Basic Programming I

Conditions

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Quote of The Day

It's time to start living the life you've imagined.

- Henry James

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Table of Content

What will We Learn Today?

1. Introduction to Condition and Control Flow
2. Flowchart of Conditions
3. If statement
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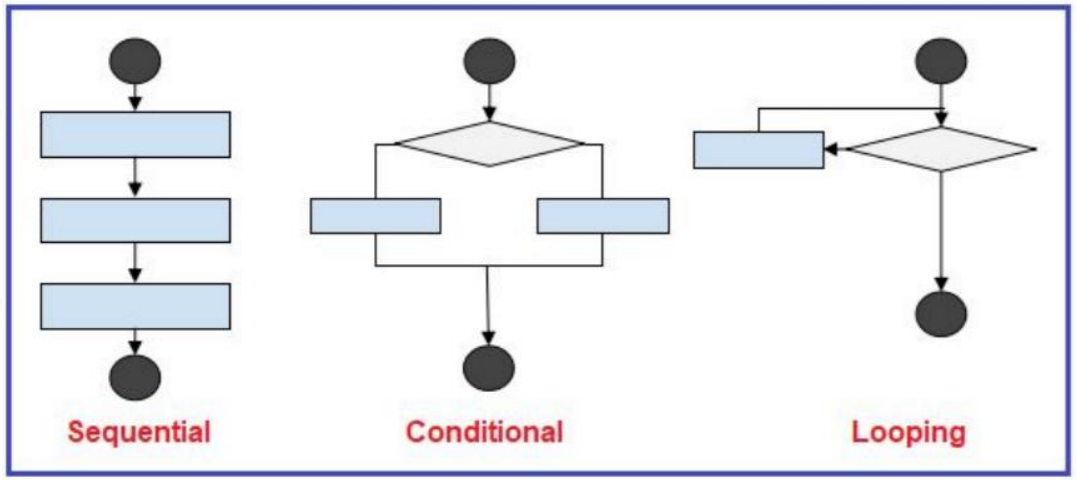
Condition & Control Flow

Control Flow is the order in which the program's code executes.

The control flow of a Python program is regulated by conditional statements, loops, and function calls.



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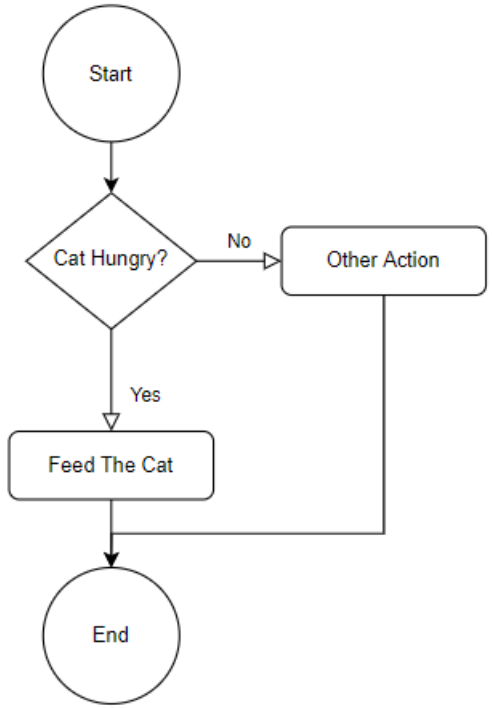
Condition & Control Flow

We often only want to run code when certain conditions has been met.

For example, if my cat is hungry (some condition), then I will feed my cat (some action)



Condition & Control Flow

In Python, the if statement is how you perform this sort of decision-making.

It contains a code which runs only when the condition given in the if statement is true / meet the condition.

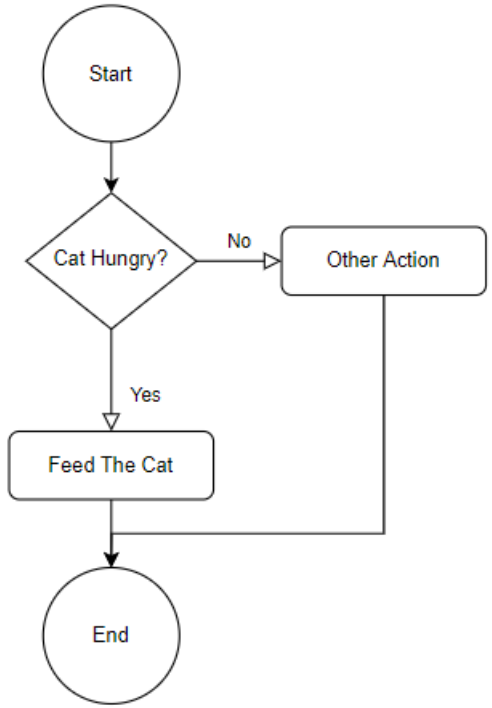
If the condition is false, then the optional else statement runs which contains some code for the else condition.

```
if <expression>:
        <statement>
else:
        <statement>
```

