Name – Devarsh Dheeraj Dubey

Class - SE-DE

Roll No – 11

EXPERIMENT NO. 1

```
public class BranchingStatements {
public static void main(String[] args) {
int[] numbers = {10, 20, 11, 40, 50};
int target = 11;
 boolean found false;
 for (int num : numbers) {
 if (num == target) {
found = true;
            break; // Exit the loop when the target element is found
          }
}          if
(found) {
          System.out.println(&amp;quot;Element found!&amp;quot;);
       } else {
          System.out.println(&amp;quot;Element not found.&amp;quot;);
}
   }
}
```

Output:

Element found!

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EXPERIMENT NO. 2

```
import java.util.Scanner;
class Student{    String
name;    int age;    float
percent;
booleanisLocal; char
grade;
 Student(String name, int age, float percent, boolean isLocal, char
grade)
{
 this.name = name;
this.age = age;
 this.percent = percent;
 this.isLocal = isLocal;
 this.grade = grade;
   }
  public void displayDetails(){
 System.out.println(&quot;Details.....&quot;);
 System.out.println(&quot;Name: &quot;+this.name);
 System.out.println(&quot;Age: &quot;+this.age);
System.out.println(&quot;Percent: &quot;+this.percent);
 if(this.isLocal)
 {
       System.out.println(&quot;Nationality: Indian&quot;);
     }else
{
       System.out.println(&quot;Nationality: Foreigner&quot;);
```

```
 }
     System.out.println(&amp;quot;Grade: &amp;quot;+this.grade);
  }
}
public class ReadData {
 public static void main(String args[]) {
  Scanner sc =new Scanner(System.in);
 System.out.println(&amp;quot;Enter your name: &amp;quot;);
 String name = sc.next();
System.out.println(&amp;quot;Enter your age: &amp;quot;);
int age = sc.nextInt();
 System.out.println(&amp;quot;Enter your percent: &amp;quot;);
float percent = sc.nextFloat();
 System.out.println(&amp;quot;Are you local (enter true or false): &amp;quot;);
boolean isLocal = sc.nextBoolean();
 System.out.println(&amp;quot;Enter your grade(enter A, or, B or, C or, D): &amp;quot;);
char grade = sc.next().toCharArray()[0];
  Student std = new Student(name, age, percent, isLocal, grade);
std.displayDetails();
  }
}
```

Output

```
Enter your name:
Krishna
Enter your age:
25
Enter your percent:
86
Are you local (enter true or false):
true
Enter your grade(enter A, or, B or, C or, D):
A
```

Details.....

Name: Krishna

Age: 25

Percent: 86.0

Nationality: Indian

Grade: A

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EXPERIMENT NO. 3

```
class Dog { String
dogName;
int dogAge;
Dog(String name, int age)
{
this.dogName = name;
this.dogAge = age;
} }
 public class Test { public static void
main(String[] args)
{
Dog ob1 = new Dog(&amp;quot;Bravo&amp;quot;, 4);
Dog ob2 = new Dog(&amp;quot;Oliver&amp;quot;, 5);
System.out.println(ob1.dogName + &amp;quot;, &amp;quot; + ob1.dogAge);
System.out.println(ob2.dogName + &amp;quot;, &amp;quot; + ob2.dogAge);
}
}
```

Output

Bravo, 4

Oliver, 5

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EXPERIMENT NO. 4

```
public class Student {   int
id;
String name;
Student(){
System.out.println(&quot;this a default constructor&quot;);
}
Student(int i, String n){
id = i;
name = n;
}
public static void main(String[] args) {
Student s = new Student();
System.out.println(&quot;\nDefault Constructor values: \n&quot;);
System.out.println(&quot;Student Id : &quot;+s.id + &quot;\nStudent Name : &quot;+s.name);
System.out.println(&quot;\nParameterized Constructor values: \n&quot;);
Student student = new Student(10, &quot;Danish&quot;);
System.out.println(&quot;Student Id : &quot;+student.id + &quot;\nStudent Name :
&quot;+student.name);   }
}
```

Output:

this a default constructor

Default Constructor values:

Student Id : 0

Student Name : null

Parameterized Constructor values:

Student Id : 10

Student Name : Danish

```
class Method_Overloading { double
figure(double l, double b) //method 1
{
return (l*b); //returns area of rectangle
}
double figure(int b, int h) //method 2
{
return ((b*h)/2); //returns area of right triangle
}
double figure(int b, double h) //method 3
{
return (b*h); //returns area of parallelogram
}
public static void main(String[] args) {
Method_Overloading obj = new Method_Overloading();
System.out.println(&quot;Area of Rectangle: &quot; +obj.figure(5.55, 6.78));
System.out.println(&quot;Area of Right Triangle: &quot; +obj.figure(3,5));
System.out.println(&quot;Area of Parallelogram: &quot; +obj.figure(4,6.3));
}
}
```

