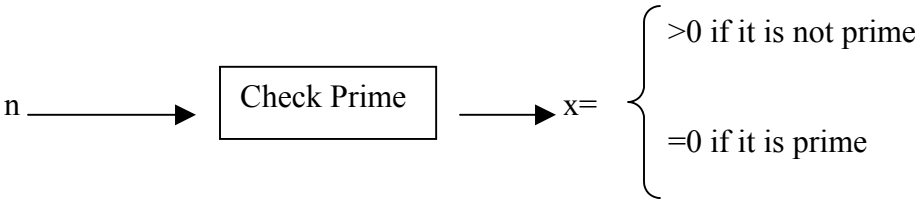
Using While:
(instead of "Go To")

```
Start
Read n
If (n>0) then
    Sum=0
     i=1
     while  (i<= n)
                sum= sum+I
                i=i+1

     endwhile
     display sum
else
     display error
endif
stop
```

Ex: read a number check if it is prime or not

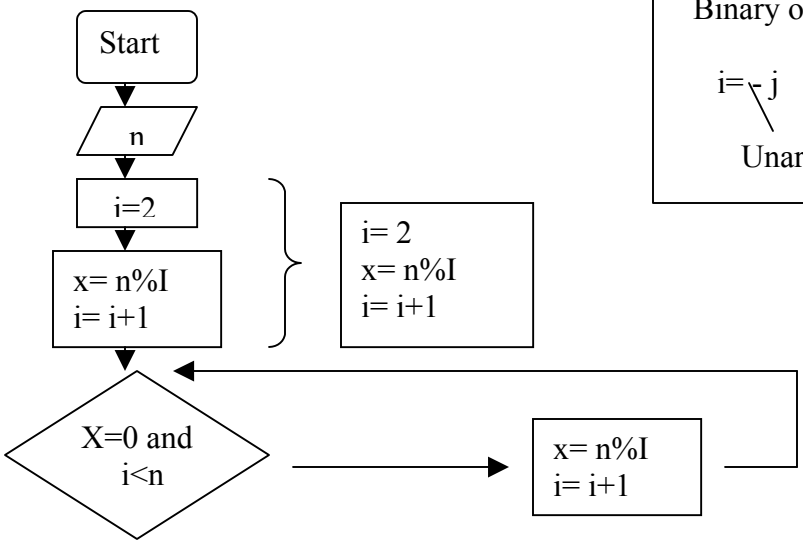


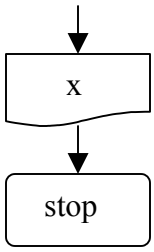
in java, "%" is remainder operator.

operand
i= j+k
Binary operator

i= - j
Unary oprator

Flowchart:





Pseudocode

start
read n
i=2
x=n%i
i=i+1

```
L1:  if  (x != and i<n)
then
        x=n%i
        i=i+2
```

```
while  ( x !=  and
i<n)
        x=n%i
        i=i+2
```

if (x>0)

display n is a prime number

else

display n is not a prime number

end if
stop

Java

```
import cs1.Keyboard;
public class TestPrime
{
  public static void main (String[]args)
        {
           int n,i,x;
        System.out.println ("Enter an integer greater than 2");
```

```
            n=Keyboard.readInt( );
            System.out.println ("Input no:" +n);
            i=2;
            x=n%i;
            i=i+1;
   while (x !=0 &&  i<n)    {
            x=n%i;
            i=i+2;
     }
  if  ( x !=0 )
         System.out.println ("It is a prime number");
   else
         System.out.println ("It is not a prime number");

}
            }
```

```
Line = 1                                                              line
n                  i
While(line<=n){                         *                              1
4                  1
I=1;                                    **                             2
2
While(line<=line){                      ***                            3
1
System.out.println("*");                ****                           4
2
İ++;                                                                   5
3
}
System.out.println( );
Line++;
}
```

For STATEMENT:

n! = 1.2.3............n

```
 int nfac,i,n;

n! ={1  if n=0
 nfac=1                          nfac       i
{n*(n-1)!       İf n>0   i=1                              1        1

while (i<=n) {                    1        2
nfac= nfac*i;                     2        3
i++;                              6       4
     }
```

initializition condition update

```
for (nfac=1,i=1;      i<=n;          i++)

nfac= nfac*i;      ==//statement
```

