LOGICAL PROGRAMS

1) Factorial Number

```
public class Factorial {

	public static void main(String[] args) {
		int num = 5;
		int fact =1;

		for(int i=1; i<=num; i++)
//1<=5..2<=5....3<=5....4<=5....5<=5....6<=5 (False)
		{
			fact= fact*i;	//1...2...6.... 24 ....120

		}
		System.out.println("Factorial of "+num+" is= " +fact);

	}

}
```

Output:

```
Factorial of 5 is= 120
```

2) Prime Number

```
public class PrimeNumber {

	public static void main(String[] args) {
		int a= 7;
		int flag=0;	//Initialization

		for(int i=2; i<=a-1; i++)
//2<=5...3<=5...4<=5...5<=5...6<=5 (false)
		{
			if(a%i==0) //6%2=0...6%3=0...6%4=2...6%5=1
			{
				flag =1;
			}
		}

		if(flag==0)
		{
			System.out.println(a+" Its a Prime Number");
		}
		else
		{
			System.out.println(a+" Its not Prime Number");

		}

	}

}
```

Output:

7 Its a Prime Number

3) Fibonacci Series:

```
public class FibonacciSeries {

	public static void main(String[] args) {
		System.out.println("Printing Fibonicciss Series less than 20");
		int a=0;
		int b=1;
		int c=0;

		System.out.print(a+ " " +b);
		for(int i=2; i<20; i++)
		//while(c<20)
		{
			c=a+b;
			System.out.print(" "+c);

			a=b;
			b=c;		//  0 1 1 2 3 5  8  13 21

		}


	}

}
```

Output:

```
Printing Fibonicciss Series less than 20
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181
```

4) Swap Two Numbers

```
public class SwapTwoNumbers {

	public static void main(String[] args) {
		int a=10;
		int b=20;
		int c;

		System.out.println("Before Swapping " + a+ " "+b);
		c=b;
		b=a;
		a=c;
		System.out.println("After Swapping " + a+ " "+b);
	}

}
```

Output:

```
Before Swapping 10 20
After Swapping 20 10
```

5) Reverse Number

```
public class ReverseNumber {

	public static void main(String[] args) {
		int num= 321;
		int temp;
		int Rev=0;

		while(num>0)
		{
			temp=num%10;
			Rev = Rev*10+temp;
			num=num/10;
		}

		System.out.println(Rev+" is required reverse value");

	}

}
```

Output:

123 is required reverse value

6) Print 1 to 10 Without Using For Loop

```
public class WithoutUsingForLoopPrint1_10 {

	public void myMethod(int a)
	{
	if(a<=10)
	{
	System.out.println(a);
	//myMethod(++a);
	myMethod(a+1);

	}
	}
	public static void main(String[] args) {
		WithoutUsingForLoopPrint1_10 w = new WithoutUsingForLoopPrint1_10();
		w.myMethod(1);

	}

}
```

Output:

```
1
2
3
4
5
6
7
8
9
10
```

7) Printing Prime Number Between 1_10

```
public class PrintingPrimeNumberBetwn1_10 {

	public static void main(String[] args) {
		int flag =0;
		for(int i=2; i<=10; i++)
		{
			for(int j=2; j<i; j++)
			{
				if(i%j==0)
				{
					flag=1;
				}
			}
			if(flag==0)
			{
				System.out.println(i+ " is a prime number");
			}
			else
			{
				flag=0;
			}
		}


	}

}
```

Output:

```
2 is a prime number
3 is a prime number
5 is a prime number
7 is a prime number
```

8) Armstrong Number

```
public class ArmStrongNo {

	public static void main(String[] args) {
		int num =1634;
		int temp;
		int rev=0;
		int arms=num;

		while(num>0)
		{
			temp=num%10;
			rev= rev+temp*temp*temp*temp;
			num=num/10;
		}
		System.out.println(rev);

		if(rev==arms)
		{
			System.out.println(rev+ " is a armstrong Number");
		}
		else
		{
			System.out.println(rev+ " is not a armstrong
Number");
		}
	}

}
```

Output:

```
1634
1634 is a armstrong Number
```

9) Palindrome Number

```
public class PalindromNumber {

	public static void main(String[] args) {
		int num =121;
		int temp;
		int rev=0;
		int pal=num;

		while(num>0)
		{
			temp=num%10;
			rev= rev*10+temp;
			num= num/10;
		}
		System.out.println(rev);

		if(rev==pal)
		{
			System.out.println(rev+ " is a palindrome number");
		}
		else
		{
			System.out.println(rev+ " is not a palindrome
number");
		}

	}

}
```