Output:

```
Area of Rectangle: 37.629
Area of Right Triangle: 7.0
Area of Parallelogram: 25.2
```

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EXPERIMENT NO. 5

```
class Calculation { int
z;
public void addition(int x, int y) { z
= x + y;
System.out.println(&amp;quot;The sum of the given numbers:&amp;quot;+z);
}
public void Subtraction(int x, int y)
{ z = x - y;
System.out.println(&amp;quot;The difference between the given numbers:&amp;quot;+z);
} }
public class My_Calculation extends Calculation {
public void multiplication(int x, int y) { z = x * y;
System.out.println(&amp;quot;The product of the given numbers:&amp;quot;+z);
}
public static void main(String args[]) { int
a = 20, b = 10;
My_Calculation demo = new My_Calculation();
demo.addition(a, b); demo.Subtraction(a, b);
demo.multiplication(a, b);
}
}
```

Output

The sum of the given numbers:11

The difference between the given numbers:10

The product of the given numbers:200

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EXPERIMENT NO. 6

```
interface Character {
void attack();
}
interface Weapon {
void use();
}
class Warrior implements Character, Weapon {
public void attack() {
      System.out.println(&amp;quot;Warrior attacks with a sword.&amp;quot;);
   }
   public void use() {
      System.out.println(&amp;quot;Warrior uses a sword.&amp;quot;);
   }
}
class Mage implements Character, Weapon {
public void attack() {
      System.out.println(&amp;quot;Mage attacks with a wand.&amp;quot;);
   }
   public void use() {
      System.out.println(&amp;quot;Mage uses a wand.&amp;quot;);
   }
}
public class MultipleInheritance {
public static void main(String[] args) {
      Warrior warrior = new Warrior();
Mage mage = new Mage();
warrior.attack();
```

```
 warrior.use();
mage.attack();
mage.use();
    }
}
```

Output:

Warrior attacks with a sword.

Warrior uses a sword.

Mage attacks with a wand.

Mage uses a wand.

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EXPERIMENT NO. 7

```
public class Main {
public static void main(String[] args)
{ int[] arr = {1, 2, 3, 4, 5, 6};
int largest = Integer.MIN_VALUE;
int secondLargest = Integer.MIN_VALUE;
for (int num : arr)
{ if (num &gt; largest)
{ secondLargest largest; largest = num;
} else if (num &gt; secondLargest &amp;&amp; num != largest)
{ secondLargest = num;
}
}
System.out.println(&quot;The second largest number is: &quot; + secondLargest);
}
}
```

Output

The second largest number is: 5

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EXPERIMENT NO. 8

```
public class Ex2DArray { public static
void main(String args[]) { int row, col,
i, j; int arr[][] = new int[10][10];
Scanner scan = new Scanner(System.in);
System.out.print(&quot;Enter row for the array (max 10) : &quot;);
row = scan.nextInt();
System.out.print(&quot;Enter column for the array (max 10) : &quot;);
col = scan.nextInt();
System.out.println(&quot;Enter &quot; + (row * col) + &quot; Array Elements : &quot;);
for (i = 0; i &lt; row; i++)
{
for (j = 0; j &lt; col; j++)
 {
arr[i][j] = scan.nextInt();
}
}
System.out.print(&quot;The Array is :\n&quot;);
for (i = 0; i &lt; row; i++)
{ for (j = 0; j &lt; col; j++)
 {
System.out.print(arr[i][j] + &quot; &quot;);
}
System.out.println();
}
}
}
```

Output

Enter row for the array (max 10) : 4

Enter column for the array (max 10) : 4 Enter

16 Array Elements :

1

2

3

4

4

3

2

1

4

5

6

6

5

4

7

8

The Array is :

1 2 3 4

4 3 2 1

4 5 6 6

5 4 7 8

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EXPERIMENT NO. 9

```
class StringBufferExample7
{
public static void main(String args[])
{
StringBuffer sb=new StringBuffer();
System.out.println(sb.capacity());
//default 16   sb.append(&amp;quot;Hello&amp;quot;);
System.out.println(sb.capacity());
//now 16
sb.append(&amp;quot;java is my favourite language&amp;quot;);
System.out.println(sb.capacity());
//now
(16*2)+2=34
i.e (oldcapacity*2)+2
 sb.ensureCapacity(10);
//now no change   System.out.println(sb.capacity());
//now 34   sb.ensureCapacity(50);//now (34*2)+2
System.out.println(sb.capacity());//now 70
}  }
```

