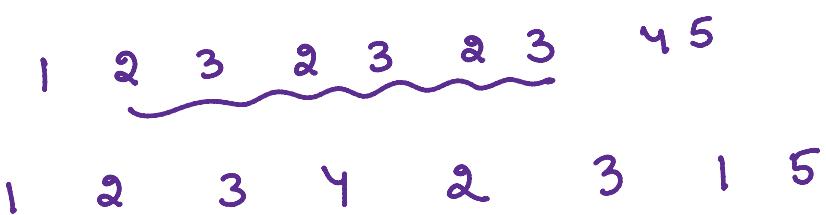


- * Conditional Statements
- * Doubts

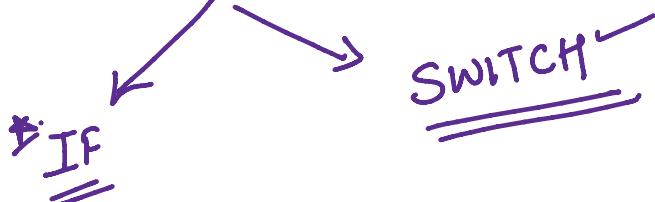
"Control" Flow

default
1
2
3
4
5

- 1. Conditional Statements (choice)
2. Iterative Statements (repetition)
3. Jump Statements · (random)



Conditional Statements

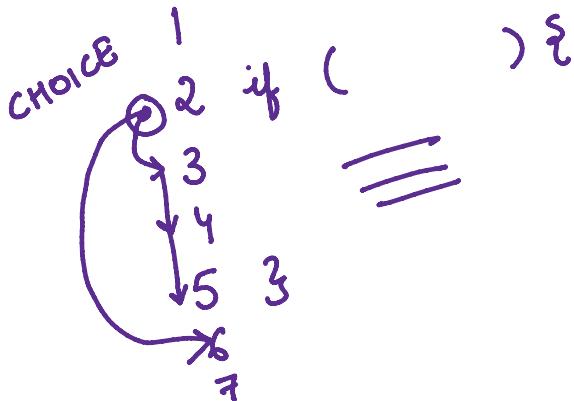
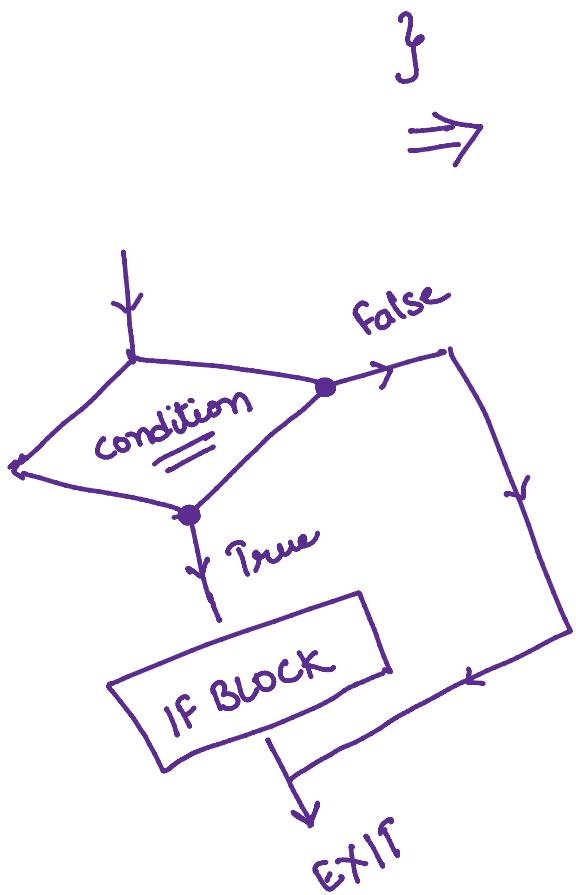


IF Statement :