Output:

```
121
121 is a palindrome number
```

10) Find Largest Number

```
public class FindLargestNumber {

	public static void main(String[] args) {
		int a=56;
		int b=567;
		int c =36;
		int d= 389;

	if(a>b&& a>c&&a>d)
	{
		System.out.println(a+ " is a largest number");
	}
	else if(b>a&& b>c&&b>d)
	{
		System.out.println(b+ " is a largest number");
	}
	if(c>a&& c>b&&c>d)
	{
		System.out.println(c+ " is a largest number");
	}
	else if(d>a&& a>b&&a>c)
	{
		System.out.println(d+ " is a largest number");
	}
	}

}
```

Output:

567 is a largest number

ARRAY PROGRAMS

11)Array Frequency of Odd-Even

```
public class ArrayFrequencyOfODDEven {

	public static void main(String[] args) {
		int a[]= {1,2,5,6,8,9};
		int even=0;
		int odd=0;

		for(int i=0; i<a.length; i++)
		{
			if(a[i]%2==0)
			{
				even++;
			}
			else
			{
				odd++;
			}
		}
		System.out.println("Frequency of even no " +even);
		System.out.println("Frequency of odd no "+odd);

	}

}
```

Output:

```
Frequency of even no 3
Frequency of odd no 3
```

12) Array Sum :

```
public class ArraySum {

	public static void main(String[] args) {
		int a[] = {10,15,7,20,55,87,18,47};
		int sum=0;

		for(int i=0; i<a.length; i++)
		{
			sum= sum + a[i];
		}

		System.out.println("Sum of all Array Elements is " +sum);

	}

}
```

Output:

Sum of all Array Elements is 259

13) Average of Elements

```
public class AverageofElements {

	public static void main(String[] args) {
		int a[]= {10,26,29,34,76,49,53};
		int sum=0;

		for(int i=0; i<a.length; i++)
		{
			sum= sum+a[i];
		}
		System.out.println("The average of Array Elements is " +sum/a.length);
	}

}
```

Output:

```
The average of Array Elements is 39
```

14) Big Element in Array

```
public class BigElementinArray {

	public static void main(String[] args) {
		int a[] = {12,47,56,18,7,19,27};
		int big = a[0];

		for(int i=0; i<a.length; i++)
		{
		if(big<a[i])
		{
			big=a[i];
		}
		}
		System.out.println("Biggest Element in Array is " +big);
	}



}
```

Output:

Biggest Element in Array is 56

15) Smallest Element in Array :

```
public class SmallElementinArray {

	public static void main(String[] args) {
		int a[] = {10,37,45,7,59,93};
		int small = a[0];

		for(int i=0; i<a.length; i++)
		{
			if(small>a[i])
			{
			small= a[i];
			}
		}

		System.out.println("Smallest Element in Array is " +small);}

}
```

Output :

```
Smallest Element in Array is 7
```

16) Duplicates in Array

```
public class DuplicatesinArray {

	public static void main(String[] args) {
		int a[]= {1, 25, 3, 1,1,2,3,3};

		for(int i=0; i<a.length; i++)
		{
			for(int j=i+1; j<a.length; j++)
			{
				if(a[i]==a[j])
				{
					System.out.println("Duplicates of Array is " +a[j]);
				}
			}
		}
	}

}
```

Output:

```
Duplicates of Array is 3
Duplicates of Array is 1
Duplicates of Array is 3
```

17) Frequency of Number in Array

```
public class FrequencyofNumberinArray {

	public static void main(String[] args) {
		int a[]= {10,15,12,17,12,12,18,12};
		int num=12;
		int count=0;

		for(int i=0; i<a.length; i++)
		{
			if(a[i]==num)
			{
				count++;
			}
		}
		System.out.println("Frequency of " +num + " in array is "
+count);

	}

}
```

Output :

Frequency of 12 in array is 4

18) Missing Element in Array:

```
public class MissingElementinArray {

	public static void main(String[] args) {
		int a[] = {1,2,3,4,5,7,8,9,10};
		int val=1;

		for(int i=0; i<a.length; i++)
		{
			if(a[i]!=val)
			{
				break;
			}
			val++;
		}
		System.out.println("Missing Element in Array is "+val);

	}

}
```

Output:

```
Missing Element in Array is 6
```

19) Possitive And Negative Element Count:

```
public class PossitiveNegativeElementCount {

	public static void main(String[] args) {
		int a[]= {-10,-20,15,48,-15,47,78,-45};
		int possitiveCount=0;
		int negativeCount=0;

		for(int i=0; i<a.length; i++)
		{
			if(a[i]>0)
			{
				possitiveCount++;
			}
			else
			{
				negativeCount++;
			}
		}
    System.out.println("Possitive count of Element is " +possitiveCount);
    System.out.println("Negative count of Element is " +negativeCount);
	}

}
```

