**Computer Programming - II**

Course Code: -CS3CO08 Lab Manual



By: Submitted to:

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En20CS301457

**Introduction to Java:**

1. What is Java ?

Ans- JAVA is high level programming language and platform for development of standalone desktop applications, web application and mobile application developed my Sun Microsystem in year 1995.

2. What are the features in Java?

Ans- Features of Java:

* • Compiled and Interpreted Language.
* • Simple: Java syntax is based on C++.
* • Platform independent and Portable.
* • Robust and Secure.
* • Distributed.
* • Multithreaded.
* • Dynamic and Extensible.

3. What are the differences between C, C++ and Java?

Ans- C language

1. It is a procedural language.

2. It uses the top-down approach.

3. It is a static programming language.

4. The code is executed directly.

5. It is platform dependent.

C++ language

1. It is an object-oriented programming language.

2. It uses the bottom-up approach.

3. It is also a static programming language.

4. The code is executed directly.

5. It is platform dependent.

Java language

1. It is a pure object-oriented programming language.

2. It also uses the bottom-up approach.

3. It is a dynamic programming language.

4. The code is executed by the JVM.

5. It is platform-independent because of byte code.

4. What do you understand by JVM, JRE and JDK?

Ans- JVM- JVM (Java Virtual Machine) is an abstract machine. It is program, also known as java interpreter, which interprets and execute java byte code and generate output of the java program.

JRE- JRE is an acronym for Java Runtime Environment. The Java Runtime Environment is a set of software tools which are used for executing Java applications/programs.

JDK- The Java Development Kit (JDK) is a software development environment which is used to develop Java applications.

5. What is JIT compiler?

Ans- A just-in-time (JIT) compiler is a program that turns bytecode into instructions that can be sent directly to a computer's processor (CPU).

6. How java is platform independent?

Ans- In the case of Java, it is the magic of Bytecode that makes it platform independent. This adds to an important feature in the JAVA language termed as portability. Every system has its own JVM which gets installed automatically when the JDK software is installed.

7. How to compile and run java program?

Ans- Type 'javac Program\_name. java' and press enter to compile your code. If there are no errors in your code, the command prompt will take you to the next line (Assumption: The path variable is set). Now, type ' java Program\_name ' to run your program.

**Q1. Write a program to print “Hello World” in java.**

|  |
| --- |
| **INPUT:**  public class Main  {  public static void main(String[] args) {  System.out.println("Name: Sushant sharma");  System.out.println("Enrollment Number: EN20CS301457");  System.out.println("Hello Java");  }  } |

**Output:**

**PS E:\sushant\projects\Java\file> & 'C:\Program Files (x86)\jdk\jdk-15.0.2\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\Hp\AppData\Roaming\Code\User\workspaceStorage\97d6a44af9d3eef8888f9816e93e690b\redhat.java\jdt\_ws\file\_ac4f65ad\bin' 'test'**

**Name: Sushant sharma**

**Enrollment Number: EN20CS301457**

**Hello Java**

**Q2.** Write a program to perform arithmetic operations such as addition, subtraction, multiplication and division of two numbers.

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String[] args) {  System.out.println("Name: Sushant sharma");  System.out.println("Enrollment Number: EN20CS301457");  float a, b;  Scanner d= new Scanner(System.in);  System.out.print("Enter the value of a: ");  a = d.nextFloat();  System.out.print("Enter the value of b: ");  b = d.nextFloat();  System.out.println("a + b = " +(a+b));  System.out.println("a - b = " +(a-b));  System.out.println("a \* b = " +(a\*b));  System.out.println("a + b = " +(a/b));  }  } |

