

* Assignment 1:

1> Check if given number is EVEN or ODD.

(1) Start

(2) Enter a number.

(3) Check if (number divisible by 2 leaving no remainder)

(4) print number is even.

(5) else print number is odd.

(6) end.

2) Find factorial of number.

- (1) Start.
- (2) Enter a number (num)
- (3) for (~~i~~ i=1; i <= num; i++)
- (4) factorial = factorial * i;
- (5) print factorial.
- (6) end

(3) Factorial of number using recursion.

(1) start

(2) enter a number (num)

(3) with a method function fact()

(4) if (num == 0)

result = num * fact(num-1);

else

return 1;

return result;

(5) call fact(num) in main function

(6) print ~~fact~~ result.

(7) end

(4) Swap two numbers using third variable approach.

- (1) Start
- (2) enter the two numbers to be swapped (num1 & num2)
- (3) let swap be third variable.
- (4) assign , $\text{swap} = \text{num1}$
 $\text{num1} = \text{num2}$
 $\text{num2} = \text{swap}$.
- (5) print num1 & num2
- (6) end.

Alternative:-

$$x=1, y=2;$$

$$y = (x+y) - (x=y);$$

$$y = 1+2 - (x=2)$$

$$y = 3 - 2 = 1$$

$$y=1 \text{ \& } x=2 \text{ (swapped)}$$

5) Check number positive or negative.

- (1) Start
- (2) Enter a number
- (3) if number greater than ^{or equal to} 0, print number is positive.
- (4) else print number is negative.
- (5) end.

6) Check if year is leap year or NOT.

- (1) Start
- (2) Enter the year (year)
- (3) check if $((\text{year} \% 4 == 0) \&\& (\text{year} \% 100 \neq 0)) \vee (\text{year} \% 400 == 0)$
- (4) print it is a leap year.
- (5) else it is not leap year.
- (6) end.

7) Print 1 to 10 without loop.

- (1) start
- (2) print
" 1
2
3
4
5
6
7
8
9
10
- (3) end

8) Print all the digits of a number.

(1) Start.

(2) Enter a number (num)

(3) While (num \neq 0)

(4) { digit = num % 10;

print digit.

num = num / 10;

}

(5) end.

9) Print all the factors of a number.

(1) Start

(2) enter a number (num)

(3) for ($i = 1$; $i \leq \text{num}$; $i++$)

(4) { if ($\text{num} \% i == 0$) print i is a factor }

(5) end

~~10~~ 10) Print ^{sum of} digits of number.

(1) start.

(2) enter a number (num)

(3) ~~sum = num % 10~~

(3) ~~for (int i =~~

(3) while (num != 0)

(4) { sum = sum + (num % 10);

(5) num = num / 10; }

(6) print the sum

(7) end.

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

(1) start

(2) enter 3 numbers (a,b,c)

~~(3) if (a > b && a > c), print a~~

(3) if (a < b && a < c), print a is smallest.

(4) else if (b < a && b < c), print b is smallest.

(5) else print c is smallest.

(6) end.

12) Add two numbers without '+'

- (1) Start
- (2) Enter two numbers (a, b)
- (3) for ($i=1$; $i \leq b$; $i++$)
{
 $a++$;
}
- ~~(4) Print sum of a & b is~~
- (4) Sum is a, print.
- (5) end.

13) Reverse a number.

- (1) Start
- (2) Enter the number (num)
- (3) While ($\text{num} \neq 0$)
- (4) {
 $\text{reverse} = \text{reverse} * 10 + (\text{num} \% 10)$;
 $\text{num} = \text{num} / 10$;
}
- (5) Print reverse
- (6) end.

14) Find GCD of two numbers.

- (1) Start
- (2) Enter 2 numbers (num1 & num2)
- (3) for ($i=1$; $i \leq \text{num1}$ & $i \leq \text{num2}$; $i++$)
{
 if ($\text{num1} \% i == 0$ & $\text{num2} \% i == 0$)
 then $\text{gcd} = i$;
}
- (4) end.

15) Find LCM of 2 numbers.

- (1) Start
- (2) Enter 2 numbers (num1 & num2)
- (3) Find GCD (above) of these nos.
- (4) $\text{LCM} = \frac{\text{num1} \times \text{num2}}{\text{GCD}}$, Print LCM
- (5) end.

16 > LCM of two numbers using prime factor method.

- (1) Start
- (2) enter 2 numbers. (a, b)
- (3) ~~gr~~ if $a > b$, $gr = a$ else $gr = b$
- (4) let $LCM = 1$;

for ($i = 2$; $i \leq gr$; $i++$)

while (~~a~~ $a \% i == 0$ || ~~b~~ $b \% i == 0$)

{ if ($a \% i == 0$)

{ $LCM = LCM * i$;

$a = a / i$;

if ($b \% i == 0$)

{ $LCM = LCM * i$;

$b = b / i$;

}

}

}

(5) print LCM

(6) end.

Alternative:-

$lcm = (n1 > n2) ? n1 : n2$

while (true)

{ if ($lcm \% n1 == 0$ &&

$lcm \% n2 == 0$)

break; print lcm

}

~~lcm~~ $lcm++$;

}

17 > Check if Palindrome or not:

(1) Start

(2) enter a number (num), $org = num$

(3) while ($num != 0$)

{ $reverse = reverse * 10 + (num \% 10)$;

$num = num / 10$;

}

(4) if ($org == reverse$)

(5) print num is palindrome.

(6) else print not palindrome.

(7) end.

18) Print all prime factors of number.

(1) Start

(2) enter a number.

(3) $\text{for } (i = 2; i \leq \text{num}; i++)$

$\text{while } (\text{num} \% i == 0)$

$\{$ ~~print~~ $\text{print } i;$

$\text{num} = \text{num} / i;$

$\}$

$\}$

(4) end.

19) Print EVEN number series, 2, 4, 6, 8, 10, 12, ...

(1) Start-

(2) $\text{for } (i = 2; ; i += 2)$
 $\text{print } i;$

(3) end.

20) Print ODD number series 1, 3, 5, 7, 9, 11, 13, ...

(1) Start.

(2) $\text{for } (i = 1; ; i += 2)$
 $\text{print } i;$

(3) end.