1.) Simple if

```
if ( condition ) {
```

==== IF BLOCK



1. int a=15;
2. if (a < 10){
3. cout << "A";
4. cout << "B";

A → True
B → False

int a = 100;

if (a < 20)
 cout << "A";] IF BLOCK
 cout << "B";

... → True

cout << "B";
cout << "C";
cout << "D";

ABCD → True
BCD → False

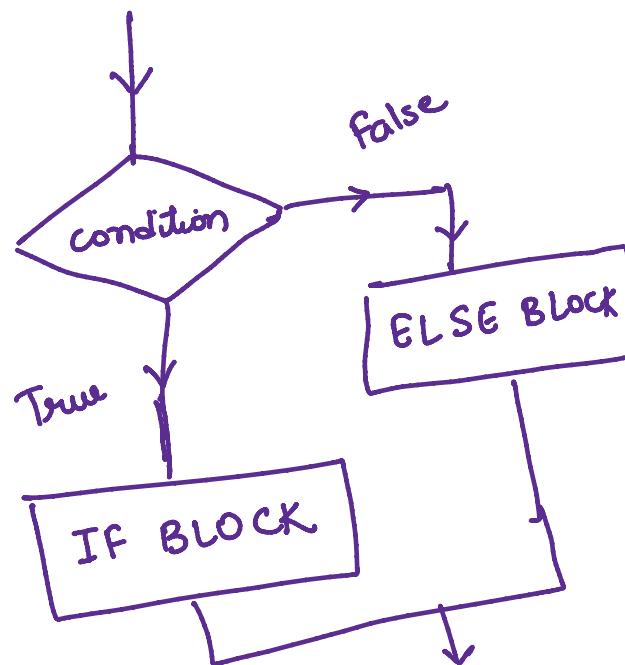
2. if else statement

if (condition) {
 == IF Block

}

else {
 == ELSE BLOCK

}



```

int a=120;
choice
if ( a < 50) {
    cout << "A";
    cout << "B";
}
else {
    cout << "C";
    cout << "D";
}
cout << "E";

```

$A \wedge B \wedge E \rightarrow \text{True}$
 $C \wedge D \wedge E \rightarrow \text{False}$

```

int a = 50;
if ( a > 20)
    cout << "A";
    cout << "B";
else
    cout << "C";
    cout << "D";
    cout << "E";

```

```

int a = 50;
if (a > 20) {
    cout << "A";
}
else {
    cout << "B";
}
cout << "C";
}
cout << "D";
cout << "E";

```

ERROR: missing if statement

if ✓ if
else ✓ else X

.

```

 $a = 100$ 
 $100 < 20$ 
false
ELSE

```

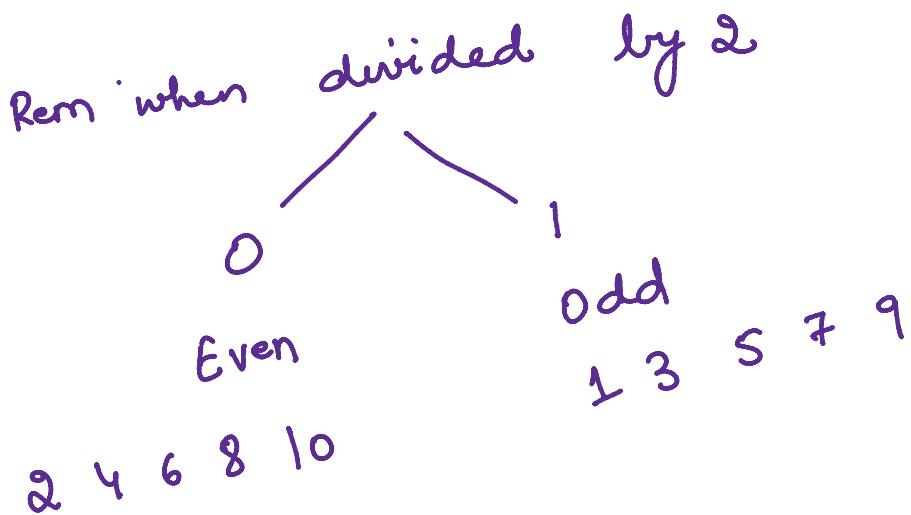
```

#include<iostream> //Header File
#include<string.h> //Library containing string functions
using namespace std;
int main(){ //Start of the main function
    int a=100;
    if(a<20)
        cout<<"A"; //if block
    // cout<<"B";
    else
        cout<<"C"; //else block
    cout<<"D";
    cout<<"E";
}

