KARIMGANJ COLLEGE

Academic Year 2022 - 23

Department: Computer Science (BCA)

Name of Assignment: Practical on Programming in JAVA

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Subject: Practical on Programming in JAVA

Date of Submission: ……..

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Experiment 1

Name of the Experiment:

Write a program to find the sum of any number of integers entered as command line arguments.

Objective of the program:

The main objective of the experiment is to write a program to find the sum of any number of integers entered as command line arguments.

IDE: Eclipse IDE

Compiler: JAVAC

Code :

```
public class cmdARG {

	public static void main(String[] args) {
		int cnt, i=0,n,s=0;
		cnt = args.length;
		while(i<cnt) {
			n= Integer.parseInt(args[i]);
			s=s+n;
			i++;
		}
		System.out.println("The sum of integer is "+s);

	}

}
```

Output:

```
C:\Users\ahmed\eclipse-workspace\5th_sem\src>javac cmdARG.java

C:\Users\ahmed\eclipse-workspace\5th_sem\src>java cmdARG 20 30 40 50
The sum of integer is 140
```

Experiment 2

Name of the Experiment:

Write a program to find the factorial of a given number.

Objective of the program:

The main objective of the experiment is to Write a program to find the factorial of a given number.

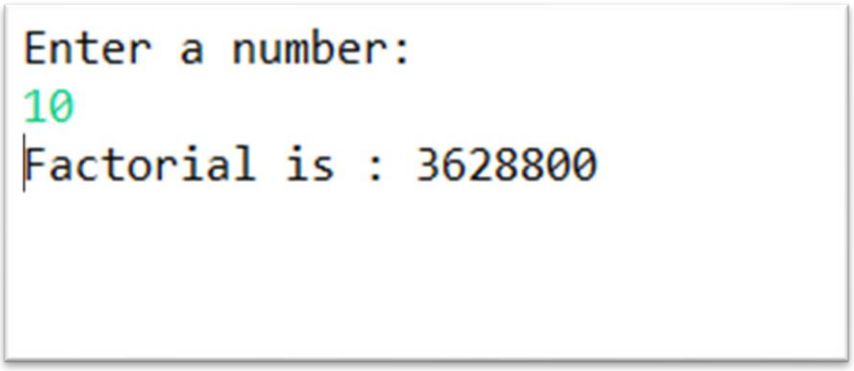
IDE: Eclipse IDE

Compiler: JAVAC

Code :

```
import java.util.Scanner;

public class FactorialOfAGivenNumber {

	public static void main(String[] args) {
		Scanner sc = new Scanner(System.in);
		int a,fact=1;
		System.out.println("Enter a number: ");
		a=sc.nextInt();

		System.out.println("Factorial is : "+ facto(a));

	}
	public static int facto(int n) {
		if(n==0) return 1;
		return n*facto(n-1);
	}

}
```

Output:



Experiment 3

Name of the Experiment:

Write a program to make single dimensional array by defining the array dynamically.

Objective of the program:

The main objective of the experiment is to Write a program to make single dimensional array by defining the array dynamically.

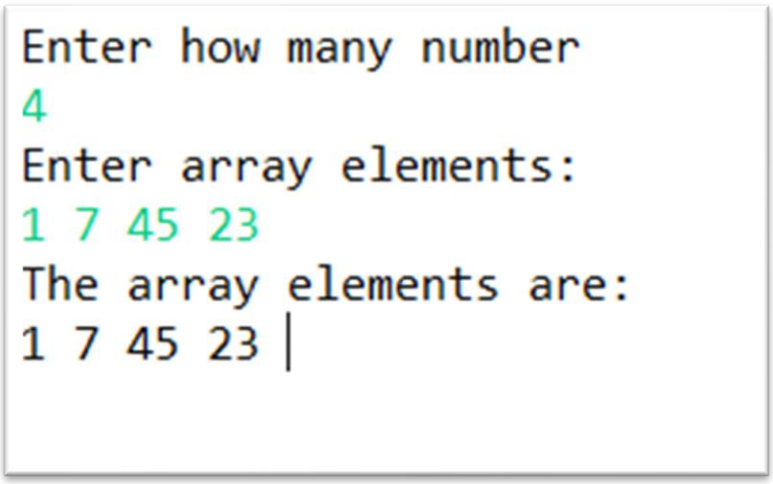
IDE: Eclipse IDE

Compiler: JAVAC

Code :

```
import java.util.Scanner;

public class arrayOneD {

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

		int a[],n;
		System.out.println("Enter how many number");
		n=sc.nextInt();
		a=new int[n];
		System.out.println("Enter array elements: ");
		for(int i =0;i<n;i++) {
			a[i]=sc.nextInt();
		}
		System.out.println("The array elements are: ");
		for(int i =0;i<n;i++) {
			System.out.print(a[i]+" ");
		}
	}
	static void getArr() {
		System.out.println("Enter array elements: ");

	}

}
```

Output:


Enter how many number
4
Enter array elements:
1 7 45 23
The array elements are:
1 7 45 23

Experiment 4

Name of the Experiment:

Write a program to use length in case of a two dimensional array.

