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Course: **Object Oriented Programming using Java**

Experiment no. 1

Aim: To implement Java control statements and loops

Problem Statement 1:

Given an integer, n, perform the following conditional actions:
If n is odd, print Weird
If n is even and in the inclusive range of 2 to 5, print Not Weird
If n is even and in the inclusive range of 6 to 20, print Weird
If n is even and greater than 20, print Not Weird

Code:

```
import java.util.Scanner;

public class Weird

{

	public static void main(String args[])

	{

		Scanner obj=new Scanner(System.in);

		int num;

		System.out.println("Enter a number:");

		num=obj.nextInt();

		if(num%2!=0)

			System.out.println(num+" is Weird");

		else{

			if(num>=2 && num<=5)

				System.out.println(num+" is Not Weird");

			else if(num>=6 && num<=20)

				System.out.println(num+" is Weird");

			else if(num>20)

				System.out.println(num+" is Not Weird");

			else

				System.out.println("Enter valid number");

		}
```

```
        }
}
```

Output :

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac Weird.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java Weird
Enter a number:
34
34 is Not Weird
```

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac Weird.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java Weird
Enter a number:
45
45 is Weird
```

Problem Statement 2:

WAP to find largest of 3 numbers using nested if else and nested ternary operator.

Code:

```
import java.util.Scanner;
class Greatest
{
	public static void main(String[] args)
	{
		int n1,n2,n3;
		Scanner obj=new Scanner(System.in);
		System.out.println("Enter three Number");
		n1=obj.nextInt();
		n2=obj.nextInt();
		n3=obj.nextInt();
		int large=(n1>n2)?((n1>n3)?(n1):(n3)):((n2>n3)?(n2):n3);
		System.out.println(large);
	}
}
```

Output :

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac Greatest.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java Greatest
Enter three Number
45
53
87
Largest number is 87
```

Code :

```
import java.util.Scanner;
class GreatestNestedIf
{
	public static void main(String[] args)
	{
```

```
        int n1,n2,n3;
        Scanner obj=new Scanner(System.in);
        System.out.println("Enter three Number");
        n1=obj.nextInt();
        n2=obj.nextInt();
        n3=obj.nextInt();
        if(n1>n2)
        {
                if(n1>n3)
                        System.out.println("Largest number is "+n1);
                else
                        System.out.println("Largest number is "+n3);
        }
        else if(n2>n3)
                System.out.println("Largest number is "+n2);
        else
                System.out.println("Largest number is "+n3);

    }
}
```

Output :

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac GreatestNestedIf.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java GreatestNestedIf
Enter three Number
67
98
91
Largest number is 98
```

Problem Statement 3:

Write a Java program that reads a positive integer from **command line** and count the number of digits the number (less than ten billion) has.

Code:

```
class Command
{
	public static void main(String[] args)
	{
		int a;
		System.out.println("Read the value "+args[0]);
		a=Integer.parseInt(args[0]);
		int count=0;
		while(a>0)
		{
			a/=10;
			count++;
		}
		System.out.println("Total number of digits :"+count);
	}
}
```

Output :

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac Command.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java Command 5671
Read the value 5671
Total number of digits :4
```

Problem Statement 4:

Write a menu driven program using switch case to perform mathematical operations.

Code:

```
import java.util.Scanner;
class MathsOperator
{
	public static void main(String[] args)
	{
		int n1,n2;
		char choice;
		Scanner obj=new Scanner(System.in);
		System.out.println("+:Add\n-.Sub\n*.Mul\n/.Div");
		System.out.println("Enter a choice:");
		choice=obj.next().charAt(0);
		System.out.println("Enter two number:");
		n1=obj.nextInt();
		n2=obj.nextInt();
		switch(choice)
		{
			case '+':
				System.out.println("Add:"+(n1+n2));
				break;
			case '-':
				System.out.println("Sub:"+(n1-n2));
				break;
			case '*':
				System.out.println("Mul:"+n1*n2);
				break;
			case '/':
				System.out.println("Div:"+n1/n2);
				break;
			default:
```

```
                    System.out.println("Enter valid choice");
                    break;
                }
            }
}
```

Output :

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac MathsOperator.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java MathsOperator
+:Add
-.Sub
*.Mul
/.Div
Enter a choice:
+
Enter two number:
56
43
Add:99
```

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac MathsOperator.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java MathsOperator
+:Add
-.Sub
*.Mul
/.Div
Enter a choice:
*
Enter two number:
53
12
Mul:636
```

Problem Statement 5:

WAP to find grade of student from input marks using if else ladder and switch case.

Code:

```
import java.util.Scanner;
public class MarksSwitch
{
	public static void main(String[] args)
	{
	Scanner obj=new Scanner(System.in);
	System.out.println("Enter 1st subject marks:");
	int sub1=obj.nextInt();
	System.out.println("Enter 2nd subject marks:");
	int sub2=obj.nextInt();
	System.out.println("Enter 3rd subject marks:");
	int sub3=obj.nextInt();
	System.out.println("Enter 4th subject marks:");
	int sub4=obj.nextInt();
	System.out.println("Enter 5th subject marks:");
	int sub5=obj.nextInt();
	double sum=sub1+sub2+sub3+sub4+sub5;
	double percent=(sum/500)*100;
	System.out.println("Your percentage is:"+percent);
	int per=(int)(percent/10);
	switch(per)
	{
		case 10:
		case 9:
			System.out.println("Grade A");
			break;
		case 8:
		case 7:
			System.out.println("Grade B");
```

