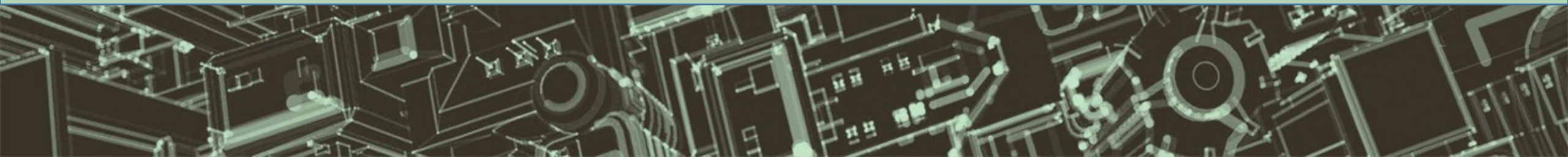
If-else and Switch-case Comparison



Group member

- Manash Kumar Mondal
- Shariar Niloy

Types of if statement

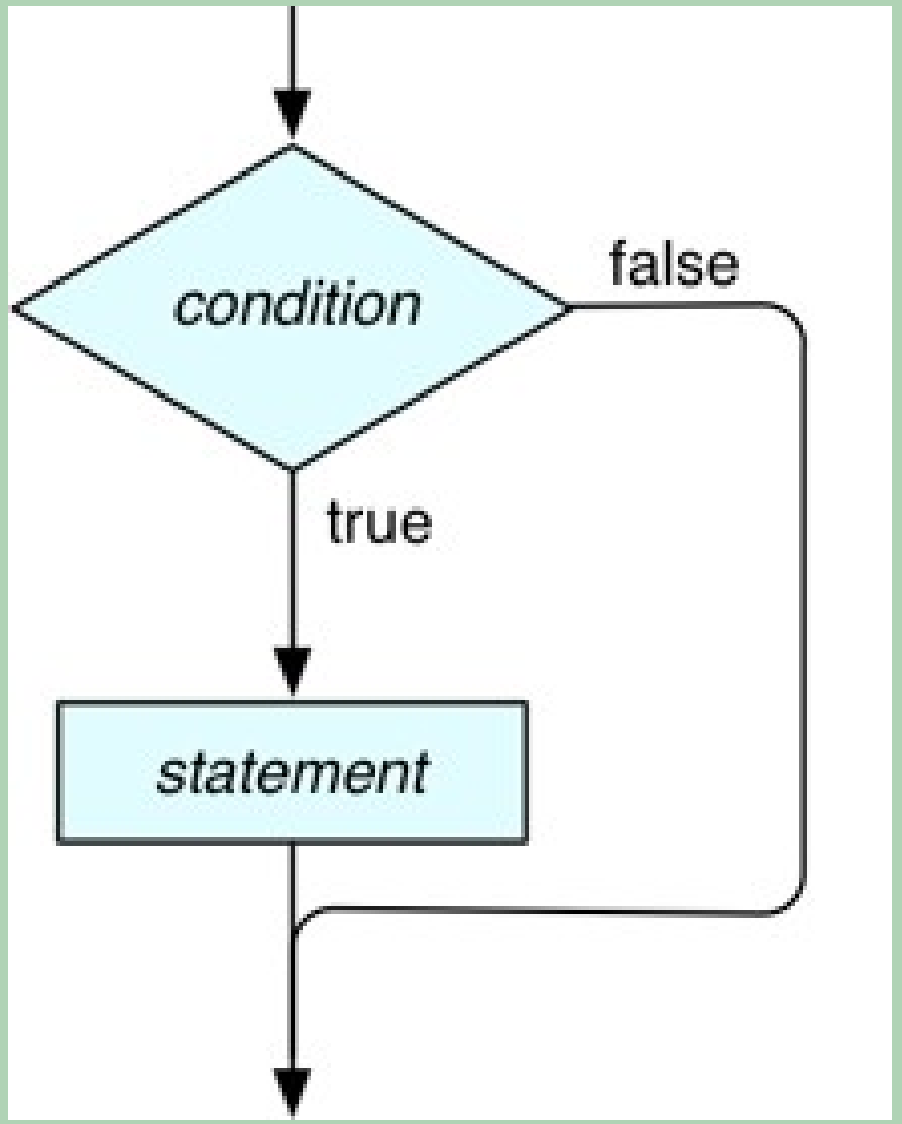
- General if statement
- If --------- else statement
- Else if chain and nested loop

What is if statement?

The if statement either selects an action, if a condition is true or skips the action if the condition is false.

