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O-LEVEL (M3-R5.1)
Python Programming By

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Python Programming

Video Tutorial

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CHAPTER-2

Algorithms & Flowcharts

An algorithm/Flowchart may employ three control structures

1. Sequential based processing
2. Decision based processing
3. Iterative or repetition processing

1. Sequential based processing/Normal Processing:-

In the sequence structure, statements are place one after the other and the execution takes place starting from up to down.

2. **Decision based processing/Controlling/selecting/conditional/Branch:-**

In branch control, there is a condition and according to a condition, a decision of either TRUE or FALSE is achieved. In the case of TRUE, one of the two branches is explored, but in the case of FALSE condition, the other alternative is taken. Generally, the 'IF-THEN' is used to represent branch control.

3. **Iterative or repetition processing:-**

The loop or repetition allows statements to be executed repeatedly based on certain loop condition e.g. WHILE, FOR loops.

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Algorithm & flowchart to find sum of two numbers

Step-1 Start

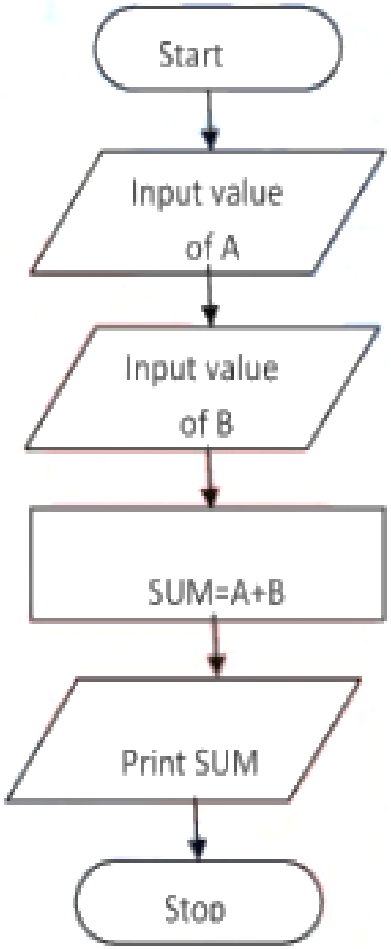
Step-2 input first number say A

Step-3 input second number say B

Step-4 SUM=A+B

Step-5 display SUM

Step-6 Stop



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Algorithm & flowchart to find subtraction of two numbers

Step-1 Start

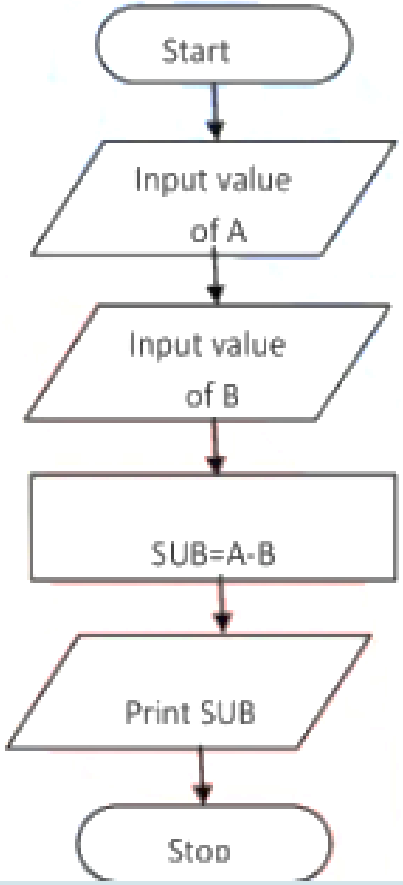
Step-2 input first number say A

Step-3 input second number say B

Step-4 SUB=A-B

Step-5 display SUB

Step-6 Stop



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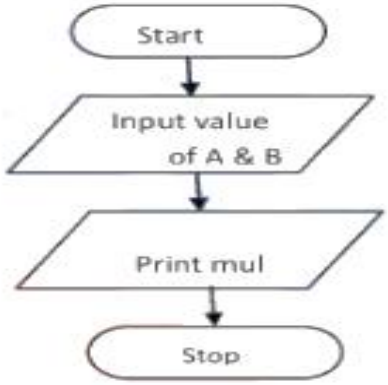
Algorithm & flowchart to represent your name

Step-1 Start

Step-2 input name

Step-3 display name

Step-4 Stop



Algorithm & flowchart to find square of number

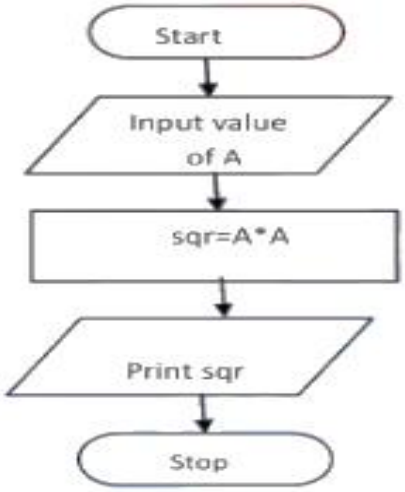
Step-1 Start

Step-2 input one number say A

Step-3 sqr=A*A

Step-4 display sqr

Step-5 Stop



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Algorithm & flowchart to find cube of number

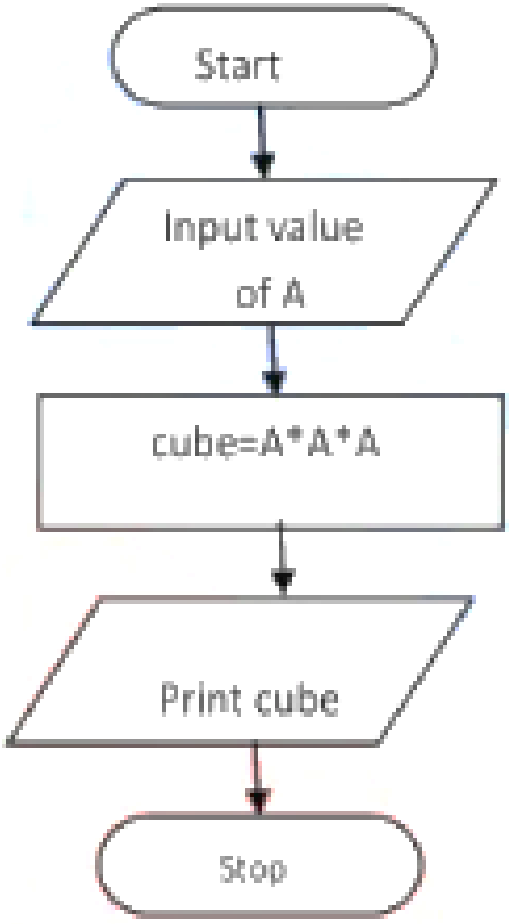
Step-1 Start

Step-2 input one number say A

Step-3 cube=A*A*A

Step-4 display cube

Step-5 Stop



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Algorithm & flowchart to find power of any number

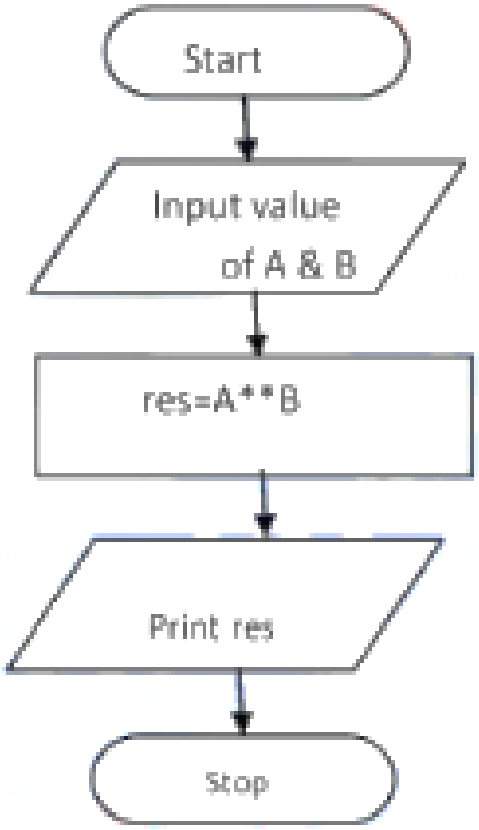
Step-1 Start

Step-2 input two number say A & B

Step-3 res=A**B

Step-4 display res

Step-5 Stop



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Algorithm & flowchart to swap two number using temporary (third) variable

