

Mod %  $\rightarrow$  Remainder

$$a \div b \rightarrow q, r$$

$$32 \div 5 \rightarrow q: 6, r: 2$$

$\uparrow \qquad \qquad \uparrow$   
 $32/5 \qquad 32 \% 5$

---

Q Given a number. Categorize it as positive, negative or zero.

i.e. if no is +ve  $\rightarrow$  Print positive

if no is -ve  $\rightarrow$  Print negative

if no is zero  $\rightarrow$  Print zero.

```
if (N > 0) //  
    SOP ("Positive");  
//  
else if (N < 0) //  
    SOP ("Negative");  
//  
else //  
    SOP ("Zero");
```

```
if (condition) {  
    //   
}
```

Optional if we have only one line of code

```

int N = 5;
if (N > 2)
    SOP("Yeyy");
else
    SOP("No!");

SOP("Hmmm");

```

```

int N = 5;
if (N > 2) {
    SOP("Yeyy");
}
→ SOP("Hmmm");
else
    SOP("No!");

```

Hypothetical Number	0%	0%	10%	15%	25%
	1	2	3	4	5
	↑	↑	↑	↑	↑
	Meets No expect	Meets Some expectat-	Meets expectat	Exceed expectat	Outstanding

Given the salary & the rating. Print the updated salary.  
(Scan)

S : 10,00,000      r : 3/5      → 11,00,000

To : Everyone ☺  
Kshiti Mishra

// Scan salary : S

// Scan the ratings : r

if ( r < 3 ) { // ( r == 1 || r == 2 )

SOP( "New salary is " + S );

}

else if ( r == 3 ) {

// new salary = cur salary + 10% of cur salary

$$\hookrightarrow \frac{S \times 10}{100} \Rightarrow .1 \times S$$

SOP( "New Salary is " + ( S + .1 \times S ) );

}

else if ( r == 4 ) {

// new salary = cur salary + 15% of cur salary

$$\hookrightarrow \frac{S \times 15}{100} \Rightarrow .15 \times S$$

SOP( "New Salary is " + ( S + .15 \times S ) );

}

else {

// new salary = cur salary + 25% of cur salary

$$\hookrightarrow \frac{S \times 25}{100} \Rightarrow .25 \times S$$

SOP( "New Salary is " + ( S + .25 \times S ) );

}

## Triangles

Based on  
length of sides } →

Scalene → All sides have diff length

Isosceles → Only any two sides are equal

Equilateral → All three sides are equal.

Q Scan the <sup>→ int</sup>lengths of three sides of a triangle  
& print the type. (Assume: all lengths are  $\geq 0$ )

`if (a == b == c) ← ?`

→ Means: You don't know how to  
write code.

// a, b, c

`if (a == b && b == c && c == a) {`

↑  
Not needed

`SOP("Equilateral Triangle");`

`}`

`else if (a == b || b == c || c == a) {`

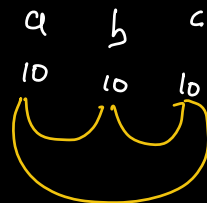
`SOP("Isosceles Triangle");`

`}`

`else {`

`SOP("Scalene Triangle");`

`}`



Q Scan 3 angles of a triangle & check if it is valid?

```
// scan a
// scan b
// scan c

if ( (a + b + c) == 180 ) {
    SOP ("Valid");
}
else {
    SOP ("Invalid");
}
```

$a++$   
 $++a$   $\rightarrow a = a + 1$

$a--$   
 $--a$   $\rightarrow a = a - 1$

```
int a = 5;

a++; // a++  $\rightarrow a = a + 1$ 
SOP(a);  $\rightarrow 6$ 
```

```
int a = 5;

++a; // ++a  $\rightarrow a = a + 1$ ;
SOP(a);  $\rightarrow 6$ 
```

int b = 3;

int c = b++;  $\rightarrow // c = b; b = b + 1 \Rightarrow c: 3$   
(b = b + 1)  
first assigned  
then increment

---

int b = 3;

int c = ++b;  $\rightarrow // b = b + 1; c = b; \Rightarrow c: 4$   
first increment  
then assigned

---

Amazon

Q Fizz Buzz

Scan a number N.

Print Fizz if N is a multiple of 3.

Print Buzz if N is a multiple of 5.

Print Fizz-Buzz if N is a multiple of both 3 & 5.

Fizz  $\rightarrow$  Divisible by 3

Buzz  $\rightarrow$  Div by 5

```

if (n % 3 == 0) {
    SOP("Divisible by 3");
}
else if (n % 5 == 0) {
    SOP("Divisible by 5");
}
else {
    SOP("Divisible by both");
}

```

---

$N = 13$

$N = 15$

Dry Run

Running the code on  
your own using Pen & Paper

```

if (N % 3 == 0 && N % 5 == 0) {
    SOP("Fizz Buzz");
}
else if (N % 3 == 0) {
    SOP("Fizz");
}
else {
    SOP("Buzz");
}

```

Without

(else/else-if)

```
if (N % 3 == 0) {  
    SOP("Fizz");  
}
```

```
if (N % 5 == 0) {  
    SOP("Buzz");  
}
```

N = 6 → Fizz ✓

N = 10 → Buzz ✓

N = 15 → \_\_\_\_\_ ✓

N = 15 → Fizz Buzz

M T W T F S → Sneek

++ , --

→ Observe the behavior

Ex { a = b++ / ++b / b-- / --b,  
          → a  
          → b

En → do assignment on same variable

En → do comparison