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

classes → uppercase

lowercase

D1

String — nextInt()

Scanner — main()

System — println()

D2

1 <= N <= 500 — Constraints

↑

ignore

Big ↑ ⇒ optimised Approach

10^6, 10^8

D3 — Local IDE — (Autocomplete)

5

2

1

HOMEWORK

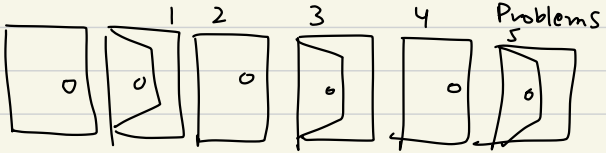
⇒ D1 D2 D3 D4 D5 D6 D7 D8 ..... D100

L1 – Branching
if-else, Input-output

L2 – while loop,
%, ==, =, /

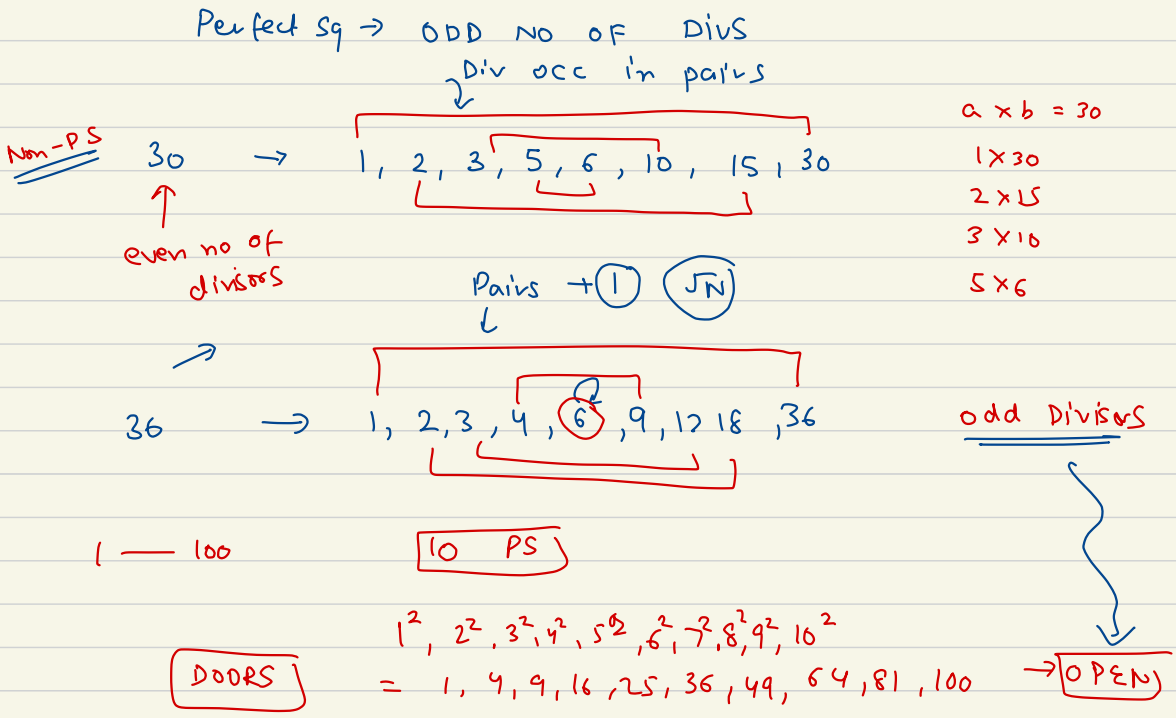
L3 – Loops,
For loop,
Puzzle

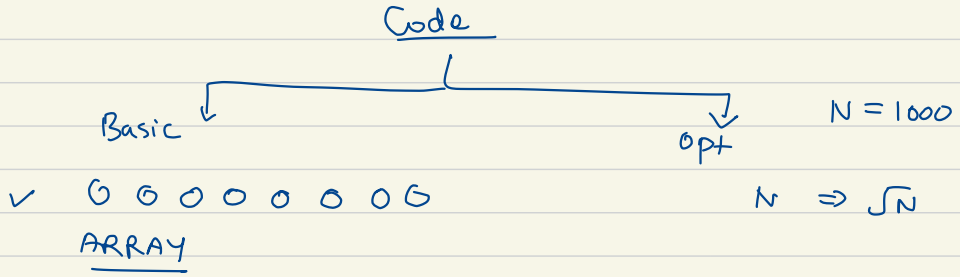
Door		Rounds	Times
1	→	1	1
2	→	1, 2	2
3	→	1, 3	2
⇒ 4	→	1, 2, 4	3
⇒ 5	→	1, 5	2 ←
6	→	1, 2, 3, 6	4
7	→	1, 7	2
8	→	1, 2, 4, 8	4
9	→	1, 3, 9	3
10	→	1, 2, 5, 10	4
11	→	1, 11	2
⋮			



1, 4, 9, ... Perfect Sq.