Step-1 Start

Step-2 input two number say num1 & num2

Step-3 display before swap values num1, num2

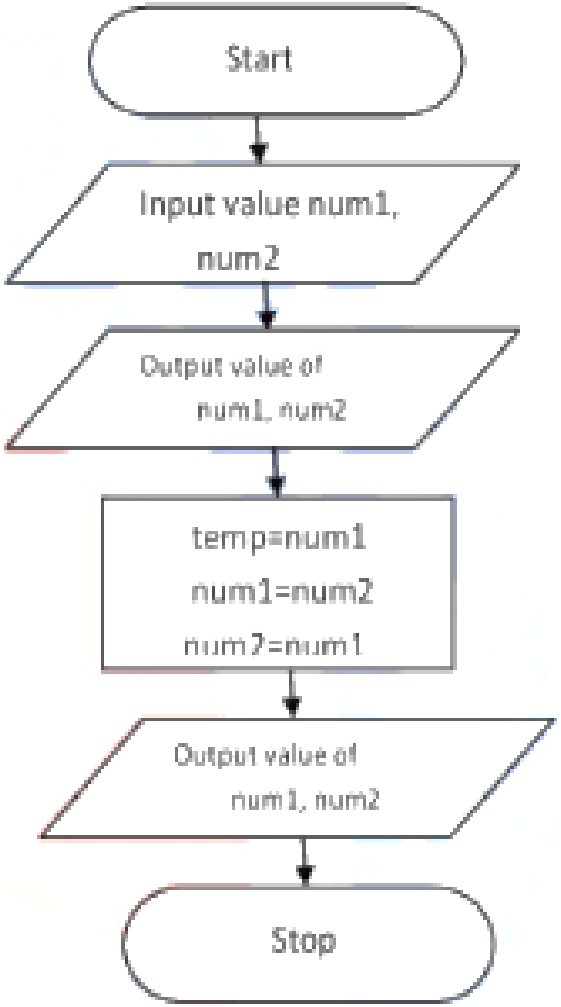
Step-4 temp=num1

Step-5 num1=num2

Step-6 num2=num1

Step-7 display after swap value num1, num2

Step-8 stop



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Algorithm & flowchart to swap two number without using temporary (third) variable

Step-1 Start

Step-2 input two number say x & y

Step-3 display before swap values x, y

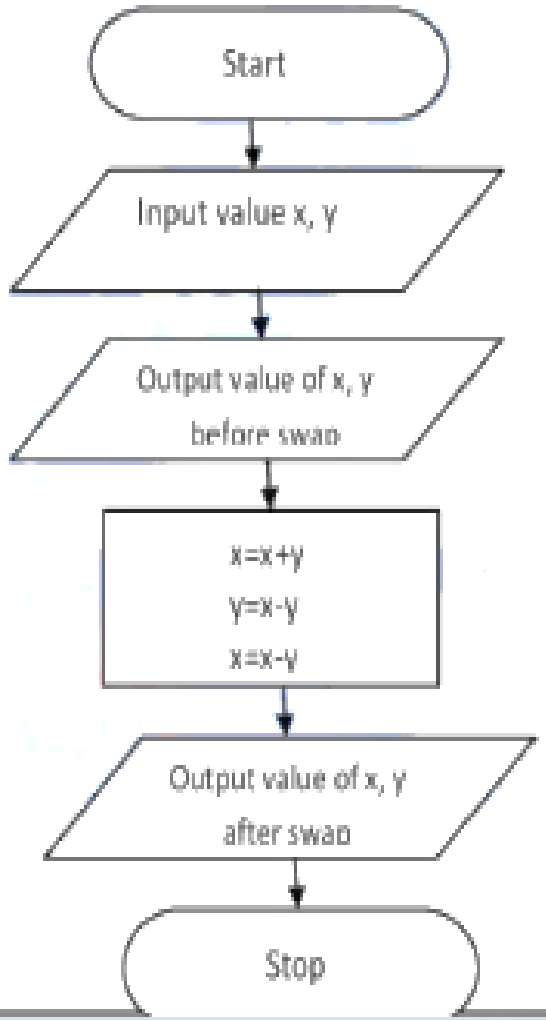
Step-4 x=x+y

Step-5 y=x-y

Step-6 x=x-y

Step-7 display after swap value x, y

Step-8 stop



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Algorithm & flowchart to find simple interest

P: Principle Amount
N: Time in Year
R: % Annual Rate of Interest
SI: Simple Interest

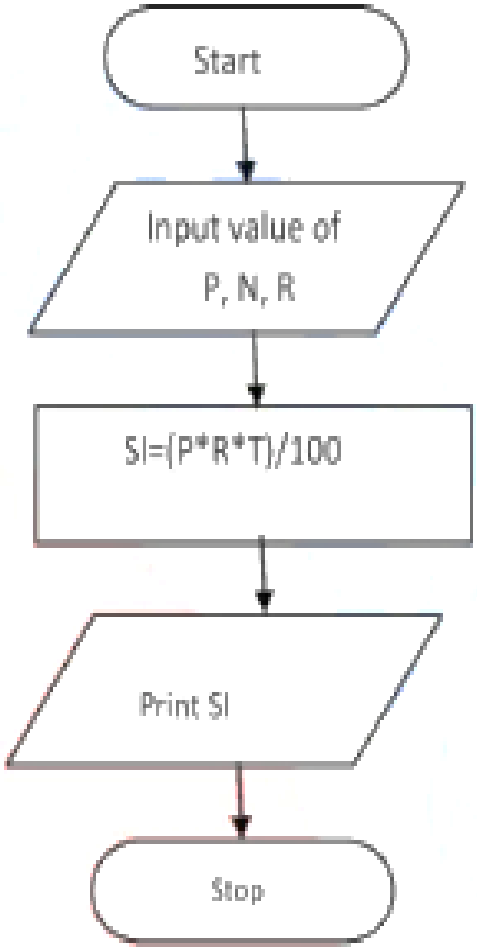
Step-1 Start

Step-2 input value of P, N, R

Step-3 SI=(P*R*T)/100

Step-4 display SI

Step-5 Stop



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Algorithm & flowchart to find compound interest

P: Principle Amount
N: Time in Year
R: % Annual Rate of Interest
CI: Compound Interest

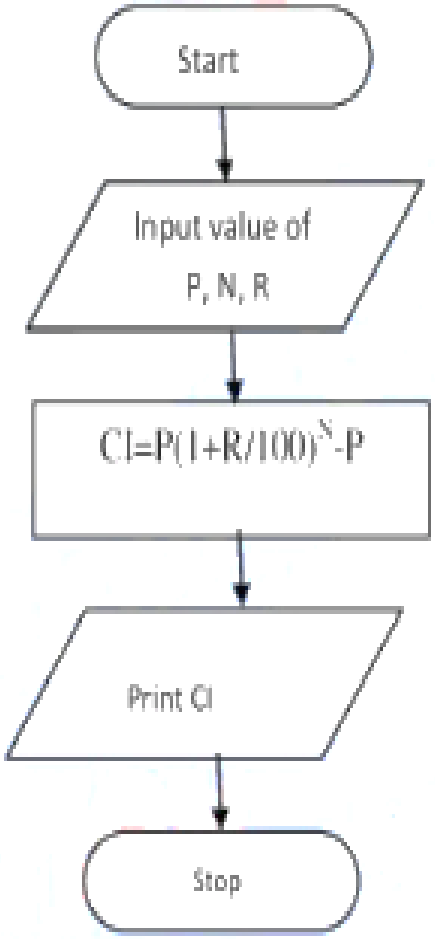
Step-1 Start

Step-2 input value of P, N, R

Step-3 $CI=P(1+R/100)^{N}-P$

Step-4 display CI

Step-5 Stop



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Algorithm & flowchart to find area and perimeter of square

L: Length of Square
Area: Area of Square
Perimeter: perimeter of Square

Step-1 Start

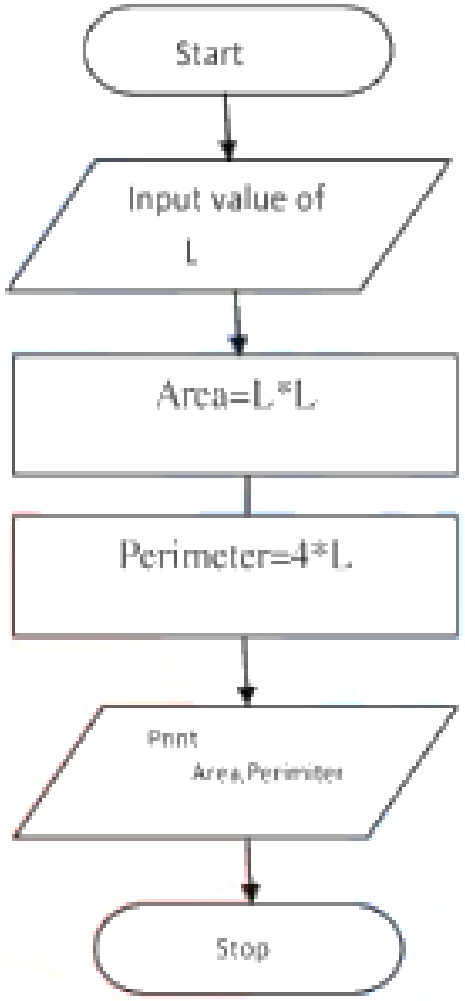
Step-2 input side length of square say L

