Experiment No. 8

Input Specification: angle in degrees as int

Output Specification: value of cosine of the angle as floating point number

Declaration:

angle = store input angle in degree as int

i = loop variable as int

sign = To indicate sign of a term in cosine series as int

t = To store number of terms to calculate and sum in cosine series as int

y = power of the specific term as int

fact = To store running factorial in denominator of term as long int

x = To store value of angle in radians as floating

sum = To store running sum of terms in cosine series as float

Algorithm:

Step 1: Start

Step 2: Declare angle, i, sign, t, and y sign as int variables.

Declare fact as long int variable and x, sum as float.

Step 3: Display Message "Enter angle in Degrees:"

Step 4: Input angle value in variable angle.

Step 5: Display Message "Enter number of terms:"

Step 6: Input number of terms value in variable t.

Step 7: Convert angle into radians and save in variable x

Step 8: Initialize i as 1

Step 9: Test if i is less than equal to t then go to step 10 otherwise go to step 15

Step 10: Evaluate sum=sum + (sign*pow(x,y))/fact

Step 11: Evaluate sign=-sign

Step 12: Evaluate y+=2

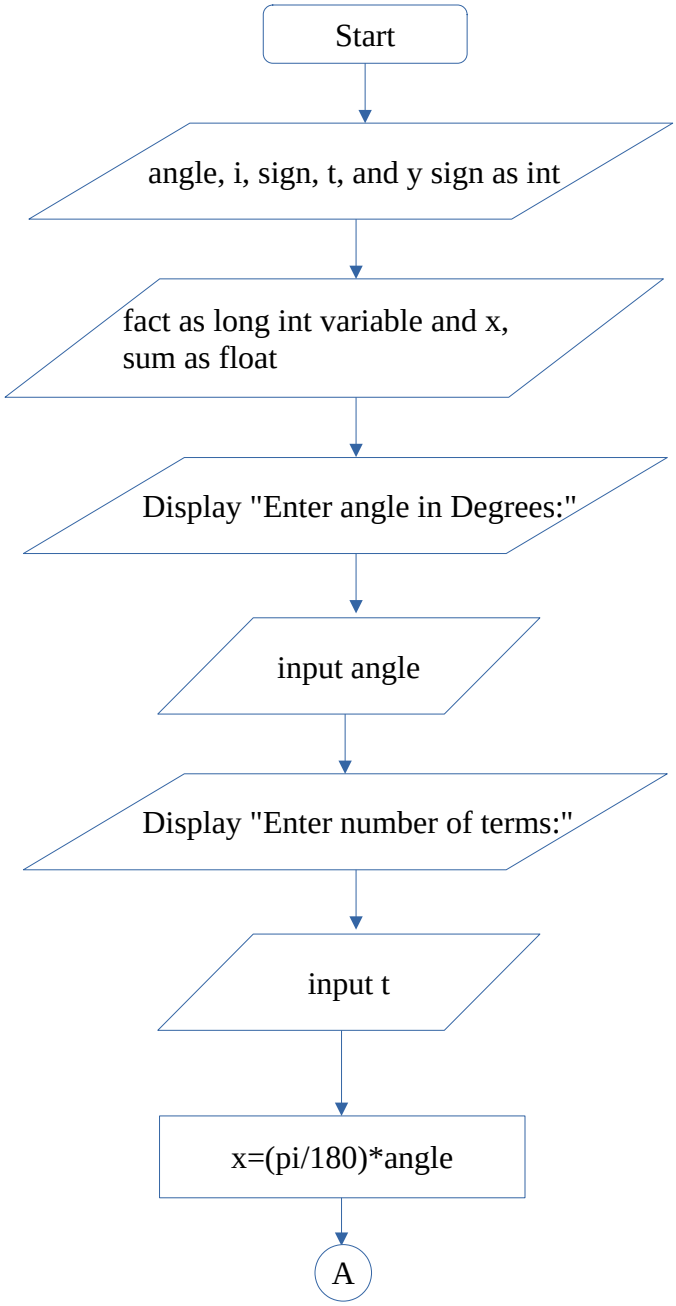
Step 13: Evaluate fact =fact*y*(y-1)

