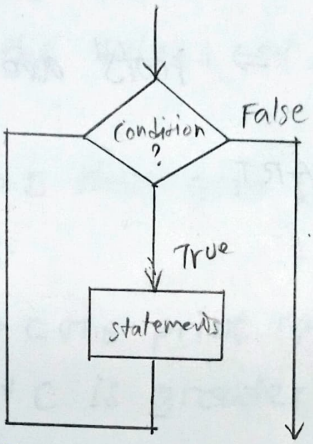
04/10/23

- ITERATION

A set of statements are executed repeatedly based on a condition



If the condition evaluates to TRUE the set of statements gets executed again and again. As soon as the condition becomes false the repetition stops.

Q1: write an algorithm to print the numbers from 1 to 10.

STEP 1 : START
STEP 2 : Read value of variable n.
STEP 3 : Assign i = 1
STEP 4 : print i
STEP 5 : calculate i = i+1
STEP 6 : Check if i <= n, if yes repeat step 4. otherwise go to ~~step~~ next step
STEP 7 : STOP

Q2: write an algorithm to print even numbers of n.

STEP1 : START
STEP 2: Read value of variable n.
STEP 3 : Assign i = 0
STEP 4 : print i

STEP 5 : compute $i = i+2$

STEP 6 : check if $i <= n$, if yes repeat Step 4 otherwise go to next step.

STEP 7 : END

Q3: Write an algorithm to print odd numbers of n.

STEP 1 : START

STEP 2 : Read a value of variable 'n'.

STEP 3 : Assign $i = 1$

STEP 4 : print i

STEP 5 : compute $i = i+2$

Step 6 : check if $i <= n$, if yes repeat STEP 4 otherwise go to next step.

STEP 7 : END

Q4: Write an algorithm to print sum of n natural numbers. $1 + 2 + 3 + \ldots + n$.

STEP 1 : START

STEP 2 : Read value of variable 'n'

STEP 3 : Assign $i = 1$, $s = 0$

STEP 4 : Compute $s = s + i$

STEP 5 : compute $i = i + 1$

STEP 6 : check if $i <= n$, if yes respect Step 4 otherwise go to next step

step 7 : print s

Step 8 : END

H/W : $S = 1 + 3 + 5 + \ldots + n$

$S = 2 + 4 + 6 \ldots + n$