Assignment 01

03/03/22

① check the given number is even or odd

⇒ Algorithm :-

1. Start
2. Enter the number
3. If it is divisible by 2, print "Even".
4. If it is not divisible by 2, print "ODD"
5. End.

② Write a Java program to find the factorial of given number

[n! = n * (n-1) * ---- * 1]

⇒
1. Start
2. Enter the number
3. If it is zero then return 1
4. if it is non zero then return n * factorial (n-1)
5. Print ans.
6. End.

③ Find the factorial of a number using Recursion.

⇒
1. Start
2. Enter the number n
3. call factorial (n)

④ If n is zero then return 1
⑤ If n is not zero then return f = n * factorial(n-1)
⑥ print factorial f.

④ Swap two numbers without using third variable.

⟹

① Start
② Take input as a variable x and y
③ print x and y
④ x = x + y
⑤ y = x - y
⑥ x = x - y
⑦ print x, y
⑧ End.

⑤ How to check the given number is positive or negative in java.

⟹

① Start
② Take the input as a variable x
③ if x == 0, then "neither negative nor positive"
④ if x > 0, print "POSITIV"
⑤ if x < 0, print "NEGATIV"
⑥ End.

(8) Write a java program to find whether given number is Leap years or Not?

Sol:-

(1) Start

(2) Take the input of the years as a variable.

(3) check whether the given year is century year or not

(4) If it is century year then divid it by 400.

a) If remainder is zero the print "LEAP YEAR"

b) If remainder is not zero then print "Not Leap year".

(5) If it is not century yer then divide it by 4

a) If remainder is zero then print "Leap year".

b) If remainder is not zero then print "Non Leap year".

(6) End.

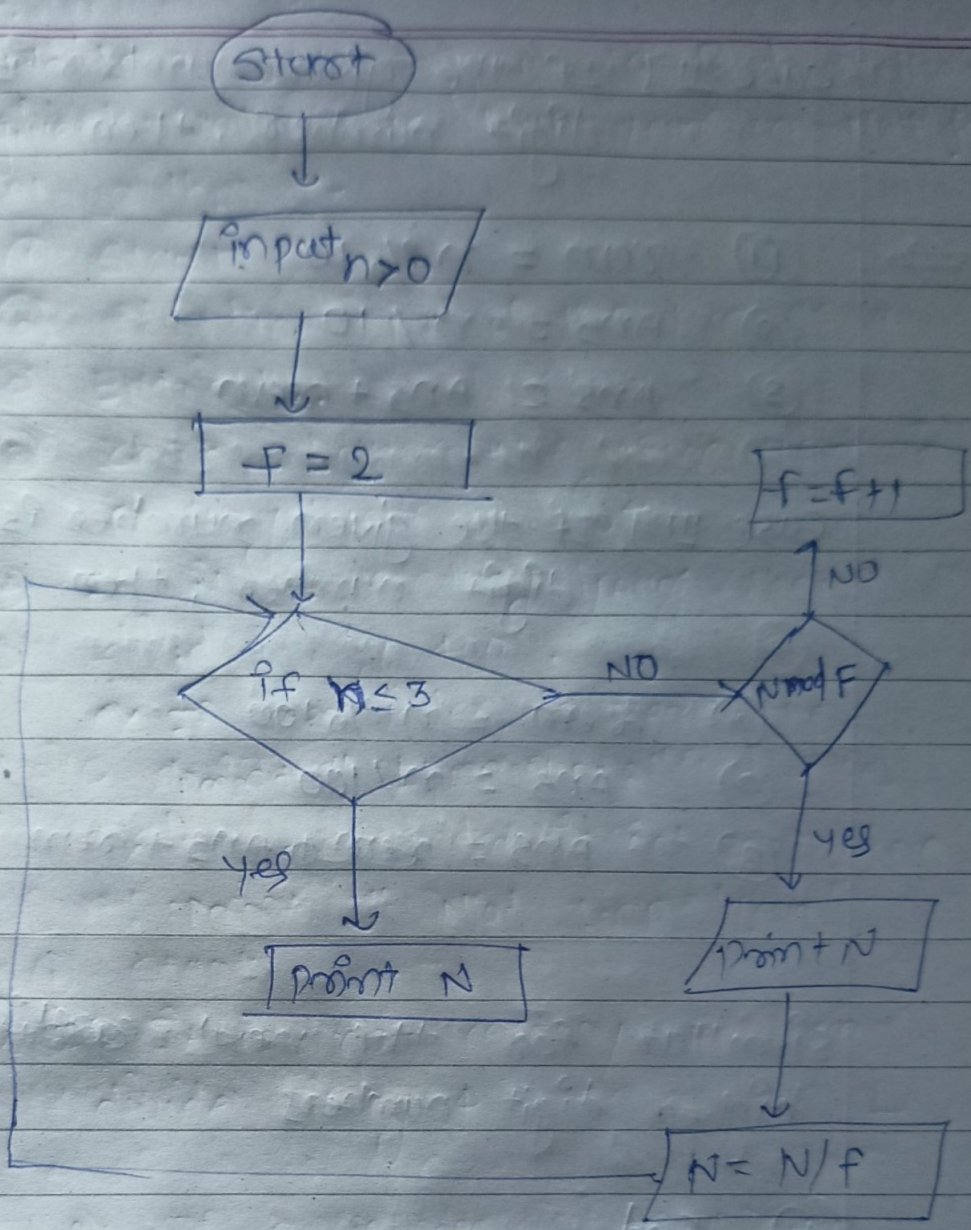
(7) Write a Java program to print 1 to 10 without using loop.