Objective of the program:

The main objective of the experiment is to Write a program to use length in case of a two dimensional array.

IDE: Eclipse IDE

Compiler: JAVAC

Code :

```
import java.util.Scanner;

public class twoDArray {

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

		int a[][],n,m;
		System.out.println("Enter array row :");
		n=sc.nextInt();
		System.out.println("Enter array coloumn :");
		m=sc.nextInt();

		a= new int[n][m];

		System.out.println("Enter elements");
		for(int i=0;i<n;i++) {
			for(int j=0;j<m;j++) {
				a[i][j]=sc.nextInt();
			}
		}

		System.out.println("Array elements are: ");
		for(int i=0;i<n;i++) {
			for(int j=0;j<m;j++) {
				System.out.print(a[i][j]+" ");
			}
			System.out.println("");
		}

		System.out.println("The row this array is : "+a.length);
		System.out.println("The coloumn this array is : "+a[0].length);

	}

}
```

Output:

```
Enter array row :
2
Enter array coloumn :
3
Enter elements
1 2 3
4 5 6
Array elements are:
1 2 3
4 5 6
The row this array is : 2
The coloumn this array is : 3
```

Experiment 5

Name of the Experiment:

Write a program to convert a decimal to binary number.

Objective of the program:

The main objective of the experiment is to Write a program to convert a decimal to binary number.

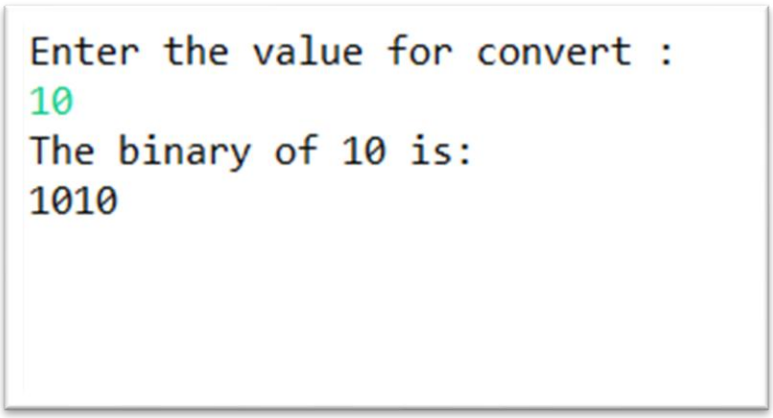
IDE: Eclipse IDE

Compiler: JAVAC

Code :

```
import java.util.Scanner;

public class decimalToBinary {

	public static void main(String[] args) {
		int a[];
		int r;
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter the value for convert : ");
		int n = sc.nextInt(),k=n;

		a = new int[10];
		int i =0;
		while(n>0) {
			r=n%2;
			a[i++]=r;
			n/=2;
		}
		System.out.println("The binary of "+k+" is:");
		for(int j=i-1;j>=0;j--) {
			System.out.print(a[j]);
		}

	}

}
```

Output:



Experiment 6

Name of the Experiment:

Write a program to check if a number is prime or not, by taking the number as input from the keyboard.

Objective of the program:

The main objective of the experiment is to Write a program to check if a number is prime or not, by taking the number as input from the keyboard.