*** for (initialization ; condition ; update)

```
     //statement

    initialization
   while(cond){       //i<=n

   statement          //nfac=nfac*i;
   update             //i++;
        }
```

find sum

```
sum= 0;
for ( sum=0,i=1;  i<=n  ;i++)
sum= sum+i;
i=1;
while (i<=n)  {

sum= sum+i;
i++;
}
```

QUESTIONS:

1) Design and implement an application that determines and prints the number of even , odd, and zero digits in an integer value read from the user .Also use a sentinel value to see if user wants to continue or not. Also try another version that counts 0 as a number in which user is asked to continue

2) What will be the output of these or is there a mistake:

a)
```
int i=3;
  while (i<4)
    {
       System.out.println("hi");
        i--;
     }
```

b)
```
if(num= =min)
      if(num<sum)
      System.out.println("num  equals minimum and also smaller than sum");
 else
      System.out.println("num is not equal to minimum ");
```

3)Find the mistakes in the following program and (There are 4 mistakes) write its pseudocode:

```
public class MıleConverter;

public static void main(String[]args);
{
      double Kilometer;
      conversionfactor=(1/1,609);
      System.out.println("Please enter the mıle value to be converted:");
      Mile=Keyboard.readDouble();
      Kilometer= Mile*conversion factor;
      System.out.println("The answer in kilometers ıs: Kilometer");
}
```

4)Write a program which finds the perfect numbers up to 100

5)Transform the following while loop to a)for ,b)do loops:

```
int i=20;
while(i>1)
```

```
{
        i--;
        System.out.println(i);
}
```

Answers:

1)

```
/**
        * Write a description of class classificofno here.
        *
        * @author (your name)
        * @version (a version number or a date)
        */
        import cs1.Keyboard;
        public class deneme
        {


            public static  void main(String[]args)
              {

                int num;
                String another="y";
                int lastdigit;
                int zero=0;
                System.out.println("Please enter a number:");
                num=Keyboard.readInt( );

                while(another.equalsIgnoreCase("y"))
                    {

                        while(num>0)
                           {

                              int zeros=0;
                              int odds=0;
                              int evens=0;

                                  while(num>0)

                                        {
```

```
                                            lastdigit=num%10;
                                             num=num/10;

                                             if(zero==lastdigit%2)

                                                    if(lastdigit== zero)
                                                         zeros++;
                                                     else
                                                         evens++;
                                             else
                                                    odds++;

                                     }

                         System.out.println("The number of zeros inthe given
+number is:"+zeros);
                        System.out.println("The number of odds inthe given
+number is:"+odds);
                        System.out.println("The number of evens inthe given
+number is:"+evens);

                       System.out.println("Enter another  number which is(0 to
quit):");

                       num=Keyboard.readInt();
                    }
                 if(num==0)
                 System.out.println("The number of zeros inthe given number is
1");

                 System.out.println("Please enter a number:");
                 num=Keyboard.readInt( );
                System.out.println("Enter another (y/n?)");
                 another=Keyboard.readString();
           }

      }
  }
```

2) a)infinite loop

```
                    b) if(num= =min)
                          {
                              if(num<sum)
         System.out.println("num  equals minimum and also  smaller than sum");
                    }
                       else
                        System.out.println("num is not equal to minimum ");
```

3)

```
import cs1.Keyboard;

public class MıleConverter;
{
public static void main(String[]args);
    {
       double Kilometer;
      double mile,conversionfactor;
       conversionfactor=(1/1,609);
       System.out.println("Please enter the mıle value to be
+converted:");
       mile=Keyboard.readDouble();
        Kilometer= mile*conversion factor;
         System.out.println("The answer ın kilometers ıs:
"+Kilometer);
     }
 }
```

4) * Write a description of class perfectno here.

```
*
* @author (your name)
* @version (a version number or a date)
*/
 public class perfectno
 {
    public static void main(String[]args)
         {
            int n;
            int zero=0;
              for(n=2; n<=100 ; n++)

               {
                  int a=0;
                   for(int div=1; div<n; div++)
                       {
                            if(n%div==zero)
                              a=a+div;
```

```
                    }
                  if(a = = n)
                  System.out.println(n+"is a perfect no");
                }
            }
        }
```

5)

a) int i=20;

```
    do
      {
System.out.println(“i”);
i--;
}
     while(i>=1)
```

b)

```
for(int i=20;i > 1; i--)
System.out.println(“i”);
```