

# PYTHON WORKBOOK – SECTION 3

## *Control Flow (If–Else, Loops)*

Programmer's Hub – by CodeWithVivek  
<https://www.youtube.com/@code-with-vivek>

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## 3.2 If-Else

### Quick Explanation

Control flow lets your program make decisions.

Basic structure:

if condition:

    # do something

else:

    # do something else

Example:

num = 10

if num > 5:

    print("Greater than 5")

else:

    print("5 or less")

---

### Try This:

Write a program that checks if a number is **positive**, **negative**, or **zero**.

# Write here:

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### **Debug This:**

What is wrong with this?

```
if x > 10
```

```
    print("Big")
```

Your answer: \_\_\_\_\_

\_\_\_\_\_

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### **Nested Conditions**

#### **Explanation**

Conditions can be placed inside other conditions.

```
age = 25
```

```
if age > 18:
```

```
    if age < 60:
```

```
        print("Adult")
```

---

### **Try This:**

Write a program to classify age:

- 0–12 → Child
- 13–19 → Teen
- 20+ → Adult

# Write here:

---

## Logical Conditions: and, or, not

### Example

```
score = 80
```

```
if score >= 60 and score <= 100:
```

```
    print("Pass")
```

```
if city == "Delhi" or city == "Mumbai":
```

```
    print("Metro City")
```

```
if not raining:
```

```
    print("Go outside")
```

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### **Your Turn:**

Write a condition that checks:

A number is between 10 and 50 (inclusive):

# Write condition here:

---

## 3.3 Loops

### For Loop

#### Looping Over a Range

```
for i in range(1, 6):
```

```
    print(i)
```

#### Looping Over a List

```
fruits = ["apple", "banana", "mango"]
```

```
for f in fruits:
```

```
    print(f)
```

---

### Try This:

Print all even numbers from 1 to 20.

# Write code here:

---

### Debug This:

```
for i in range(5):
```

```
    print(i)
```

What's wrong? \_\_\_\_\_

\_\_\_\_\_

---

## While Loop

### Explanation

Runs as long as a condition is True.

```
count = 1
```

```
while count <= 5:
```

```
    print(count)
```

```
    count += 1
```

Be careful to avoid **infinite loops**.

---

### Try This:

Write a while loop that prints numbers from 10 down to 1.

# Write here:

---

### Debug This:

```
x = 1
```

```
while x < 5:
```

```
    print(x)
```

What mistake will this cause? \_\_\_\_\_

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## Loop Control Statements

### break – stop the loop

```
for i in range(10):
```

```
    if i == 5:
```

```
        break
```

### continue – skip current iteration

```
for i in range(10):
```

```
    if i % 2 == 0:
```

```
        continue
```

```
    print(i)
```

### pass – placeholder

```
if condition:
```

```
    pass
```

---

## Try This:

Print numbers 1–10 but skip 7.

# Write here:

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## Practice Problems

### Problem 1

Write a program to print the multiplication table of a number.

# Write here:

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### Problem 2

Count how many numbers between 1 and 50 are divisible by 3.

# Write here:

---

### Problem 3

Write a program that keeps asking for a password until the correct one is entered.

# Write code here:



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## Section Summary

- ✓ If–else handles decision-making
  - ✓ Nested conditions check multiple levels
  - ✓ Logical operators combine conditions
  - ✓ For loops repeat a fixed number of times
  - ✓ While loops repeat until a condition changes
  - ✓ Loop control keywords manage flow (break, continue, pass)
  - ✓ Control flow is the backbone of logic in programs
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## Mini Assignment

Create a program that:

1. Asks for a number
2. Prints whether it is prime or not
3. Uses a loop
4. Uses at least one break
5. Includes comments

# Write your draft here: