][j] = sc.nextInt();  
 }  
 }  
 System.*out*.printf("\n Matrix is:");  
 for (int i=0;i<row;i++)  
 {  
 System.*out*.printf("\n");  
 for (int j=0;j<column;j++)  
 {  
 System.*out*.printf("%d \t",arr[i][j]);  
 }  
 }  
 for (int i=0;i<row;i++)  
 {  
 for(int j=0;j<column;j++)  
 {  
 prod = prod \* arr[i][j];  
 }  
 }  
  
 System.*out*.printf("\n Product of Matrix is: %d",prod);  
  
 }  
}

Q11:

public class StudentCommandLine {  
 public static void main(String[] args) {  
 int rollno = Integer.*parseInt*(args[0]);  
 String name = args[1];  
 int per = Integer.*parseInt*(args[2]);  
  
 System.*out*.printf("\n RollNo: %d \n Name: %s \n Percentage: %d",rollno,name,per);  
 }  
}

Q12:

import java.util.Scanner;  
  
abstract class person  
{  
 int no;  
 String name,address;  
 void accept(int no,String name,String address)  
 {  
 this.no = no;  
 this.name = name;  
 this.address = address;  
 }  
 void display()  
 {  
 System.*out*.printf("\n Details: \n No: %d \n Name: %s \n Address: %s",no,name,address);  
 }  
}  
  
class employee\_ extends person  
{  
 @Override  
 void accept(int no, String name, String address) {  
 super.accept(no, name, address);  
 }  
  
 @Override  
 void display() {  
 super.display();  
 }  
}  
  
class worker extends person  
{  
 @Override  
 void accept(int no, String name, String address) {  
 super.accept(no, name, address);  
 }  
  
 @Override  
 void display() {  
 super.display();  
 }  
}  
  
public class AbstarctClassExample {  
 public static void main(String[] args) {  
 int Choice;  
 int no;  
 String name,address;  
 Scanner sc = new Scanner(System.*in*);  
 do {  
 System.*out*.printf("\n 1.Employee \n 2.Worker \n 3.Exit");  
 System.*out*.printf("\n Enter your choice:");  
 Choice = sc.nextInt();  
 switch (Choice)  
 {  
 case 1: employee\_ emp = new employee\_();  
 System.*out*.printf("\n Enter Employee No:");  
 no = sc.nextInt();  
 System.*out*.printf("\n Enter Employee Name:");  
 name = sc.next();  
 System.*out*.printf("\n Enter Employee Address:");  
 address = sc.next();  
 emp.accept(no,name,address);  
 emp.display();  
 break;  
  
 case 2: worker wk = new worker();  
 System.*out*.printf("\n Enter Worker No:");  
 no = sc.nextInt();  
 System.*out*.printf("\n Enter Worker Name:");  
 name = sc.next();  
 System.*out*.printf("\n Enter Worker Address:");  
 address = sc.next();  
 wk.accept(no,name,address);  
 wk.display();  
 }  
 }while (Choice!=3);  
 }  
}

Q13:

import java.util.Scanner;  
  
class student\_details  
{  
 int rollno;  
 String name;  
 void accept(int rollno,String name)  
 {  
 this.name = name;  
 this.rollno = rollno;  
 }  
 void display()  
 {  
 System.*out*.printf("\n Student Detalis: \n Name: %s \n RollNo: %d",name,rollno);  
 }  
}  
class marks extends student\_details  
{  
 int pracmarks,theorymarks;  
  
 marks(int pracmarks,int theorymarks)  
 {  
 this.pracmarks = pracmarks;  
 this.theorymarks = theorymarks;  
 }  
  
 int totalmarks()  
 {  
 return pracmarks+theorymarks;  
 }  
}  
public class FinalMarks {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter Name:");  
 String name= sc.next();  
 System.*out*.printf("\n Enter RollNo:");  
 int rollno = sc.nextInt();  
 System.*out*.printf("\n Enter practical marks:");  
 int pracmarks = sc.nextInt();  
 System.*out*.printf("\n Enter Theory Marks:");  
 int theorymarks = sc.nextInt();  
  
 marks mk = new marks(pracmarks,theorymarks);  
 mk.accept(rollno,name);  
 mk.display();  
 System.*out*.printf("\n Total Marks: %d",mk.totalmarks());  
  
  
 }  
}

Q14:

import java.util.Scanner;  
  
class emp\_  
{  
 int emp\_no;  
 String emp\_name,designation;  
 emp\_(int emp\_no,String emp\_name,String designation)  
 {  
 this.emp\_no = emp\_no;  
 this.emp\_name = emp\_name;  
 this.designation = designation;  
 }  
 void display()  
 {  
 System.*out*.printf("\n Employee No: %d \n Employee Name: %s \n Employee Designation: %s",emp\_no,emp\_name,designation);  
 }  
}  
  
class emp\_salary extends emp\_  
{  
 float emp\_salary;  
 emp\_salary(int emp\_no,String emp\_name,String designation)  
 {  
 super(emp\_no,emp\_name,designation);  
 if(designation.equalsIgnoreCase("Manager"))  
 {  
 this.emp\_salary = 70000 ;  
 }  
 else if(designation.equalsIgnoreCase("Employee"))  
 {  
 this.emp\_salary = 50000;  
 }  
 else if(designation.equalsIgnoreCase("Worker"))  
 {  
 this.emp\_salary = 40000;  
 }  
  
 }  
  
 @Override  
 void display() {  
 super.display();  
 System.*out*.printf("\n Employee Salary: %f",emp\_salary);  
 }  
}  
  
public class EmpSalary {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter Employee No, Name and Designation:");  
 int id = sc.nextInt();  
 String name = sc.next();  
 String designation = sc.next();  
  
 emp\_salary emp\_s = new emp\_salary(id,name,designation);  
 emp\_s.display();  
  
 }  
}

Q15:

import java.util.Scanner;  
  
public class SimpleInterest {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter Principal Amount:");  
 int p = sc.nextInt();  
 System.*out*.printf("\n Enter Time Period (Years):");  
 int t = sc.nextInt();  
  
  
 if(p <= 10000 && t <= 2)  
 {  
 int r = 9;  
 int si = (p \* t \* r)/100;  
 System.*out*.printf("\n Simple Interest at the end is %d",si);  
 }  
 else if(p <= 10000 && t >= 2)  
 {  
 int r = 10;  
 int si = (p \* t \* r)/100;  
 System.*out*.printf("\n Simple Interest at the end is %d",si);  
 }  
 else if(p >= 10000)  
 {  
 int r = 11;  
 int si = (p \* t \* r)/100;  
 System.*out*.printf("\n Simple Interest at the end is %d",si);  
 }  
 }  
}

Q16:

package StudentCourse;  
  
  
public class StudentCourse {  
 public void display(int rollno, String name,String Course)  
 {  
 System.*out*.printf("\n Roll No: %d \nName: %s",rollno,name);  
 System.*out*.printf("\n Course is: %s",Course);  
 }  
  
  
}

import StudentCourse.StudentCourse;  
import java.util.Scanner;  
  
public class StudentAccept {  
 static void accept()  
 {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter RollNo:");  
 int rollno = sc.nextInt();  
 System.*out*.printf("\n Enter Name:");  
 String name = sc.next();  
 System.*out*.printf("\n Enter Course");  
 String course = sc.next();  
 StudentCourse s = new StudentCourse();  
 s.display(rollno,name,course);  
 }  
 public static void main(String[] args) {  
 *accept*();  
 }  
}

Q17:

import java.util.Scanner;  
class emp  
{  
 int no;  
 String name,phno;  
 void accept(int no,String name,String address)  
 {  
 this.no = no;  
 this.name = name;  
 this.phno = phno;  
 }  
 void display()  
 {  
 System.*out*.printf("\n Details: \n No: %d \n Name: %s \n Address: %s",no,name,phno);  
 }  
}  
class manager extends emp  
{  
 @Override  
 void accept(int no, String name, String address) {  
 super.accept(no, name, address);  
 }  
  