“If it is not raining, we will go to school.”

```
If ( conditional expression) {
        statement_1;
        statement_2;
        statement_3;
        }
```



```c
#include <stdio.h>
int main(){

    int a=5, b=10;
    if(a<b)
            printf("a is less than b \n");

    if(a>b)
            printf("a is more than b \n");

    return 0;
}
```

Output

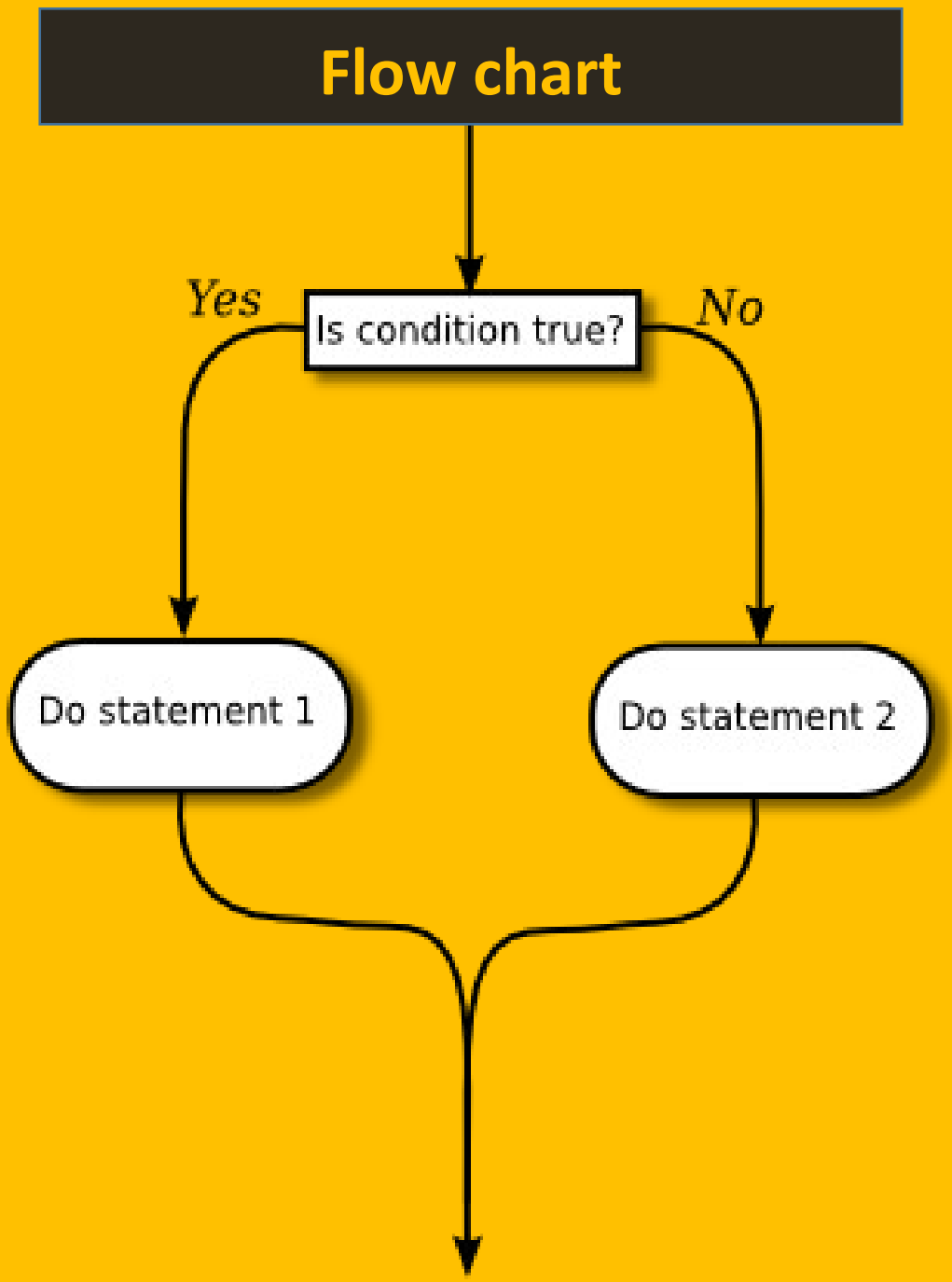
```
a is less than b
```

If else statement

It allows you to specify that different actions are to be performed when the condition is true and when it’s false.

```
if(expression){
    Statement_1;
 else
    statement_2;
```

Flow chart



```c
#include <stdio.h>

int main(){

    int a;
    scanf("%d",&a);

    if((a%2) != 0)
        printf("\n You entered an odd number.\n");
    else
        printf("\n You entered an even number.\n");

    return 0;
}
```

Input	Output
a = 12	You entered an even number

Nested loop?

