

## **Experiment No. \_\_3\_\_**

**Date of performance: 24 / 08 / 2022**

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**SAP Id: 500091584**

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### **1. Title: Loops and Conditional Statements**

### **2. Objective: Loops and Conditional Statements**

- 3. List of lab activities:**
- 1) Write a program to accept three digits (i.e. 0 - 9) and print all its possible combinations.(For example if the three digits are 1, 2, 3 than all possible combinations are : 123, 132,213, 231, 312, 321.)
  - 2) Write a Java Program to accept 10 numbers in an array and compute the square of each number.Print the sum of these numbers.
  - 3) Write a program to input a number of a month (1 - 12) and print its equivalent name ofthe month.( e.g 1 to Jan, 2 to Feb. 12 to Dec.)
  - 4) Write a program to find the sum of all integers greater than 40 and less than 250 that are divisibleby 5.

### **4. Algorithm/Flowchart and Code followed by Output screenshot (2samples for each program):**

```
comb.java - starting - Visual Studio Code

src > Experiment 3 > J comb.java > comb > main(String[])
1 import java.util.*;
2 public class comb {
3     void combo(int []a,int n){
4         for(int i=0;i<n;i++){
5             for(int j=0;j<n;j++){
6                 for(int k=0;k<n;k++){
7                     if(i!=j&&j!=k&&k!=i){
8                         System.out.println(a[i]+" "+a[j]+" "+a[k]);
9                     }
10                }
11            }
12        }
13    }
14    public static void main(String[] args){
15        int []a=new int[3];
16        int b;
17        Scanner s1= new Scanner(System.in);
18        b=s1.nextInt();
19        a[0]=b%10;
20        a[1]=(b/10)%10;
21        a[2]=(b/100)%10;
22        comb c1= new comb();
23
24        c1.combo(a,n: 3);
25        s1.close();
26    }
27 }
28 }
```

Run | Debug

OUTPUT TERMINAL JUPYTER DEBUG CONSOLE

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Try the new cross-platform PowerShell <https://aka.ms/pscore6>

PS C:\Users\Ujjwal\Documents\starting> cd "c:\Users\Ujjwal\Documents\starting" & if (\$?) { javac comb.java } ; if (\$?) { java comb }

123  
321  
312  
231  
213  
132  
123

PS C:\Users\Ujjwal\Documents\starting\src\Experiment 3>

```
array.java - starting - Visual Studio Code

src > Experiment 3 > J array.java > array > main(String[])
1 import java.util.*;
2 public class array {
3     void numbers(int []a , int n)
4     {
5         int sum=0;
6         for( int i=0;i<n;i++)
7         {
8             sum+= a[i]*a[i];
9         }
10        System.out.println("the sum of the square of the array="+ sum);
11    }
12    public static void main(String[] args)
13    {
14        int []a= new int[10];
15        Scanner s1= new Scanner(System.in);
16        for(int i=0;i<10;i++)
17        {
18            a[i]= s1.nextInt();
19        }
20        array g1= new array();
21        g1.numbers(a,n: 10);
22        s1.close();
23    }
24 }
25 }
26 }
27 }
```

