```
int a = scn.nextInt(); //a = 50
int b = scn.nextInt(); //b = 45
if (a>b) { // 50>45 (true)
    → S.O.P ("Hi");
}
else {
    S.O.P ("Bye");
}
```

Input 1 → 50
45

Output → Hi

Input 2 → 60
100

Output → Bye

Example Input

Example Output

Test Case →

Inputs for which you know the correct output and you use them to check whether your code is correct or not.

run on ide.new by giving the input and check with the output.

Dry run →

→ Take a test case

→ Run your code using pen and paper

dues. Read units consumed and calculate electricity charges.

		[per unit]
1 - 50	for first 50 units charge is →	[1 Rupee]
51 - 150	for next 100 units charge is →	[2 Rupees]
151 - 250	for next 100 units charge is →	[3 Rupees]
251 and above	Anything above 250 units will be charged →	[5 Rupees]

Calculate the bill amount?

A = 40 ⟶ cost → 40/-

A = 70 ⟶ first 50 units → 50 * 1 = 50/-

51-70 [20 units] → 20 * 2 = 40/-

90

↳ ~~140 [70 * 2]~~

↳ 90

A = 120 ⟶ first 50 units → 50*1 = 50/-
51-120 (70 units) → 70*2 = 140/-
190/-

A = 200 ⟶ first 50 units → 50*1 → 50/-
51-150 [100 units] → 100*2 → 200/-
151-200 [50 units] → 50*3 → 150/-
400/-

A = 260 ⟶ first 50 units → 50*1 → 50/-
51-150 [100 units] → 100*2 → 200/-
151-250 [100 units] → 100*3 → 300/-
251-260 [10 units] → 10*5 → 50/-
600/-

int A = sc.nextInt();

A <= 50 1-50

Slabs	Examples	Amount
[1 - 50] A <= 50	A = 25 ⇒ 25/- A = 45 ⇒ 45/-	A * 1 ⇒ A
[51 - 150] A > 50 && A <= 150	A = 75 ↳ 1-50 ⇒ 50/- ↳ 51-75 ⇒ 50/- (25 units) [75-50] 50 * 1 + 25 * 2 = 100/-	50 * 1 + (A-50) * 2 ⇒ 50 + 2 * A - 100 ⇒ 2 * A - 50
	A = 100 ↳ 1-50 → 50/- 51 - 100 → 100/- (50 units) 50 * 1 + 50 * 2 = 150/- [100-50]	

Slabs (first 150)

151 – 250 :

A > 150 && A ≤ 250

for the first 150 units

(50 * 1) + (100 * 2)

= 250/-

Examples

A = 200

1 - 50 → 50 units

51 - 150 → 100 units

151 - 200 → 50 units

(50 * 1) + (100 * 2) + (50 * 3)

⇒ [50 + 200] + 150

⇒ 400/-

A = 170

1 - 150 → 250/-

151 - 170 [20 units]

250/- + 20 * 3

⇒ 250 + 60 ⇒ 310/-

Amount

250 + (A - 150) * 3

⇒ 250 + 3 * A - 450

⇒ 3 * A - 200

Slabs

251 and above

A > 250

[1-250]
first 250 units

50 + 200 + 300
⇒ 550/-

Examples

A = 270

1 - 50 → 50 units
51 - 150 → 100 units
151 - 250 → 100 units
251 - 270 → 20 units
[A-250]

50*1 + 100*2 + 100*3 + 20*5
⇒ (50 + 200 + 300) + 100
⇒ 650/-

Amount

$550 + (A-250)*5$

⇒ 550 + 5*A - 1250

⇒ 5*A - 700

Nested If Else

```
if (c1) {
    if (c2) {
        S.O.P ("Hi guys");
    }
}
```

⇒

```
if (c1 && c2) {
    S.O.P("Hi guys");
}
```

```
int a = 10, b = 15;
if (a > 8) {                    // 10 > 8 (true)
    if (a < b || b == 9) {      // 10 < 15 (true)
        S.O.P("Hi");
    }
    else {
        S.O.P("Bye");
    }
}
else {
    S.O.P("GoodBye");
}
```

Output → Hi

```
int a = 10 , b = 15;
```

10 > 8 true

```
if (a > 8) {
    if (a == b || b < a) {
        S.O.Pln ("Hi");
    }
    else {
        S.O.Pln ("Bye");
    }
}
else {
    S.O.P ("Got it");
}
```

false false

Output → Bye

```
if (true) {
    if (true) {
        if (false) {
            S.O.Pln("Hey there");
        }
    }
    else {
        S.O.Pln ("Hello");
    }
}
else {
    S.O.Pln    (10/0);
}
```