Step-3 Area=L*L

Step-4 Perimeter=4*L

Step-5 Display Area, Perimeter

Step-6 Stop



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Algorithm & flowchart to find area and perimeter of Rectangle

L: Length of Rectangle
B: Breadth of Rectangle
Area: Area of Rectangle
Perimeter: perimeter of Rectangle

Step-1 Start

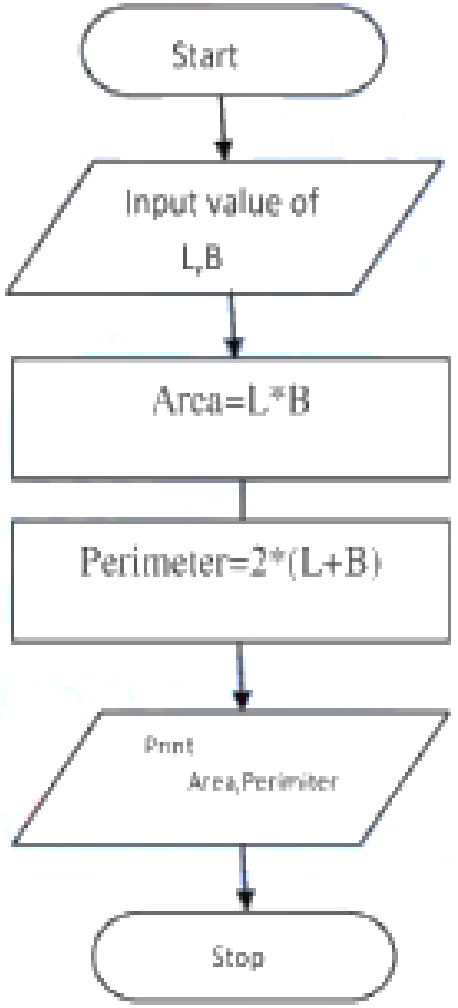
Step-2 input side length & breadth say L, B

Step-3 Area=L*B

Step-4 Perimeter=2*(L+B)

Step-5 Display Area, Perimeter

Step-6 Stop



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Algorithm & flowchart to find area and perimeter of circle

R: radius of circle
Area: Area of circle
Perimeter: perimeter of circle

Step-1 Start

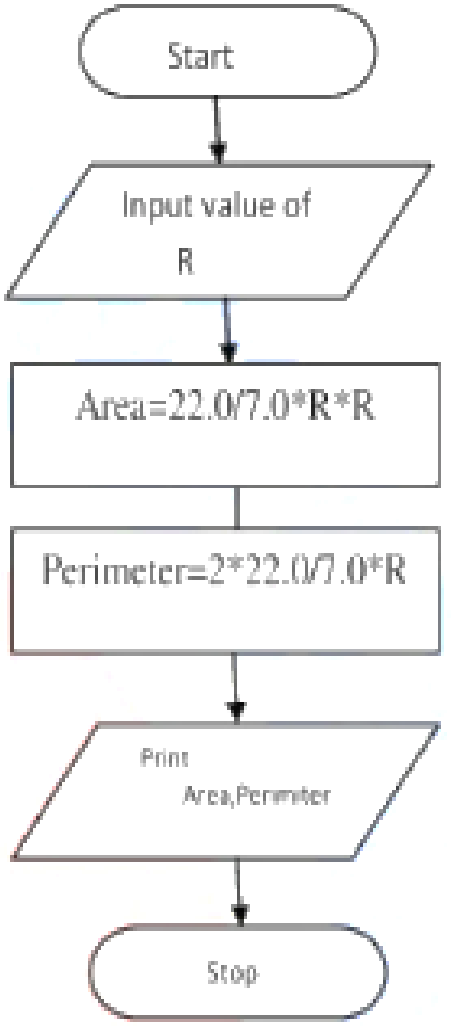
Step-2 input radius of circle say R

Step-3 Area=22.0/7.0*R*R

Step-4 Perimeter=2*22.0/7.0*R

Step-5 Display Area, Perimeter

Step-6 Stop



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Algorithm & flowchart to find area and perimeter of Triangle

A: First side of triangle
B: Second side of triangle
C: Third side of triangle
Area: Area of triangle
Perimeter: perimeter of triangle

Step-1 Start

Step-2 input sides of triangle A,B,C

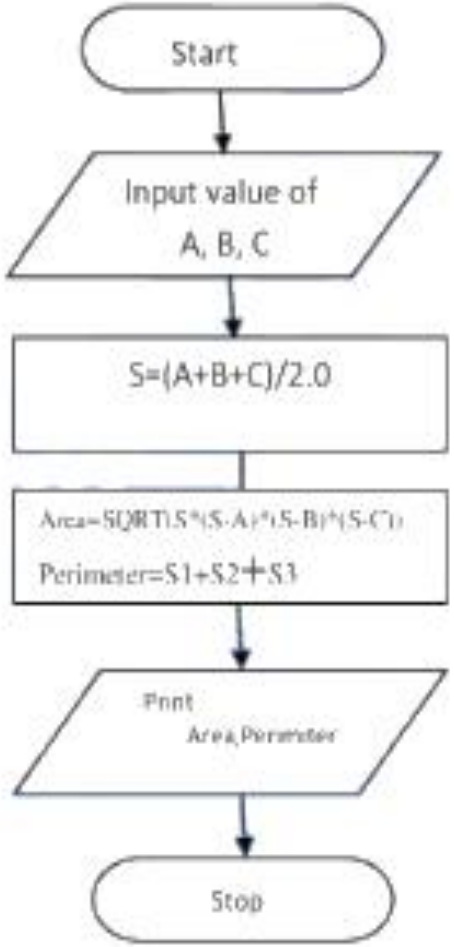
Step-3 S=(A+B+C)/2.0

Step-4 Area=SQRT(S*(S-A)*(S-B)*(S-C))

Step-5 Perimeter=S1+S2+S3

Step-6 Display Area, Perimeter

Step-7 Stop



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Algorithm & flowchart to convert temperature from Celsius to Fahrenheit

C: temperature of Celsius
F: temperature of Fahrenheit

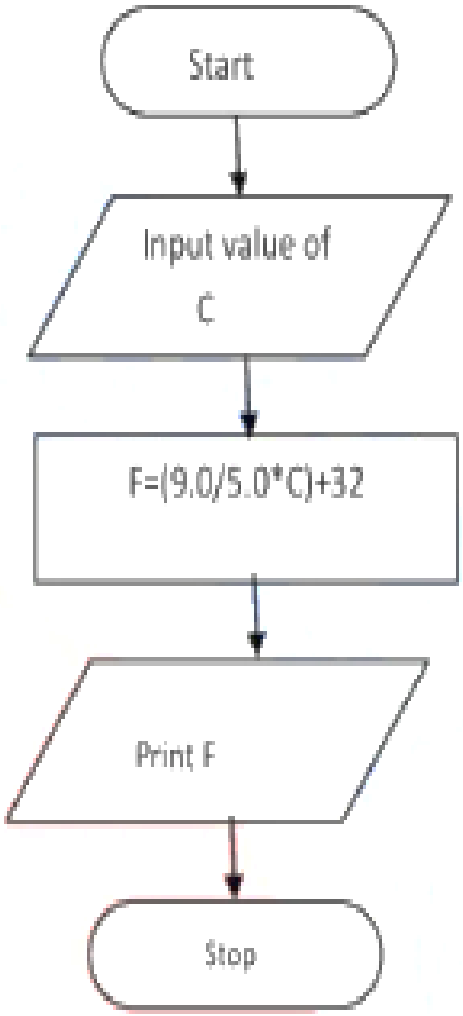
Step-1 Start

Step-2 input temperature in Celsius say C

Step-3 F=(9.0/5.0*C)+32

Step-4 display temperature in Fahrenheit F

Step-5 Stop



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Algorithm & flowchart to convert temperature from Fahrenheit to Celsius

C: temperature of Celsius
F: temperature of Fahrenheit

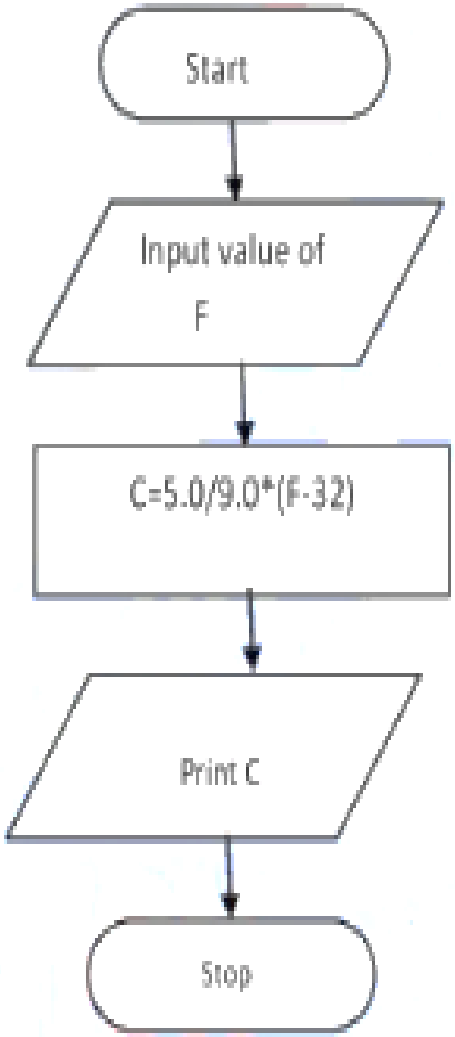
Step-1 Start

Step-2 input temperature in Fahrenheit say F

Step-3 C=5.0/9.0*(F-32)

Step-4 display temperature in Celsius C

Step-5 Stop



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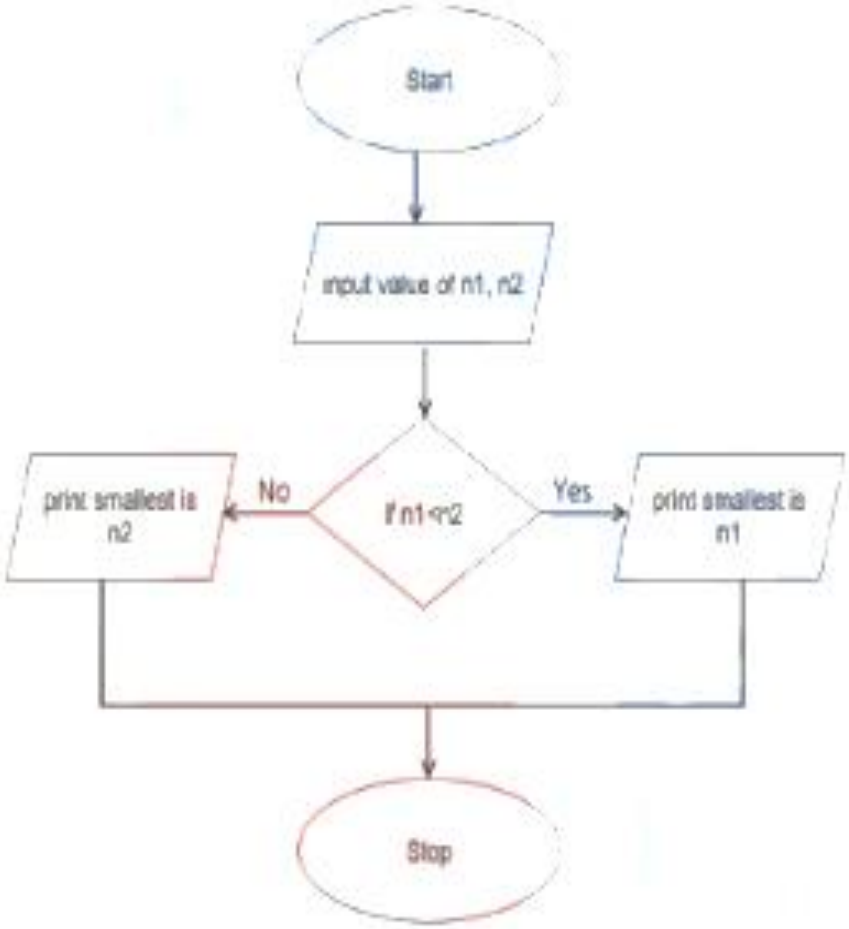
Algorithm & flowchart to find the smallest of two number

Step-1 Start
Step-2 input two number say n1, n2
Step-3 if n1 <n2 then
print smallest is n1
Else
print smallest is n2
endif
Step-4 Stop



Algorithm & flowchart to calculate total price it price is greater than 10000 then gives discount 10%

Step-1 Start

Step-2 input price say p

Step-3 if p>10000 then

dis=p*10/100

tp=p-d

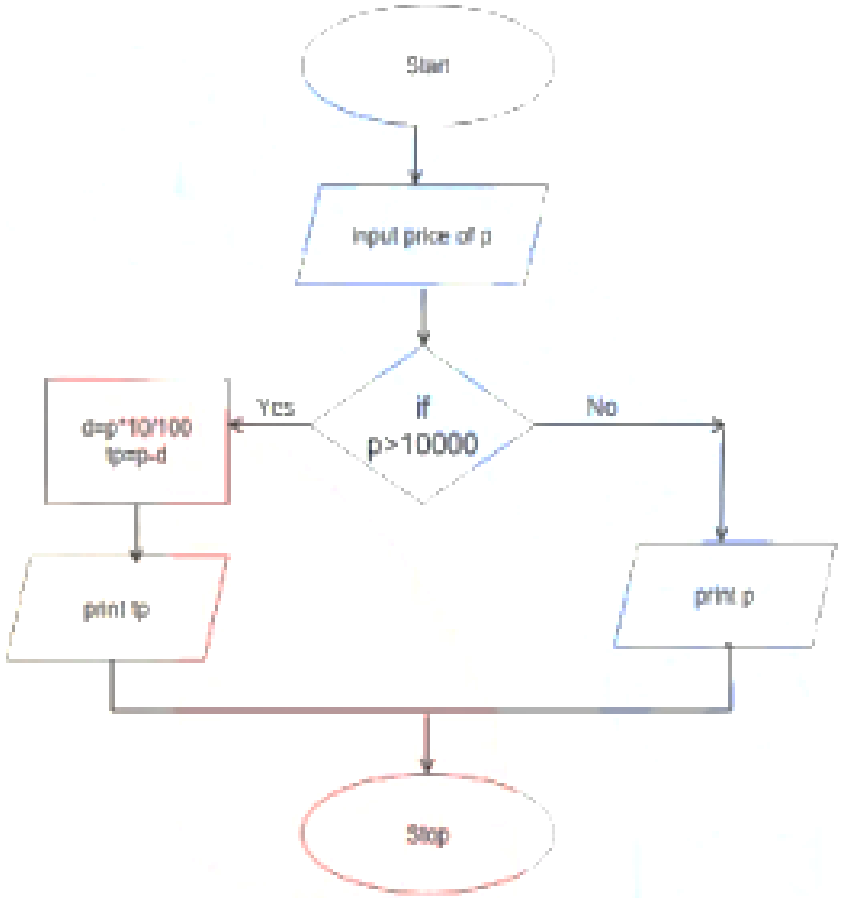
print tp

Else

print p

endif

Step-4 Stop



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Algorithm & flowchart to represent to print last digit of a number

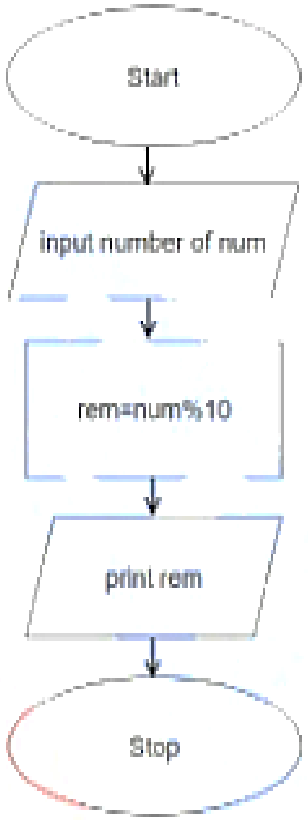
Step-1 Start

Step-2 input number say num

Step-3 rem=num%10

Step-4 print rem

Step-5 Stop



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Algorithm & flowchart to represent age is greater than 18 or not

