quiz

```
public class Main {
    public static int sum(int a, int b) {
        int a=20, b=30;
        return a+b;
    }
    public static void main(String[] args) {
        int a=10, b=5;
        int x=100, y=200;
        sop(sum(x, y));
    }
}
```

→ a and b are already defined.

100, 200

main	sum
a = 10	a = 100
b = 5	b = 200
x = 100	
y = 200	

```
public class Main {
    public static int sum(int a, int b) {
        a=20, b=30;
        return a+b;
    }
    public static void main(String[] args) {
        int a=10, b=5;
        int x=100, y=200;
        sop(sum(x, y));
    }
}
```

a = ~~100~~ 20

b = ~~200~~ 30

ans = 50

100, 200

main	sum
a = 10	a = ~~100~~ 20
b = 5	b = ~~200~~ 30
x = 100	
y = 200	

```
public class Main {
    public static int sum(int a, int b) {
        int x = 20, y = 30;
        return a+b;
    }
    public static void main(String[] args) {
        int a = 10, b = 5;
        int x = 100, y = 200;
        sop(sum(x, y));
    }
}
```

a = 100
b = 200

→ 300

100, 200

main	sum
a = 10	a = 100
b = 5	b = 200
x = 100	x = 20
y = 200	y = 30

```
public class Main {
    public static int sum(int a, int b) {
        return a+b;
    }
    public static void main(String[] args) {
        int a = 10, b = 5;
        int x = 100, y = 200;
        sop(sum(x, y));
    }
}
```

100 200

100, 200

main	sum
a = 10	a = 100
b = 5	b = 200
x = 100	
y = 200	

```
public class LifeTime {
    public static void main() {
        if (true) {
            int x = 10;
            Sop("value of x = " + x);
            x++;
        }
        Sop("value of x = " + x);
    }
}
```

↳ can't find symbol → x.

```
public class Scope {
    public static void main() {
        int a = 0;
        {
            int b = 0;
            Sop("b = " + b);
            int c = b+a;
            Sop("c = " + c);
        }
        a = c + b;
        Sop("a = " + a);
    }
}
```

(i)

→ error

```
public class VarScope {
    public static void main() {
        int x = 10;
        {
            int y = 20;
            sop (x + "," +y);
        }
        {
            y = 10;
            x = 15;
            sop ("-" + x + "," + y);
        }
        sop ("-" + x + "," + y);
    }
}
```

```
public class VarScope {
    public static void main() {
        int x = 10;
        int y = 20;
        {
            sop(x + "," + y);
        }
        {
            x = 15;
            sop("-" + x + "," + y);
        }
        sop("-" + x + "," + y);
    }
}
```

15

x = 16 , y = 20

10, 20 - 15, 20 - 15, 20

Sachin tendulkar : ODI's : 463

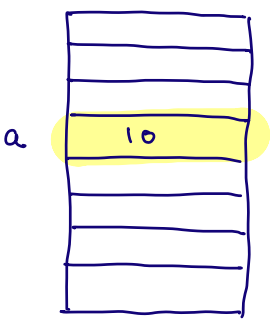
```
void main () {
    Scanner scn = scn.nextInt();
    int m0, m1, m2 ..... m462 ;   // 463 variables
    m0 = scn.nextInt();
    m1 = scn.nextInt();
    :
    m462 = scn.nextInt();

    int avg = (m0 + m1 + .... + m462) / 463;
    SOP(avg);
}
```

Arrays → collection of same data-type variable

Data structure

```
int a = 10;
```



`int [] arr ;` → not enough, compiler will not know how much space to reserve for array.

- `int` → data-type
- `[]` → array
- `arr` → name of the array

`arr = new int [463] ;` → 463 integers space

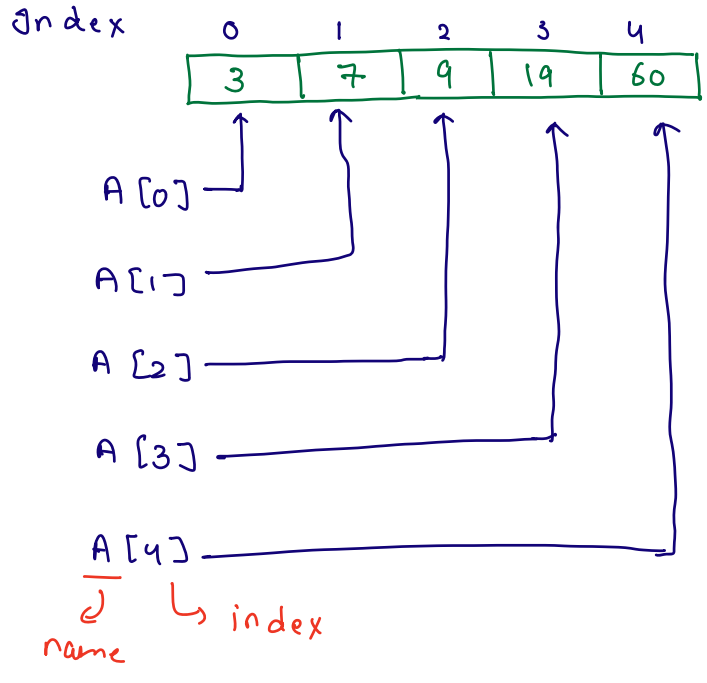
- `463` → Size of the array

Q. Create an array which can store 5 int values.

```
int [] A = new int [5] ;
int A [] = new int [5] ;
```

N → length of array

index [0, N-1]