If we use if else as a compound statement in another if else, then it is called nested loop.

Nested loop

```
If (expression_1){
        If(expression_2)
                statement_1;
        else
                statement_2;
        }
else  {
        if(expression_3)
                statement_x;
}
```

Else if chain

```
If (expression)
        Statement_1;
else if (expression)
        statement_2;
else if (expression)
        statement_2;
-
-
else if (expression)
        statement_2;
else
        statement_x;
```

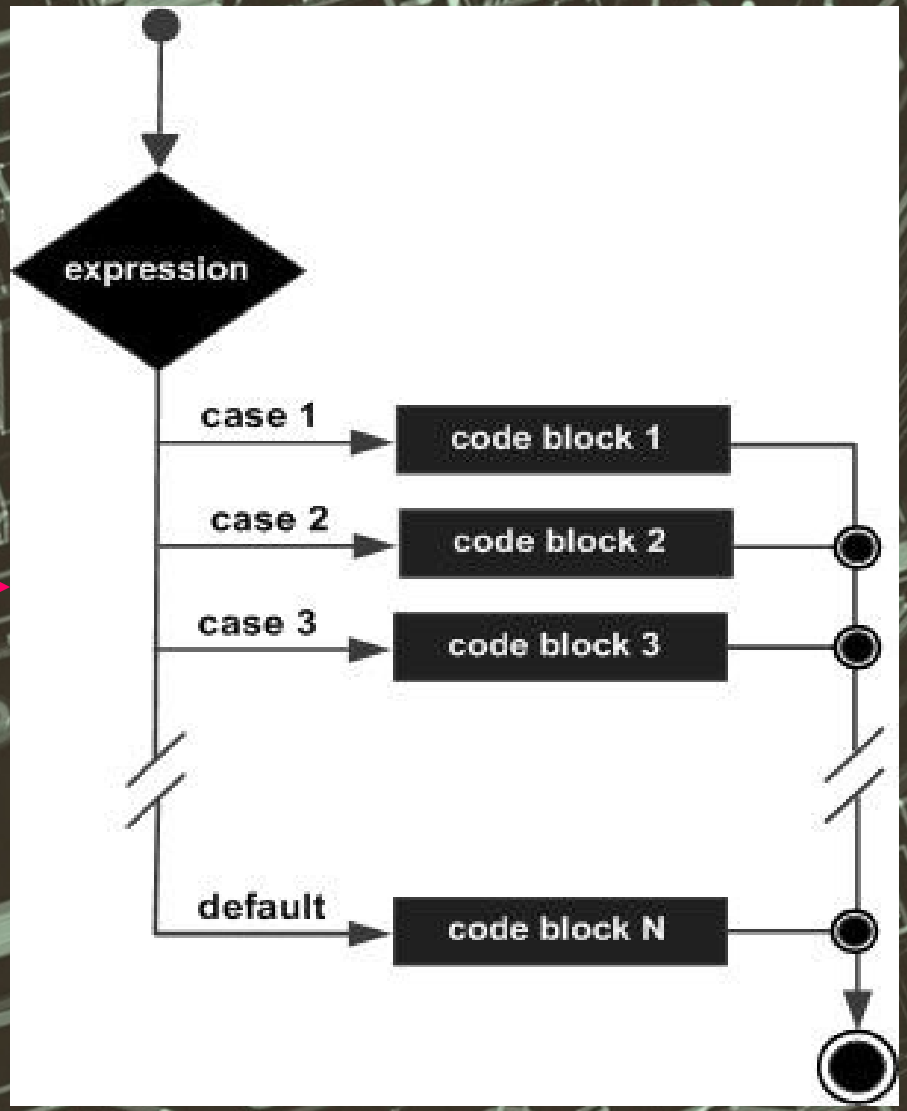
Switch statement

A switch statement is a type of selection control mechanism used to allow the value of a variable or expression to change the control flow of program execution via a multiway branch.

Keyword

1)Switch
2)Case
3)Break
4)Default

Flow diagram



Limitations of switch over if-else ladder

1.The variable expression are also not allowed in cases, ”case i+2:” is not allowed in switch, but it is vaild on if-else.

2.You cannot test a flat expression using switch.

3.You cannot use similar expressions for multiple cases.