1 — 100


Perfect Sq → ODD NO OF DIVS
Div occ in pairs
Non-PS
30 → 1, 2, 3, 5, 6, 10, 15, 30
even no of divisors
a × b = 30
1 × 30
2 × 15
3 × 10
5 × 6
Pairs + (1) (√N)
36 → 1, 2, 3, 4, 6, 9, 12, 18, 36
odd Divisors
1 — 100
10 PS
DOORS
1², 2², 3², 4², 5², 6², 7², 8², 9², 10²
= 1, 4, 9, 16, 25, 36, 49, 64, 81, 100
→ OPEN


Code
Basic
Opt
N = 1000
N ⇒ √N
ARRAY

While loop

- Sum of Numbers 1 to N.

⇒ ★ ✓ • Sum of Numbers (A) to (B)

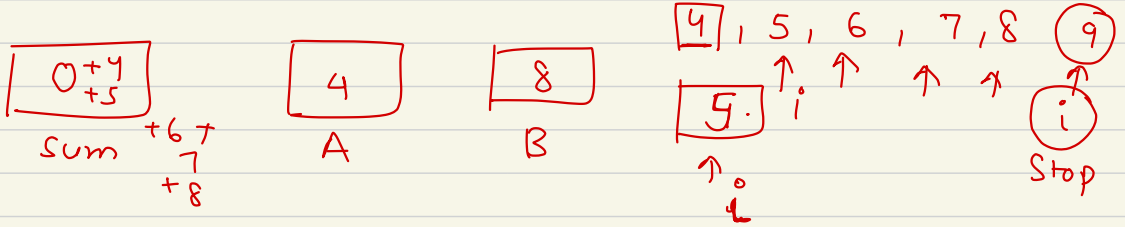
[A = 4, B = 8] → 4 + 5 + 6 + 7 + 8 =

✓ • Sum of N Numbers. ⇒ Multiple Inputs

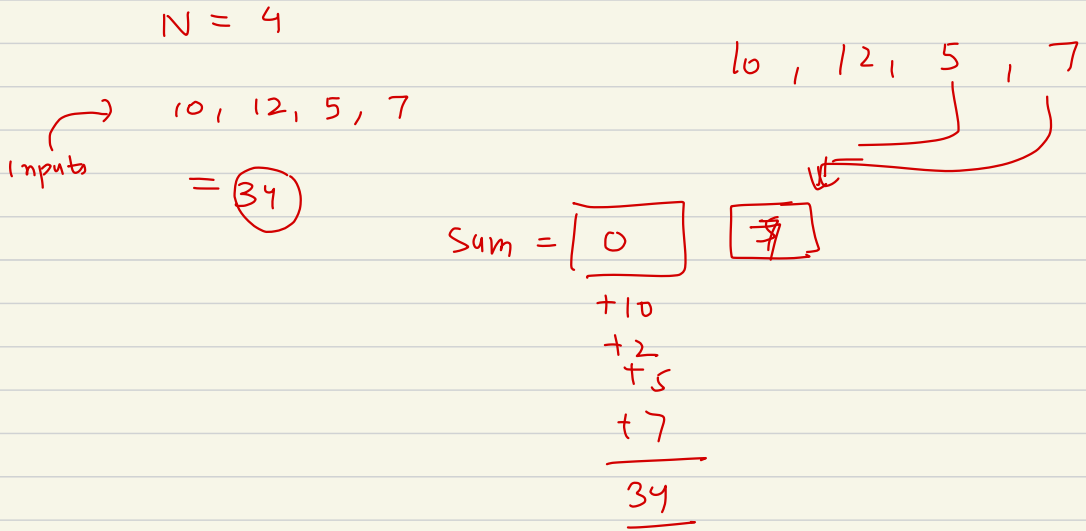
N = 4

10, 12, 5, 7

= 34



Problem: Take input an integer N, followed by N more Inputs. You have find the sum of N numbers that have been input.



o Take input A and N. Compute A^N.