Output

```
16
16
34
34
70
```

EXPERIMENT NO. 10

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```
import java.util.Vector; class
Main {
public static void main(String[] args) {
Vector&lt;String&gt; mammals= new Vector&lt;&gt;();
// Using the add() method
mammals.add(&quot;Dog&quot;);
mammals.add(&quot;Horse&quot;); //
Using index number mammals.add(2,
&quot;Cat&quot;);
System.out.println(&quot;Vector: &quot; + mammals);
// Using addAll()
Vector&lt;String&gt; animals = new Vector&lt;&gt;();
animals.add(&quot;Crocodile&quot;);
animals.addAll(mammals);
System.out.println(&quot;New Vector: &quot; + animals);
}
}
```

Output

Vector: [Dog, Horse, Cat]

New Vector: [Crocodile, Dog, Horse, Cat]

```
import java.io.*;

abstract class Subject
{
```

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EXPERIMENT NO. 11

```
   Subject()
{

   System.out.println(&amp;quot;Learning Subject&amp;quot;);
   }

    abstract void syllabus();

    void Learn()
{
        System.out.println(&amp;quot;Preparing Right Now!&amp;quot;);
   }
}

class IT extends Subject
{   void
syllabus()
{
   System.out.println(&amp;quot;C , Java , C++&amp;quot;);
  }
}

class Department {     public static void
main(String[] args)
```

```
{
        Subject x=new IT();

          x.syllabus();
          x.Learn();
    }
}
```

Output

Learning Subject

C , Java , C++

Preparing Right Now!

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EXPERIMENT NO. 12

```
class Account
{
//private data members   private
long acc_no;   private String
name,email;   private float
amount;   //public getter and
setter methods   public long
getAcc_no() {       return acc_no;
}
public void setAcc_no(long acc_no) {
this.acc_no = acc_no;
}
public String getName() {
return name;
}
public void setName(String name) {
this.name = name;
}
public String getEmail() {
return email;
}
public void setEmail(String email) {
this.email = email;
}
public float getAmount() {
return amount;

public void setAmount(float amount) {
this.amount = amount;



}
```

```
}
}
```

File: TestAccount.java public class TestAccount { public static void main(String[] args)

```
{
//creating instance of Account class
   Account acc=new Account();   //setting
values through setter methods
acc.setAcc_no(7560504000L);
acc.setName(&amp;quot;Sonoo Jaiswal&amp;quot;);
   acc.setEmail(&amp;quot;sonoojaiswal@javatpoint.com&amp;quot;);
acc.setAmount(500000f);
//getting values through getter methods
   System.out.println(acc.getAcc_no()+&amp;quot; &amp;quot;+acc.getName()+&amp;quot; &amp;quot;+acc.getEmail
()+&amp;quot; &amp;quot;+acc.getAmount());
}
}
```

Output:

7560504000 Sonoo Jaiswal sonoojaiswal@javatpoint.com 500000.0

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EXPERIMENT NO.13

1) program to print the exception information using printStackTrace() method

```
import java.io.*; class
Excp1 {
public static void main (String[] args) {
int a=5; int b=0; try{
System.out.println(a/b);
}
catch(ArithmeticException e){ e.printStackTrace();
}
}
}
```

Output

```
java.lang.ArithmeticException: / by zero at
Excp.main(File.java:10)
```

2) program to print the exception information using toString() method

```
import java.io.*; class Excp2 {
public static void main (String[] args) {
int a=5; int b=0; try{
System.out.println(a/b);

catch(ArithmeticException e){
System.out.println(e.toString());
}
}
}
```

Output

```
java.lang.ArithmeticException: / by zero
```

}

3) program to print the exception information using getMessage() method

```
import java.io.*; class Excp3 {
public static void main (String[] args) {
int a=5; int b=0; try{
System.out.println(a/b);
}
catch(ArithmeticException e){
System.out.println(e.getMessage());
}
}
}
```

Output

/ by zero

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EXPERIMENT NO.14

```
class Hello extends Thread
{ public void
run()
{
for(int i=1;i&lt;=200;i++)
{
System.out.println(&quot;Hello&quot;);
}
} } class Hi extends
Thread
{ public void
run()
{
for(int i=1;i&lt;=200;i++)
{
System.out.println(&quot;Hi&quot;);
}
} } public class Main { public static
void main(String[] args)
{
Hello t1 = new Hello();
Hi t2 = new Hi();
t1.start(); t2.start();

}
```

Output:

Hello

Hello

Hi

}

Hi

Hi

Hi……so on

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EXPERIMENT NO.15

```
package payroll; public
class Employee
{ public void
mailCheck()
{
System.out.println(&amp;quot;Pay received.&amp;quot;);
}
}

package payroll; import
payroll.Employee; public
class Boss
{
public void payEmployee(Employee e)
{
e.mailCheck();
}

public static void main(String[] args)
{
Boss boss = new Boss(); Employee
e = new Employee();
boss.payEmployee(e);
}
}
```

Output:

Pay received.