Algorithms and Flowcharts
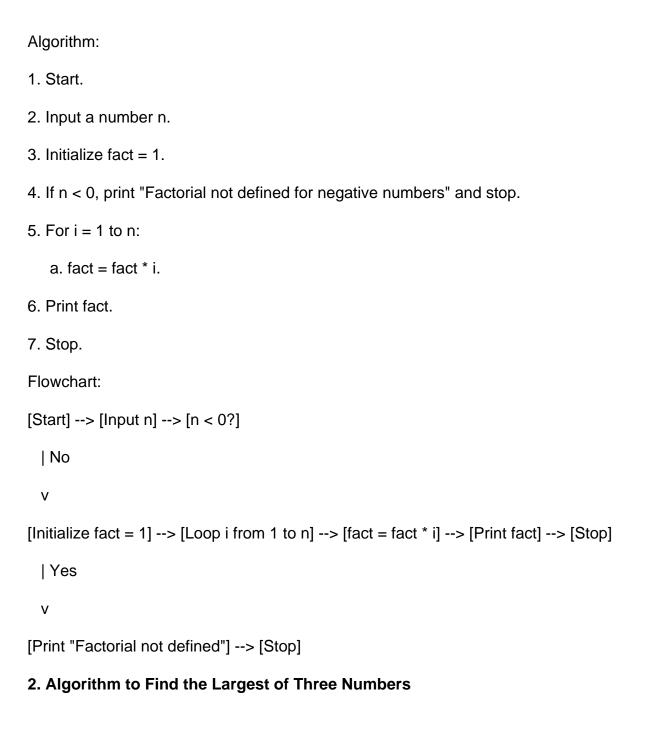
1. Algorithm to Calculate Factorial of a Number

Algorithm:

1. Start.

2. Input a number n.

3. Initialize fact = 1.

4. If n < 0, print "Factorial not defined for negative numbers" and stop.

5. For i = 1 to n:

   a. fact = fact * i.

6. Print fact.

7. Stop.

Flowchart:

[Start] --> [Input n] --> [n < 0?]

   | No

   v

[Initialize fact = 1] --> [Loop i from 1 to n] --> [fact = fact * i] --> [Print fact] --> [Stop]

   | Yes

   v

[Print "Factorial not defined"] --> [Stop]

2. Algorithm to Find the Largest of Three Numbers

Algorithm:

1. Start.

2. Input three numbers a, b, c.

3. If a > b and a > c, print "a is the largest".

4. Else if b > a and b > c, print "b is the largest".

5. Else, print "c is the largest".

6. Stop.

Flowchart:

[Start] --> [Input a, b, c] --> [a > b and a > c?]

  | Yes

  v

[Print "a is the largest"] --> [Stop]

  | No

  v

[b > a and b > c?]

  | Yes

  v

[Print "b is the largest"] --> [Stop]

  | No

  v

[Print "c is the largest"] --> [Stop]

3. Algorithm to Determine if a Number is Prime

Algorithm:

1. Start.

2. Input a number n.

3. If n <= 1, print "n is not prime" and stop.

4. For i = 2 to sqrt(n):

   a. If n % i == 0, print "n is not prime" and stop.

5. Print "n is prime".

6. Stop.

Flowchart:

[Start] --> [Input n] --> [n <= 1?]

  | Yes

  v

[Print "n is not prime"] --> [Stop]

  | No

  v

[Loop i from 2 to sqrt(n)] --> [n % i == 0?]

  | Yes

  v

[Print "n is not prime"] --> [Stop]

  | No

  v

[Print "n is prime"] --> [Stop]