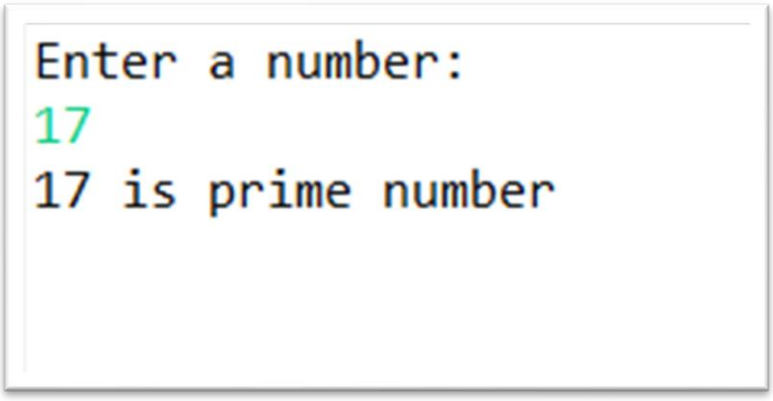
IDE: Eclipse IDE

Compiler: JAVAC

Code :

```
import java.util.Scanner;

public class primeOrNot {

	public static void main(String[] args) {

		Scanner sc = new Scanner(System.in);
		int n;
		System.out.println("Enter a number: ");
		n= sc.nextInt();
		 int i,m=0,flag=0;
		  m=n/2;
		  if(n==0||n==1){
		   System.out.println(n+" is not prime number");
		  }else{
		   for(i=2;i<=m;i++){
		    if(n%i==0){
		     System.out.println(n+" is not prime number");
		     flag=1;
		     break;
		    }
		   }
		   if(flag==0)  { System.out.println(n+" is prime number");
}
		  }//end of else

	}

}
```

Output:



Experiment 7

Name of the Experiment:

Write a program to find the sum of any number of integers interactively, i.e., entering every number from the keyboard, whereas the total number of integers is given as a command line argument.

Objective of the program:

The main objective of the experiment is to Write a program to find the sum of any number of integers interactively, i.e., entering every number from the keyboard, whereas the total number of integers is given as a command line argument.

IDE: Eclipse IDE

Compiler: JAVAC

Code :

```
import java.util.Scanner;

public class assignment7 {

	public static void main(String[] args) {

		Scanner in = new Scanner(System.in);
		try {
			int n = Integer.parseInt(args[0]),s=0;
			for(int i = 0;i<n;i++) {
				s+=in.nextInt();
			}
			System.out.println("The result is "+s);

		}catch(Exception e) {
			System.out.println(e);
		}

	}

}
```

Output:

```
C:\Users\ahmed\eclipse-workspace\5th_sem\src>javac assignment7.java

C:\Users\ahmed\eclipse-workspace\5th_sem\src>java assignment7 4
4 5 6 7
The result is 22
```

Experiment 8

Name of the Experiment:

Write a program that show working of different functions of String and StringBufferclasss like setCharAt(), setLength(), append(), insert(), concat()and equals().

Objective of the program:

The main objective of the experiment is to Write a program that show working of different functions of String and StringBufferclasss like setCharAt(), setLength(), append(), insert(), concat()and equals().
IDE: Eclipse IDE

Compiler: JAVAC

Code :

```
public class asign8 {

	public static void main(String[] args) {

		char[] ch = {'j','a','v','a','t','p','o','i','n','t'};
		String s = new String(ch);

		System.out.println("The string is "+s);
		System.out.println("The indidividual first character is "+ch[0]);
		String s1 = new String("Kawsar ");
		String s2 = new String("Ahmed");
		System.out.println("The string is "+s1.concat(s2));


		StringBuffer s3 = new StringBuffer("John ");
		StringBuffer s4 = new StringBuffer("Ronglang");
		s3.append(s4);
		System.out.println("The string is "+s3);
		s3.insert(5,"Boos ");
		System.out.println(s3);
		s3.setLength(9);
		System.out.println("The string is "+s3);
		if(s1.equals(s2)) {
			System.out.println("The string is equal ");
		}else {
			System.out.println("The string is not equal");
		}
		s3.setCharAt(3, 'x');
		System.out.println("The updated string is "+s3);
	}

}
```

Output:

```
The string is javatpoint
The indidividual first character is j
The string is Kawsar Ahmed
The string is John Ronglang
John Boos Ronglang
The string is John Boos
The string is not equal
The updated string is Johx Boos
```

Experiment 9

Name of the Experiment:

Write a java program to implement the concept of method overloading.

Objective of the program:

The main objective of the experiment is to Write a java program to implement the concept of method overloading.
IDE: Eclipse IDE

Compiler: JAVAC

Code:

```
class FunOverloading{
	void put(int a) {
		System.out.println("Integer function "+a);
	}
	void put(float a) {
		System.out.println("Float function "+a);
	}
	void put(double a) {
		System.out.println("Double function "+a);
	}
}
public class functionOverloading {

	public static void main(String[] args) {

		FunOverloading ob = new FunOverloading();
		ob.put(20);
		ob.put(23.2F);
		ob.put(34.55);
	}

}
```

Output:

```
Integer function 20
Float function 23.2
Double function 34.55
```

(If we comment void put(int a), then we get below output)

```
Float function 20.0
Float function 23.2
Double function 34.55
```

Experiment 10

Name of the Experiment:

Write a java program to implement the concept of method overriding.