No Output

Categorise a Number

- Positive and Even (1)
- Positive and Odd (2)
- Negative and Even (3)
- Negative and Odd (4)

N = 24 ⟶ Positive and Even

N = 57 ⟶ Positive and Odd

```
if (N > 0) {          // true
    S.O.P ("Positive and ");
    if (N % 2 == 0) {     // false
        // even
        S.O.P ("Even");
```

N = 67

Positive and Odd

```
    }
    else {
        //odd
        S.O.P ("Odd")
    }
}
else {
    // -ve
    S.O.P ("Negative and ");
    if (N%2==0) {
        // even
        S.O.P ("Even");
    }
    else {
        //odd
        S.O.P ("Odd")
    }
}
```

N = -90

Negative and Even

}

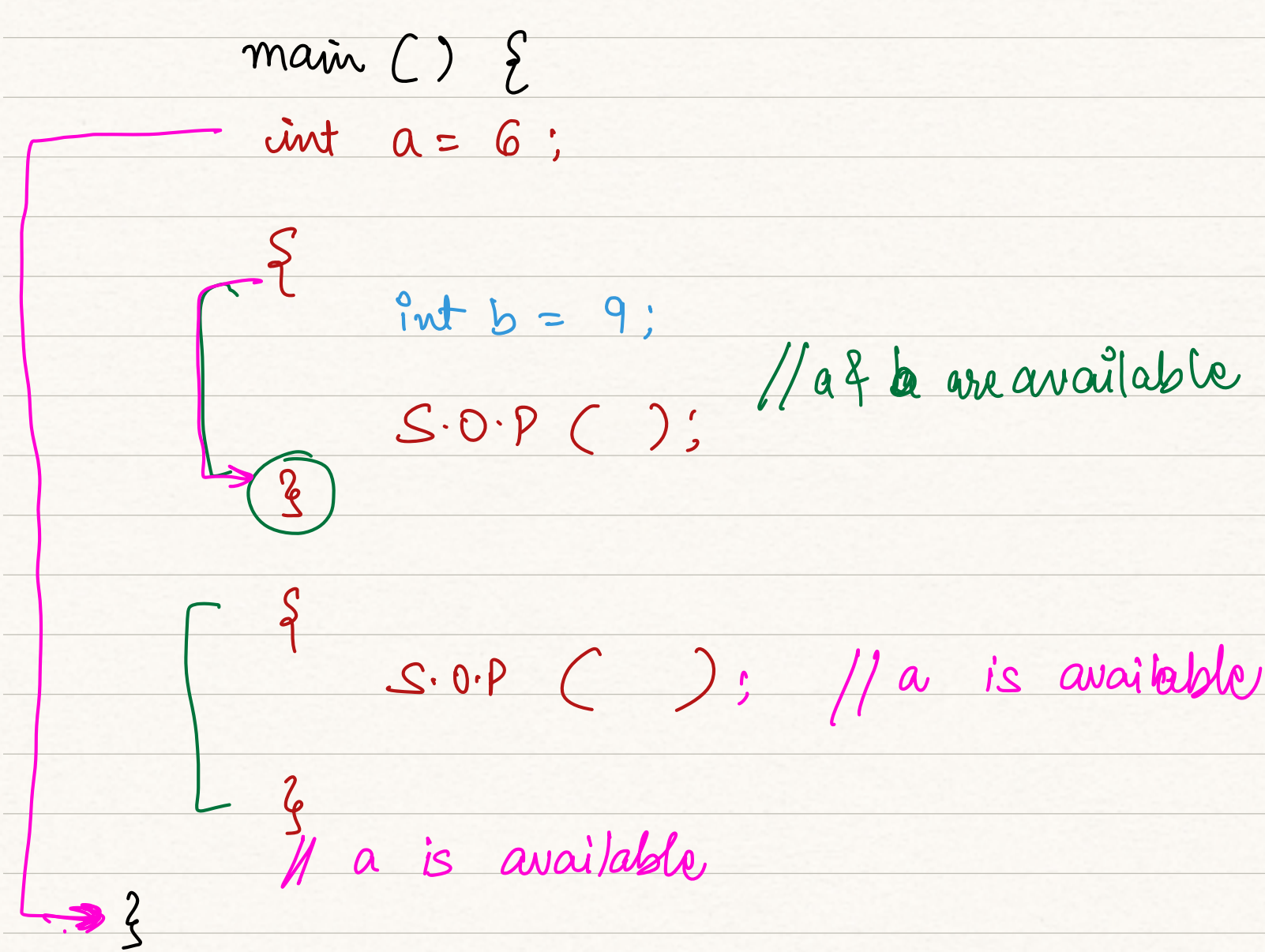
Scope of Variable →

```
1   main ( ) {
2
3
4       int x ;
5         x = 5 ;
6
7       int y = 20 ;
8
9
10  }
```