Output:

```
Possitive count of Element is 4
Negative count of Element is 4
```

20) Reverse Array

```
public class ReverseArray {

	public static void main(String[] args) {
		int a[] = {1,20,25,14,23,78,45,12};


		for(int i=a.length-1; i>=0; i--)
		{
			System.out.print(a[i]+ " ");
		}

	}

}
```

Output:

12 45 78 23 14 25 20 1

21) Array Into Sequence of Character

```
public class CovertArrayintoSequenceofCharacter {

	public static void main(String[] args) {
		String a = "Orgyarambh";
		System.out.println(a);

	/*	for(int i=0; i<a.length(); i++)
		{
			char c = a.charAt(i);
			System.out.println(c);
		}*/

		char c[]=a.toCharArray();
		System.out.println(c);

	}

}
```

Output:

```
Orgyarambh
Orgyarambh
```

String Programs

22) Duplicate String :

```
public class DuplicateString {

	public static void main(String[] args) {
		String a[]= {"Rohit", "Rahul", "Rohit", "Rahul","Suryawanshi"};


		for(int i=0; i<a.length; i++)
		{
			for(int j=i+1; j<a.length; j++)
			{
				if(a[i].equals(a[j]))
				{

					System.out.println("Duplicate of String is " +a[j]);

				}
			}
		}


	}

}
```

Output :

```
Duplicate of String is Rohit
Duplicate of String is Rahul
```

23) Frequency of Alphabet :

```
public class FrequencyofAlphabhet {

	public static void main(String[] args) {
		int counter =0;
		String str = "I Love My Counnntry";
		char c ='n';

		for(int i=0; i<str.length(); i++)
		{
			if(c==str.charAt(i))
			{
			counter++;
			}
		}
		System.out.println("Frequency of " +c+ "=" +counter);

	}

}
```

Output:

Frequency of n=3

24) Palindrome String :

```
public class PalindromString {

	public static void main(String[] args) {
		String rev="";
		String str="MADAM";
		String org= str;

		for(int i=str.length()-1; i>=0; i--)
		{
		rev= rev+ str.charAt(i);
		}

    System.out.println(rev);

    if(org.equals(rev))
    {
	System.out.println(rev+ " is a palindrome String");
    }
    else
    {
	System.out.println(rev+ " is not a palindrome String");
    }
	}

}
```

Output:

MADAM
MADAM is a palindrome String

25) Reverse Each String :

```
public class ReverseEachString {

	public static void main(String[] args) {
		String a = "Hello I am Sourabh";
		String word[] = a.split(" ");

		for(String element: word)
		{
			System.out.print(" ");
			for(int i=element.length()-1; i>=0; i--)
			{
				char b = element.charAt(i);
				System.out.print(b);
			}
		}
	}

}
```

Output:

olleH I ma hbaruoS

26) Reverse Each Word

```
public class ReverseEachWord {

	public static void main(String[] args) {
		String a ="Rohit is a Automation tester";
		String [] b= a.split(" ");

		for(int i=b.length-1; i>=0; i--)
		{
			System.out.print(" ");
			System.out.print(b[i]);
		}
	}

}
```

Output:

tester Automation a is Rohit

27) Find Largest String in Word

```
public class StringLargestWord {

	public static void main(String[] args) {
		String a ="India is My Country";
		int count =0;

		for(int i=0; i<a.length(); i++)
		{
			if(a.charAt(i)!= ' ')
			{
				count++;
			}

		}

		System.out.println("Total characters in the string are "
+count);
		String temp;

		String b[] = a.split(" ");
		int totalwordCount = b.length;
		System.out.println("Total words in a String are "
+totalwordCount);

		for(int i=0; i<b.length;i++)
		{
			for(int j=i+1; j<b.length; j++)
			{
				if(b[j].length()> b[i].length())
				{
					temp=b[i];
					b[i]=b[j];
					b[j]=temp;
				}
			}
		}
		System.out.println("Largest word is " +b[0]);

	}

}
```

Output :

Total characters in the string are 16
Total words in a String are 4
Largest word is Country

28) String Reverse

```
public class StringReverse {

	public static void main(String[] args) {
		String rev ="";
		String str = "I Love My Country";

		for(int i=str.length()-1; i>=0; i--)

		{
			rev = rev + str.charAt(i);
		}
		System.out.println(rev);
		}


}
```

Output:

yrtnuoC yM evoL I