Code Link

https://github.com/prateek27/java-jan-22

Daughter's Ages

$x \cdot y \cdot z = 36$

$x + y + z =$ House No

Possibilities

1, 1, 36 = 38

1, 6, 6 = 13

1, 2, 18 = 21

1, 3, 12 = 16

1, 4, 9 = 14

2, 2, 9 = 13

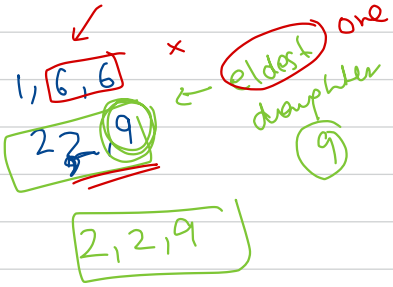
2, 3, 6 = 11

3, 3, 4 = 10

Confusions

1, 6, 6 × eldest one daughter

2, 2, 9



$$\begin{cases} xyz = 36 \\ x+y+z = 13 \end{cases}$$

No

Fundamentals

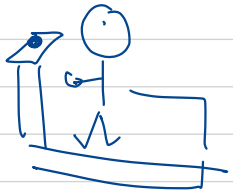
Branching

Loops → while loop
↳ For Loop

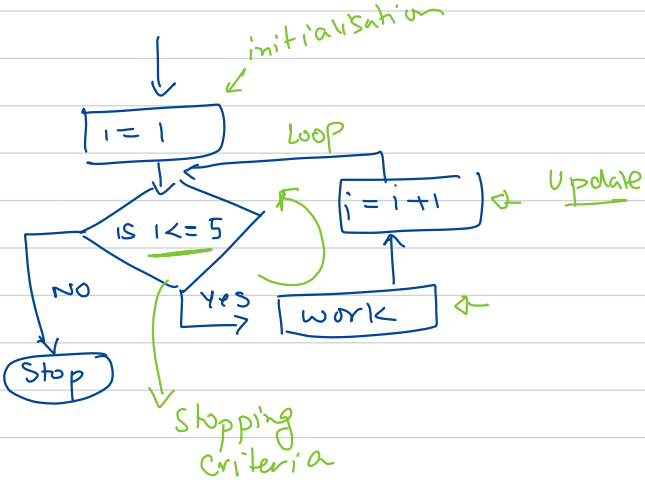
↳ Problems

Concepts / problems.

Loops -> Repeatedly

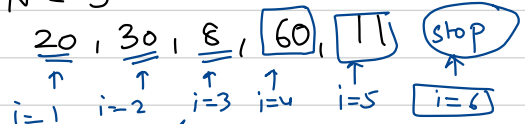


```
cal = 0
while (cal <= 10) {

    Run 1 step ;
    cal = cal + 1 ;

}
```



(2) Take input N followed by N numbers

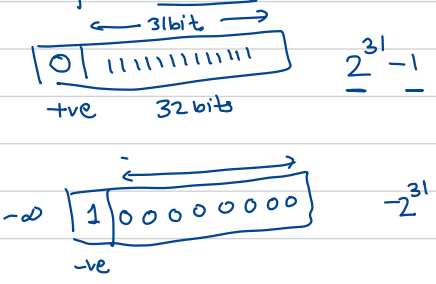
N = 5



Predefined Constants

smallest val of int

Integer.MIN-VALUE



MCQ

```
N = 0
while (N > 0) {
    work;
    N = N + 1;
}
```

→ 0 Times ✓

→

```
N = 1
while (N > 0) {
    work
    N = N + 1;
}
```

✓ [∞ times
never Stop]

```
N = 1
while (N >= 0) {
    work;
    N = N - 1;
}
```

Stop → -1

work
work N=0
N=-1

Inc dec Operators

```
cal = cal + 1 ;        cal = cal - 1 ;
```

⇕ ⇕

⇒ `cal++ ;` (Shorthand) `cal-- ;`

Post / Pre Post / Pre

```
int x = 10 ;
int y = x++ ,
```

y = x , x = x+1

post print (x, y)

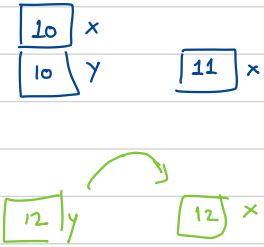
```
y = ++x ,
```

pre

print (x, y)

x = x+1 , y = x

⇒



Compound Assignment Operators

`a = a + 5`	`a += 5`
`a = a - b`	`a -= b`
`a = a * (c - d)`	`a *= (c - d)`
`a = a % b`	`a %= b`
`a = a / b`	`a /= b`
`sum = sum + digit`	`sum += digit`

