```
loop ( conditions) {

        // Logic

}
```

Q Print all no's from 1 to 100

While loop

```
while (  cond == true  ) {

        Logic

}
int  i = 1;      // Initialisation.
```

100 times → `while (  i <= 100  ) {`

```
        System. out. print ( i );
        i =  i +1;
}
```

1

$$i \times i <= N$$

$$i^2 <= N \quad \rightarrow \quad \text{sqrt both sides}$$

$$\sqrt{i^2} <= \sqrt{N}$$

$$i <= \boxed{\sqrt{N}} \quad \checkmark$$

$$[1, \sqrt{N}] = \sqrt{N}$$

---

100 balls

vivek
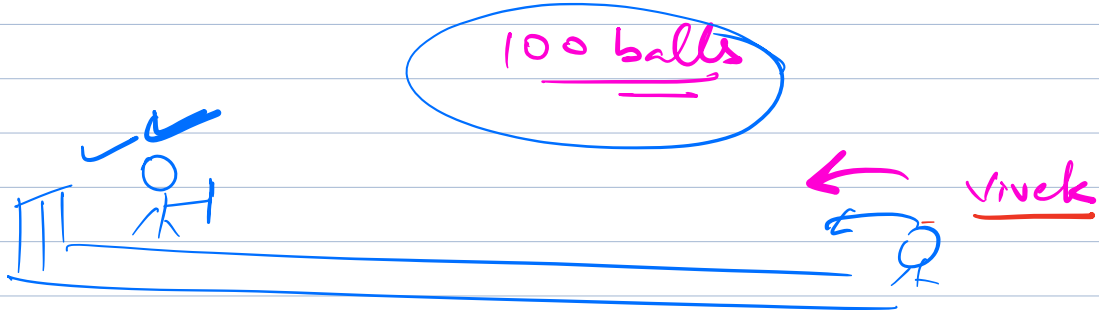
0/10 (1.4) ✗   10

N	$\sqrt{N}$
100	10
400	20
900	30
10^{10}	10^5

Iteration

Ø⁼ Open a lock with a 3 digit password.
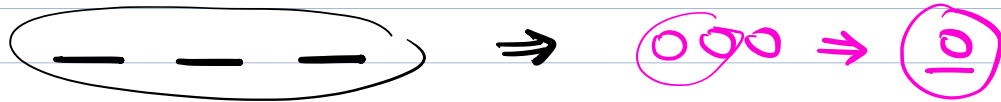
$\underbrace{--- ---}$ ⟹ $\overset{\frown}{000}$ ⟹ $\underline{0}$

Lock ⟹ locked / unlocked) 001 ⟹ 1

```
if ( still locked) {
        try (0) ⟹ 000
}
    if ( still locked) {
        try (1) ⟹ 001
    }
        if ( still locked) {
            try (2) ⟹ 002
        }
            ⋮
```

999

```
int i = 0;

while ( still locked) {
        try i;
        i++;
```

ξ

Q) Take an input from the user (INT)
Print all the digits of that no.

int N = (1 2 4 5 7)   N = 12

O/P :   7   O/P :   2
         5   1
         4
         2   (1 2 4 5)
         1   (10) 1 2 4 5 7
                                       1 2 4 5 0
Sum = (0)+(7)+(5)+(4)+(2)+(1) = ( )   (7)

(1 2 4 5 (7))   %10 →   7
         ↓ /10

1 2 4 (5)   % 10 →   (5)
    ↓ /10

1 2 (4)   %. 10 →   4
   ↓ /10

1 (2)   %. 10 →   2
  ↓ /10

(1)   %. 10 →   1
 ↓ / 10

0

$n > 0$

Sum $= 0$ $N =$

while ($\underline{n} > 0$) {

Sum $=$ Sum $+$ $(n \% 10)$;

$n = n / 10$;

}