Greater than 18 >>> Voting
Less than 18 >>> Not voting

Step-1 Start

Step-2 input age say a

Step-3 if a>18 then

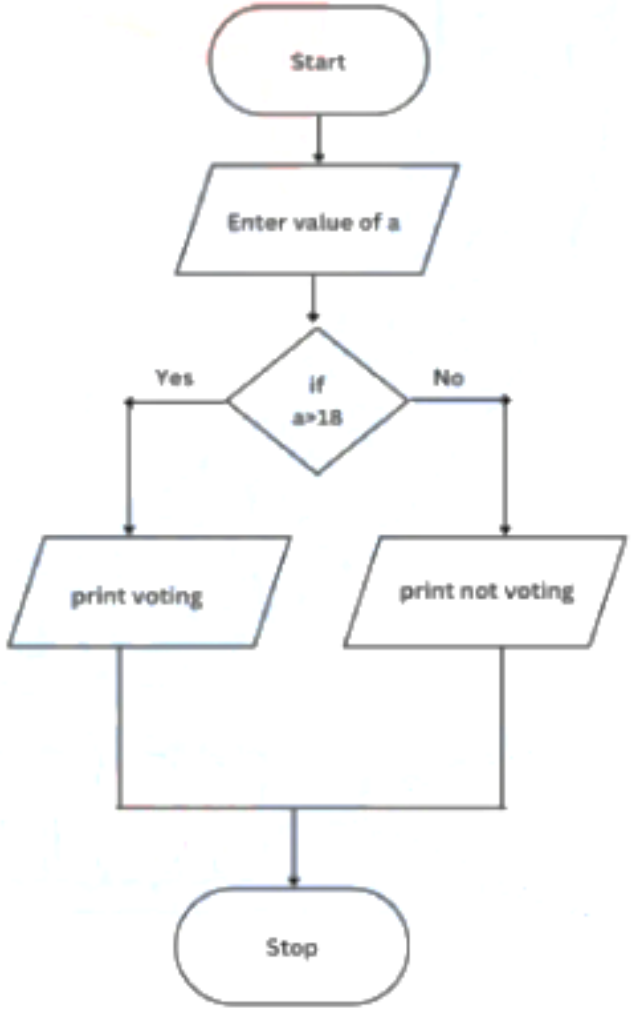
print Voting

Else

print not voting

endif

Step-4 Stop



Algorithm & flowchart to represent check entered year is leap year or not

Step-1 Start

Step-2 input year say y

Step-3 if y%4==0 then

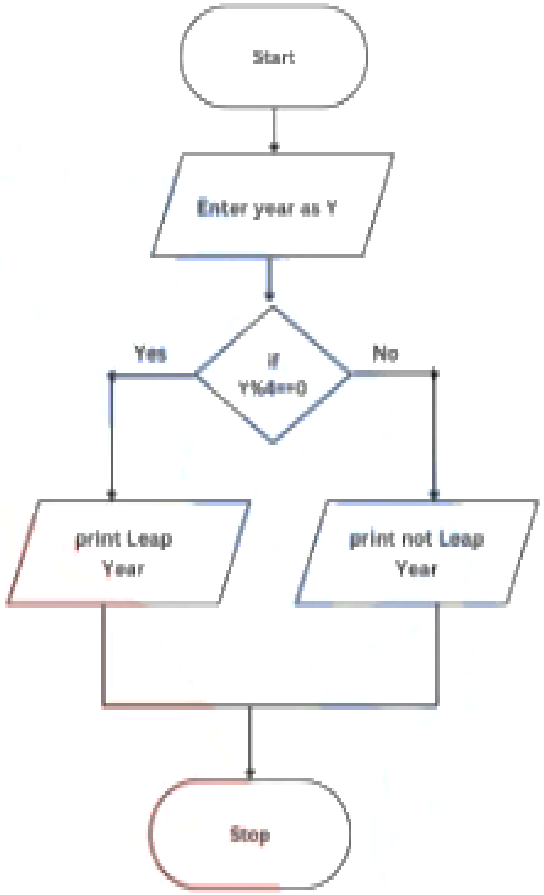
print Leap Year

Else

print not Leap Year

endif

Step-4 Stop



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Algorithm & flowchart to find the largest of three numbers

Step-1 Start

Step-2 input three numbers say n1,n2,n3

Step-3 if n1>n2 then go to step 5

Step-4 if n2>n3 then

Print n2 is largest

Else

Print n3 is largest

ENDIF

GOTO STEP 6

Step-5 if n1>n3 then

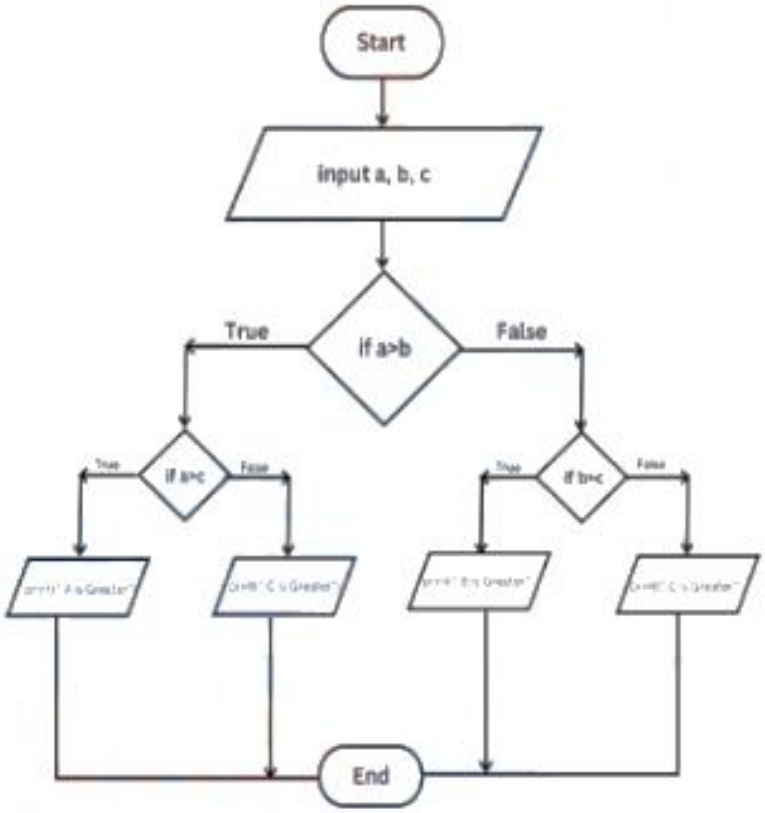
Print n1 is largest

Else

Print n3 is largest

ENDIF

Step-6 Stop



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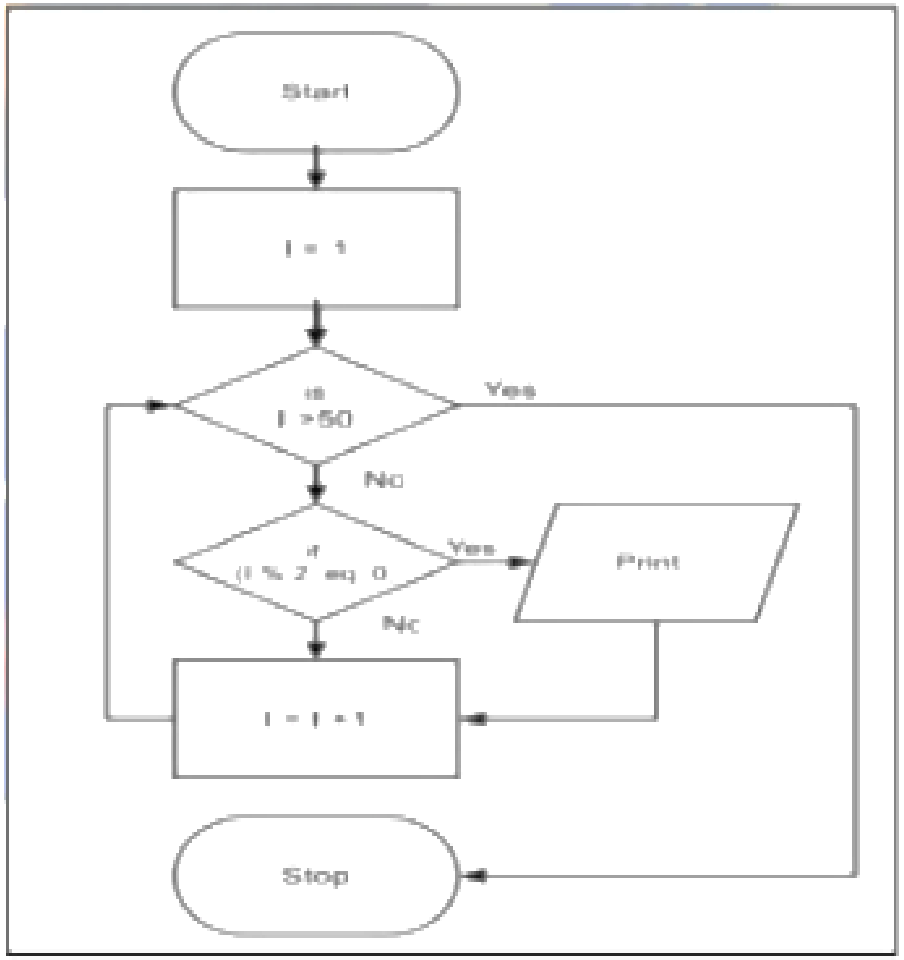
Algorithm & flowchart to find even number between 1 to 50

step-1 start
step-2 i = 1
step-3 if (i >50) then
go to step-7
endif
step-4 if ((i % 2) =0) then
display i
endif
step-5 i = i + 1
step-6 go to step--3
step-7 stop