 @Override  
 void display() {  
 super.display();  
 }  
}  
class worker\_ extends emp  
{  
 int hrs;  
 int rph;  
  
 void accept(int no, String name, String address) {  
 super.accept(no, name, address);  
  
 }  
 worker\_(int hrs,int rph) {  
 this.hrs = hrs;  
 this.rph = rph;  
 }  
  
 @Override  
 void display() {  
 super.display();  
 System.*out*.printf("\n No of Hours: %d \n Rate per hour: %d \n Total Ammount earned : %d",hrs,rph,hrs\*rph);  
 }  
}  
public class AbstractEmployee {  
 public static void main(String[] args) {  
 int Choice;  
 int no;  
 String name,phno;  
 Scanner sc = new Scanner(System.*in*);  
 do {  
 System.*out*.printf("\n 1.Manager \n 2.Worker \n 3.Exit");  
 System.*out*.printf("\n Enter your choice:");  
 Choice = sc.nextInt();  
 switch (Choice)  
 {  
 case 1: manager mg = new manager();  
 System.*out*.printf("\n Enter Manager Id:");  
 no = sc.nextInt();  
 System.*out*.printf("\n Enter Manager Name:");  
 name = sc.next();  
 System.*out*.printf("\n Enter Manager PhoneNo:");  
 phno = sc.next();  
 mg.accept(no,name,phno);  
 mg.display();  
 break;  
  
 case 2:  
 System.*out*.printf("\n Enter Worker No:");  
 no = sc.nextInt();  
 System.*out*.printf("\n Enter Worker Name:");  
 name = sc.next();  
 System.*out*.printf("\n Enter Worker PhoneNo:");  
 phno = sc.next();  
 System.*out*.printf("\n Enter No of Hours and Rate per hour");  
 int hrs = sc.nextInt();  
 int rph = sc.nextInt();  
 worker\_ wk = new worker\_(hrs,rph);  
 wk.accept(no,name,phno);  
 wk.display();  
 }  
 }while (Choice!=3);  
 }  
}

Q18:

import java.util.Scanner;  
  
abstract class order  
{  
 int m\_id;  
 order(int m\_id)  
 {  
 this.m\_id = m\_id;  
 }  
 void display()  
 {  
 System.*out*.printf("\n Member Id: %d",m\_id);  
 }  
}  
class PurchaseOrder extends order  
{  
 String customer\_name;  
 PurchaseOrder(int m\_id,String customer\_name)  
 {  
 super(m\_id);  
 this.customer\_name = customer\_name;  
  
 }  
  
 @Override  
 void display() {  
 super.display();  
 System.*out*.printf("\n Customer Name: %s",customer\_name);  
 }  
}  
class SalesOrder extends order  
{  
 String vendor\_name;  
 SalesOrder(int m\_id,String vendor\_name)  
 {  
 super(m\_id);  
 this.vendor\_name = vendor\_name;  
 }  
  
 @Override  
 void display() {  
 super.display();  
 System.*out*.printf("\n Vendor Name: %s",vendor\_name);  
 }  
}  
public class OrderExample {  
 public static void main(String[] args) {  
 int choice,m\_id;  
 String c\_name,v\_name;  
 Scanner sc = new Scanner(System.*in*);  
 do {  
 System.*out*.printf("\n 1.Purchase Order \n 2. Sales Order");  
 System.*out*.printf("\n Enter your choice:");  
 choice = sc.nextInt();  
 switch (choice)  
 {  
 case 1: PurchaseOrder po[] = new PurchaseOrder[5];  
 for(int i=0;i<5;i++)  
 {  
 System.*out*.printf("\n Enter MId,Customer Name:");  
 m\_id = sc.nextInt();  
 c\_name = sc.next();  
 po[i] = new PurchaseOrder(m\_id,c\_name);  
 }  
 for(int i=0;i<5;i++)  
 {  
 po[i].display();  
 }  
 break;  
 case 2: SalesOrder so[] = new SalesOrder[5];  
 for(int i=0;i<5;i++)  
 {  
 System.*out*.printf("\n Enter MId,Vendor Name:");  
 m\_id = sc.nextInt();  
 v\_name = sc.next();  
 so[i] = new SalesOrder(m\_id,v\_name);  
 }  
 for(int i=0;i<5;i++)  
 {  
 so[i].display();  
 }  
  
