

Assignment 1

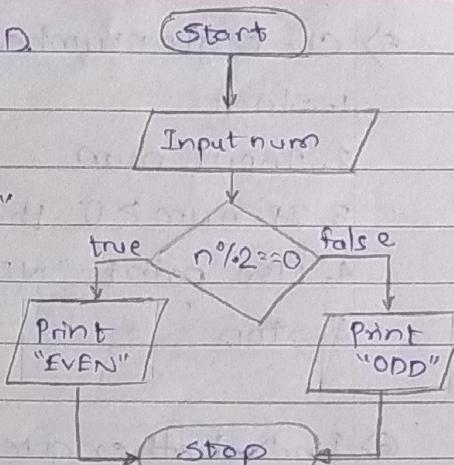
1) Check given number is EVEN or ODD

1. Start
2. Input num

3. If $\text{num} \% 2 == 0$ then print "EVEN"

4. else print "ODD"

5. Stop



2) Factorial of given number

1. Start

2. Input n

3. Declare fact $\leftarrow 1$

4. Initialise i $\leftarrow 1$

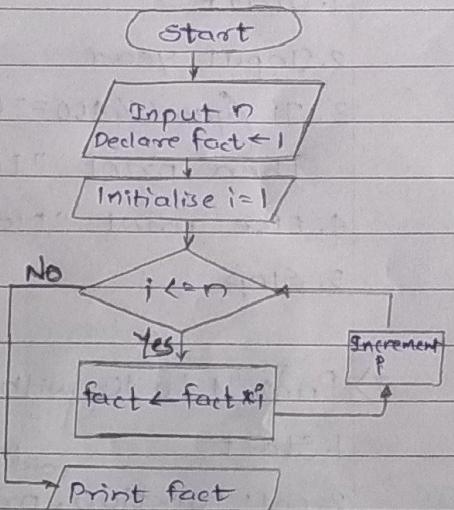
5. If $i \leq n$

then $\text{fact} \leftarrow \text{fact} * i$

6. Increment i and goto step 5

7. Print fact

8. Stop



3) Factorial of number using Recursion

1. Start

2. Input n

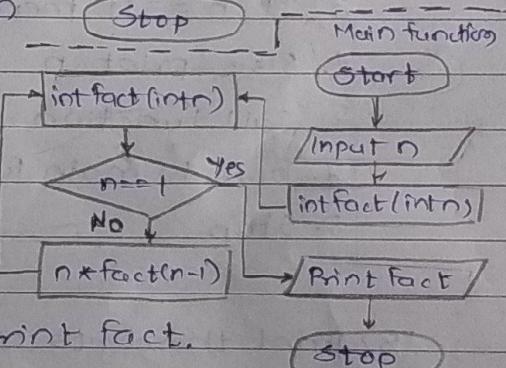
3. Call function fact (int n)

4. If $n = 1$ then return 1

5. Else return $n * \text{fact}(n-1)$

6. Return to main function and print fact.

7. Stop



4) Swap two numbers using third variable approach.