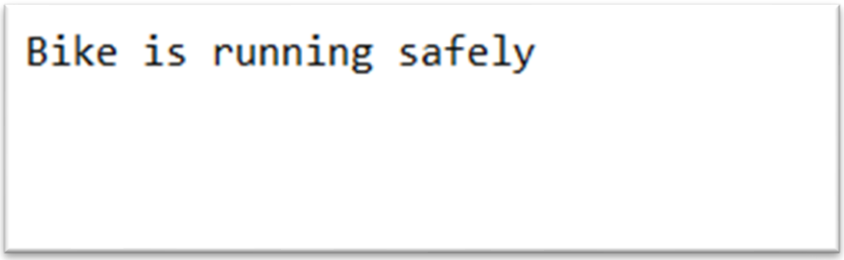
Objective of the program:
The main objective of the experiment is to Write a java program to implement the concept of method overriding.

IDE: Eclipse IDE
Compiler: JAVAC

Code :

```
class Vehicle {
	void run() {
		System.out.println("Vehicle is running");
	}
}

class Bike2 extends Vehicle {
	void run() {
		System.out.println("Bike is running safely");
	}

}

public class functionOverriding extends Bike2 {

	public static void main(String args[]) {
		Bike2 obj = new Bike2();
		obj.run();
	}

}
```

Output:



Experiment 11

Name of the Experiment:

Write a java program to demonstrate how packages are created and imported to a another java program.

Objective of the program:

The main objective of the experiment is to Write a java program to demonstrate how packages are created and imported to a another java program.

IDE: Eclipse IDE
Compiler: JAVAC

Code :

Make a new package and then create a new class

```
package multifile;

import java.util.Scanner;

public class MultiFilepackage {
    public String str1;
    public String readString() {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter string");
        str1 = sc.nextLine();
        return str1;
    }
}
```

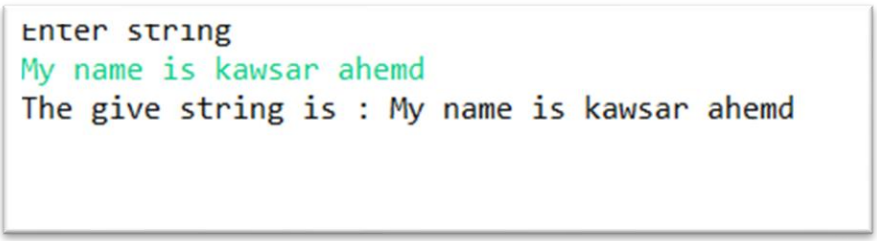
Create a new class in same created package

```
package multifile;

 public class PrintString {

        public void printString(String s) {
               System.out.println("The give string is : "+s);
        }
}
```

Import package to the main file from created package

```
import multifile.*;
public class assignment11 {

       public static void main(String[] args) {

              MultiFilepackage ob = new MultiFilepackage();
              var value = ob.readString();
              PrintString pOb = new PrintString();
              pOb.printString(value);
       }

}
```

Output:


Enter string
My name is kawsar ahemd
The give string is : My name is kawsar ahemd

Experiment 12

Name of the Experiment:

Write a java program to implement the concept of multiple inheritance through Interface.

Objective of the program:

The main objective of the experiment is to Write a java program to implement the concept of multiple inheritance through Interface.

IDE: Eclipse IDE
Compiler: JAVAC

Code :

```
//java program to implement interface i.e multiple inheritance
interface I {
	static int x=13;
	public void disp_x();
}

class I_class{
	int x1;

	void set_x1(int x) {
		x1=x;
	}
	void disp_x1() {
		System.out.println("The value of x1 is "+x1);
	}
}

class inter extends I_class implements I {

	public void disp_x() //method defination
	{
		System.out.println("The value of x from  interface is "+
x);
	}
}

public class InterfaceUsages {

	public static void main(String[] args) {
		// TODO Auto-generated method stub
		inter i = new inter();
		i.disp_x();
		i.set_x1(15);
		i.disp_x1();


	}

}
```

Output:

```
The value of x from  interface is 13
The value of x1 is 15
```

Experiment 13

Name of the Experiment:

Write a java program to implement multilevel inheritance.