**OUTPUT:**

**Name: Sushant sharma**

**Enrollment Number: EN20CS301457**

**Enter the value of a: 78**

**Enter the value of b: 9**

**a + b = 87.0**

**a - b = 69.0**

**a \* b = 702.0**

**a + b = 8.666667**

**PS E:\sushant\projects\Java\file>**

**Q3. Write a program to calculate simple interest.**

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String args[])  {  System.out.println("Name: Sparsh Garg");  System.out.println("Enrollment Number: EN20CS301451");  Scanner sc = new Scanner(System.in);  System.out.println("Enter The Value Of P, R AND T: ");  float P , R , T ;  P = sc.nextFloat();  R = sc.nextFloat();  T = sc.nextFloat();  float SI = (P \* T \* R) / 100;  System.out.println("Simple interest = " + SI);  }  } |

**OUTPUT:**

**Name: Sushant sharma**

**Enrollment Number: EN20CS301457**

**Enter The Value Of P, R AND T:**

**2000**

**5.5**

**7**

**Simple interest = 770.0**

**PS E:\sushant\projects\Java\file>**

**Q4. Write a program to check given number is even number or odd number.**

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String args[])  {  System.out.println("Name: sushant sharma");  System.out.println("Enrollment Number: EN20CS301457");  Scanner sc = new Scanner(System.in);  System.out.println("Enter Number: ");  int a;  a = sc.nextInt();  if (a%2==0){  System.out.println("Even Number");  }  else{  System.out.println("Odd Number");  }  }  } |

**OUTPUT:**

**Name: sushant sharma**

**Enrollment Number: EN20CS301457**

**Enter Number:**

**7**

**Odd Number**

**PS E:\sushant\projects\Java\file>**

**Q5.** Write a program to check given no is prime number or non-prime number also print all prime numbers between 1 to 100.

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String[] args) {  Scanner sc=new Scanner(System.in);  int n,count=0;  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  System.out.println("Enter the number to check whether it is prime or not");  n=sc.nextInt();  for(int i=1;i<=n;i++){  if(n%i==0){  count++;  }  }  if(count==2){  System.out.println("Number "+n+" is prime");  }  else{  System.out.println("Number "+n+" is not prime");  }  System.out.println("Prime numbers between 1 to 100: ");  for(int i=1;i<=100;i++){  count=0;  for(int j=1;j<=i;j++){  if(i%j==0){  count++;  }  }  if(count==2)  {  System.out.println(i);  }  }  }  } |

**OUTPUT:**

**Name: Sushant Sharma**

**Enrollment Number: EN20CS301457**

**Enter the number to check whether it is prime or not**

**81**

**Number 81 is not prime**

**Prime numbers between 1 to 100:**

**2**

**3**

**5**

**7**

**11**

**13**

**17**

**19**

**23**

**29**

**31**

**37**

**41**

**43**

**47**

**53**

**59**

**61**

**67**

**71**

**73**

**79**

**83**

**89**

**97**

**PS E:\sushant\projects\Java\file>**

**Q6. Write a program to calculate factorial of given number.**

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  int n, f=1;  Main(int n)  {  this.n = n;  }  void factorial()  {  while(n!=0)  {  f = f \* n;  n--;  }  }  void show()  {  System.out.println("Factorial of given number is "+f);  }  public static void main(String[] args) {  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  Scanner sc = new Scanner(System.in);  System.out.println("Enter The Number: ");  int n = sc.nextInt();  Main m = new Main(n);  m.factorial();  m.show();  }  } |

**OUTPUT:**

**Name: Sushant Sharma**

**Enrollment Number: EN20CS301457**

**Enter The Number:**

**7**

**Factorial of given number is 5040**

**Q7. Write a program to convert temperature from Fahrenheit to Celsius.**

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String[] args) {  System.out.println("Name: Sushant sharma");  System.out.println("Enrollment Number: EN20CS301457");  float f,c;  Scanner d = new Scanner(System.in);  System.out.print("Enter The Temperature in Fahrenheit = ");  f = d.nextFloat();  c = (f - 32) \* 5 / 9;  System.out.println("The Temperature in Celsius is= "+c);  }  } |