```

O/p : CDE

Check if a number is even or odd.



```

if ( $n \% 2 == 0$ )
    cout << "Even";

```

```

else
    cout << "Odd";

```

String to Boolean

```
if (str. compare ("TRUE") == 0)  
    return true;  
  
else  
    return false;
```

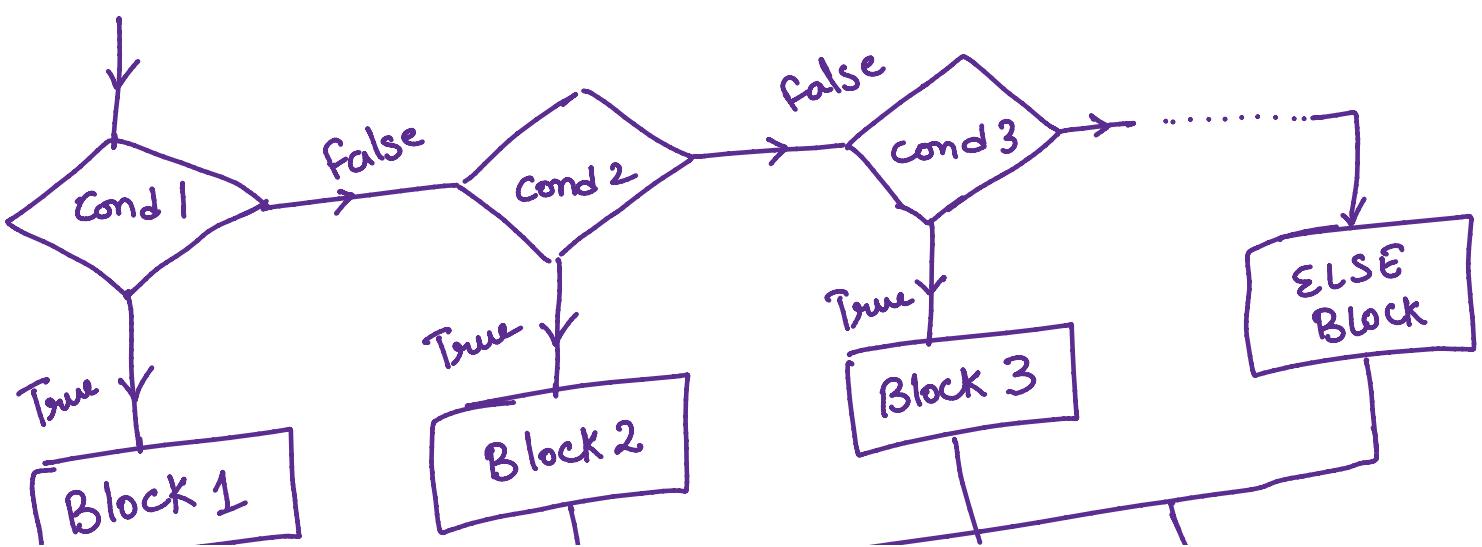
3) if else if ladder

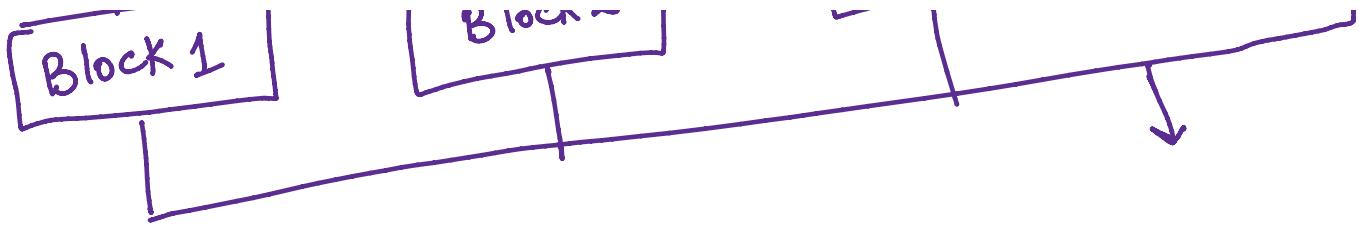
multiple conditions

```
if (condition1) {  
    === IF BLOCK  
}  
else if (condition2) {  
    === ELSE IF 1 Block  
}  
else if (condition 3) {  
    ===  
}  
:  
:  
:  
else {  
    === ELSE BLOCK
```

\equiv ELSE BLOCK

int a = 20;
if (a < 10) {
 cout << "A";
}
