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FRIDAY • MARCH

7th * For loop *(1.5hr)17/05/23

2023 - FEBRUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

Ex:

```

let bag = "";
for (let i = 1; i <= 5; i++) {
  bag = bag + i;
}
console.log(bag);

```

output :- 12345

—————*—————

```

let bag = "";
for (let i = 1; i <= 5; i++) {
  bag = bag + i;
  console.log(bag);
}

```

// This will also
get repeated
everytime

output = 1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

01

SATURDAY • APRIL

2023 - MARCH						
S	M	T	W	T	F	S
5	6	7	1	2	3	4
12	13	14	8	9	10	11
19	20	21	15	16	17	18
26	27	28	22	23	24	25
		29	30	31		

Ex: print numbers from 5 to 1 in vertical manner.
Write in reverse manner.

⇒ while loop

```

10 let i = 5;
    while (i >= 1) {
11     console.log(i);
        i--;
12     }

```

1 output 5 4 3 2 1.

For loop

```

3 for (i = 5; i >= 1; i--) {
    console.log(i);
    }

```

02

SUNDAY

NOTE: 1. When you write the console statement inside the loop the value of result will get printed as soon as it is getting updated as the console statement is also repeating itself

APRIL • MONDAY

MAY 2023						
M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
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If I write it outside the for loop, I will get the final updated value of the result.

NOTE
Ex:- let result = " ";
 for (let i = 5; i >= 1; i--) {
 result = result + i;
 }
 console.log(result);

output = 54321

NOTE
Ex:- let result = " ";
 for (let i = 5; i >= 1; i--) {
 result = result + i;
 console.log(result);
 }

output = 5
 5 4
 5 4 3
 5 4 3 2
 5 4 3 2 1

* Factorial

$$5! \rightarrow 5 \times 4 \times 3 \times 2 \times 1 = 120$$

$$4! \rightarrow 4 \times 3 \times 2 \times 1 =$$

NOTE: when I want to multiply take a variable and initialize with 1.
Ex. $prod = 1$.

NOTE: when I want to add take a variable and initialize with 0.

NOTE: when I want to print in horizontal manner (concatenation) initialize with empty string ("").

EX: Find the Factorial of 5.

→ ~~Let~~

```
let factorial = 1;
for (let i = 5; i >= 1; i--) {
  factorial = factorial * i;
}
console.log(factorial);
```

output = 120.

If we print inside the loop.

```
let factorial = 1
for (i = 5; i >= 1; i--) {
  factorial = factorial * i;
  console.log(factorial);
}
```

output:

5
20
60
120
120

* To Find factorial we can use Reverse loop or Forward loop.

Ex:- Find Factorial of 4.

```
let fact = 1;
for (i = 1; i <= 4; i++) {
  fact = fact * i;
}
console.log(fact);
```

output
= 24

Dryrun

i = 1	i <= 4	fact = fact * i	i++
i = 1	1 <= 4 (T)	fact = 1 * 1 = 1	2
i = 2	2 <= 4 (T)	fact = 1 * 2 = 2	3
fact = 3	3 <= 4 (T)	fact = 2 * 3 = 6	4
i = 4	4 <= 4 (T)	fact = 6 * 4 = 24	5
	5 <= 4 (F)		

It will go outside loop and print the value.

06

THURSDAY • APRIL

EX) - calculate the sum of even no. betn 1 and 50 both included using for loop.

```

=> let sum = 0;
    for (let i = 1; i <= 50; i++) {
      if (i % 2 == 0) {
        sum = sum + i;
      }
    }
    console.log(sum);
  
```

For odd & even no

```

let sum-even = 0;
let sum-odd = 0;
for (i = 1; i <= 50; i++) {
  if (i % 2 == 0) {
    sum-even = sum-even + i;
  } else {
    sum-odd = sum-odd + i;
  }
}
console.log("sum-even", sum-even);
console.log("sum odd", sum-odd);
  
```

Result :-

sum even 650
sum odd 625.

APRIL • FRIDAY

MAY - 2023

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			4	5	6	7
1	2	3	11	12	13	14
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* Break → stop the process and go out of the loop.

* Continue → skip everything and go back to condition.

```

Ex: let jwola = "";
for (let i = 1; i <= 10; i++);
  if (i == 5) {
    break;
  }
  jwola = jwola + i + " ";
  console.log(jwola);

```

Dryrun

①	②	③	④
<u>i = 1</u>	<u>i <= 10</u>	<u>i == 5</u>	<u>i++</u>
i = 1	i <= 10 (T)	i == 5 (F)	i = 2
i = 2	2 <= 10 (T)	2 == 5 (F)	i = 3
i = 3	3 <= 10 (T)	3 == 5 (F)	i = 4
i = 4	4 <= 10 (T)	4 == 5 (F)	i = 5
i = 5	5 <= 10 (T)	5 == 5 (T)	

Output = "1 2 3 4"

→ This means it will stop the process & go out of the loop and give the output.

