

Assignment [03. 03. 2022]

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Write Algorithm & Flowchart for the
Following programs.

① Check the given number is EVEN or ODD

Step 1: start the program

Step 2: Take Input & Initialize

Step 3: if $(no/2) == 0$ then print even
else print odd

Step 4 : End/stop

② W.A. to find the Factorial of given number

→ Step 1 : Start

Step 2 : Declare Variable n, fact, i

Step 3 : Initialize variable .

fact = 1

i = 1

n = 20

Step 4 : Check & repeat

i <= number

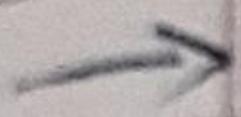
fact = fact * i

i = i + 1

Step 5 : Print the result (fact)

Step 6 : stop

③ Find the Factorial of a number using
Recursion



Step 1: Start the program

Step 2: declare variables i & fact=1,
a no to calculate factorial

Step 3: call factorial function pass no
to it

Step 4: Factorial func checks if no is
0 if not then uses factorial
formula & return it else
return 1

Step 5: print the result

Step 6: end

*) Swap two numbers without using third variable approach

→ Step 1 : start

Step 2 : Initialize $a, b; a=2, b=5;$

Step 3 : Print $a, b.$

Step 4 : Swap it $b=a+b$

$$a=b-a$$

$$b=b-a$$

Step 5 : print $a \& b.$

Step 6 : stop

⑤ How to check given no is positive or negative in Java?

→ Step 1 : start

Step 2 : Initialize num & declare

Step 3 : Use conditional statement

① num ≤ 0 & num $\neq 0$

OR ② num $>= 0$ & num $\neq 0$

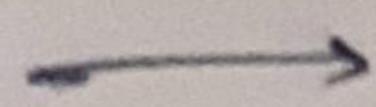
OR ③ num = 0

Step 4 : For pos/negative Display result

Step 5 : Stop

⑥

W.A.J. Program to find whether given number is a leap year or Not



Step 1 : start

Step 2 : Initialize year & declare it in

Step 3 : check if year is divisible by 4
but not 100, display result

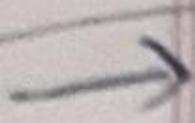
Step 4 : check if year is divisible
by 400, display result

Step 5 : if above conditions false
display not leap year

Step 6 : End

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Q) Write a Prog. to Print 1 to 10 without using loop



Step 1: Start the program

Step 2: declare a recursive function
In:

Step 3: In recursive fun declare 'n'
variable & also if statement
if ($n \leq 10$) & print 'n'
& increment 'n'

Step 4: In main ~~fun~~ function
pass the value 1 to the
recursive function variable 'n'

Step 5: End

⑧ Write a Java Program to print the digits of given number :

→ Step 1 : start

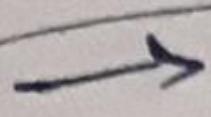
Step 2 : Initialize variable & declare result, digit

Step 3 : variable % 10 = result
result / 10 = digit

Step 4 : display one by one digit after each calculation.

Step 5 : End

⑨ W.A.P. to print all the factors of the given number.



Step 1 : Start the program

Step 2 : Initialize & declare a variable

Step 3 : Use a loop from 1 to given no.

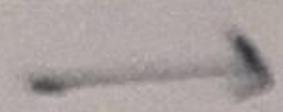
Step 4 : In every iteration divide the given number by a counter (loop iteration calculator) & check the remainder.

Step 5 : If remainder is zero, then the counter is factor of given no.

Step 6 : End

⑩

W A TP to find sum of the digits of a given number



Step 1 : start the program

Step 2 : Declase variable number,
digit , & sum=0

Step 3 : Use a loop for number!=0
In loop store number%10
in digit & add digit to
sum
then divide number by 10

Step 4 : print the sum

Step 5 : End

(iv) W.A.-J.P. to find the smallest of 3 numbers
(a,b,c)

→ Step 1: Start the program

Step 2: Init Declare & initialize 3 variables, n1, n2, n3

Step 3: Write if else condition for two variables with logical && operator [$a_1 < n_2 \& \& n_3 < n_2$]

then if else for another comparison likewise for one more comparison

Step 4: Display or print according to the conditions

Step 5: End

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

→ Step 1: Start the program

Step 2: Declare 3 variables n1, n2
sum

Step 3: Use a loop & put condition as $n2 \neq 0$ then use ' $=$ ' operator for $n1 + n2$ then in ~~if~~ store ~~n1 + n2~~ & in ~~if~~ $n2$ store sum \ll

Step 4: Display sum

Step 5: End

(B) W.A.T.P. to reverse a given number.

→ step 1: Start the program

Step 2: Declare 3 variables
num, rem, rev

Step 3: Use a loop-in-the-loop
calculate remainder &
store it in reverse then print
it & divide num by 10 then
we get the

Step 4: Repeat it until we get 0

Step 5: End

⑩ ~~WAP~~ to find GCD of two given numbers

→ Step 1: Start the program

Step 2: Declare & initialize two variables
 n_1, n_2

Step 3: Check whether no. divides n₁ & n₂
completely or not. If yes
then store it in variable

Step 4: Divide the stored numbers

Step 5: print the result

Step 6: End

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(15) W.A.J.P. to LCM of two given numbers

→ Step 1 : Start the program.

Step 2 : Initialize A & B with positive integers

Step 3 : Store max of A & B to temp

Step 4 : check max is divisible by A & B

Step 5 : If divisible, Display max as lcm

Step 6 : If not divisible then step increase
max, go to step 3.

(F) check whether the given number is a Palindrome or Not.

→ Step 1 : start the program

Step 2 : Declare the string variable & variables
& Initialize

Step 3 : in one of the variable store the reverse numbers

Step 4 : Use the loop

Step 5 : check the numbers is same as the original

Step 6 : If same print palindrome
if not print not palindrome

Step 7 : stop

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

→ Step 1: start the program

Step 2: take the limit variable

Step 3: initialize a variable as 2

Step 4: check the variable is equal to limit.

Step 5: if yes then print it

Step 6: increment the variable by 2
so the variable has next even no. in next iteration

Step 7: go to step 4

Step 8: stop

⑥ To print the following series odd numbers
series 1, 3, 5, 7, 90.

→ Step 1 : start the program

Step 2: Declare/Initialize a num & odd variable

odd = 1, num is for limit

Step 3 : check if odd is less than or equal to num

Step 4 : if true then print odd

Step 5 : if false then ir is increased odd by 2, so that odd has the next odd no.

Step 6 : continue the loop upto limit & display the numbers

Step 7 : stop