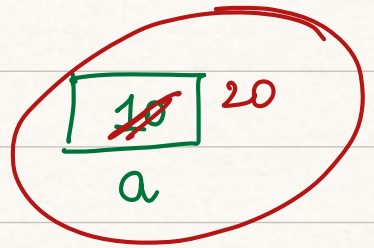
Scope of x → (4 - 10)
Scope of y → (7 - 10)

```
1   main ( ) {
2     int x = 10 ;
3     if (x == 10) {
4       int y = 5 ;
5       S.O.P(y) ;
6     }
7     S.O.P(x) ;
8
9
10  }
```

Scope of x → [2 - 10]
Scope of y → [4 - 6]


main ( ) {
int a = 6 ;
{
int b = 9 ;
S.O.P ( ) ;
// a & b are available
}
{
S.O.P ( ) ; // a is available
}
// a is available
}

```
main ( ) {
    int  a = 10 ;  ⟶
    {
    ⟶  a = 20 ;
    }
⟶ S.O.P (a);  ⟶ 20
}
```



changes are not restricted to blocks [changes are permanent]

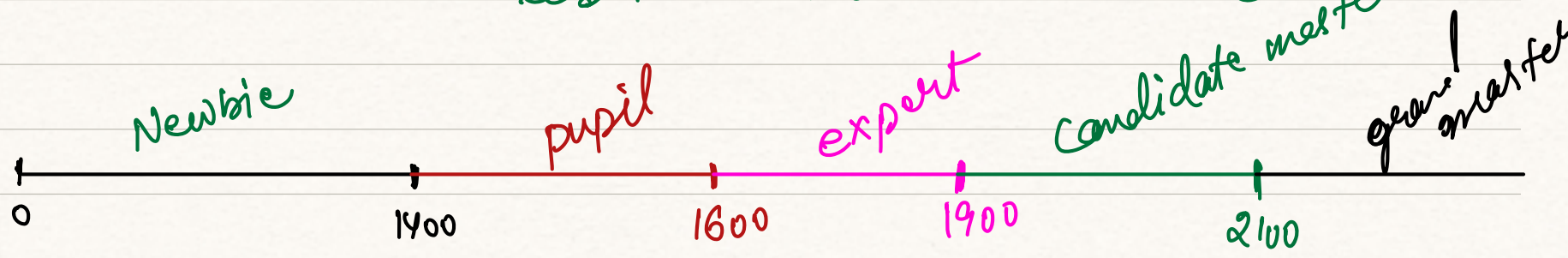
but life of a variable is restricted to the block in which they were created.

Doubts

Coding Rating

```
int N = scn.nextInt();
```

$\geq 2100 \rightarrow$ grand master
$\geq 1900 \rightarrow$ candidate master
$\geq 1600 \rightarrow$ expert
$\geq 1400 \rightarrow$ pupil
less than 1400 $\rightarrow$ newbie



```
if (N%2==0) {
```

EXPERT

PUPIL

```
} else {
```

pupil

expert

```
}
```

MCQ D

a = 10

if (a <= 0)

(10 <= 0) false

{

if (a == 0) {
S.O.Pln ("1");
}
else {
S.O.Pln ("2");
}

}

→ S.O.Pln ("3");

MCQ E

```
boolean male = false;
int age = 30;
if (male)
    if (age < 20)
        S.O.Pln ("Boy");
    else
        S.O.Pln ("Man");
else
    if (age < 20)
        S.O.Pln ("Girl");
    else
        S.O.Pln ("Woman");
```

Woman

```
int x = (a+b+c+d+e) / 500 *100;
```

```
0 *100;
```

BODMAS

a = 40
b = 60
c = 50
d = 30
e = 70

$\left(\frac{250}{500}\right) * 100 = 50\%$

$(0.5) * 100 = 50$

score = 80

false
if (score >= 90) grade = "A"

true
→ if (score >= 80) grade = "B"

true
→ if (score >= 70) grade = "C"

true
→ if (score >= 60) grade = "D"

else grade = "E"

grade = D

- [51 - 80] → PASS B

[81 - 100] → PASS A

FAIL