1. Start

2. Input a, b

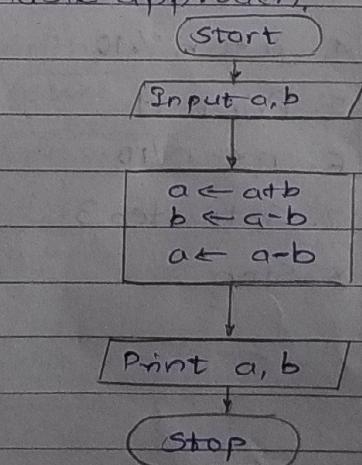
3. $a \leftarrow a+b$

$b \leftarrow a-b$

$a \leftarrow a-b$

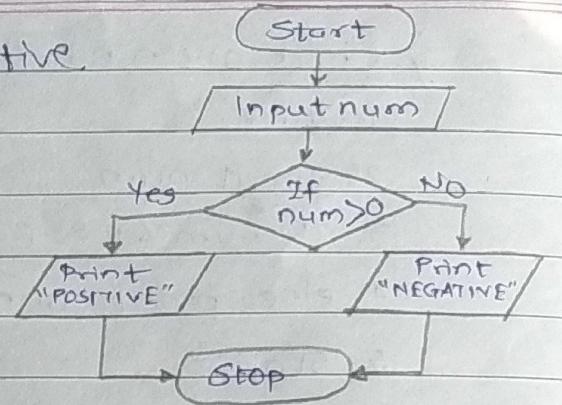
4. Print a, b

5. Stop



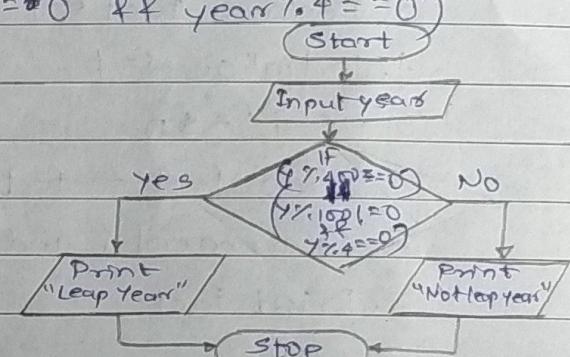
5) Check given number positive or negative.

1. Start
2. Input num
3. If $num > 0$ then print "POSITIVE"
4. Else print "NEGATIVE".
5. Stop



6) Find whether given number is leap year or not.

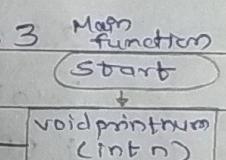
1. Start
2. Input year
3. If $(year \% 400 == 0) \text{ || } (year \% 100 != 0 \text{ || } year \% 4 == 0)$
then print "Leap year"
4. Else print "Not leap year".
5. Stop



7) Print 1 to 10 without using loop.

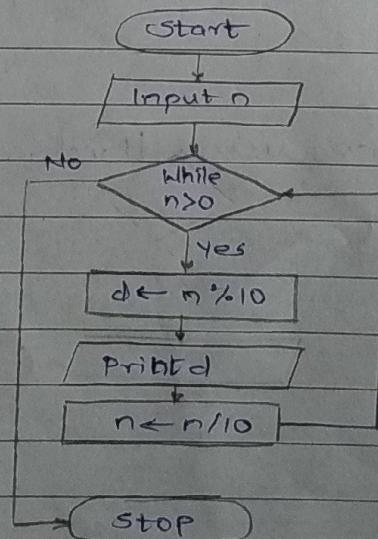
1. Start
2. Call function $printnum(n)$ as $printnum(1)$
3. If $n == 11$ then return
4. Else print n
5. Call function $printnum(n+1)$ and go to step 3
6. Back to main function
7. Stop

→ Flowchart



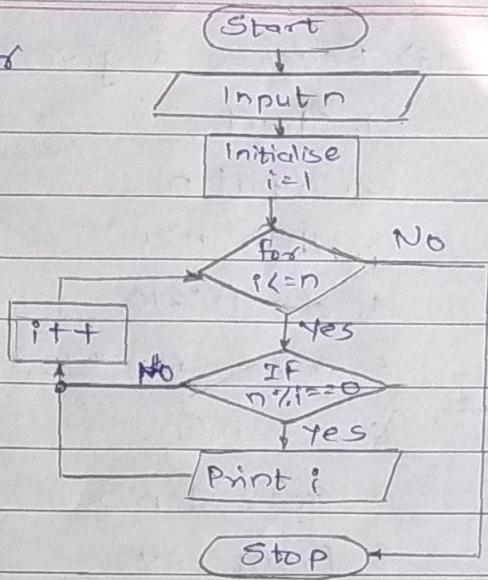
8) Print the digits of a Given Number.