 }  
 }while(choice != 3);  
  
 }  
}

Q19:

package Student;  
  
public class studentinfo {  
 public void display(int rn,String name,String cls, float per)  
 {  
 System.*out*.printf("\n Roll No: %d \n Name: %s \n Class : %s \n Percentage: %f",rn,name,cls,per);  
 }  
}

import Student.studentinfo;  
  
import java.util.Scanner;  
  
public class studentper {  
 public static float findper(int [] marks)  
 {  
 int sum = 0;  
 for(int i=0;i<3;i++)  
 {  
 sum = sum+marks[i];  
 }  
 float per = sum/3;  
 return per;  
 }  
  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter RollNo, Name, and Class:");  
 int rn = sc.nextInt();  
 String name = sc.next();  
 String cls = sc.next();  
 int [] marks = new int[3];  
 System.*out*.printf("\n Enter marks of three subject");  
 for(int i=0;i<3;i++)  
 {  
 marks[i] = sc.nextInt();  
 }  
 float per = *findper*(marks);  
 studentinfo s = new studentinfo();  
 s.display(rn,name,cls,per);  
 }  
}

Q20:

import java.util.ArrayList;  
import java.util.Scanner;  
  
public class ArrayListCity {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 ArrayList<String> list = new ArrayList<>();  
 System.*out*.printf("\n Total Number of city:");  
 int n = sc.nextInt();  
 for(int i=0;i<n;i++)  
 {  
 System.*out*.printf("\n Enter city name:");  
 String city = sc.next();  
  
 list.add(city);  
 }  
 System.*out*.println("\n Array List contains:"+ list);  
  
 list.clear();  
 System.*out*.printf("\n After using clear method:");  
 System.*out*.println("\n Array List contains:"+ list);  
  
 }  
}

Q21:

Q22:

import java.util.Scanner;  
  
interface CalculateResult  
{  
 void CalculateTotal(int marks[]);  
 void CalculatePercentage(int sum, int n);  
 void CalculateGrade(float per);  
}  
class student\_ implements CalculateResult  
{  
 @Override  
 public void CalculateTotal(int marks[]) {  
 int sum =0, n= marks.length;  
 for(int i=0;i<marks.length;i++)  
 {  
 sum = sum + marks[i];  
 }  
 System.*out*.printf("\n Total Marks is %d out of %d ",sum,marks.length\*100);  
 CalculatePercentage(sum,n);  
  
 }  
  
 @Override  
 public void CalculatePercentage(int sum, int n) {  
 float per = sum / n;  
 System.*out*.printf("\n Percentage is: %f",per);  
 CalculateGrade(per);  
 }  
  
 @Override  
 public void CalculateGrade(float per) {  
 if(per > 80)  
 {  
 System.*out*.printf("\n Outstanding Grade");  
 }  
 else if(per <80 && per >70)  
 {  
 System.*out*.printf("\n A+ Grade");  
 }  
 else if(per <70 && per >60)  
 {  
 System.*out*.printf("\n A Grade");  
 }  
 else if(per <60 && per >50)  
 {  
 System.*out*.printf("\n B Grade");  
 }  
 else  
 {  
 System.*out*.printf("\n C Grade");  
 }  
  
 }  
}  
public class CalculateMarks {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n Enter Total Number of Subjects:");  
 int n = sc.nextInt();  
 int marks [] = new int[n];  
 for(int i=0;i<n;i++)  
 {  
 System.*out*.printf("\n Enter marks:");  
 marks[i] = sc.nextInt();  
 }  
 student\_ st = new student\_();  
 st.CalculateTotal(marks);  
 }  
}

