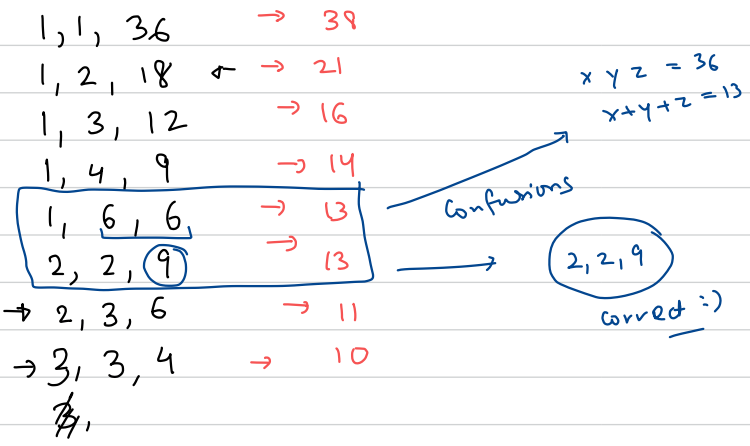
Daughter's Ages

$x \; y \; z = 36$

$x + y + z =$ House No



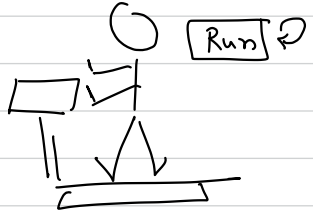
Branching

- if
- if - else
- if - elseif - else

Loops

- while Loop
- for Loop
- do while

Task → Repeated




```
cal = 0          → init val
while (cal < 100) {   ← stop condition
    Run 1 step   → work
    cal = cal + 1   → update
}
```

cal → 100

cal = cal + 5

Come here

Workout is Complete

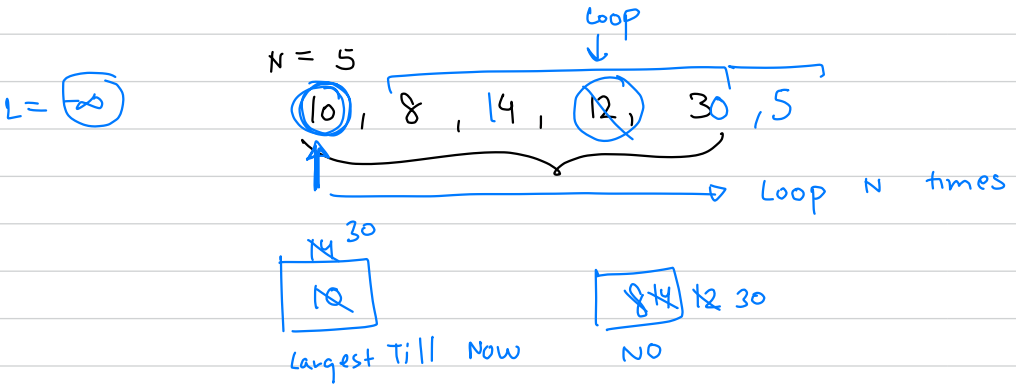
```
Cal = 0
while  Cal < 100 {

        Cal = Cal + 5

}
```