1. Start
2. Input n
3. While $n > 0$
4. $d \leftarrow n \% 10$
5. Print d
6. $n \leftarrow n / 10$
7. Goto step 3
8. Stop



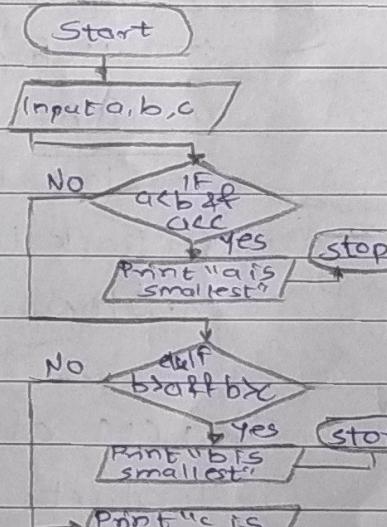
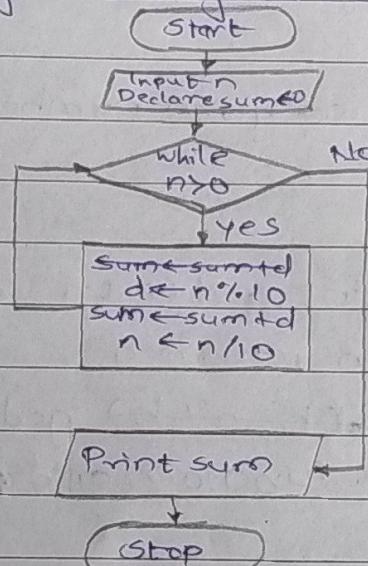
9) Print all the factors of Given number

1. Start
2. Input n
3. Initialise $i=1$
4. for $i \leq n$
5. If $n \% i == 0$ then print i
6. Increment i
7. Stop



10) Find the sum of digits of a given number.

1. Start
2. Input n ,
Declare sum $\leftarrow 0$
3. While $n > 0$
4. $d \leftarrow n \% 10$
5. $sum \leftarrow sum + d$
6. $n \leftarrow n / 10$
7. Goto step 3
8. Print sum
9. Stop



11) find the smallest of 3 numbers (a, b, c)

1. Start
2. Input a, b, c
3. IF $a < b$ & $a < c$ then print "a is smallest"
4. Elseif $b < a$ & $b < c$ then print "b is smallest"
5. Else print "c is smallest"
6. Stop

13) Reverse a given number

1. Start

2. Input n

3. While $n > 0$

4. $d \leftarrow n \% 10$

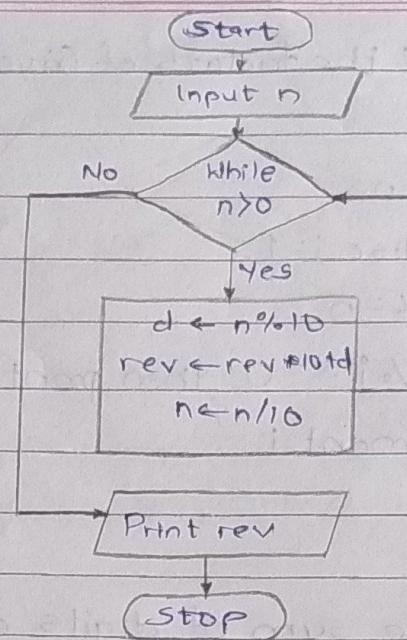
5. $rev \leftarrow rev * 10 + d$

6. $n \leftarrow n / 10$

7. Goto step 3

8. Print rev

9. Stop



14) Find GCD of two given numbers.

1. Start

2. Input a, b

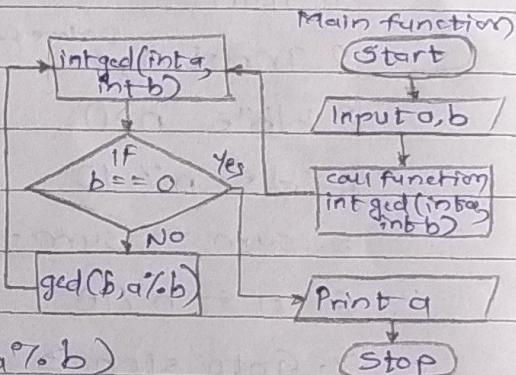
3. Call function $\text{int gcd(int a, int b)}$