**OUTPUT:**

**Name: Sushant sharma**

**Enrollment Number: EN20CS301457**

**Enter The Temperature in Fahrenheit = 64**

**The Temperature in Celsius is= 17.777779**

**PS E:\sushant\projects\Java\file>\**

**Q8. Write a program to find largest no is 3 numbers.**

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String[] args) {  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  int x,y,z;  Scanner input\_obj =new Scanner(System.in);  System.out.print("X = ");  x = input\_obj.nextInt();  System.out.print("Y = ");  y = input\_obj.nextInt();  System.out.print("Z = ");  z = input\_obj.nextInt();  if(x>=y){  System.out.println(x+" Is the largest Number");  }  else if(y>=z){  System.out.println(y+" Is the largest Number");  }  else {  System.out.println(z+" Is the largest Number");  }  }  } |

**OUTPUT:**

Name: Sushant Sharma

Enrollment Number: EN20CS301457

X = 6

Y = 8

Z = 2

8 Is the largest Number

PS E:\sushant\projects\Java\file>

**Q9. Write a program to swap two numbers without using third variable.**

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String[] args) {  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  float x,y;  Scanner input\_obj =new Scanner(System.in);  System.out.println("Enter Numbers:");  System.out.print("X = ");  x = input\_obj.nextFloat();  System.out.print("Y = ");  y = input\_obj.nextFloat();  x = x + y;  y = x - y;  x = x - y;  System.out.println("After Swapping:");  System.out.println("X = "+x);  System.out.println("Y = "+y);  }  } |

OUTPUT:

Name: Sushant Sharma

Enrollment Number: EN20CS301457

Enter Numbers:

X = 6

Y = 7

After Swapping:

X = 7.0

Y = 6.0

PS E:\sushant\projects\Java\file>

**Q10. Write a program to print pattern:**

\*

\*\*

\*\*\*

\*\*\*\*

\*\*\*\*\*

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String[] args) {  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  for(int i=1; i<=5; i++)  {  for (int j=1; j<=i; j++)  {  System.out.print("\*");  }  System.out.println();  }  }  } |

OUTPUT:

Name: Sushant Sharma

Enrollment Number: EN20CS301457

\*

\*\*

\*\*\*

\*\*\*\*

\*\*\*\*\*

PS E:\sushant\projects\Java\file>

**Q11. Write a program to print first 10 terms of Fibonacci series.**

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String[] args) {  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  System.out.println("Enter the numbers of terms you want in fabonacci series: ");;  Scanner sc = new Scanner(System.in);  int n = sc.nextInt();  int fs[] = new int[10];  fs[0]=0;  fs[1]=1;  for (int i=2; i<n; i++)  {  fs[i] = fs[i-1] + fs[i-2];  }  System.out.println("Fabonacci Series is: ");  for (int i=0; i<n; i++)  {  System.out.print(fs[i]+" ");  }  }  } |

OUTPUT:

Name: Sushant Sharma

Enrollment Number: EN20CS301457

Enter the numbers of terms you want in fabonacci series:

6

Fabonacci Series is:

0 1 1 2 3 5

**Q12. Write a program to print a table of any given number.**

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String[] args) {  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  System.out.println("Enter Number: ");  Scanner sc = new Scanner(System.in);  int n = sc.nextInt();  for (int i=1; i<=10; i++)  {  System.out.println(i+" x "+n+" = "+(i\*n));  }  }  } |

OUTPUT:

Name: Sushant Sharma

Enrollment Number: EN20CS301457

Enter Number:

7

1 x 7 = 7

2 x 7 = 14

3 x 7 = 21

4 x 7 = 28

5 x 7 = 35

6 x 7 = 42

7 x 7 = 49

8 x 7 = 56

9 x 7 = 63

10 x 7 = 70

PS E:\sushant\projects\Java\file>

**Q13. Write a program to print reverse of a given number.**

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String[] args) {  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  System.out.println("Enter Number: ");  Scanner sc = new Scanner(System.in);  int n = sc.nextInt();  int rev\_num=0;  while(n!=0)  {  rev\_num = rev\_num\*10 + n%10;  n=n/10;  }  System.out.println("Reverese Number is: "+rev\_num);  }  } |