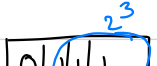
---

(9) Take Input N, followed by N numbers.
Find out the largest NO



Doubts

-2^{31} to $2^{31}-1$



2's

-8 to 7 = 16 Nos

8 No 8 No

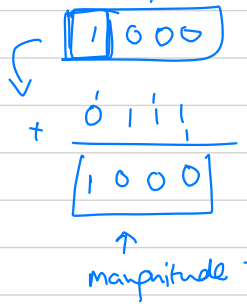
-2^3 to 2^3-1

2^4 combinations = 16 combinations

8 Binary

Sign bit +ve

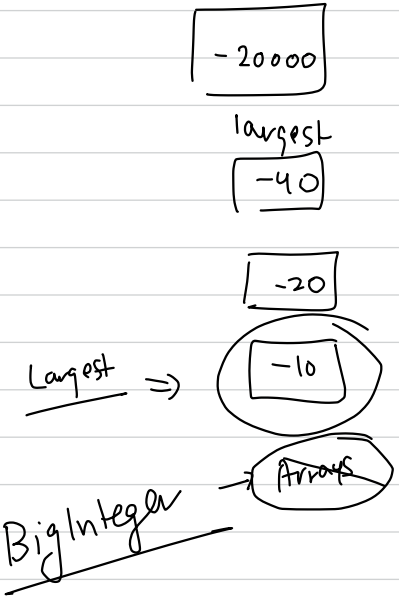
$-(-x)$



$-2^{31}-1$ to $0-2^{31}-1$

2^{31} -ve 2^{31} +ve

2^{32} unique No

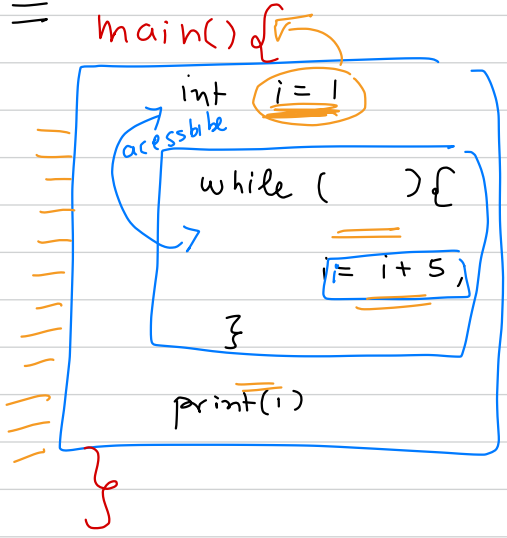


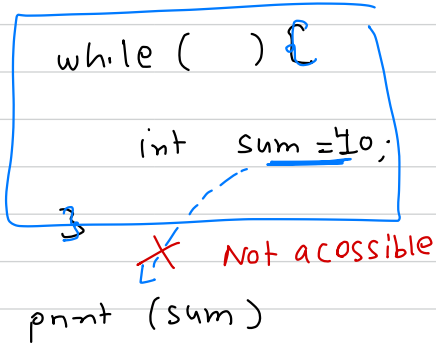
-40	-50	-20	-10	-15
↑	↑	↑	↑	↑
val	val	val	val	val
	No			

Scope { .... } Block Scope

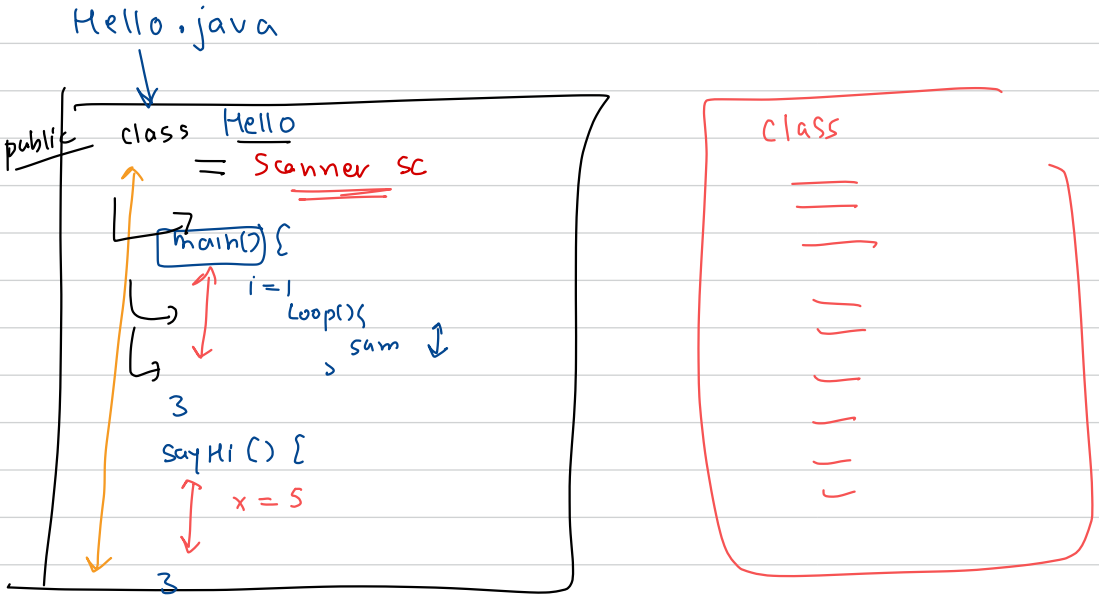
class Demo {

main() {





}


Hello.java
public class Hello
= Scanner sc
main() {
i=1
Loop(){
sum
}
3
sayHi() {
x=5
3
class

For Loop <=> while

↓

compact syntax (easy)

```
for (int cal=0; cal<=10; cal=cal+1){
    Run.... ;
}
```

```
int cal=0
while (cal<=10){
    Run....
    cal = cal + 1;
}
```

Operator

++

Post inc

Pre inc

```
x = 10
y = x++
```

```
X=10
y = ++X
```

--

Pre dec

Pos dec

x++ x = x+1

let x = 10

y = x++ → Post inc

y = x

x = x+1

10 (y)

11 (x)

y = ++x → Pre inc

x = x+1

12 (x)

y = x

12 (y)