Q23:

import java.util.Scanner;  
  
abstract class Emp{  
 String name;  
 String Address;  
 Emp(String name, String Address)  
 {  
 this.name = name;  
 this.Address = Address;  
 }  
 abstract void display();  
}  
class FullTimeStaff extends Emp{  
 String Dpt;  
 int nod,rpd;  
 FullTimeStaff(String name, String Address,int nod, int rpd)  
 {  
 super(name,Address);  
 this.nod = nod;  
 this.rpd = rpd;  
 }  
 void display()  
 {  
 System.*out*.printf("\n Name: %s \n Address: %s \n Department: %s \n No of days: %d \n Rate per day: %d \n Salary: %d",name,Address,Dpt,nod,rpd,nod\* rpd);  
 }  
}  
class PartTimeStaff extends Emp{  
 int hrs;  
 int rph;  
  
 PartTimeStaff(String name, String Address,int hrs,int rph)  
 {  
 super(name,Address);  
 this.hrs = hrs;  
 this.rph = rph;  
 }  
 void display()  
 {  
 System.*out*.printf("\n Name: %s \n Address: %s \n No of Hours: %d \n Rate per hour: %d \n Total Ammount earned : %d",name,Address,hrs,rph,hrs\*rph);  
  
 }  
}public class TypeOfEmployee {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 int ch;  
 do {  
 System.*out*.printf("\n 1.Permanent Employee \n 2.Temporary Employee ");  
 ch = sc.nextInt();  
 switch (ch)  
 {  
 case 1:  
 System.*out*.printf("\n Enter Name, Address:");  
 String name = sc.next();  
 String address = sc.next();  
 System.*out*.printf("\n Enter no of days worked and Rate per day:");  
 int nod = sc.nextInt();  
 int rpd = sc.nextInt();  
 FullTimeStaff ft = new FullTimeStaff(name,address,nod,rpd);  
 ft.display();  
 break;  
 case 2:  
 System.*out*.printf("\n Enter Name, Address:");  
 name = sc.next();  
 address = sc.next();  
 System.*out*.printf("|n Enter no of days worked and Rate per day:");  
 int hrs = sc.nextInt();  
 int rph = sc.nextInt();  
 PartTimeStaff pt = new PartTimeStaff(name,address,hrs,rph);  
 pt.display();  
  
 }  
  
 }while (ch !=3);  
 }  
}

Q24:

import java.util.Scanner;  
  
interface manager\_  
{  
 void showdetails();  
}  
class HRManager implements manager\_  
{  
 Scanner sc = new Scanner(System.*in*);  
 String name,address;  
 void accept()  
 {  
 System.*out*.printf("\n Enter Name and Address:");  
 name = sc.next();  
 address = sc.next();  
 }  
 @Override  
 public void showdetails() {  
 System.*out*.printf("\n Name: %s \n Address: %s",name,address);  
 }  
}  
public class ManagerHR {  
 public static void main(String[] args) {  
 HRManager hr = new HRManager();  
 hr.accept();  
 hr.showdetails();  
 }  
}

Q25:

import java.util.Scanner;  
  
class voter\_details  
{  
 String name,address,adharno,contactno;  
 voter\_details(String name,String address,String adharno,String contactno)  
 {  
 this.name = name;  
 this.address = address;  
 this.adharno = adharno;  
 this.contactno = contactno;  
 }  
 void display()  
 {  
 System.*out*.printf("\n Name: %s \n Address: %s \n Aadhar No: %s \n Contact No: %s",name,address,adharno,contactno);  
 }  
}  
public class Voter {  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.printf("\n No of Records:");  
 int n = sc.nextInt();  
 voter\_details v[] = new voter\_details[n];  
 for(int i=0;i<n;i++)  
 {  
 System.*out*.printf("\n %d Record: \n Enter Name, Address, Aadhar No and Contact No",i+1);  
 String name= sc.next();  
 String address = sc.next();  
 String aadhar = sc.next();  
 String cno = sc.next();  
 v[i] = new voter\_details(name,address,aadhar,cno);  
 }  
 for(int i=0;i<n;i++)  
 {  
 v[i].display();  
 }  
 }  
}