else if (a < 20){
 cout << "B";
}
else if (a < 30){
 cout << "C"; \Rightarrow o/p: C
}
else {
 cout << "D";
}





int a = 50; ✓

if (a % 2 == 0){
 cout << "A";

}

else if (a > 10){
 cout << "B";

}

else if (a < 100){
 cout << "C";

}

else {

 cout << "D";

}

~~op: A~~

int a = 20;

if (a % 2 == 1){

 cout << "A";

}

else if (a % 5 == 2){

```
else if ( a%5 == 2 ) {  
    cout << "B";  
}
```

No output

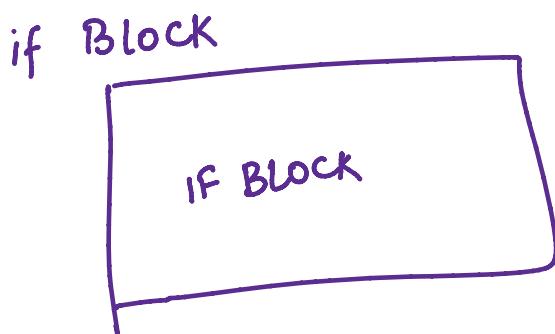
* else block is optional

```
if ( c1 ) { T/F  
{ if ( c2 ) { T/F  
{ if ( c3 ) { T/F  
}  
}
```

```
if ( c1 ) {  
{ else if ( c2 ) {  
{ else if ( c3 ) {  
}  
}
```