4. If $b == 0$ then return a

5. Else return $\text{gcd}(b, a \% b)$

6. Back to main function and print a

7. Stop



15) LCM of two given numbers

1. Start

2. Input a, b

3. Call function $\text{int gcd(int a, int b)}$

4. If $b == 0$ then return a

5. Else return $\text{gcd}(b, a \% b)$

6. Back to main function,

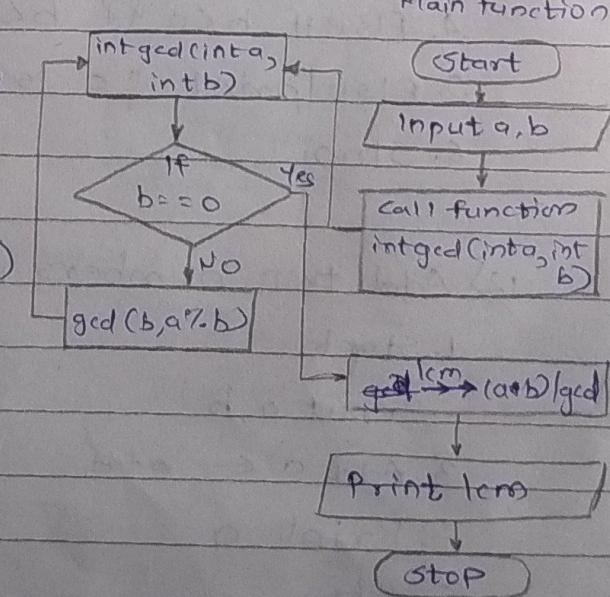
$$\text{lcm} \leftarrow (a * b) / \text{gcd}$$

$$\text{gcd} \leftarrow \text{gcd}(\text{int } a, \text{int } b)$$

$$7. \text{lcm} \leftarrow (a * b) / \text{gcd}$$

8. Print lcm

9. Stop



17) Check given number is a Palindrome or NOT.