4.Switch statement must know the value inside it during compilation.

```
switch (expression)
{
 case 5: //...
                 break;
 case 2+3: //...
                       break;
}
```

Advantages of switch over if-else ladder

1.A switch statement works much faster than equivalent if-else ladder.

2.It is more readable and in compare to if-else statements.

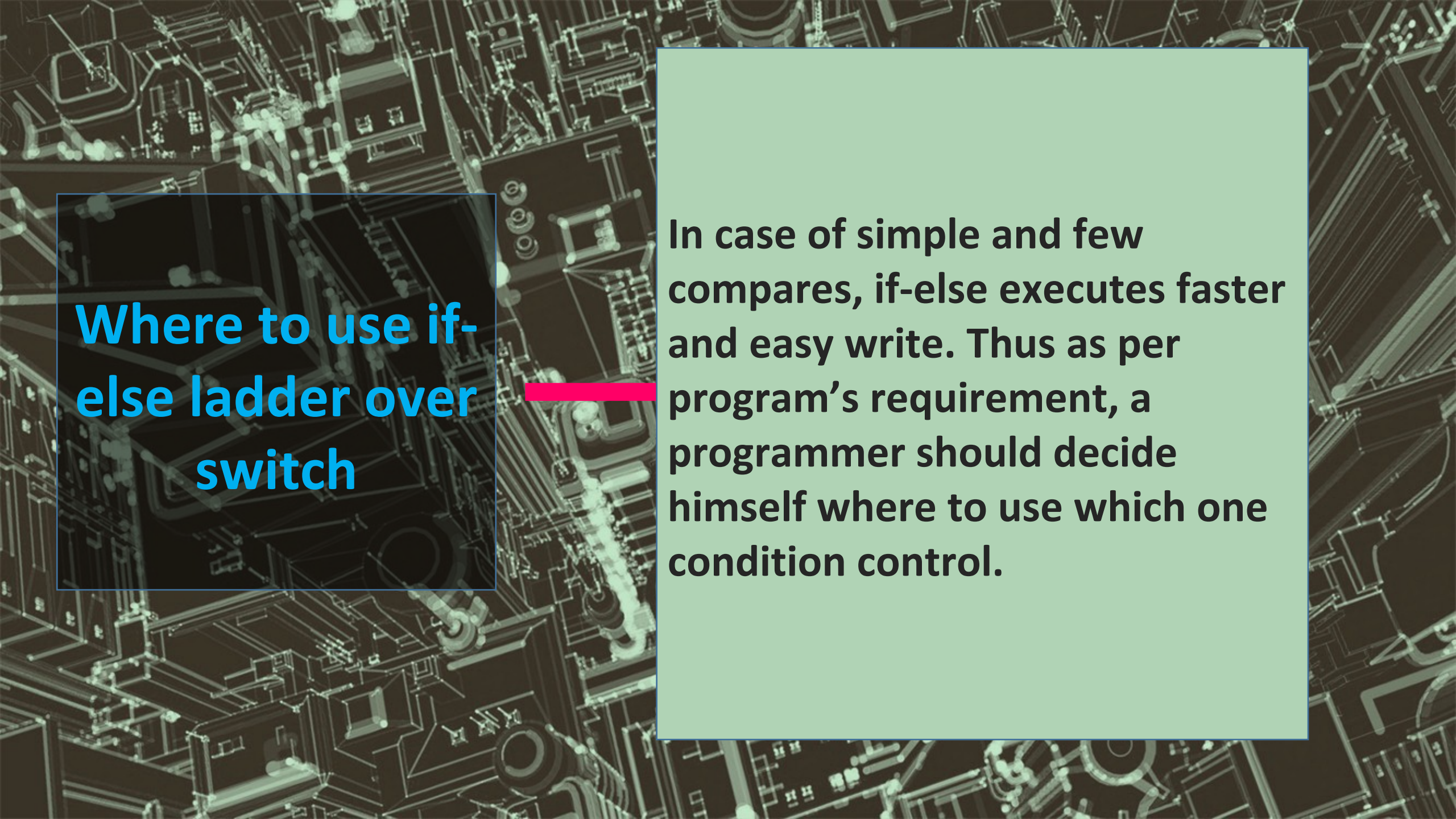
3.It is more manageable for having higher level of indentation than if.
4. Here multiple statements need not to be enclosed within a pair of braces.

Where to use switch over if-else ladder

1.If there are large number of compares for a condition in your program, use switch over if-else ladder.

2.For more complex comparisons.

}



Where to use if-else ladder over switch

In case of simple and few compares, if-else executes faster and easy write. Thus as per program’s requirement, a programmer should decide himself where to use which one condition control.

Thank you….