Q1. Write a java program to check whether given number is Armstrong number or not

```
package ControlStmts;
import java.util.Scanner;
public class Armstrong {

public static void main(String[] args) {

Scanner obj = new Scanner(System.in);

int num, sum=0, r, num1,num2, count=0, multiply;

System.out.println("Enter your number to Check for
Armstrong");

num = obj.nextInt();

num2=num1 =num;

while(num1>0)
{
     num1=num1/10;
     count++;
}

while(num>0)
{
       r=num%10;
       multiply=1;

       for(int j=1;j<=count;j++)

           multiply = multiply * r;
           sum=sum+multiply;
           num=num/10;

  }


  System.out.println("sum="+sum);

  if(sum==num2)
  System.out.println("Given number is armstrong");
  else
  System.out.println("Given number is NOT armstrong");

}
}
```

**Output:**

```
Enter your number to Check for Armstrong
153
sum=153
Given number is armstrong
```

**(or)**

```
Enter your number to Check for Armstrong
120
sum=9
Given number is NOT Armstrong
```

Q2. Write a Program to display all the Armstrong number between 10 to 1000

```
package ControlStmts;
import java.util.*;
public class AllArmstrong {

public static void main(String[] args) {

      Scanner sc = new Scanner(System.in);

      int i, num, r, sum;

      for(i=10;i<=1000;i++)
      {
            sum=0;
            num=i;

            while(num>0)
            {
                  r=num%10;
                  sum=sum+(r*r*r);
                  num/=10;

            }
            if(sum==i)
            System.out.println(i);

       }
     }
}
```

**Output:**

```
153
370
371
407
```

Q3. Write a program to find sum of the following series

a . Sum = x-1/x+2/x-3/x....n/x

```
package Anudip.com;
import java.util.Scanner;
public class Sum_series2 {

public static void main(String[] args) {

Scanner obj = new Scanner(System.in);

int i,n;
float x,sum=0;

System.out.println("Program to find of 1/x-2/x+3/x......n/x");

System.out.println("Enter x value");
x=obj.nextFloat();
System.out.println("Enter n value");
n=obj.nextInt();
    for(i=1;i<=n;i++)
    {
         if(i%2==0)
           sum=sum-i/x;//1-0.5
         else
           sum=sum+i/x;;

    }
    System.out.println("sum of series: "+sum);
  }
}
```

**Output:**

```
Program to find of 1/x-2/x+3/x......n/x
Enter x value
4
Enter n value
5
sum of series: 0.75
```

**b. 1!+2!+3!+…..n!**

```
package ControlStmts;
import java.util.*;
public class SumOfSeries2 {

	public static void main(String[] args) {

	Scanner obj = new Scanner(System.in);

		int i,j,n;
		long fact=1;
		long sum=0;

		 System.out.print("Enter n value");
		n= obj.nextInt();

		 for(i=1;i<=n;i++)
		{
			fact=1;
			for(j=1;j<=i;j++)
			{
				fact=fact*j;
			}
				 sum=sum+fact;
				 System.out.print(fact+" ! + ");
		 }
		 System.out.println("\n sum of above series"+sum);
	}
}
```

**Output:**

```
Enter n value5
1 ! + 2 ! + 6 ! + 24 ! + 120 !
sum of above series153
```

## Q4. Write a java program to check given number is perfect number or not

```
package ControlStmts;
import java.util.Scanner;

public class PerfectNumber {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

int num,i,sum=0;

  System.out.println("Enter the number");
  num=sc.nextInt();

   for(i=1;i<num;i++)
   {
       if(num%i==0)
       {
          sum +=i;
       }
    }

    if(sum==num)
    {
         System.out.println("It is a perfect number");

    }
    else
    {
         System.out.println("It is not a perfect number");
    }
  }
}
```

**Output:**

```
Enter the number
496
It is a perfect number
```

**(or)**

```
Enter the number
120
It is not a perfect number
```

## Q5. Display all perfect numbers between 1 to 100000

```
package ControlStmts;
import java.util.*;
public class AllPerfectNumbers {

public static void main(String[] args) {
     Scanner sc=new Scanner(System.in);
     System.out.println("enter Start and End Range");
          int num1=sc.nextInt();
          int num2=sc.nextInt();

     System.out.println("perfect numbers are: ");

          for(int i=num1;i<=num2;i++)
          {
               int n=i;
               int sum=0,factor=1;
               while(factor<n)
               {
                    if((n%factor)==0)
                    {
                         sum=sum+factor;
                    }
                   factor++;
               }
               if(sum==i)
               {
                    System.out.println(i+" ");
               }
          }
     }
}
```

**Output:**

```
enter Start and End Range
1
100000
perfect numbers are:
6
28
496
8128
```

Q6. Write a program to extract only character from a string. Eg: Af02284khff -> Afkhff

```
package ControlStmts;
import java.util.*;
public class Extract_Char {

     public static void main(String[] args) {

     String text,  string="";
     char ch;
     int i;

    Scanner key = new Scanner(System.in);

     System.out.println("Enter your text ");
     text = key.next();

     for(i=0;i<text.length();i++)
     {
           ch = text.charAt(i);

          if(ch>='a' & ch<='z' | ch>='A' & ch<='Z')
           string=string + ch;

      }

      System.out.println("extracted string "+ string);



     }

}
```

Output:

```
Enter your text
anusha123456deepthi
extracted string anushadeepthi
```

## Q7. Write a program to find reverse of digits

```
package ControlStmts;

public class Reverse_no {

public static void main(String[] args) {

    int number = 34567, reverse = 0;

    while(number != 0)
    {
        int remainder = number % 10;
        reverse = reverse * 10 + remainder;
        number = number/10;
     }

System.out.println("The reverse of the given number is: " +
reverse);


     }

}
```

**Output:**

```
The reverse of the given number is: 76543
```

## Q8. Write a program to find power value of given base and exponent number

```
package ControlStmts;
import java.util.Scanner;
public class Power_val {

public static void main(String[] args) {

   Scanner sc=new Scanner(System.in);
      int base,expo;
       long power=1;

     System.out.println("enter the value base");
     base=sc.nextInt();
     System.out.println("enter the value exponent");
     expo=sc.nextInt();

     while(expo!=0)
     {
          power=power*base;
          --expo;
     }

 System.out.println("the value of the power:"+power);



     }

}
```

**Output:**

```
enter the value base
3
enter the value exponent
5
the value of the power : 243
```

## Q9. Write a program to convert every first letter of string to capital letter
eg: the Hindu -> The Hindu

```
package ControlStmts;

public class Capitalize_Letter {

public static void main(String[] args) {


String text = "welcome to the birthday party";

  int pos = 0;
  boolean capitalize = true;
  StringBuilder sb = new StringBuilder(text);

  while (pos < sb.length())
  {
      if (sb.charAt(pos) == ' ')
     {
        capitalize = true;
      }
     else if (capitalize &&
!Character.isWhitespace(sb.charAt(pos)))
     {
           sb.setCharAt(pos,
Character.toUpperCase(sb.charAt(pos)));
        capitalize = false;
      }
        pos++;
   }
   System.out.println(sb.toString());


  }
}
```

**Output:**

```
Welcome To The Birthday Party
```

## Q10. Write a program to count no. of digits present in a string

```
package ControlStmts;

public class Count_Of_Digits {

public static void main(String[] args) {

 int count = 0, num = 234567;

    while (num != 0)
    {
        num /= 10;
        ++count;
    }

     System.out.println("Number of digits: " + count);


     }

}
```

**Output:**

```
Number of digits: 6
```