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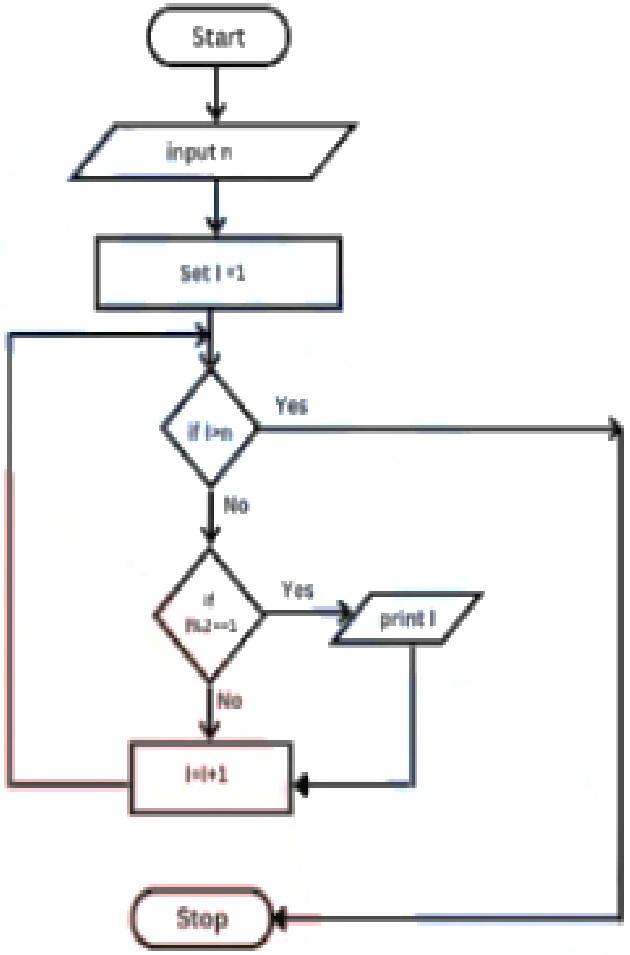
Algorithm & flowchart to find odd number between 1 to n where n is a positive number

step-1 start
step-2 input value of n
step-3 i = 1
step-4 if (i >n) then
go to step-8
endif
step-5 if ((i % 2) =1) then
display i
endif
step-6 i = i + 1
step-7 go to step--4
step-8 stop



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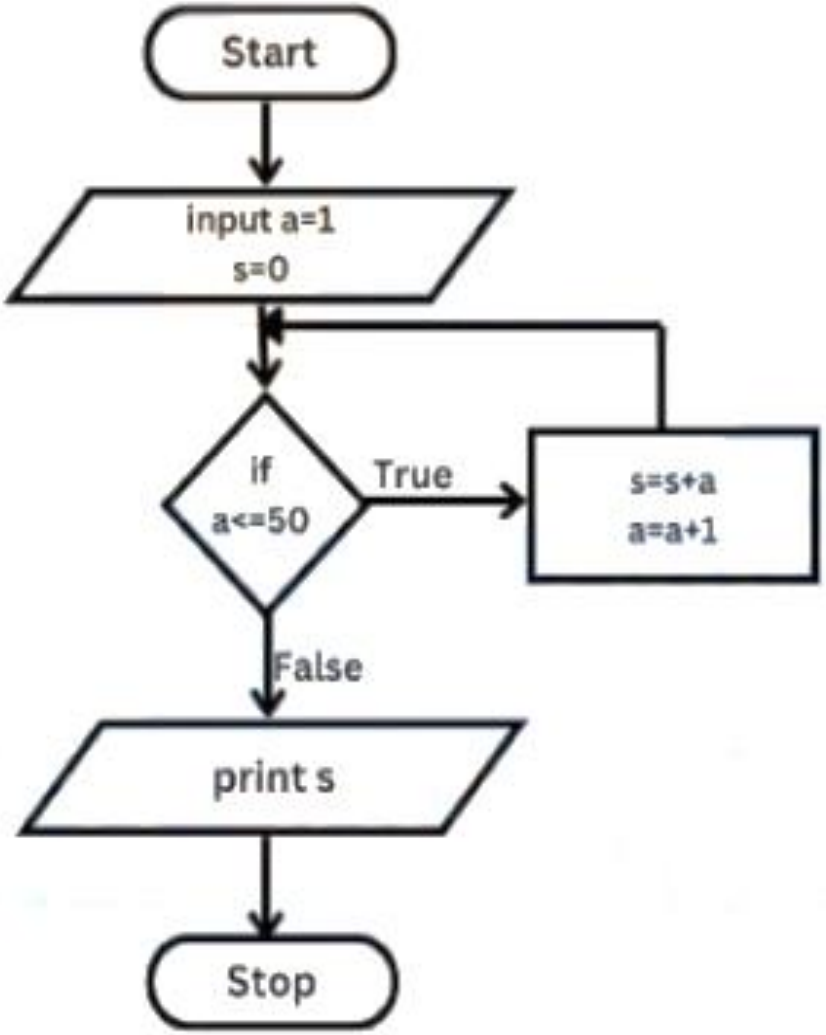
- Draw flowchart to find sum of number between 1 to 50