Objective of the program:

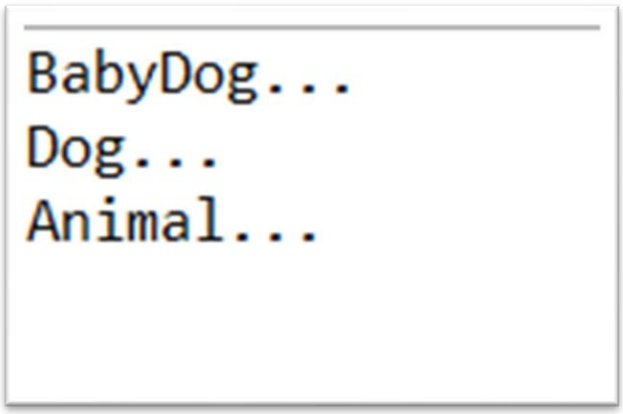
The main objective of the experiment is to Write a java program to implement multilevel inheritance.

IDE: Eclipse IDE
Compiler: JAVAC

Code :

```
class Animal {
	void eat() {
		System.out.println("Animal...");
	}
}

class Dog extends Animal {
	void bark() {
		System.out.println("Dog...");
	}
}

class BabyDog extends Dog {
	void weep() {
		System.out.println("BabyDog...");
	}
}

public class MultilevelInheritance {
	public static void main(String args[]) {
		BabyDog d = new BabyDog();
		d.weep();
		d.bark();
		d.eat();
	}
}
```

Output:



Experiment 14

Name of the Experiment:

Write a java program to demonstrate the exception handling using at-least three predefine exception.

Objective of the program:

The main objective of the experiment is to Write a java program to demonstrate the exception handling using at-least three predefine exception.

IDE: Eclipse IDE
Compiler: JAVAC

Code :

```
import java.util.Scanner;

public class demoException2 {

	public static void main(String[] args) throws Exception {
		Scanner in = new Scanner(System.in);
		try {
			int a[] = new int[5];
			 a[5]=30/1;
			a[2]=in.nextInt();
			System.out.println(a[10]);
			String s = null;
			System.out.println(s.length());
			int data = 100/0;
		} catch (ArithmeticException e) {
			System.out.println(e);
		} catch (ArrayIndexOutOfBoundsException e) {
			System.out.println(e);
		} catch (NullPointerException e) {
			System.out.println(e);
		} catch (Exception e) {
			System.out.println(e);
		}
		System.out.println("Rest of the code");

	}

}
```

Output:

```
java.lang.ArrayIndexOutOfBoundsException: Index 5 out of bounds for length 5
Rest of the code
```

Experiment 15

Name of the Experiment:

Write a java program to demonstrate the user define exception.

Objective of the program:

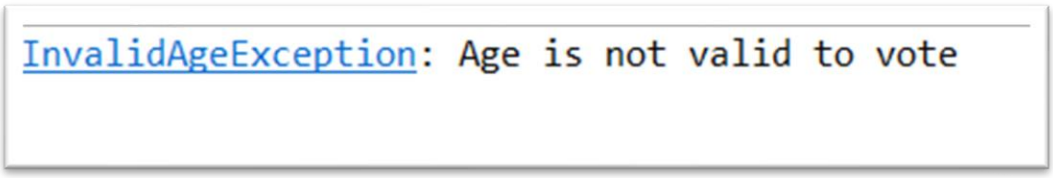
The main objective of the experiment is to Write a java program to demonstrate the user define exception.

IDE: Eclipse IDE
Compiler: JAVAC

Code :

```
class InvalidAgeException extends Exception {
	public InvalidAgeException(String str) {
		// calling the construct of parent Exception
		super(str);
	}
}

public class userDefinedException {

	static void validate(int age) throws InvalidAgeException {
		if (age > 18) {
			System.out.println("Welcome to vote");
		} else {
			throw new InvalidAgeException("Age is not valid to vote");
		}
	}

	public static void main(String[] args) {
		try {
			validate(16);
		} catch (InvalidAgeException e) {
			System.out.println(e);
		}

	}

}
```

Output:



Experiment 16

Name of the Experiment:

Write a java program to demonstrate the concept of runnable interfaces.