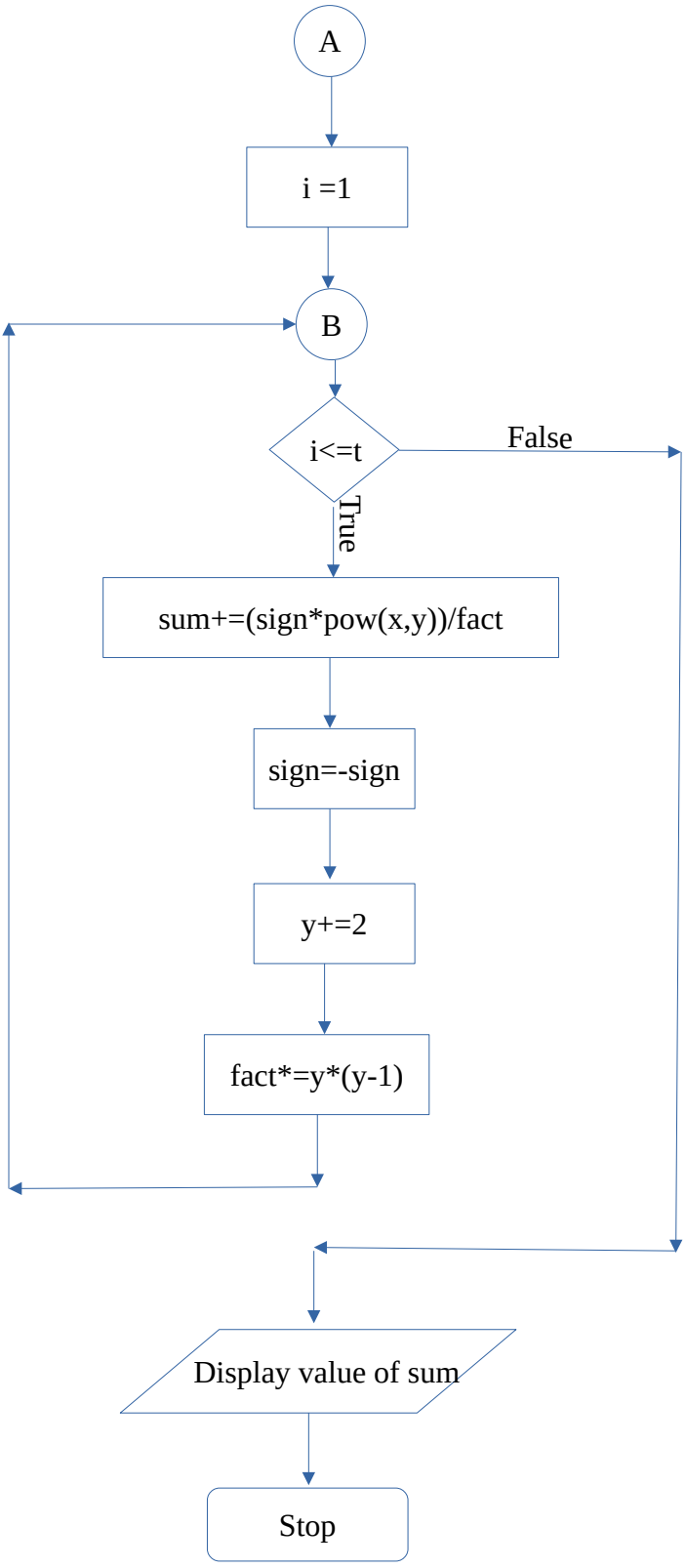
Step 14: Go to Step 9

Step 15: Print value of sum as cosine of angle.

Step 16: Stop

Flowchart:




A
i =1
B
i<=t
False
True
sum+=(sign*pow(x,y))/fact
sign=-sign
y+=2
fact*=y*(y-1)
Display value of sum
Stop