GOOD MORNING EVERYONE

We will start @ 10:10 am

loops

↳ execute a same set of instructions until a particular cond" not satisfy.

Print the following pattern 10 times   20000

x x x x x

```
System. out. println ("x x x x x");   → 2000 times.
System. out. println ("x x x x x");
System. out. println ("x x x x x");
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System. out. println ("x x x x x");
System. out. println ("x x x x x");
```

↳ for

↳ while

↳ do while.

↓

H.W.

for loop :-

Syntax :

for (initialization ; condition ; increment/decrement) {

_____
_____   } set of instructions .
_____
_____

}

XXXXX
XXXXX
XXXXX
XXXXX
XXXXX
XXXXX
XXXXX
XXXXX
XXXXX
XXXXX

Print the pattern 10 times .

XXXXX
XXXXX
XXXXX
XXXXX
XXXXX
XXXXX
XXXXX
XXXXX
XXXXX
XXXXX

$i = 1 <= 10 (T)$

$i = 2 <= 10 (T)$

$i = 3 <= 10 (T)$

$i = 4 <= 10 (T)$

$i = 5 <= 10 (T)$

$i = 6 <= 10 (T)$

$i = 7 <= 10 (T)$

$i = 8 <= 10 (T)$

$i = 9 <= 10 (T)$

$i = 10 <= 10 (T)$

$i = 11 <= 10 (F)$

datatype of a variable

variable name

initialise to 1

cond^n

when cond^n is false it stop the loop.

increase the value by 1 every time.

for (int i = 1 ; i <= 10 ; i += 1) {

System. out. println ("*****");

}

increment / decrement → $i += 1$

↳ i++ → $i = i + 1$

↳ i-- → $i = i - 1$

② While loop

Syntax

initialisation;
while (cond") {
    ___
    ___
    ___
    increment | decrement;
}

int i = 1;

while (i <= 10) {
    system.out.println("*****i");
    i++;
}

i = 1 <= 10 (T)   × × × × ×
i = 2 <= 10 (T)   × × × × ××
i = 3 <= 10 T T)   × × × × ×
i = 4 <= 10 (T)   × × ∧ ∧ ×
    ⋮
i = 10 <= 10 (T)   * × × × ×
i = 11 <= 10 (T)

Q-1 Print **5 mm** Numbers from 1 to (N)
→ user input   [For loop, while]

N = 10;   1 2 3 4 5 6 7 8 9 10

5 mins

Q-2 Print all the even nos. from 1 to (N)
→ user input.   [For loop, while]

N = 10   2 4 6 8 10

5 mins

Q-3 Print the sum of (N) natural nos.   [For and while loop]
→ user input

N = 5 → 1+2+3+4+5 = (15)

5 mins

Q-4 Print factorial of (N) → user input   [For and while loop]

N = 5   5! → 5×4×3 ×2×1 = (120)
                            ↓ output.

1 0 mins:
Q-5 Print multiplication table till 10
(N) → user input.

O/P   N = 5

5 × 1 = 5
5 × 2 = 10   [For and while log]
5 × 3 = 15

1

.

5 × 10 = 50

30 mins → 11:18 am

Sum = 0

i = 1 L = 6
i = 2 L = 6
i = 3 L = 6
i = 4 L = 6
i = 5 L = 6
i = 6 L = 6
i = 7 L = 6 X

sum = 0 + 1 + 2 + 3 + 4 + 5 + 6
                    ↓
                  (21)

WAP to print all the digits in a no.

int n = $\overset{+\,i\,\,\,i\,\,\,i\,\,\,i}{5\,4\,3\,6\,1}$ → 1
                                    6
                                    3
                                    4
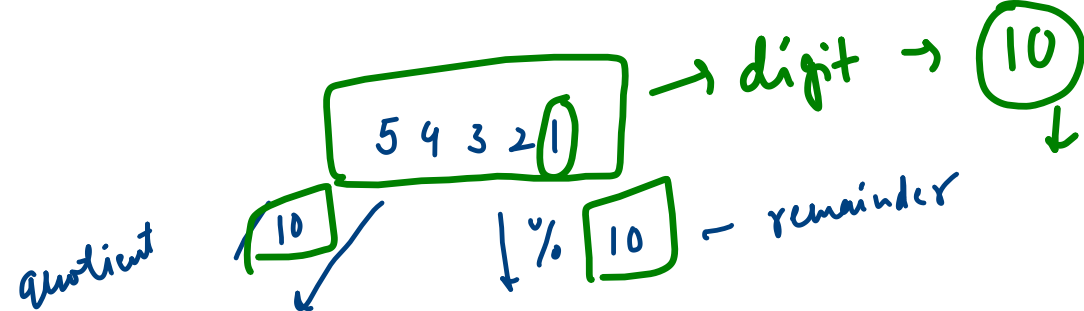   5

$n = 2131$ → 1
            3
            1
            2

Note:- User input is of integer type not [string]

11:40 am

WAP to find sum of all digits in a no.

$n = 2131$

→ $2+1+3+1 = \boxed{7}$

$5 \ 4 \ 3 \ 2 \ \boxed{1}$ → digit → ⑩

quotient ⟶ 10

$\downarrow \% \boxed{10}$ — remainder

$54321 \% 10 \Rightarrow \boxed{1}$

$n = \boxed{5432}$

$/10 \swarrow \quad \downarrow \%10$

$n = 543 \qquad ②$

$/10 \swarrow \quad \downarrow \%10$

$n = 54 \qquad ③$

$/10 \swarrow \quad \downarrow \%10$

$5 \qquad ④$

$/10 \swarrow \quad \downarrow \%10$

$n = 0 \qquad ⑤$

$\boxed{n > 0}$

$5 \ 4 \ 3 \ 2$

$10 \overline{) \ 5 \ 4 \ 3 \ 2 \ 1}$
$\quad \ 50$
$\quad \overline{\ \ 43}$
$\quad \ \ \ 40$
$\quad \ \ \overline{\ \ 32}$
$\quad \ \ \ \ 30$
$\quad \ \ \ \overline{\ \ 21}$
$\quad \ \ \ \ \ 20$
$\quad \ \ \ \ \ \overline{\ \ ①}$

①
②
3
4
5