A = 5
N = 4

$5^4 = 625$

ans = 1 X 5 X 5 X 5 X 5

Counter

i = 1
i = 2
i = 3
i = 4
i = 5 Stop

N times

ans = 1

ans = ans * 5 = 5
ans = ans * 5 = 25
ans = ans * 5 = 125
ans = ans * 5 = 625

FOR Loop (similar to while)

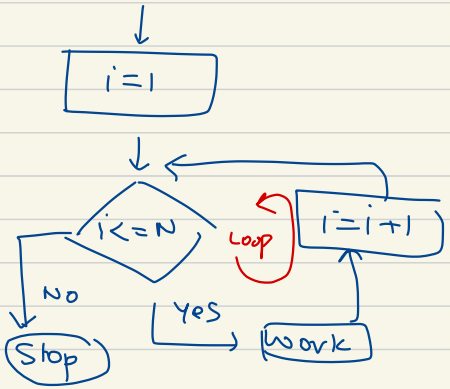
Compact Syntax (Less lines of code)

```
i=1                    (1)
while i<=N {           (2)
    work
    i=i+1              (3)
}
```

forget

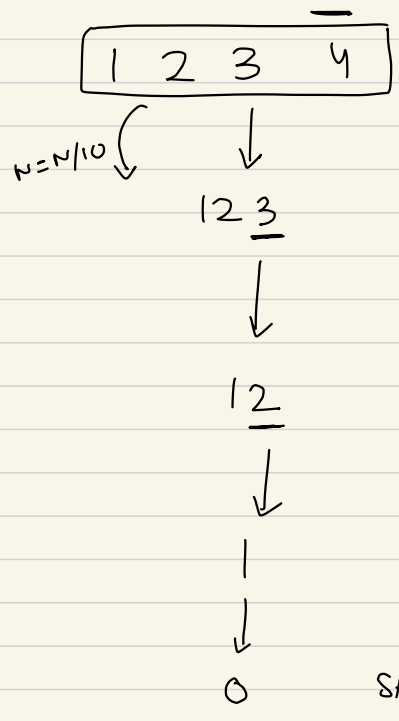
```
for( int i=1; i<=N; i=i+1){
    work
}
```

3



While ⟷ For

Same behavior, same functionality, same speed



N%.10

4

3

2

1

Digits in Rev order

4321

N = 4, 3, 2, 1

N = 1321

N = 123

= 1x100 + 2x10 + 3x1

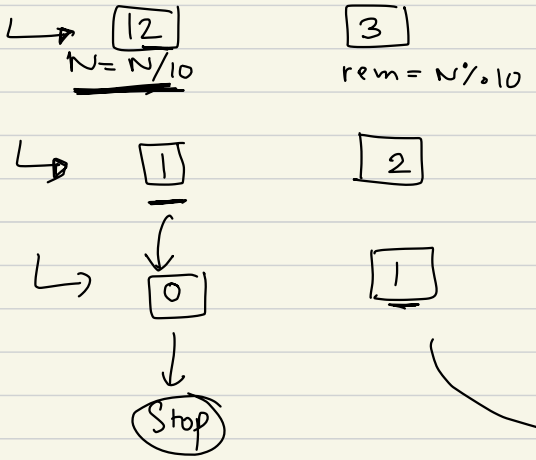
= 100 + 20 + 3 = 123

Rev = $\overset{10^2}{3}\ \overset{10^1}{2}\ \overset{10^0}{1}$

= 3x100 + 2x10 + 1x1 = 321

N = 123

ans = 0



$\Rightarrow$ ans = ans * 10 + rem

= 0 × 10 + 3

= 3

= 3 × 10 + 2

= 32

= 32 × 10 + 1

= 321

10.40 Break

Multiply A and B without using '*'

A = 5

B = 8

40

5 * 8

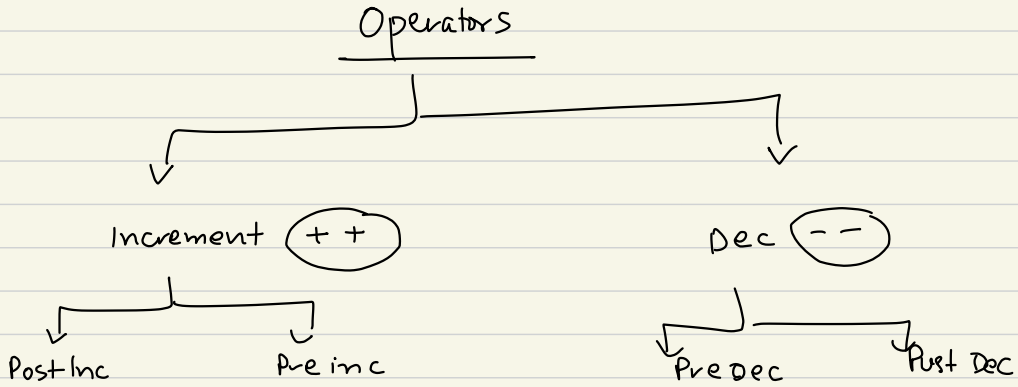
Ans = 0

5 + 5 + ---- + 5

8 times

=

B times



a = 5;

a ++ ; Post inc ⟷ a = a + 1

++ a ;