Compound Assignment Operators

Shortcut

a = a + 5 ⟷ same ⟷ a += 5

a = a * b ⟷ a *= b

a = a - 10 ⟷ a -= 10

a = 5

b = 2

a %= b

⇒ a = 1

a = a%b

a = 10

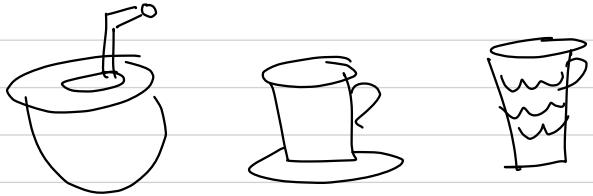
5

a %= b

a /= 2

Break Time

10 30



N-i spaces

2i-1 stars

N=3

i= 1 — — *

i= 2 — * * *

i= 3 * * * * *

2	1	5
1	3	
0	5	

1 → 1

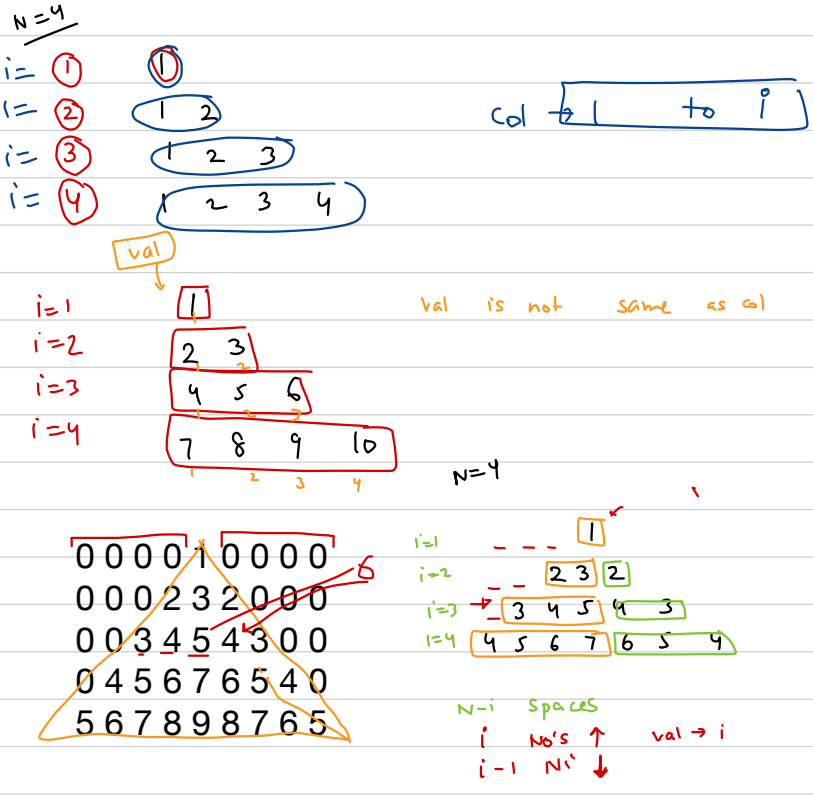
2 → 3

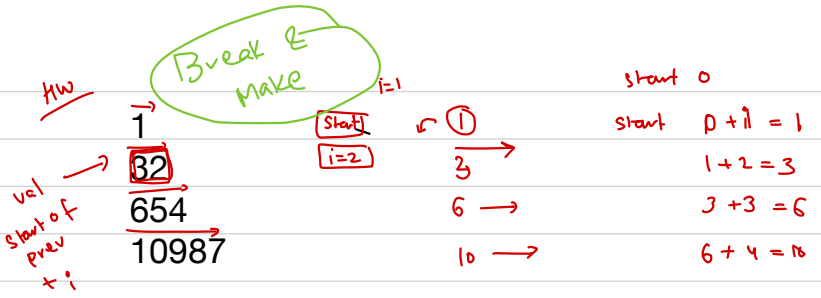
3 → 5

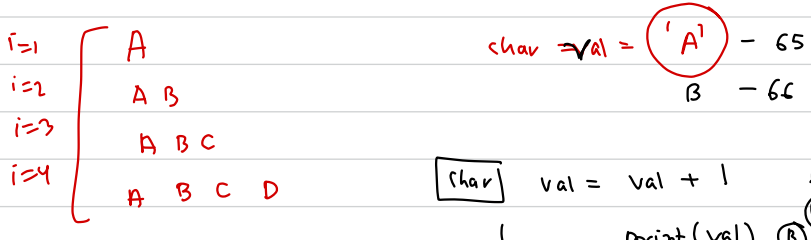
one less than 2i

"2i-1"

```
for(i=1 ; i<= N ; i = i+1 ){
    for( spaces= 1 ;spaces<= N-i ; spaces++){
        print(" ")
    }
    for( stars = 1 , stars<= 2i-1 ;stars++){
        print"*"
    }
    print()
}
```


N=4
i= 1 1
i= 2 1 2
i= 3 1 2 3
i= 4 1 2 3 4
val
col 1 to i
i=1 1
i=2 2 3
i=3 4 5 6
i=4 7 8 9 10
val is not same as col
N=4
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
i=1 1
i=2 2 3 2
i=3 3 4 5 4 3
i=4 4 5 6 7 6 5 4
N-i Spaces
i Nos
i-1 Nos
val → i


Break & make
HW
1
32
654
10987
val
start of prev + i
i=1
start
i=2
1
3
6
10
start 0
start
0 + 1 = 1
1 + 2 = 3
3 + 3 = 6
6 + 4 = 10


i=1
i=2
i=3
i=4
A
A B
A B C
A B C D
char val = 'A' - 65
B - 66
char
val = val + 1
65
66
print(val)
B