c1
↓ c1 is false
c2
↓ c2 is false
c3

4. nested if



```
if ( cond ) {
```

if (cond) {
 }
}

if (c1) {

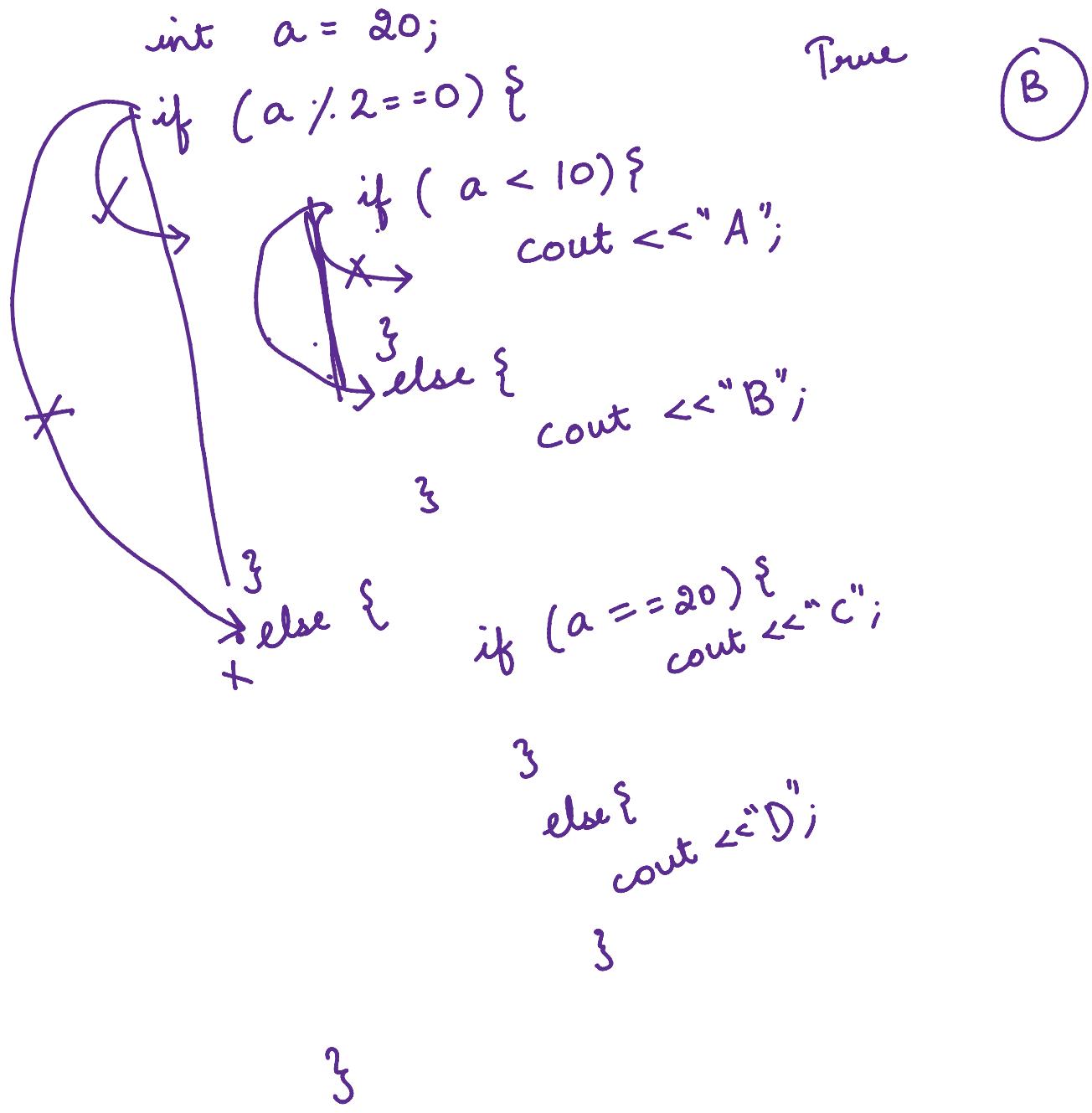
}
else {
 if (c2) {
 }
 }

}

if (c1) {

 if (c2) {
 -
 }
 else {
 }
 }

}



(x), y, z
Largest of these three numbers

1.) if ($x > y$ logical AND $x > z$) {
 cout << x;
 "x"
 20
}

```
cout << x ;
```

```
    }  
else if (y > x && y > z){  
    cout << y;
```

۳

else {

cout << zj

۳

2.) Nested if:

x, y, z

if ($x > y$) { // y is not the largest
 // largest: x or y
 \dots } } \dots

if ($x > y$) cout << x;

else
 cout << y;

if ($y > z$)
cout << y;