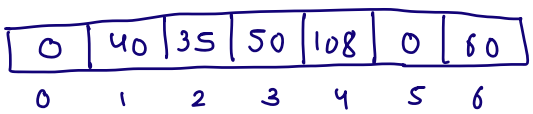

```
A [0] = 3
A [1] = 7
A [2] = 9
A [3] = 19
A [4] = 60
```

`A [5]` / `A [-1]` → array index out of bound

0 40 35 50 108 0 80

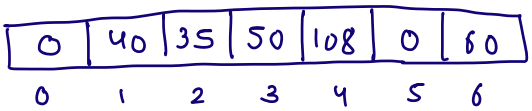
```
void main( ) {
    int N = 7;
    int [] arr = new int [N];
    Scanner scn = new Scanner(System.in);
    for (int i = 0; i < N; i++) {
        arr [i] = scn. nextInt( );
    }
    int total_runs = 0
    for (int i = 0; i < N; i++) {
        total_runs += arr [i];
    }
    int avg = total_runs / N;
    SOP (avg);

    int hs = 0;
    for ( int i = 0; i < N; i++) {
        if [ arr [i] > hs) {
            hs = arr [i];
        }
    }
    SOP (hs);
}
```



total_runs	i
0	0
0	1
40	2
75	3
125	4
233	5
233	6
293	7 break

```
int hs = 0;
for (int i = 0; i < N; i++) {
    if (arr[i] > hs) {
        hs = arr[i];
    }
}
sop (hs);
```



hs	i	
0	0	
0	1	
40	2	
40	3	
50	4	
108	5	
108	6	
108	7	break

Doubts

float double

↳ more precise

r → radius

```
float area = (3.14f) * r * r;
//area = 50.34
float ad = area - (int)(area);
           50.34 - 50 = 0.34
if (ad > 0) {
    ans = (int)(area) + 1;
}
```

Binary to decimal

decimal : 10 digits : 0-9

binary : 2 digits : 0, 1

0 1 1 0 1

$0\times2^4 + 1\times2^3 + 1\times2^2 + 0\times2^1 + 1\times2^0$

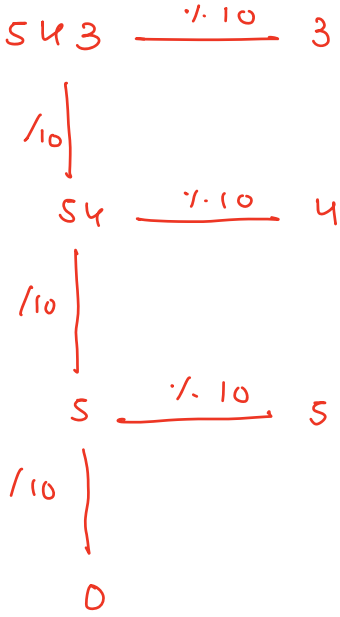
$0 + 8 + 4 + 0 + 1$

$= 13$

5 4 3

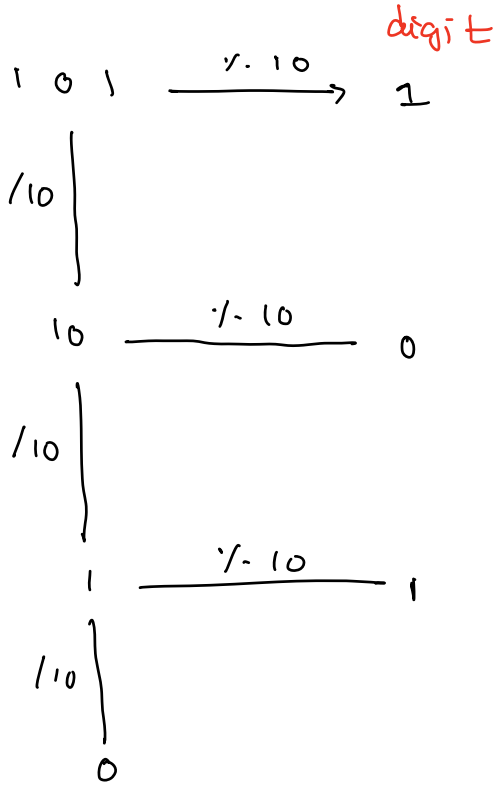
$5\times10^2 + 4\times10^1 + 3*10^0$

```
temp = 1
while ( ) {
    ans += digit * temp
    temp = temp * 2;
}
```



1 0 1

$1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0 = 5$



ans	temp
0	1
1	2
1	4
5	8