Objective of the program:

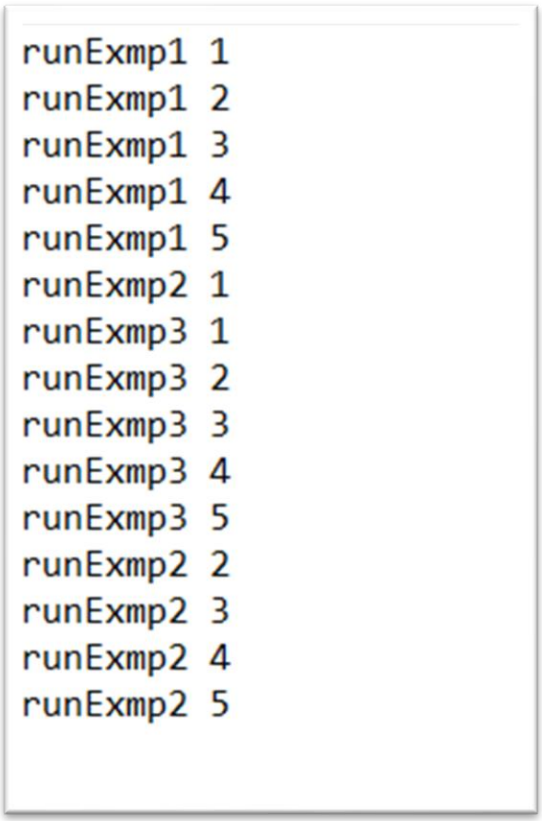
The main objective of the experiment is to Write a java program to demonstrate the concept of runnable interfaces.

IDE: Eclipse IDE
Compiler: JAVAC

Code :

```
class runExmp1 implements Runnable {
	public void run() {
		for (int i = 1; i < 6; i++) {
			System.out.println("runExmp1 " + i);
		}
	}
}

class runExmp2 implements Runnable {
	public void run() {
		for (int i = 1; i < 6; i++) {
			System.out.println("runExmp2 " + i);
		}
	}
}

class runExmp3 implements Runnable {
	public void run() {
		for (int i = 1; i < 6; i++) {
			System.out.println("runExmp3 " + i);
		}
	}
}

public class RunnableImpl {

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

		runExmp1 a = new runExmp1();
		runExmp2 b = new runExmp2();
		runExmp3 c = new runExmp3();

		Thread ta = new Thread(a);
		Thread tb = new Thread(b);
		Thread tc = new Thread(c);

		ta.start();
		tb.start();
		tc.start();
	}
}
```

Output:


runExmp1 1
runExmp1 2
runExmp1 3
runExmp1 4
runExmp1 5
runExmp2 1
runExmp3 1
runExmp3 2
runExmp3 3
runExmp3 4
runExmp3 5
runExmp2 2
runExmp2 3
runExmp2 4
runExmp2 5

Experiment 17

Name of the Experiment:

Write a java program to demonstrate the concept of multithreading.

Objective of the program:

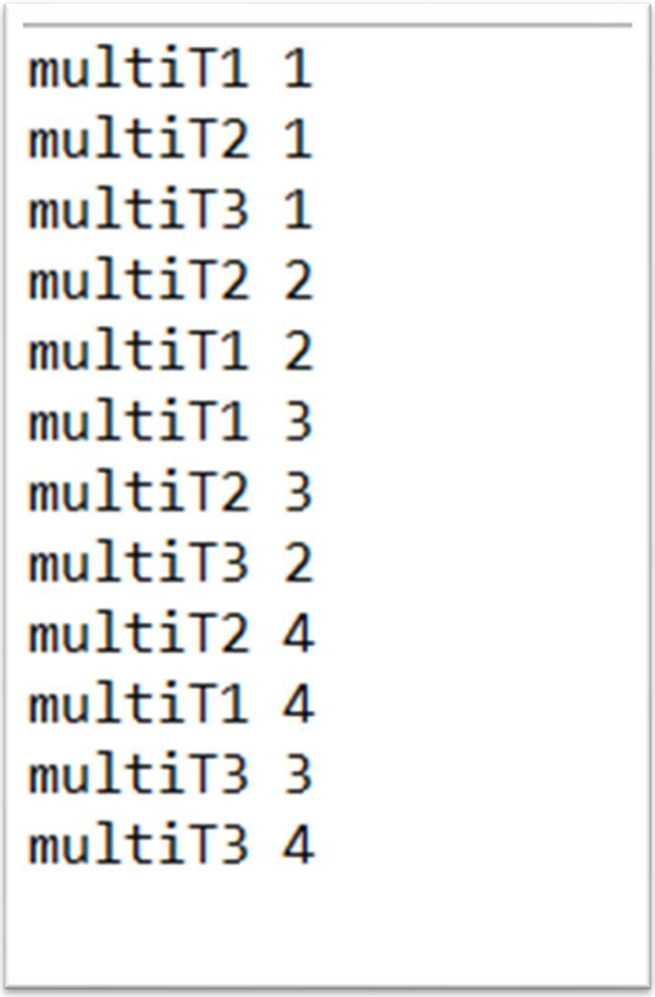
The main objective of the experiment is to Write a java program to demonstrate the concept of multithreading.