Sol:-
1. Start
2. Take variable $n = 1$
3. Print n
4. call a function printnumber printnumber $(n+1)$
5. upto $n \leq 10$.
6. End.

(8) Write a Java program to print the digits of a given number.

⇒
1. Input a number
2. Initialize sum to zero
3. While number is not zero
4. Get remainder by Number mod 10
5. Add Remainder to Sum
6. Divide number by 10
7. print sum
8. End.

(9) Write a Java program to print all the factors of the given number.



(10) Write a Java program to find sum of the digits of a given number.

⇒ (1) start

(2) Take the input ~~variable~~ variable as n

(3) case I] If the given number is one digit number then print variable n

case II] If the given number is two digit number, then

(1) rem = n % 10
(2) Ans = n / 10
(3) Ans = Ans + rem

case III] If the given number is three digit number, then

(1) rem = n % 100
(2) Ans = n / 100
(3) Ans = Ans + rem

similar for the next higher digit numbers

(4) End.

(11) Write a Java program to find the smallest of 3 numbers (a, b, c)

⇒ (1) Start

(2) Take input as a variables a, b & c

(3) if a<b and a<c then
print "a is smallest number"

(4) if b<a and b<c then
print "b is the smallest number"

(5) if c<a and c<b then print
"c is the smallest number

(6) End.

(12) How to add two numbers without using the arithmetic operator in Java?

Sol:-

(13) Write a java program to Reverse a given number.

Sol:-
1. Start
2. Take the input
3. Initialize rev_num = 0
4. loop while num > 0
   a) multiply rev_num by 10 and add remainder of num divided by 10 to rev_num

   rev_num = rev_num * 10 + num % 10

   b) Divide num by 10
5. Return rev_num

(14) Write a java program to find GCD of two given numbers

⇒
1. Start
2. Take the inputs in the variable x and y
3. Find the maximum number between x and y
4. Find the number which divides both the number
5. store that number in new variable and print it.
6. End.

(15) Write a java program to Lcm of Two given Number

⇒
(1) start
(2) Take input in the variable x and y
(3) Find the maximum between x and y
(4) check maximum number is divisible by x and y
(5) If divisible, then print maximum number is LCM
(6) If not then do same process
(7) End.

(16) Write a java program to Lcm of two given number using prime Factors method.

⇒
(1) start
(2) find the prime factors of each number
(3) write down the factors in a row

④ Multiply them and print as LCM
⑤ End.

(17) check whether the Given number is a palindrome or NOT.

Sol:-
① Start
② Take input in a variable
③ Reverse the number
④ Compare the original number to the Reversed number
⑤ If both numbers are same then print 'palindrome number'.
⑥ If both numbers are not same then print "not palindrome number"

(18) Write a java program to print all the prime factors of the Given Number

Sol:-
① Start
② Take the input as variable n
③ while n is divisible by 2, print 2 and divide n by 2
④ After step ③, n must be odd, Now start a loop from i=3 to the square root of n.
while i divides n, print i, and divide n by i, After i fails to divide n,

increment i by 2 and continue.

3) If n is a prime number and is greater than 2, then n will not become 1 by the above two steps. So print n if it is greater than 2.

4) End.

(19) To print the following series Even number series 2 4 6 8 10 12 14 16.

Sol:- (1) Start
(2) Initialize n = 2
(3) print n first
(4) Now print n+=2
(5) End.

(20) To print the following series Odd number series 1, 3, 5, 7, 9, 11, 13...

Sol:- (1) Start
(2) Initialize n = 1
(3) Print n
(4) Now print n+=2
(5) End.