1. Start

2. Input n

3. While $n > 0$

4. d $\leftarrow n \% 10$

5. rev $\leftarrow rev * 10 + d$

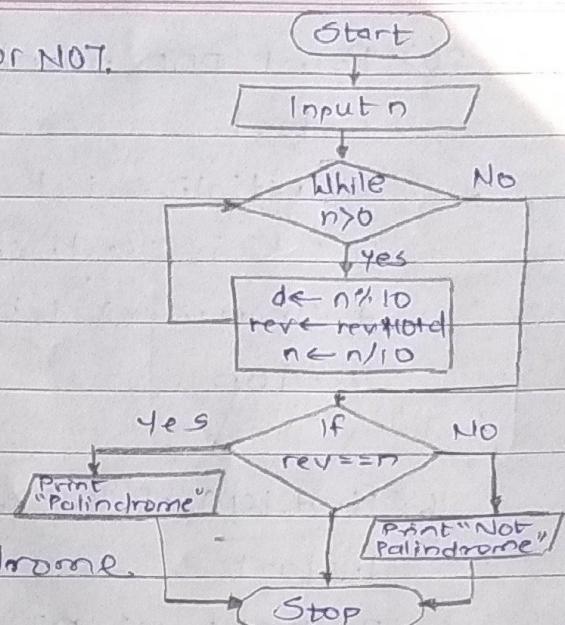
6. n $\leftarrow n / 10$

7. Goto step 3.

8. If $rev == n$ then print Palindrome.

9. Else print Not palindrome.

10. Stop



18) Print all Prime factors of Given Number

1. Start

2. Input n

3. While $n \% 2 == 0$

4. $n \leftarrow n / 2$

5. Print 2 and goto step 3

6. Initialise i=3

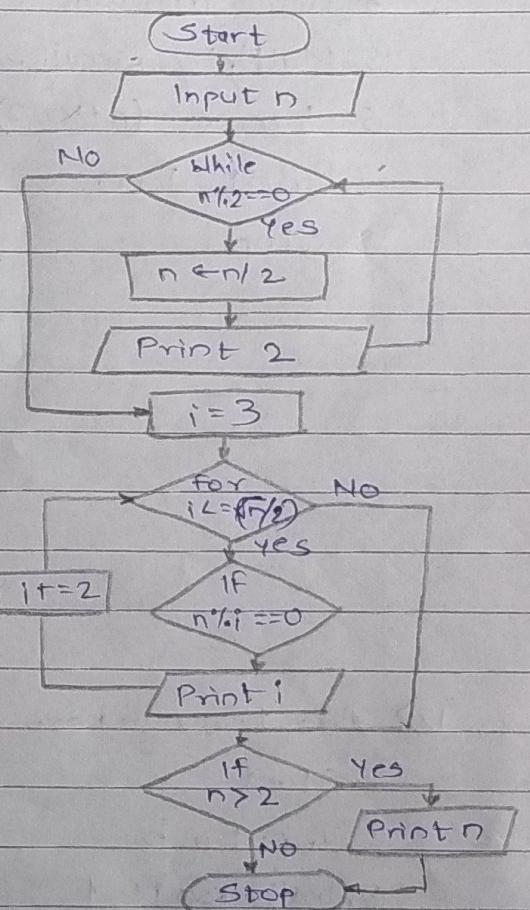
7. if $i \leq (\sqrt{n})$ then

 if $n \% i == 0$ then print i

8. Increment i by 2

9. if $n > 2$ then print n

10. Stop



19) Print EVEN number series.

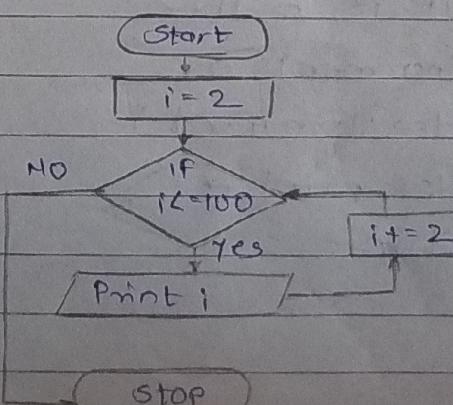
1. Start

2. Initialise i=2

3. If $i \leq 100$ then print i

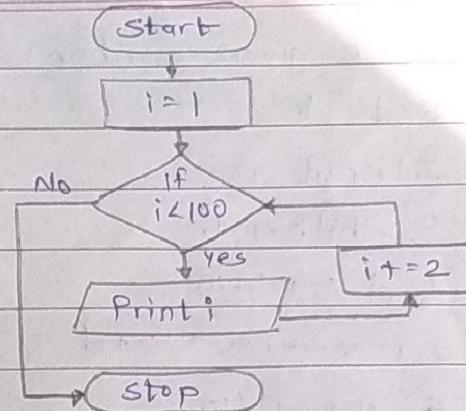
4. Increment i by 2

5. Stop



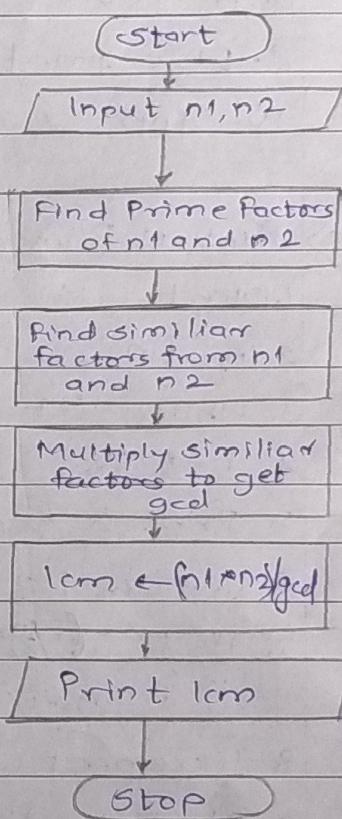
20) Print odd number series

1. Start
2. Initialise $i = 1$
3. If $i < 100$ then print i
4. Increment i by 2
5. Stop



16) Find LCM of two given numbers by Prime Factors Method.

1. Start
2. Input n_1, n_2
3. Find prime factors of n_1 and n_2
4. Find similar factors from n_1 and n_2
5. Multiply similar factors to get gcd
6. $\text{lcm} \leftarrow (n_1 \times n_2) / \text{gcd}$;
7. Print lcm
8. Stop



12) Add two numbers without using arithmetic operators.

1. Start
2. Input a, b
3. Initialise $i \leftarrow 1$
4. If $i \leq b$ then
 Increment a
5. Else Increment i
6. Else print a
7. Stop