Condition & Control Flow

```
if cat is hungry then
        feed the cat
else
        do other things
```

```
if cat == 'hungry':
        feed_the_cat()
else:
        other_action()
```



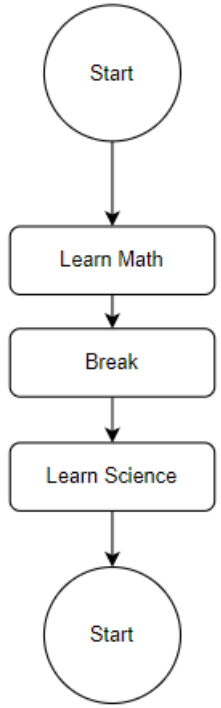
Condition & Control Flow

Sequential:

Learn Math

Break Time

Learn Science



Other Example:

```
a=20
b=10
c=a-b
print("a-b =",c)
```

Condition & Control Flow

Python supports the logical conditions from mathematics:

- Equals: a == b
- Not Equals: a != b
- Less than: a < b
- Less than or equal to: a <= b
- Greater than: a > b
- Greater than or equal to: a >= b

And also, here is the logical operators that can be used:

- True if both the operands are true: and
- True if either of the operands is true: or
- True if operand is false (complements the operand): not

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“IF” Statement

- Single Condition (If)

```
a = 3
if a == 3:
    print("a is three")
```

output: a is three

- Two Condition (If -> Else)

```
a = 5
b = 5
if a != b:
    print("a and b is not the same")
else:
    print("a and b is the same")
```

output: a and b is the same

- Multiple Condition (If -> Elif -> Else)

```
a = 3
b = 5
if a > b:
    print("a is bigger than b")
elif a < b:
    print("a is smaller than b")
else:
    print("a and b is the same")
```

output: a is smaller than b

“IF” Statement

- Single Expression

```
a = 5
b = 7
if a <= b:
    print("a is smaller than b")
output: a is smaller than b
```

- Multiple Expression

```
a = 3
b = 7
c = 20
if a < b and b < c:
    print("a is smaller than b")
output: a is smaller than b
a = 3
b = 7
c = 20
if c > b or c < a:
    print("At least one of the expression is True")
output: At least one of the expression is True
```

“IF” Statement [Shorthand]

- Single Expression

```
a = 3
if a == 3:
    print("a is three")
```

=

```
a = 3
if a == 3: print("a is three")
```

```
if else
a = 5
b = 5
if a == b:
   print("same")
else:
   print("different")
```

=

```
a = 5
b = 5
print("same") if a==b else print("different")
```

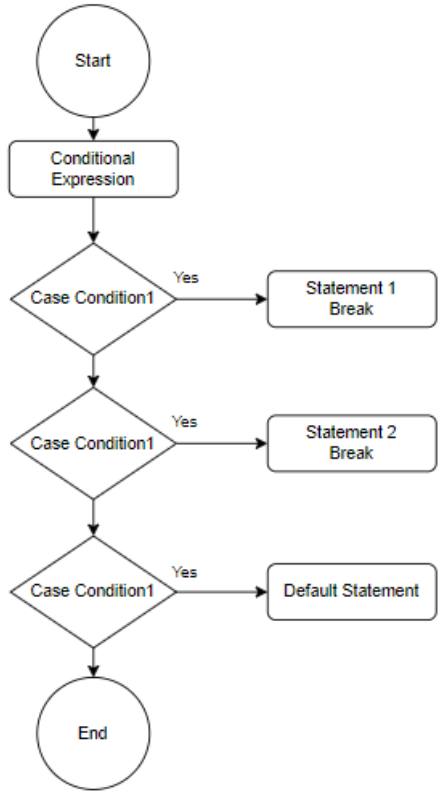
“IF” Statement [Nested]

```
x = 50
if x > 20:
   print("Above twenty, ")
   if x > 40:
   print("and also above 40")
 else:
   print("but not above 40")
else:
   print(“Below twenty”)
```

Output: Above twenty, and also above 40

Switch Case / Match Case

```
match x:
    case 'a':
        print(1)
    case 'b':
        print(2)
    case _:
          print(0)    # 0 is the default case if x is not found
```



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Things We Learned

Congratulations! You have finished learning about conditions.

1. Introduction to Condition and Control Flow
2. If, Nested If
3. If - Shorthand
4. Switch Case

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Thank YOU