OUTPUT:

Name: Sushant Sharma

Enrollment Number: EN20CS301457

Enter Number:

124

Reverese Number is: 421

PS E:\sushant\projects\Java\file>

**Q14. Write a program to convert decimal value to binary value.**

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String[] args) {  System.out.println("Name: Sushant sharma");  System.out.println("Enrollment Number: EN20CS301451");  System.out.println("Enter Number: ");  Scanner sc = new Scanner(System.in);  int n = sc.nextInt();  System.out.println(Integer.toBinaryString(n));  }  } |

OUTPUT:

Name: Sushant sharma

Enrollment Number: EN20CS301451

Enter Number:

32

100000

PS E:\sushant\projects\Java\file>

**Q15.** Write a program which accepts days as an integer (eg.700) and display total number of years, months and days in it.

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  int n;  int w, yr, dy;  Main(int n)  {  this.n = n;  }  void cal()  {  yr = n/365;  w = (n%365)/7;  dy = n - (yr\*365) - (w\*7);  }  void show()  {  System.out.println("Number of years: "+yr);  System.out.println("Number of weeks: "+w);  System.out.println("Number of days: "+dy);  }  public static void main(String[] args) {  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  System.out.println("Enter Number: ");  Scanner sc = new Scanner(System.in);  int n = sc.nextInt();  Main m = new Main(n);  m.cal();  m.show();  }  } |

OUTPUT:

Name: Sushant Sharma

Enrollment Number: EN20CS301457

Enter Number:

65

Number of years: 0

Number of weeks: 9

Number of days: 2

PS E:\sushant\projects\Java\file>

**Q16. In a company an employee is paid as under:**

a. If his basic salary is less than Rs. 5000, then HRA=20% of basic salary and DA=50% of basic salary.

b. If his salary is either equal to or above Rs. 5000, then HRA = Rs. 2000 and DA=75% of basic salary.

If the employee’s salary given by the user, write a program to find his gross salary. (GS = Basic + HRA + DA) Rs.

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  double bs, hra, da, gs;  Main(double n)  {  bs = n;  }  void cal()  {  if(bs<5000)  {  hra = 0.2\*bs;  da = 0.5\*bs;  }  else if(bs>=5000)  {  hra = 2000;  da = 0.75\*bs;  }  }  void show()  {  System.out.println("Basic Salary: "+bs);  System.out.println("HRA: "+hra);  System.out.println("DA: "+da);  System.out.println("Gross Salary: "+(da+hra+bs));  }  public static void main(String[] args) {  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  System.out.println("Enter Basic Salary: ");  Scanner sc = new Scanner(System.in);  double n = sc.nextInt();  Main m = new Main(n);  m.cal();  m.show();  }  } |

OUTPUT:

Name: Sushant Sharma

Enrollment Number: EN20CS301457

Enter Basic Salary:

20000

Basic Salary: 20000.0

HRA: 2000.0

DA: 15000.0

Gross Salary: 37000.0

PS E:\sushant\projects\Java\file>

**Q17.** Write a program to calculate electricity bill according to the following charges (Units given by user): a. 0 to 100 units -------------2Rs/Unit

Also add fixed charges of 200Rs

b. 101 to 150 units----------3Rs/Unit

c. 151 and above units-----7Rs/Unit

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String gg[])  {  System.out.println("Name: Sushant Sahrma");  System.out.println("Enrollment Number: EN20CS301457");  Scanner sc = new Scanner(System.in);  System.out.println("Enter the number of unit:");  int u = sc.nextInt();  if(u==100)  {  System.out.println("Electricity Bill: "+u\*2);  }  else if(u>=101 && u<=150 )  {  System.out.println("Electricity Bill: "+u\*3);  }  else if(u>=151)  {  System.out.println("Electricity Bill: "+u\*7);  }  }  } |