IDE: Eclipse IDE
Compiler: JAVAC

Code :

```
class multiT1 extends Thread {
	public void run() {
		for (int i = 1; i < 5; i++) {
			System.out.println("multiT1 " + i);
		}
	}
}

class multiT2 extends Thread {
	public void run() {
		for (int i = 1; i < 5; i++) {
			System.out.println("multiT2 " + i);
		}
	}
}

class multiT3 extends Thread {
	public void run() {
		for (int i = 1; i < 5; i++) {
			System.out.println("multiT3 " + i);
		}
	}
}

public class threadExapm {

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

		multiT1 a = new multiT1();
		multiT2 b = new multiT2();
		multiT3 c = new multiT3();

		a.start();
		b.start();
		c.start();

	}

}
```

Output:


multiT1 1
multiT2 1
multiT3 1
multiT2 2
multiT1 2
multiT1 3
multiT2 3
multiT3 2
multiT2 4
multiT1 4
multiT3 3
multiT3 4

Experiment 18

Name of the Experiment:

Write a java program to demonstrate the insertion operation using JDBC.

Objective of the program:

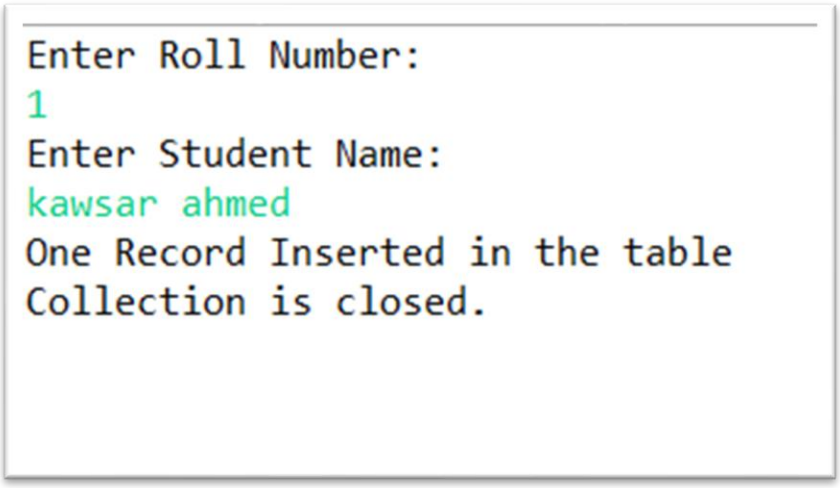
The main objective of the experiment is to Write a java program to demonstrate the insertion operation using JDBC.

IDE: Eclipse IDE
Compiler: JAVAC

Code :

```
package jdbc;

import java.sql.*;

import java.util.*;

public class jdbcInsert {

	public static void main(String[] args) {

		try {

			Class.forName("com.mysql.cj.jdbc.Driver");

		Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/jdbc", "root", "");

			Statement stmt = con.createStatement();

			Scanner dis = new Scanner(System.in);

			System.out.println("Enter Roll Number:");

			int s1 = dis.nextInt();

			System.out.println("Enter Student Name:");

			String s2 = dis.next();

			stmt.executeUpdate("insert into student values(" + s1 + ",'" + s2 + "')");

			System.out.println("One Record Inserted in the table");

			con.close();

			System.out.println("Collection is closed.");

		} catch (ClassNotFoundException e) {

		} catch (SQLException e1) {

			System.out.println(e1);

		}


	}

}
```

Output:


Enter Roll Number:
1
Enter Student Name:
kawsar ahmed
One Record Inserted in the table
Collection is closed.

Experiment 19

Name of the Experiment:

Write a java program to demonstrate the view operation using JDBC.