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APRIL • MONDAY

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* continue - skip everything and go back to the beginning.

~~condition~~

EX)- $\text{for}(i=1; i \leq 10; i++) \{$
 ③ $\text{if}(i == 5) \{$
 continue;
 $\text{console.log}(i);$
 $\}$

when $i=5$
 ↓
 continue.
 skip

dryrun

①	②	③	④
$i=1$	$i \leq 10$	$i == 5$	$i++$
	$1 \leq 10$ (T)	$1 == 5$ (F)	$i=2$
	$2 \leq 10$ (T)	$2 == 5$ (F)	$i=3$
	$3 \leq 10$ (T)	$3 == 5$ (F)	$i=4$
	$4 \leq 10$ (T)	$4 == 5$ (F)	$i=5$
	$5 \leq 10$ (T)	$5 == 5$ (F)	$i=6$

1 2 3 4 6 7 8 9 10

MAY - 2023

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APRIL • WEDNESDAY

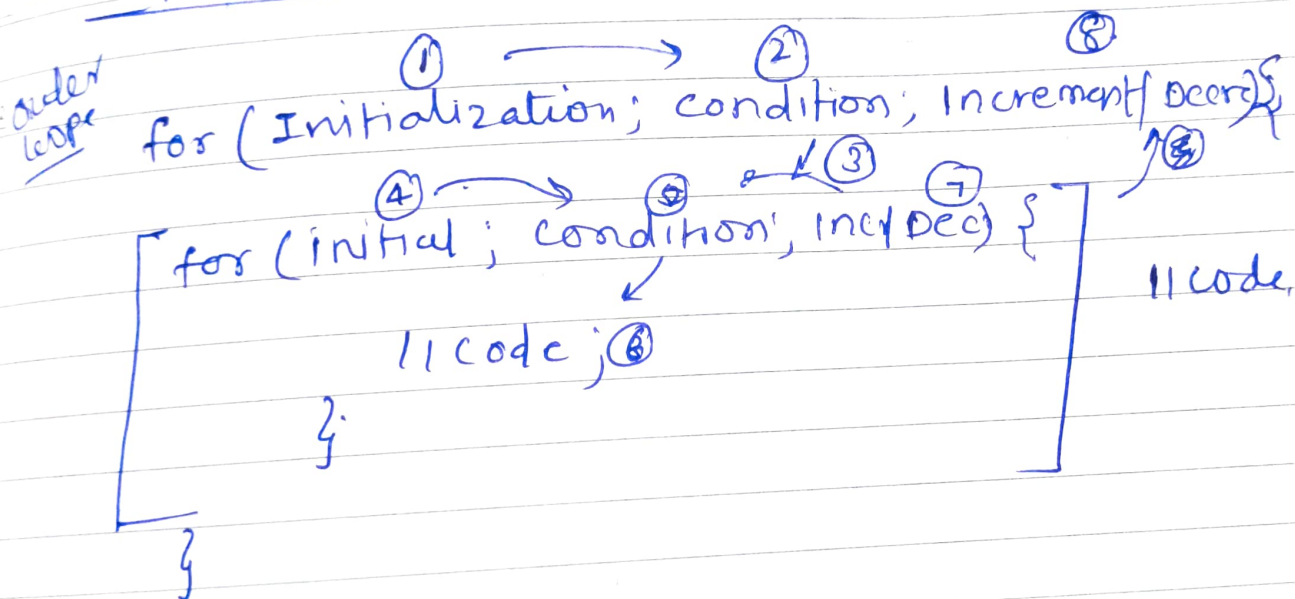
19

8th Nested loops (240hr)

↳ When a loop inside another loop we called as nested loop.

* Nested For loops

* Sequence of operation



1 2 3 4 5 6 7 5 6 7 5 6 7

condition of inner loop is true.

If false go to 8

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THURSDAY • APRIL

2023 - MARCH

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DryRun

Ex: $\text{for}(i=1; i \leq 4; i++) \{$

$\text{for}(let j=1; j \leq 5; j++) \{$
 family i eating j golgappes

$\} \text{ console.log('*****');}$

$i=1$	$i \leq 4$	Complete inner loop				$i++$
		$j=1$	$j \leq 5$	console.log start	$j++$	
$i=1$	$j=1$ (T)	$j=1$	$1 \leq 5$ (T)	family 1 eating 1 golgappes	$j=2$	
	$j=1$	$j=2$	$2 \leq 5$ (T)	Family 1 eating 2 golgappes	$j=3$	
		$j=3$	$3 \leq 5$ (T)	Family 1 eating 3 golgappes	$j=4$	
		$j=4$	$4 \leq 5$ (T)	family 1 eating 4 golgappes	$j=5$	
		$j=5$	$5 \leq 5$ (T)	Family 1 eating 5 golgappes	$j=6$	
		$j=6$	$6 \leq 5$ (F)			
$i=2$	$2 \leq 4$ (T)				$j=2$	$i=2$