OUTPUT:

Name: Sushant Sahrma

Enrollment Number: EN20CS301457

Enter the number of unit:

201

Electricity Bill: 1407

PS E:\sushant\projects\Java\file>

**Q18. Write a program to check given value is available in array or not, also print the position in array.**

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String gg[])  {  int arr[] = {25,56,78,2,98,1,5,4};  int flag=0;  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  Scanner sc = new Scanner(System.in);  System.out.println("Enter the number you want to search:");  int n = sc.nextInt();  for (int i=0; i<arr.length; i++)  {  if(n==arr[i])  {  flag++;  break;  }  }  if(flag!=0)  System.out.println("Element is present in array");  else if(flag==0)  System.out.println("Element is not present in array");  }  } |

OUTPUT:

Name: Sushant Sharma

Enrollment Number: EN20CS301457

Enter the number you want to search:

28

Element is not present in array

PS E:\sushant\projects\Java\file>

**Q19. Write a program to print largest number in array.**

|  |
| --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String gg[])  {  int arr[] = {25,56,78,2,98,1,5,4};  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  int max = arr[0];  for (int i=0; i<arr.length; i++)  {  if(arr[i]>max)  {  max = arr[i];  }  }  System.out.println("The largest number in array is: "+max);  }  } |

OUTPUT:

Name: Sushant Sharma

Enrollment Number: EN20CS301457

The largest number in array is: 98

PS E:\sushant\projects\Java\file>

**Q20. Write a program to print smallest number in array.**

|  |  |  |  |
| --- | --- | --- | --- |
| **INPUT:**  import java.util.Scanner;  public class Main  {  public static void main(String gg[])  {  int arr[] = {25,56,78,2,98,1,5,4};  System.out.println("Name: Sushant Sharma");  System.out.println("Enrollment Number: EN20CS301457");  int min = arr[0];  for (int i=0; i<arr.length; i++)  {  if(arr[i]<min)  {  min = arr[i];  }  }  System.out.println("The largest number in array is: "+min);  }  } |  |  |  |

OUTPUT:

Name: Sushant Sharma

Enrollment Number: EN20CS301457

The Smallest number in array is: 1

PS E:\sushant\projects\Java\file>

**Problem 1.**

Create a base class called shape. Use this class to store two double type values that could be used to compute the area of figures. Derive two specific classes called triangle and rectangle from the base shape. Add to the base class, a member function get\_data() to initialize base class data members and another member function display\_area() to compute and display the area of figures. Override display\_area() and redefine this function in the derived classes to suit their requirements.

**INPUT:**

import java.util.Scanner;

class Shape{

double a,b;

Scanner obj = new Scanner(System.in);

void get\_data(){

System.out.println("Enter the values of a and b : ");

a = obj.nextDouble();

b = obj.nextDouble();

}

}

class Triangle extends Shape{

void display\_area(){

double d = 0.5\*a\*b;

System.out.println("area of triangle with given perimeters : " + d + " units");

}

}

class Rectangle extends Shape{

void display\_area(){

double d = a\*b;

System.out.println("Area of a rectangle with given parameters is : " + d + " units.");

}

}

public class calsses {

public static void main(String[] args) {

Triangle T = new Triangle();

T.get\_data();

T.display\_area();

Rectangle R = new Rectangle();

// R.get\_data();

R.display\_area();

}

}

OUTPUT:

Name: Sushant Sharma

Enrollment no: EN20CS301457

Enter the values of a and b :

3

8

area of triangle with given perimeters : 12.0 units

Enter the values of a and b :

5

4

Area of a rectangle with given parameters is : 20.0 units.

PS E:\sushant\projects\Java\file>

**Problem.2** –

Assume that a bank maintains two kinds of accounts for customers, one called as savings and the other as current account. The savings account provides compound interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level a service charge is imposed. Create a class account that stores customer name, account number and type of account. From this derive the classes cur\_acct and sav\_acct to make them more specific to their requirements. Include necessary member functions in order to achieve the following tasks: (a) Accept the deposit from a customer and update the balance. (b) Display the balance. (c) Compute and deposit interest. (d) Permit withdrawal and update the balance. (e) Check for the minimum balance, impose penalty, necessary and update the balance.