Run | Debug

OUTPUT TERMINAL JUPYTER DEBUG CONSOLE

3\" ; if (\$?) { javac array.java } ; if (\$?) { java array }

5  
4  
6  
3  
5  
2  
1  
5  
8  
9  
the sum of the square of the array=286  
PS C:\Users\Ujjwal\Documents\starting\src\Experiment 3>

```
src > Experiment 3 > J calender.java > calendar > months()
1  import java.util.*;
2
3  public class calender {
4      void months() {
5          // taking user input as the number for month to be printed
6          System.out.print("Enter the number to know the month name : ");
7          Scanner s1 = new Scanner(System.in);
8          int number = s1.nextInt();
9
10         // using the switch
11         switch (number) {
12
13             case 1:
14                 System.out.println("month name is January");
15                 break;
16             case 2:
17                 System.out.println("month name is february");
18                 break;
19             case 3:
20                 System.out.println("month name is march");
21                 break;
22             case 4:
23                 System.out.println("month name is april");
24                 break;
25             case 5:
26                 System.out.println("month name is may");
27                 break;
28             case 6:
29                 System.out.println("month name is june");
30                 break;
31             case 7:
32                 System.out.println("month name is july");
33                 break;
34             case 8:
35                 System.out.println("month name is august");
36                 break;
37             case 9:
38                 System.out.println("month name is september");
39                 break;
40             case 10:
41                 System.out.println("month name is october");
42                 break;
43             case 11:
44                 System.out.println("month name is november");
45                 break;
46             case 12:
47                 System.out.println("month name is december");
48                 break;
49             default:
50                 System.out.println("There are only 12 months in calender. Please fill correct number");
51         }
52         s1.close();
53     }
54 }
55
56 public static void main(String[] args)
57 {
58     calender c1 = new calender();
59     c1.months();
60 }
61
```

```
J calender.java X
src > Experiment 3 > J calender.java > calendar > months()
35  System.out.println("month name is august");
36  break;
37  case 9:
38      System.out.println("month name is september");
39      break;
40  case 10:
41      System.out.println("month name is october");
42      break;
43  case 11:
44      System.out.println("month name is november");
45      break;
46  case 12:
47      System.out.println("month name is december");
48      break;
49  default:
50      System.out.println("There are only 12 months in calender. Please fill correct number");
51  }
52  s1.close();
53  }
54
Run | Debug
55  public static void main(String[] args)
56  {
57      calender c1 = new calender();
58      c1.months();
59  }
60
61
```

```
clsobj.class
clsobj.java 1
cmdcal.class
cmdcal.java
Grade.class
Grade.java 1
Greatestthree.class
Greatestthree.java
Experiment 3
array.class
array.java
NE
INE
PS C:\Users\Ujjwal\Documents\starting> cd "c:\Users\Ujjwal\Documents\starting\src\"
PS C:\Users\Ujjwal\Documents\starting\src> javac calender.java ; if ($?) { java calender }
Enter the number to know the month name : 4
month name is april
PS C:\Users\Ujjwal\Documents\starting\src> cd "c:\Users\Ujjwal\Documents\starting\src\"
PS C:\Users\Ujjwal\Documents\starting\src> javac calender.java ; if ($?) { java calender }
Enter the number to know the month name : 12
month name is december
PS C:\Users\Ujjwal\Documents\starting\src> Experiment 3>
```

The screenshot shows a Visual Studio Code editor with a Java file named `divisibility.java`. The code defines a class `divisibility` with a method `divisible` that calculates the sum of an arithmetic progression. The `main` method creates an instance of the class and calls `divisible` with parameters 40, 250, and 5. Below the editor, the terminal window shows the command `javac divisibility.java` and `java divisibility` being executed, resulting in the output: `sum of all integers divisible by 5 between 40 to 250 =5800`.

```
1 public class divisibility {
2     void divisible(int a, int n, int d)
3     // a= first term, n=total terms ,d= difference between the terms of 5
4     {
5         int ap = (n/2)*(2*a+(n-1)*d);
6         System.out.println(ap);
7     }
8     public static void main(String[] args)
9     {
10        divisibility d1=new divisibility();
11        System.out.print("sum of all integers divisible by 5 between 40 to 250 =");
12        d1.divisible(a: 40, n: 250, d: 5);
13    }
14 }
15
16
```

OUTPUT TERMINAL JUPYTER DEBUG CONSOLE

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Try the new cross-platform PowerShell <https://aka.ms/pscore6>

PS C:\Users\Ujjwal\Documents\starting> cd "c:\Users\Ujjwal\Documents\starting" & javac divisibility.java ; if (\$?) { java divisibility }

sum of all integers divisible by 5 between 40 to 250 =5800

PS C:\Users\Ujjwal\Documents\starting\src\Experiment 3>

## 5. Brief notes about all the concepts related to the lab experiment

### Switch cases :

```
switch(expression){
case value1:
    //code to be executed;
    break; //optional
case value2:
    //code to be executed;
    break; //optional
```

### for loop :

```
for(initialization; condition; increment/decrement){
    //statement or code to be executed
}
```