Pre inc

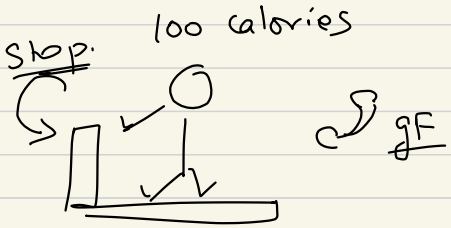
```
int x = 10;
int y = x++;
int z = ++x;

print(x,y,z);
```

Break

Continue

↓

stop a loop based upon certain



→ for/while

Loop {

break;

for/while

Loop {

if {

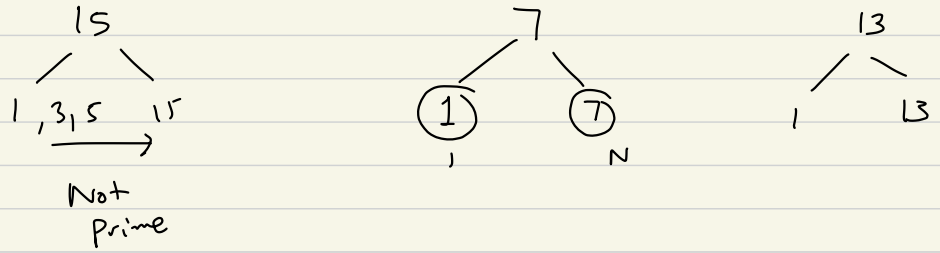
break (closest loop - innermost)

}

}

here

Q) Given a No, check if the number is a Prime.



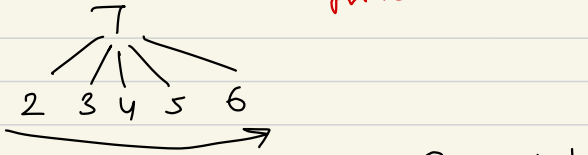
Prime ⇒ ~~has~~ exactly 2 div 1 and N

⇒ has 0 div in range 2 to N-1

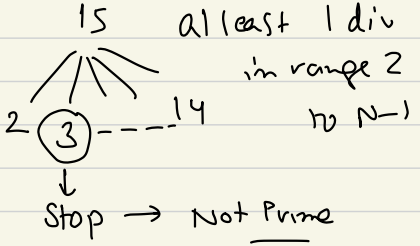
Prime

atleast 1 div (2 to N-1)

Not Prime



N



Puzzle

Alok has three daughters. His friend Shyam wants to know the ages of his daughters. Alok gives him first hint.

1) The product of their ages is 72. $x \cdot y \cdot z = 72$

Shyam says this is not enough information Alok gives him a second hint.

2) The sum of their ages is equal to my house number.

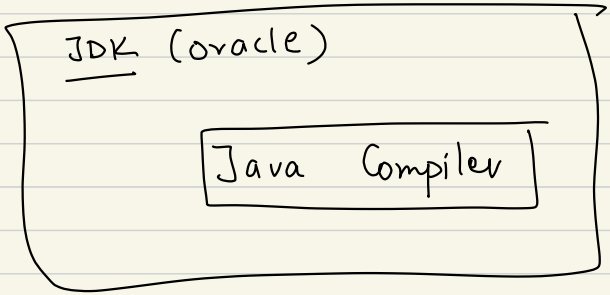
Shyam goes out and looks at the house number and tells “I still do not have enough information to determine the ages”. $x + y + z =$ house no

Alok admits that Shyam can not guess and gives him the third hint

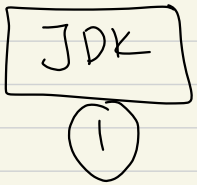
3) The oldest girl likes strawberry ice cream.

Shyam is able to guess after the third hint. Can you guess what are the ages of the three daughters?

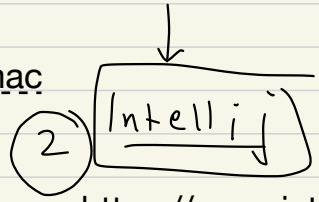
- optional PDF (list of Questions)
  - ↳ locally.



https://www.oracle.com/java/technologies/downloads/#jdk17-mac



Text Editor / App for writing code



https://www.jetbrains.com/idea/download/#section=linux

W - Java 2
F - Pattern
M - Functions
W - Arrays, Maths, 2D Arrays & Arraylist
F - String
M - OOPS
W
F