**INPUT:**

**import java.util.Scanner;**

**public class Bank {**

**public static void main(String[] args) {**

**Scanner sc= new Scanner(System.in);**

**Cur\_Acct cu= new Cur\_Acct();**

**Sav\_acct sa= new Sav\_acct();**

**String type;**

**System.out.print("Enter Account type: ");**

**type= sc.nextLine();**

**if(type.toLowerCase().equals("current") || type.toLowerCase().equals("c")){**

**cu.getData();**

**cu.minBalance();**

**int count=0;**

**while(count!=4){**

**System.out.println("1.Display\n2.Deposit\n3.Withdraw\n4.Exit");**

**System.out.println("Enter Your Choice");**

**int cho=sc.nextInt();**

**switch(cho) {**

**case 1:**

**cu.display();**

**break;**

**case 2:**

**cu.deposit();**

**break;**

**case 3:**

**cu.withdrawal();**

**break;**

**case 4:**

**System.out.println("Logging Out...");**

**System.exit(0);**

**break;**

**default:**

**System.out.println("Wrong Choice!");**

**}**

**}**

**}**

**else if(type.toLowerCase().equals("savings")|| type.toLowerCase().equals("s")){ int count=0;**

**sa.getData();**

**while (count!=5){**

**System.out.println("1.Display\n2.Deposit\n3.Withdraw\n4.Interest\n5.Exit");**

**System.out.println("Enter Your Choice");**

**int cho=sc.nextInt();**

**switch(cho) {**

**case 1: sa.display();**

**break;**

**case 2: sa.deposit();**

**break;**

**case 3: sa.withdrawal();**

**break;**

**case 4: sa.check\_interest();**

**break;**

**case 5:**

**System.out.println("Logging Out...");**

**System.exit(0);**

**break;**

**default:System.out.println("Wrong Choice!");**

**}**

**}**

**}**

**}**

**}**

**class Account{**

**public static int min=1000;**

**String cname;**

**Long acc\_no;**

**Float amount;**

**String type;**

**Scanner sc= new Scanner(System.in);**

**void getData(){**

**System.out.print("Enter your name: ");**

**cname= sc.nextLine();**

**System.out.print("Enter Account Number: ");**

**acc\_no= sc.nextLong();**

**System.out.print("Enter opening amount (must be>1000): ");**

**amount= sc.nextFloat();**

**}**

**void show(){**

**System.out.println("Name: "+ cname);**

**System.out.println("Account Number: "+ acc\_no );**

**System.out.println("Account Type: "+ type);**

**System.out.println("Balance: "+ amount);**

**}**

**}**

**class Cur\_Acct extends Account{**

**float money,withdraw;**

**void deposit(){**

**System.out.print("Enter amount to be deposited: ");**

**money= sc.nextFloat();**

**amount+= money;**

**System.out.println("Money Deposited");**

**}**

**void display(){**

**System.out.println("Balance of your account is: "+ amount);**

**}**

**void withdrawal(){**

**System.out.print("Enter amount to be debited: ");**

**withdraw= sc.nextFloat();**

**amount-= withdraw;**

**System.out.println("You withdrawed "+withdraw+" Rs.");**

**}**

**void minBalance(){**

**if(amount<1000){**

**System.out.println("You have less balance than necessary, Penalty of rs. 50 will be imposed.");**

**amount-=50;**

**}else{**

**System.out.println("You have sufficient balance");**

**}**

**}**

**}**

**class Sav\_acct extends Account{**

**float money, withdraw, interest;**

**void deposit(){**

**System.out.print("Enter amount to be deposited: ");**

**money= sc.nextFloat();**

**amount+= money;**

**System.out.println("Money Deposited");**

**}**

**void display(){**

**System.out.println("Balance of your account is: "+ amount);**

**}**

**void check\_interest(){**