Objective of the program:

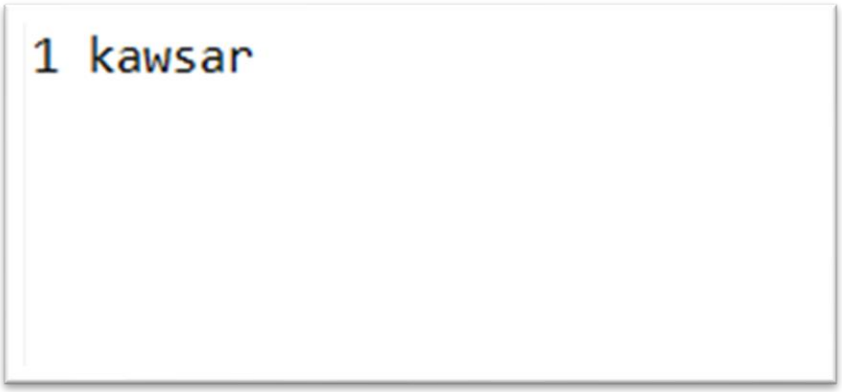
The main objective of the experiment is to Write a java program to demonstrate the view operation using JDBC.

IDE: Eclipse IDE
Compiler: JAVAC

Code :

```
package jdbc;

import java.sql.*;

public class jdbcView {

	public static void main(String[] args) {
		try {
			Class.forName("com.mysql.cj.jdbc.Driver");
			Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/jdbc", "root", "");
			Statement stmt = con.createStatement();
			ResultSet rs = stmt.executeQuery("select * from Student");
			while (rs.next()) {
				System.out.println(rs.getInt(1) + " " + rs.getString(2));
			}
		} catch (Exception e) {
		}
	}
}
```

Output:



Experiment 20

Name of the Experiment:

Write a java program to demonstrate the update operation using JDBC.

Objective of the program:

The main objective of the experiment is to Write a java program to demonstrate the update operation using JDBC.

IDE: Eclipse IDE
Compiler: JAVAC

Code :

```
package jdbc;

import java.sql.*;
import java.util.*;

public class updatejdbc {
	public static void main(String[] args) {
		try {
			Class.forName("com.mysql.cj.jdbc.Driver");
			Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/jdbc",
"root", "");
			Statement stmt = con.createStatement();
			Scanner dis = new Scanner(System.in);
			System.out.println("Enter Roll Number to update name of student :");
			int s1 = dis.nextInt();
			System.out.println("Enter Student Name to be updated:");
			String s2 = dis.next();
			stmt.executeUpdate("update Student set sName=('" + s2 + "') where rollNo=(" + s1 +
")");
			System.out.println("Name updated successfully!!");

		} catch (ClassNotFoundException e) {
		} catch (SQLException e1) {
			System.out.println(e1);
		}

	}
}
```

Output:

```
Enter Roll Number to update name of student :
1
Enter Student Name to be updated:
Ahmed
Name updated successfully!!
```

Experiment 21

Name of the Experiment:

Write a java program to demonstrate the delete operation using JDBC.

Objective of the program:

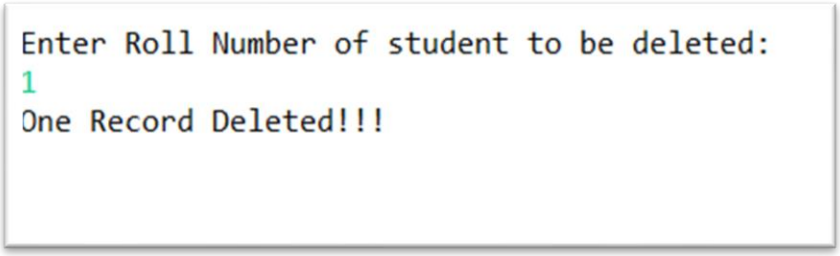
The main objective of the experiment is to Write a java program to demonstrate the delete operation using JDBC.

IDE: Eclipse IDE
Compiler: JAVAC

Code :

```
package jdbc;

import java.sql.*;
import java.util.*;

public class deletejdbc {
	public static void main(String[] args) {
		try {
			Class.forName("com.mysql.cj.jdbc.Driver");
			Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/jdbc", "root", "");
			Statement stmt = con.createStatement();
			Scanner dis = new Scanner(System.in);
			System.out.println("Enter Roll Number of student to be deleted:");
			int s1 = dis.nextInt();
			stmt.executeUpdate("delete from Student where rollNo=(" + s1 + ")");
			System.out.println("One Record Deleted!!!");

		} catch (ClassNotFoundException e) {
		} catch (SQLException e1) {
			System.out.println(e1);
		}

	}
}
```

Output:


Enter Roll Number of student to be deleted:
1
One Record Deleted!!!