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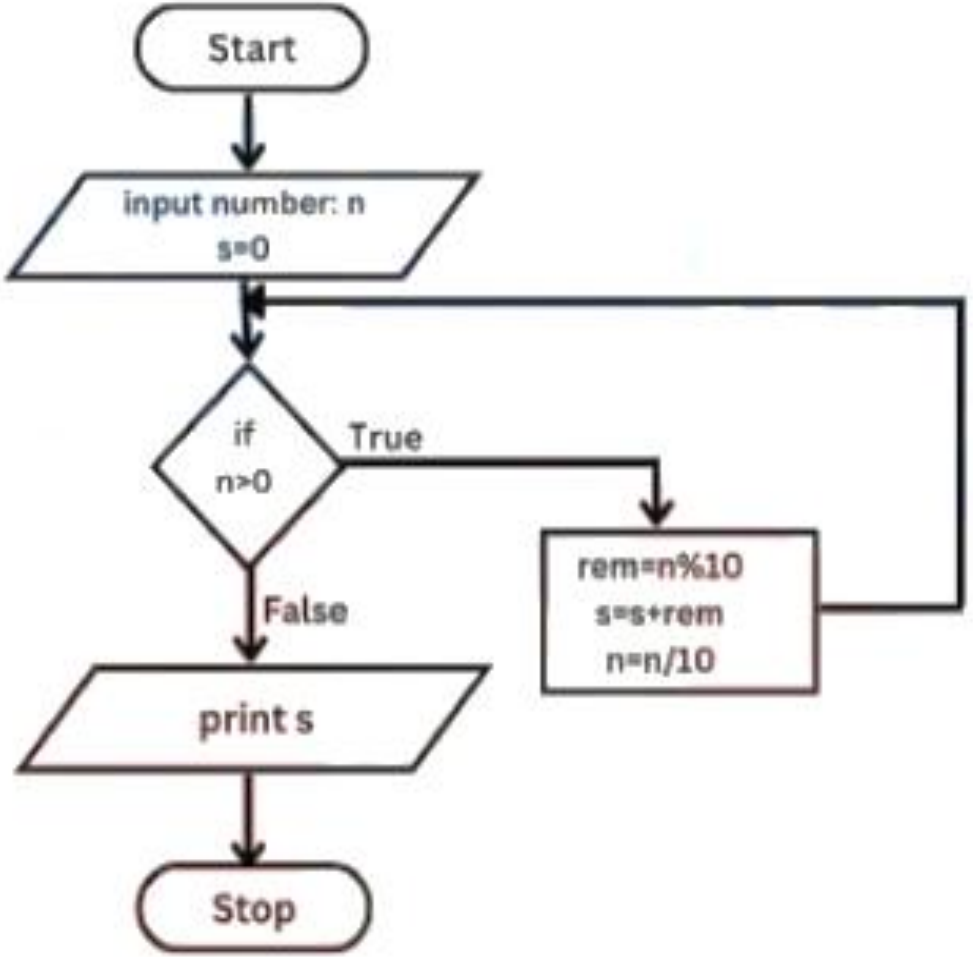
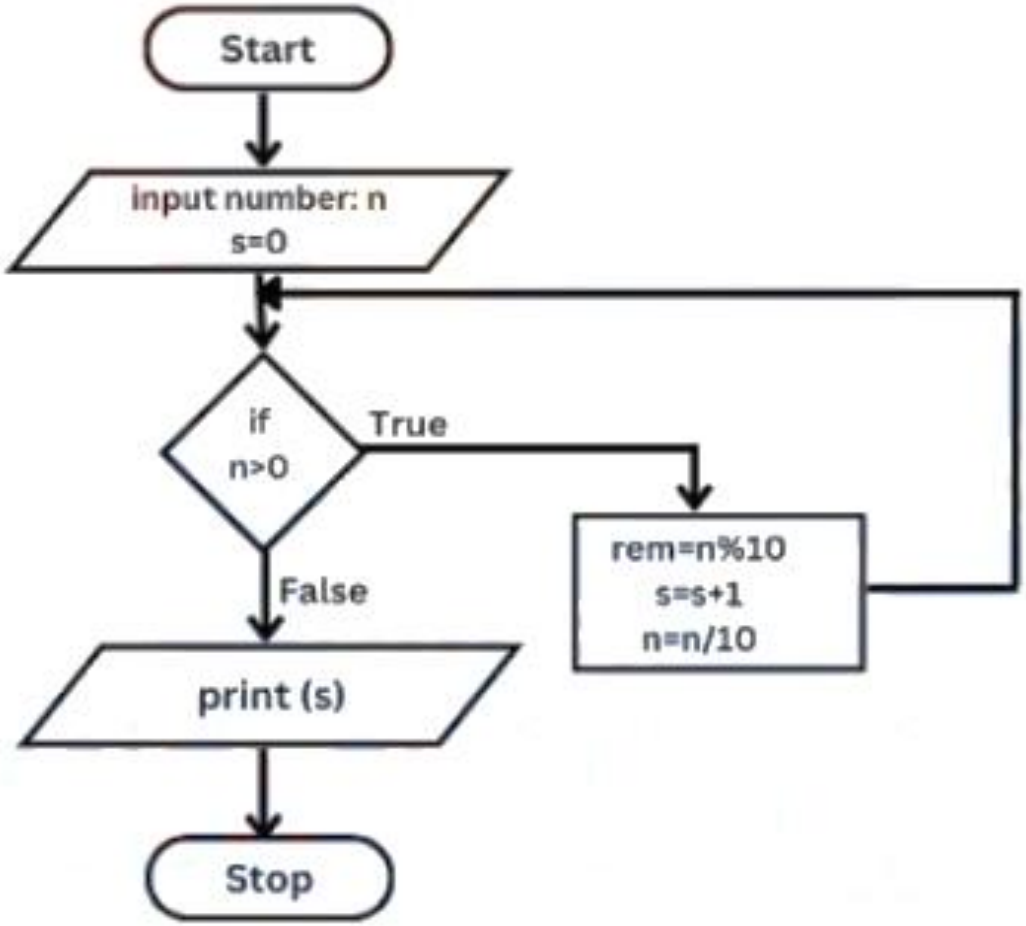
Draw a flowchart to print sum of digits of a number



Draw a flowchart to count the digit of a number



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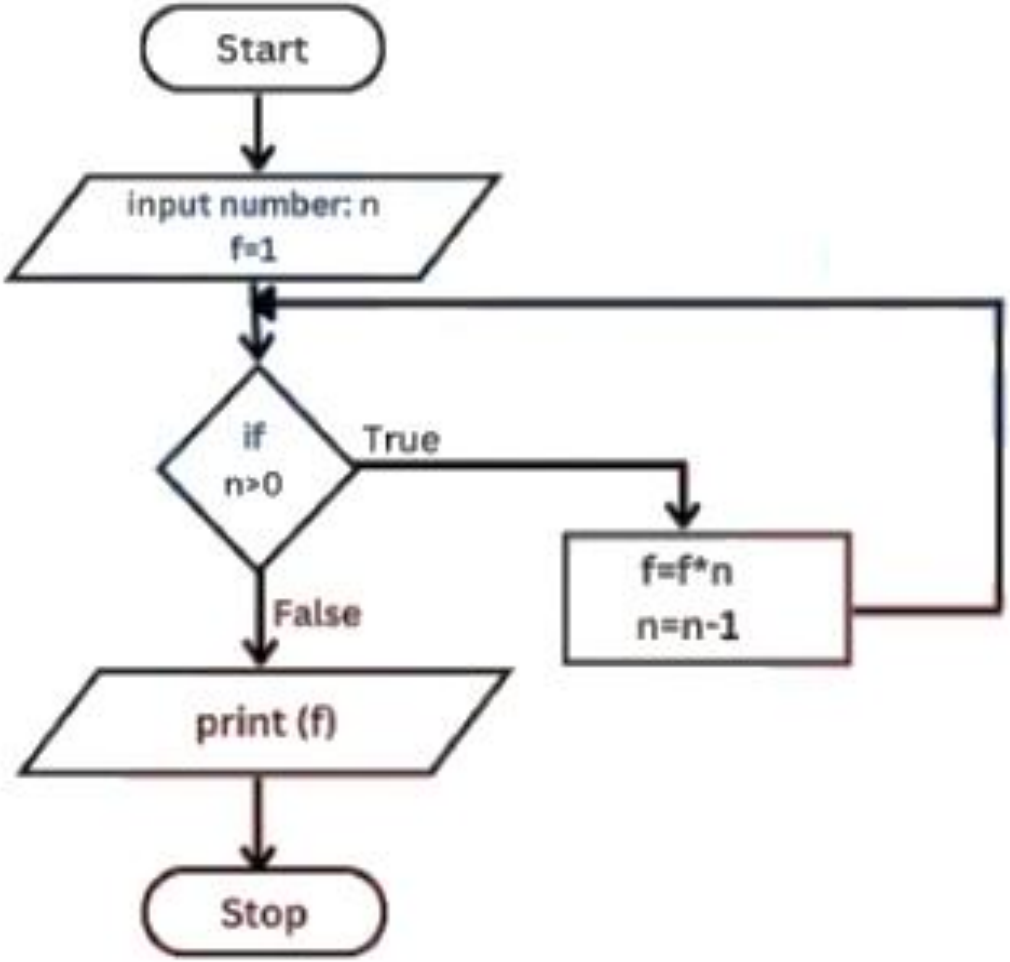
Draw a flowchart to represent factorial of any number



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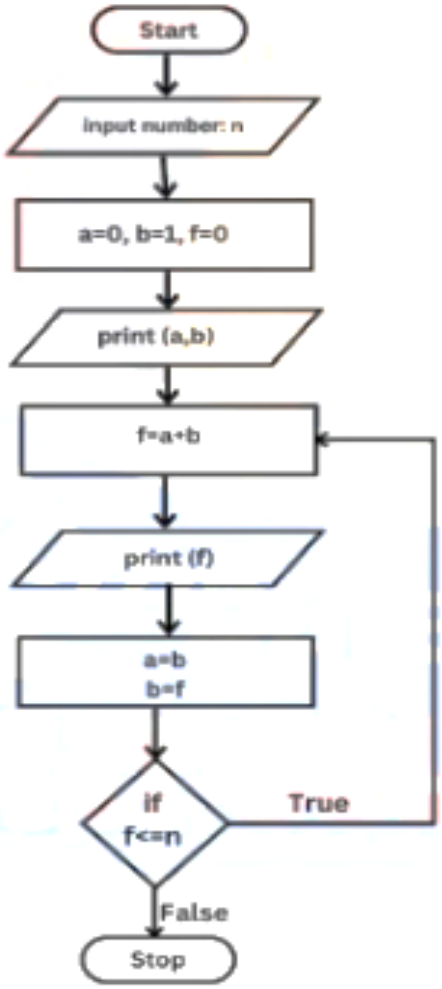
Draw a flowchart to print Fibonacci Series of first 5 numbers