`a = 10` (2) `b = 4`

`a %= b`

⇒ `a = a % b`

`= 10 % 4`

`= 2`

2, 4

for Loop

Same

while

Compact syntax

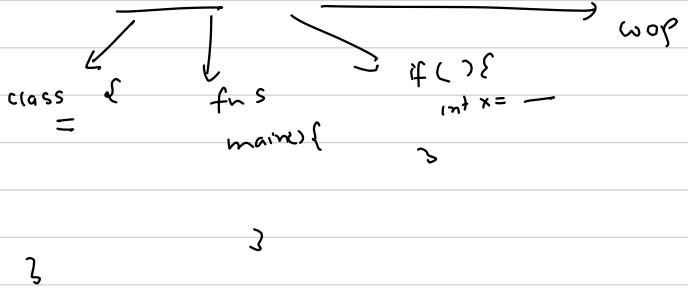
```
for (int i=1 , i <= 5 ; i=i+1) {
    // work
}
```

```
i=1
while i<=5 {
    // work
    i=i+1
}
```

Scope

↳ defines the visibility & lifetime of a variable

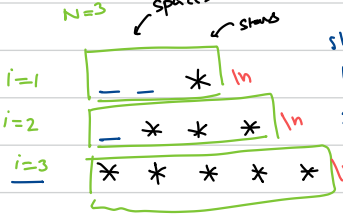
↳ Block Scope



10 · 25

PROBLEMS

N=3



	stars	sp.
i=1	1	2
i=2	3	1
i=3	5	0

Work:

N − i spaces

2i − 1 stars

↑ Observation

Generalise

i^th Row

a → 1, 3, 5, ... T_i

d d

1 2 3 i

$T_i = a + (i-1)d$

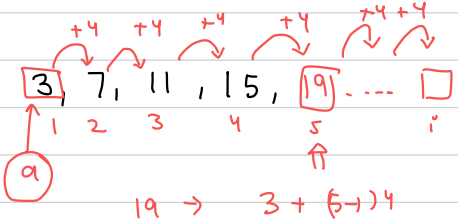
$T_i = a + (i-1)d$

$= 1 + (i-1)2$

$= 1 + 2i - 2$

$= 2i - 1$

AP

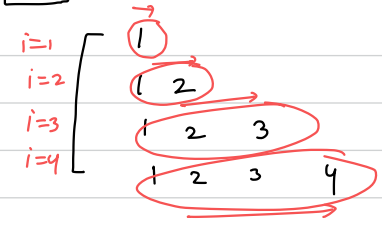


$19 \to 3 + (5-1)4$

$= 3 + 4 \times 4$

$= 19$

N = 4



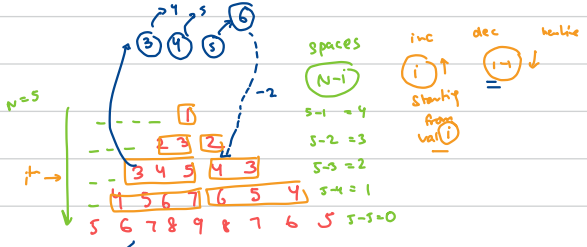
Observation

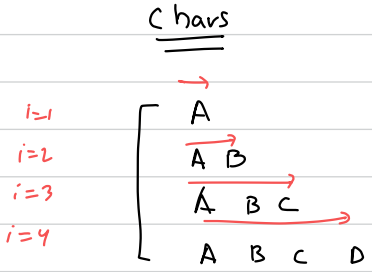
1. N Rows
2. No of Numbers → Row No
3. Each Row Starts with 1 ↑ inc

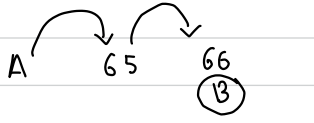
Break it
make it

Repeat

```
0 0 0 0 1 0 0 0 0
0 0 0 2 3 2 0 0 0
0 0 3 4 5 4 3 0 0
0 4 5 6 7 6 5 4 0
5 6 7 8 9 8 7 6 5
```

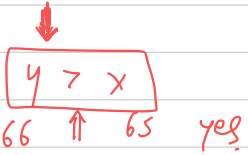






Char val = 'A'

val = val + 1 ;



Char x = 'A'

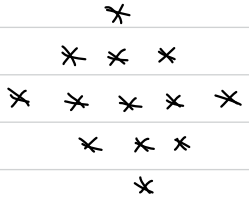
Char y = 'B'

N=3

卐

N=7

✓



✓