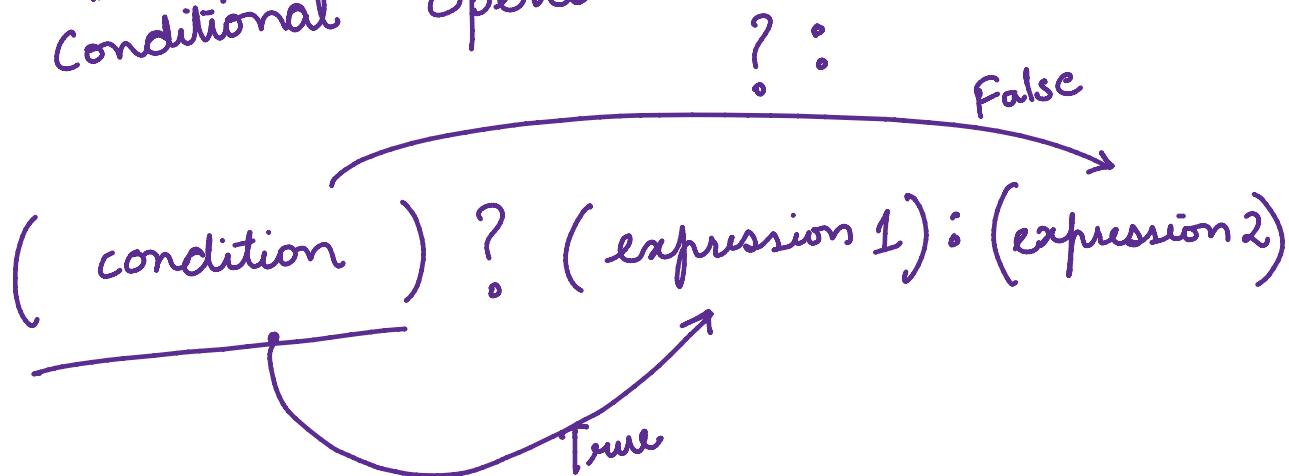
```

if (y > 'y')
    cout << y;
else
    cout << z;
}

```

Ternary Operator (3 operands)

↓
Conditional Operator



```
int marks = 60;
```

```
string result;
```

```
result = (marks > 35) ? "pass" : "fail";
```

```
cout << result;
```

Pass.

```
int a = 4;
```

FALSE

```

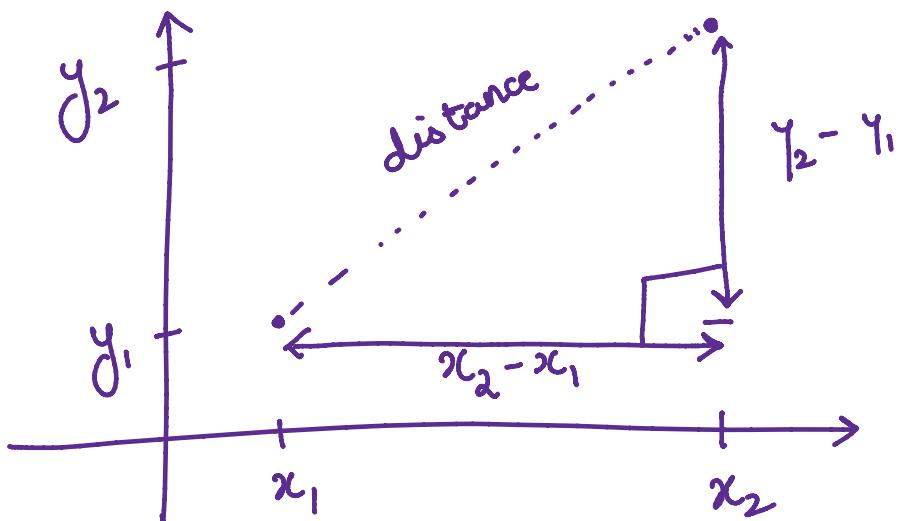
int a = 4;
int b;
b = (a < 5) ? 2 : 3;

```

TRUE
FALSE

$a < 5$ "true"

$b = 2$



$$H^2 = P^2 + B^2$$

$$\text{dist}^2 = (y_2 - y_1)^2 + (x_2 - x_1)^2$$