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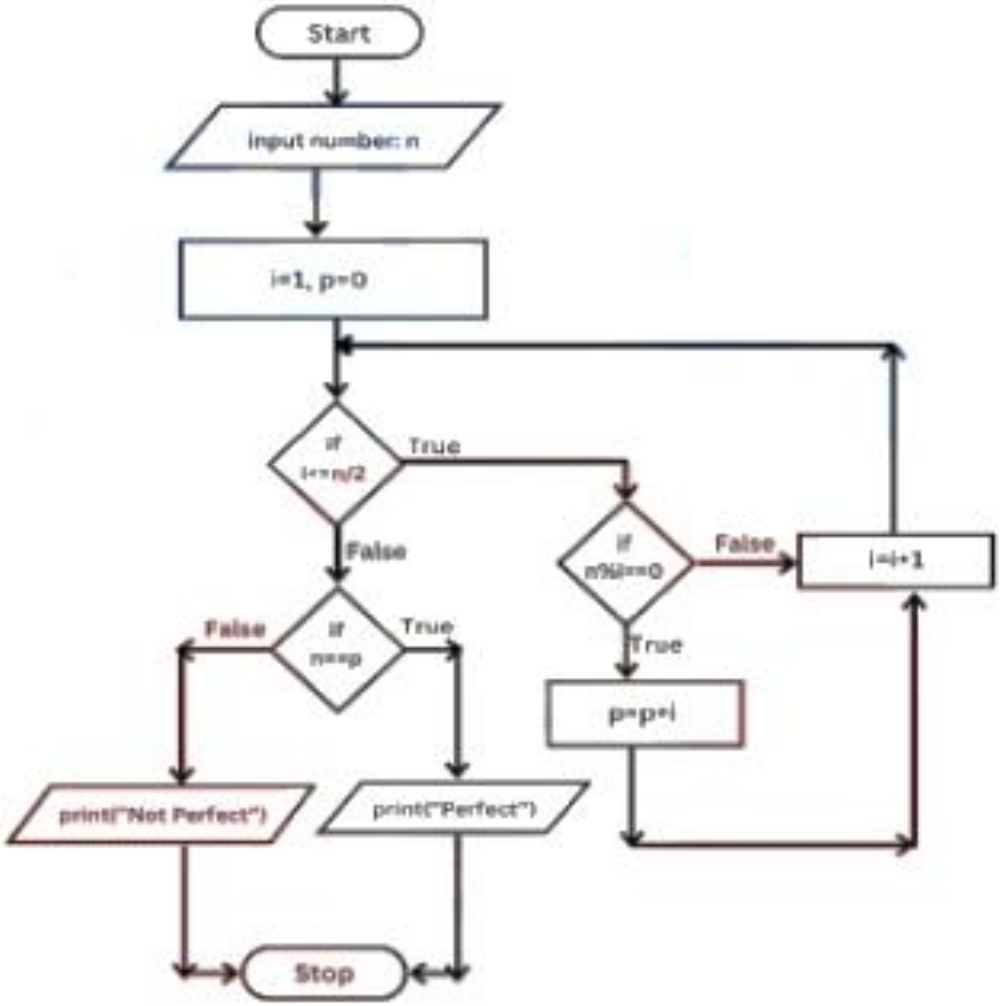
Draw a flowchart to represent perfect number



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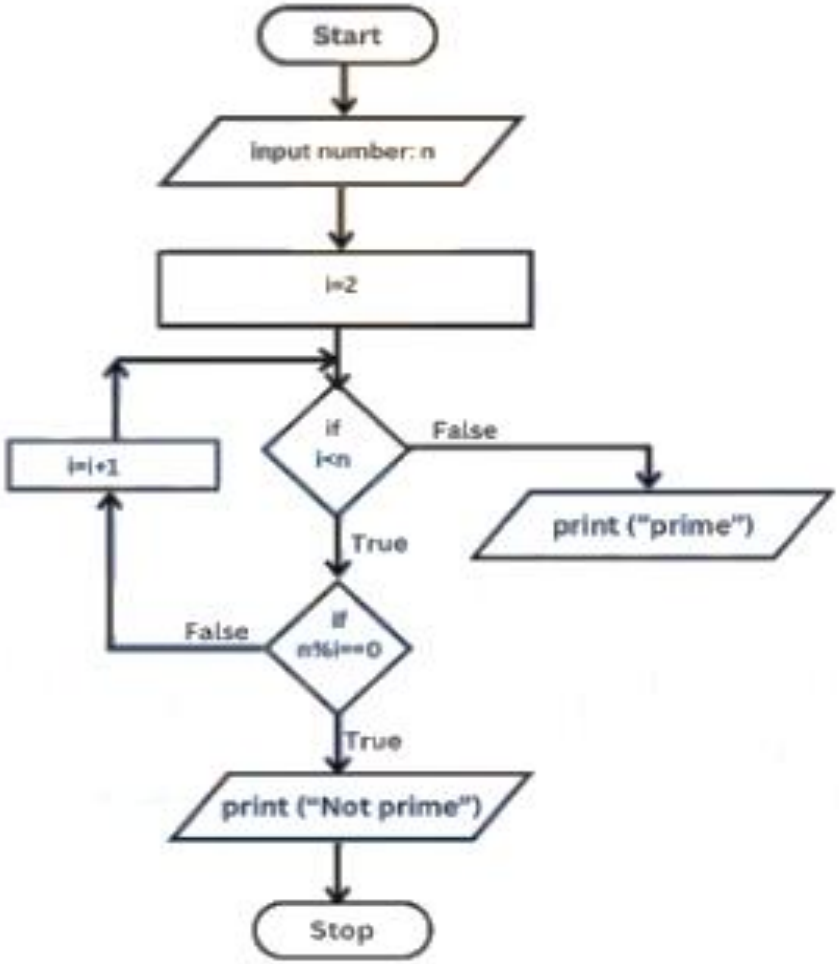
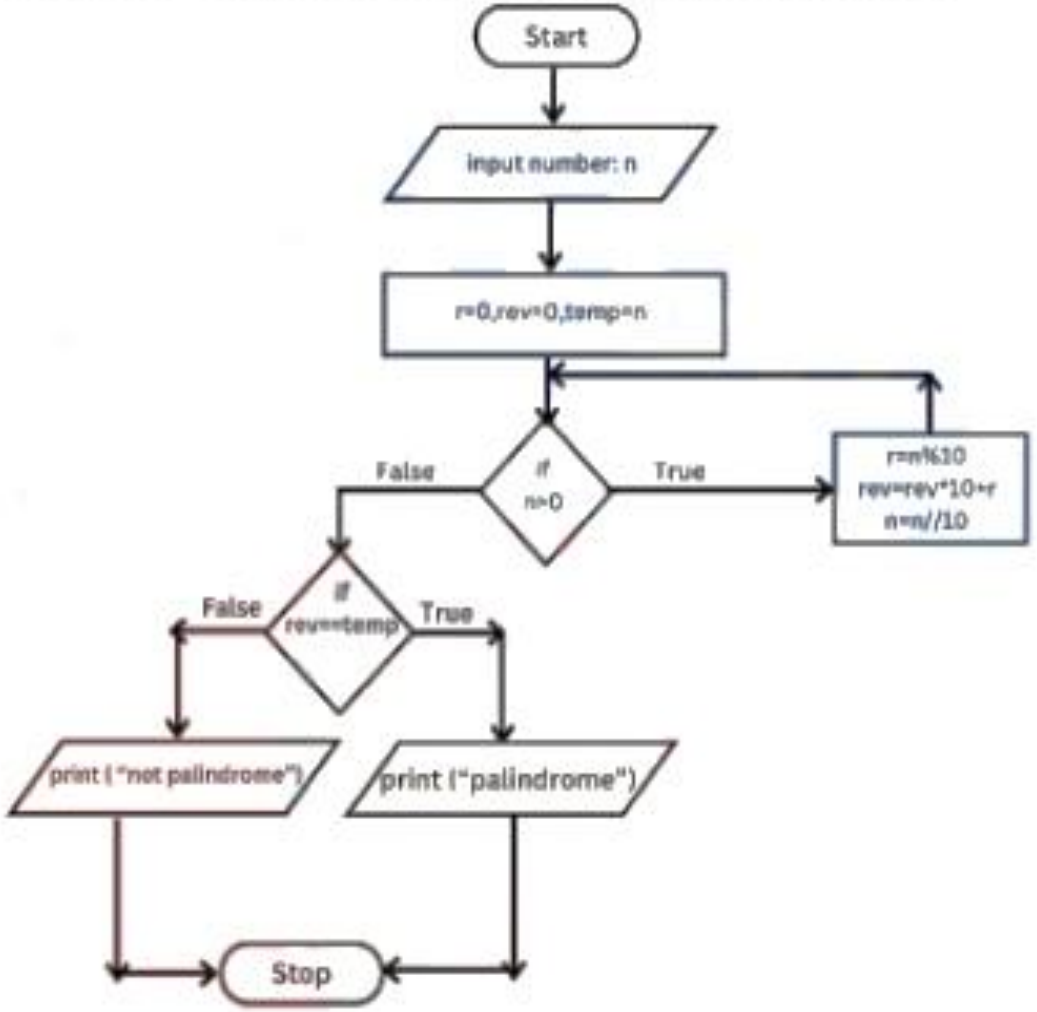
Draw a flowchart to represent prime number



Draw a flowchart to represent Palindrome number



Draw a flowchart to represent Armstrong number

