If - else Conditional decision making

I'll have coffee if available,
if not I'll have tea

```
if ( coffee is available?) {
|
        serve coffee
}
else {
|
        serve tea
}
```

Q. You have a person's age in integers.
Print "Eligible" if eligible to vote
"Not Eligible" otherwise

```
if ( age >= 18) {
|   print ("Eligible")
}
else {
|   print ("Not Eligible")
}
```

Q Given 2 different integers, print the bigger number. 7 12 ⇒ 12

a b

```
if ( a > b) {
    print (a)
}
else {
    print (b)
}
```

Q Given 2 integes, print the bigger number.

7 12 ⇒ 12

8, 8 ⇓ "Both equal"

a b

else if ⇒

```
if ( )
else if ( )
else if ( )
else
```

```
if( a > b) {
    print (a)
}
else if ( a == b)
{
    print ("Both equal"
}
else {
    print (b)
}
```

Q Temperature < 98.2 low

98.2 to 98.8 normal

> 98.8 high

```
if ( temp > 98.8 ) {
    print ("High")
}
else if ( temp < 98.2 ) {
    print ("Low")
}
else {
    print ("Normal")
}
```

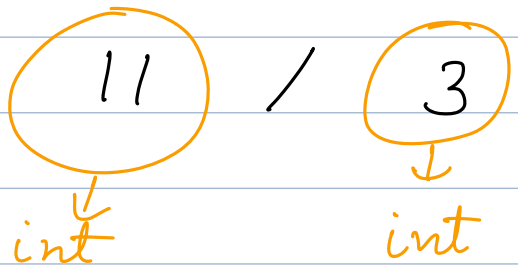
```
if ( temp < 98.2 ) {
    print ("Low")
}
else if ( temp >= 98.2 && temp <= 98.8 ) {
    print ("Normal")
}
else {
    print ("High")
}
```

98.2 ≤ temp && temp ≤ 98.8

Division & integer datatypes

print (11/3) → 3

11/3 ⇒ 3.666666



integer division

26/2 = 13

27/2 = 13

2 datatypes → same ⇒ ans also same datatype

→ diff ⇒ ans is of the bigger datatype

double > float long > int

If one guy decimal, one guy integer
ans ⇒ decimal

print (11/3)

11.0/3.0
11.0/3
11/3.0
float (11)/3
11f/3

System.out.print ((float)(11/3)) ⇒ 3.0

3

int x = 100000 10^5
int y = 200000 2×10^5

print (x*y) ✗
print ((long)(x*y)) ✗

print ((long) x * y) ✓

- Modulo (%) a % b

Remainder 7 % 3 = 1
12 % 3 = 0

17 % 4 = 1

Q Print whether integer a is even or odd

8 Even ⇒ divisible by 2
11 Odd

```
if ( a % 2 == 0 )
    print ("Even")

else
    print ("Odd")
```

Q Given integer, print the last digit

731 → 1 456217 → 7

```
print ( a % 10 )
```

- Relational operators

$A > B$
$A < B$
$A >= B$
$A <= B$

$A == B$ checks if A & B are equal

$A != B$ (not)

- Logical operators

$98.2 \leq temp$ && $temp \leq 98.8$

AND

city == "Delhi" || city == "Mumbai"

OR

AND

A	B	result
0	0	0
0	1	0
1	0	0
1	1	1

OR

A	B	result
0	0	0
0	1	1
1	0	1
1	1	1

Q

100 units ⇒ 5 Rs/unit

101 & beyond ⇒ 10 Rs/unit

70 ⇒ 350

130 ⇒ 100 + 30

100 × 5 = 500

30 × 10 = 300

500 + 300 = 800

```
if ( units ≤ 100) {
    print (units × 5)
}
else {
    extra = units - 100
    total_payment = 100 × 5 + extra * 10
    print( total_payment )
}
```

Q. If multiple of 3 & 5 print "Fizz Buzz"
If multiple of 3 "Fizz"
If multiple of 5 "Buzz"
If not multiple of 3 & 5 "Nothing"

```
if ( n % 3 == 0 )
    Fizz
else if ( n % 5 == 0 )
    Buzz
else if ( n % 3 == 0 && n % 5 == 0 )
    Fizz Buzz
```

A $1 \le A \le 100$

$1 \le A \le 1000$

```
if ( n % 3 == 0 && n % 5 == 0 )
    Fizz Buzz
else if ( n % 3 == 0 )
    Fizz
else if ( n % 5 == 0 )
    Buzz
else
    Nothing
```