```
                    break;
                case 6:
                    System.out.println("Grade C");
                    break;
                case 5:
                case 4:
                    System.out.println("Grade D");
                    break;
                case 3:
                    System.out.println("Fail");
                    break;
                default:
                    System.out.println("Enter valid marks");
                    break;
        }

        }
}
```

Output :

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac MarksSwitch.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java MarksSwitch
Enter 1st subject marks:
99
Enter 2nd subject marks:
98
Enter 3rd subject marks:
97
Enter 4th subject marks:
90
Enter 5th subject marks:
96
Your percentage is:96.0
Grade A
```

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac MarksSwitch.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java MarksSwitch.java
Enter 1st subject marks:
40
Enter 2nd subject marks:
76
Enter 3rd subject marks:
56
Enter 4th subject marks:
71
Enter 5th subject marks:
66
Your percentage is:61.8
Grade C
```

Code :

```
import java.util.Scanner;
public class Marks
{
	public static void main(String[] args)
	{
	Scanner obj=new Scanner(System.in);
	System.out.println("Enter 1st subject marks:");
	int sub1=obj.nextInt();
	System.out.println("Enter 2nd subject marks:");
	int sub2=obj.nextInt();
	System.out.println("Enter 3rd subject marks:");
	int sub3=obj.nextInt();
	System.out.println("Enter 4th subject marks:");
	int sub4=obj.nextInt();
	System.out.println("Enter 5th subject marks:");
	int sub5=obj.nextInt();
	double sum=sub1+sub2+sub3+sub4+sub5;
	double percent=(sum/500)*100;
	System.out.println("Your percentage is:"+percent);
	if(percent>=90 && percent<=100)
		System.out.println("Grade A");
```

```
        else if(percent>=75 && percent<90)
                System.out.println("Grade B");
        else if(percent>=60 && percent<75)
                System.out.println("Grade C");
        else if(percent>=40 && percent<60)
                System.out.println("Grade D");
        else if(percent>=0&& percent<40)
                System.out.println("Fail");
        else
                System.out.println("Enter valid marks");
        }
}
```

Output :

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac Marks.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java Marks
Enter 1st subject marks:
99
Enter 2nd subject marks:
87
Enter 3rd subject marks:
56
Enter 4th subject marks:
45
Enter 5th subject marks:
57
Your percentage is:68.8
Grade C
```

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac Marks.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java Marks
Enter 1st subject marks:
99
Enter 2nd subject marks:
98
Enter 3rd subject marks:
97
Enter 4th subject marks:
96
Enter 5th subject marks:
95
Your percentage is:97.0
Grade A
```

Problem Statement 6:

WAP to print the sum of following series 1+1/2^2+1/3^2+1/4^2……+1/n^2

Code:

```
import java.util.*;
public class Series
{
	public static void main(String[] args)
	{
	Scanner obj=new Scanner(System.in);
	int n;
	double ans=0;
	System.out.println("Enter n:");
	n=obj.nextInt();
	for(int i=1;i<=n;i++)
	{
		ans=ans+1/Math.pow(i,2);
	}
	System.out.println(ans);



	}
}
```

Output :

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac Series.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java Series
Enter n:
5
1.4636111111111112
```

Problem Statement 7:

WAP to display the following patterns:

```
1
2  1
1  2  3
4  3  2  1
1  2  3  4  5
6  5  4  3  2  1
1  2  3  4  5  6  7
```

```
    A
   CB
  FED
 JIHG
```

Code:

```
import java.util.*;
public class NumberPattern
{
	public static void main(String[] args)
	{
		int n;
		Scanner obj=new Scanner(System.in);
		System.out.println("Enter n:");
		n=obj.nextInt();
		for(int i=1;i<=n;i++)
		{
			for(int j=1;j<=i;j++)
			{
				if(i%2==0)
				{
					System.out.print(i+1-j+" ");
				}
				else
				{
					System.out.print(j+" ");
				}
			}
```

```
                System.out.println();
            }
        }
}
```

Output

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac NumberPattern.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java NumberPattern
Enter n:
7
1
2 1
1 2 3
4 3 2 1
1 2 3 4 5
6 5 4 3 2 1
1 2 3 4 5 6 7
```

Code :

```
import java.util.*;
public class BCA
{
    public static void main(String[] args)
    {
        int n,temp=64,ans;
        Scanner obj=new Scanner(System.in);
        System.out.println("Enter n:");
        n=obj.nextInt();
        for(int i=1;i<=n;i++)
        {
            for(int j=i;j<n;j++)
            {
                System.out.print("  ");
            }
            temp=temp+i;
            ans=temp;
            for(int k=1;k<=i;k++)
            {
```

```
                        System.out.format("%c ",ans);
                        ans--;
                    }
                    System.out.println();
                }
            }
}
```

Output :

```
C:\Users\91720\OneDrive\Desktop\Anish Java>javac BCA.java

C:\Users\91720\OneDrive\Desktop\Anish Java>java BCA
Enter n:
4
      A
    C B
  F E D
J I H G
```