**System.out.println("Rate of interest is 2%");**

**System.out.print("Enter the time period in years: ");**

**float time= sc.nextInt();**

**System.out.print("Enter the number of time interest is applied per time period: "); float n= sc.nextInt();**

**float a=1;**

**for(int i=0; i<n\*time; i++){**

**a= a\*(1+(2/n));**

**}**

**amount= amount\* a;**

**System.out.println("Amount after compounding the interest: "+ amount); }**

**void withdrawal(){**

**System.out.print("Enter amount to be debited: ");**

**withdraw= sc.nextFloat();**

**amount-= withdraw;**

**System.out.println("You withdrawed "+withdraw+" Rs.");**

**}**

**}**

**OUTPUT:**

**Enter Account type: current**

**Enter your name: Sushant**

**Enter Account Number: 12309878**

**Enter opening amount (must be>1000): 200000**

**You have sufficient balance**

**1.Display**

**2.Deposit**

**3.Withdraw**

**4.Exit**

**Enter Your Choice**

**2**

**Enter amount to be deposited: 400**

**Money Deposited**

**1.Display**

**2.Deposit**

**3.Withdraw**

**4.Exit**

**Enter Your Choice**

**1**

**Balance of your account is: 200400.0**

**1.Display**

**2.Deposit**

**3.Withdraw**

**4.Exit**

**Enter Your Choice**

**3**

**Enter amount to be debited: 20000**

**You withdrawed 20000.0 Rs.**

**1.Display**

**2.Deposit**

**3.Withdraw**

**4.Exit**

**Enter Your Choice**

**1**

**Balance of your account is: 180400.0**

**1.Display**

**2.Deposit**

**3.Withdraw**

**4.Exit**

**Enter Your Choice**

**4**

**Logging Out...**

**PS E:\sushant\projects\Java\file>**

**Problem.3 -** Calculate the percentage of marks obtained in three subjects (each out of 100) by student A and in four subjects (each out of 100) by student B. Create an interface 'Marks' with an abstract method 'getPercentage'. It is implemented by two other classes 'A' and 'B' each having a method with the same name which returns the percentage of the students. The constructor of student A takes the marks in three subjects as its parameters and the marks in four subjects as its parameters for student B. Print the percentage of marks for both the students.

**INPUT:**

import java.util.Scanner;

interface Marks{

void getPercentage();

}

class A implements Marks{

float marks[]=new float[3];

Scanner sc=new Scanner(System.in);

A()

{

System.out.println("Enter the marks of student A: ");

for(int i=0;i<3;i++)

{

marks[i]=sc.nextFloat();

}

}

public void getPercentage()

{

float total=0;

for(int i=0;i<3;i++)

{

total=total+marks[i];

}

System.out.println("Percentage of A: "+(total/300\*100));

}

}

class B implements Marks{

Scanner sc=new Scanner(System.in);

float marks[]=new float[4];

B()

{

System.out.println("Enter the marks of student B: ");

for(int i=0;i<4;i++)

{

marks[i]=sc.nextFloat();

}

}

public void getPercentage()

{

float total=0;

for(int i=0;i<4;i++)

{

total=total+marks[i];

}

System.out.println("Percentage of A is: "+(total/400\*100));

}

}

public class Main

{

public static void main(String[] args) {

System.out.println("Name: Sushart Sharma");

System.out.println("ENROLLMENT Number: EN20CS301457");

A a=new A();

B b=new B();

a.getPercentage();

b.getPercentage();

}

}

OUTPUT:

Name: Sushant Sharma

ENROLLMENT Number: EN20CS301457

Enter the marks of student A:

56

78

34

Enter the marks of student B:

99

99

99

0

Percentage of A: 56.0

Percentage of B is: 74.25

PS E:\sushant\projects\Java\file>