مكتـــــب

Name: _____   **Partner:** _____

Lab Goals

By the end of this lab, you will be able to:
- Write simple if statements with correct syntax
- Use comparison operators to create conditions
- Make programs that respond differently to different inputs
- Fix common if statement errors

Getting Started

1. Extract the given `week7_lab.zip` file to your desktop. This folder contains all the files you need for this lab.

1 Exercise 1: Your First if Statement (7 minutes)

Open `week7_ex1.py` and type the following code exactly as shown and then run it:

```python
age = int(input("Enter age: "))

if age >= 13:
    print("You can join our coding club!")
    print("Welcome aboard!")

print("Thanks for checking!")
```

Now modify the code:

- Change age to 10 and run it again. What happens?

- Change the condition to `age == 13` (two equals). What changes?

- Add one more print statement inside the if block

✅ **Checkpoint:** Show your teacher the output before moving on!

2 Exercise 2: Complete the Password Checker (7 minutes)

Open `week7_ex2.py` and complete the password checker program:

```python
# Password checker program
correct_password = "python123"
user_password = input("Enter password: ")

# Check if passwords match
if user_password ___ correct_password:   # Use correct comparison
    print("Access granted!")
    print("Welcome to the system!")

# Check if password is too short
if len(user_password) ___ 5:   # Less than 5 characters
    print("Password too short!")

print("Security check complete.")
```

Test values:

- Enter "python123" - should say "Access granted!"

- Enter "abc" - should say "Password too short!"

- Enter "wrongpass" - should only say "Security check complete."

> 👥 **Pair Programming:** Switch who types every 5 minutes!

> ✅ **Checkpoint:** Password checker working correctly? Excellent!

3   Exercise 3: Explore Comparison Operators (10 minutes)

Let's explore how different comparison operators work in if statements:

Step 1: Start with this code (open `week7_ex3.py`):

```python
# Testing different comparisons
temperature = 30
humidity = 65

# Test 1: Greater than
if temperature > 25:
    print("It's a hot day!")

# Test 2: Less than or equal
if humidity <= 70:
    print("Humidity is comfortable")
```

Step 2: Try these experiments (run after each change):

1. Change temperature to exactly 25. Does "It's a hot day!" still print?
   Result: _____

2. Add a new if statement that checks if temperature is not equal to 30:
   Your code: `if temperature _____ 30:`

3. Create an if statement that checks if humidity is between 40 and 80:
   Your code: _____

Step 3: Create your own weather advisor:

Add an if statement that prints advice based on temperature

```
# If temperature > 35: print "Stay indoors!"
```

💡 **Tip:** Use != for "not equal to". Also try to combine conditions using boolean operators whenever possible

4　Exercise 4: Debug the Age Verifier (10 minutes)

Open `week7_ex4.py`, find the issues in this age verification program and fix them:

```python
print("Welcome to the Movie Theater!")
age = input("Enter your age: ")

if age = 18:
    print("You're exactly 18!")

if age >= 13
    print("You can watch PG-13 movies!")

if age < 13:
print("Kids movies are in Theater 3")

if Age >= 17:
    print("You can watch horror movies!")
```

✅ **Checkpoint:** All errors fixed and program running correctly? Great debugging!

5　Exercise 5: Mini-Challenge - Grade Calculator (12 minutes)

Create a program that gives feedback based on exact score ranges:

1. Ask for a test score (0-100)

2. If score is 90-100: print "Grade A - Excellent work!"

3. If score is 80-89: print "Grade B - Good job!"

4. If score is 70-79: print "Grade C - Keep it up!"

5. If score is below 70: print "Need more practice!"

Hint: Use compound conditions like: `if score >= 90 and score <= 100:`
Example Output:

```
Enter your test score: 85
Grade: B - Good job!
```

Starter Help:
Open `week7_ex5.py` and start with this code:

```python
# Grade calculator
score = int(input("Enter your test score: "))

# Add your if statements here
```

```
5   # Start with the A grade check:
6   if score >= 90 and score <= 100:
7       print("Grade: A - Excellent!")
8
9   # Continue adding other grades:
```

Test your program with: `95, 85, 75, 65, 55`

Bonus: Add a check at the beginning - if score > 100 or score < 0, print "Invalid score!"

✅ **Checkpoint:** Grade calculator working for all test scores? Amazing work!

👥 **Pair Programming:** Switch who types every 5 minutes!

6 Exercise 6: Quick Quiz (5 minutes)

Circle the correct answer:

1. What symbol must come after an if condition?

   ○ ;

   ○ :

   ○ .

   ○ ,

2. Which operator checks if two values are equal?

   ○ =

   ○ ==

   ○ !=

   ○ >=

3. What will this code print if x = 5?

```
1   if x > 10:
2       print("Big")
3   print("Done")
```

   ○ Big

   ○ Done

   ○ Big
     Done

   ○ Nothing

4. What's the recommended amount of spaces you should use for indentation in Python?

   ○ 1

   ○ 2

○ 4

○ Any number

5. What's wrong with this code?

```python
if name == "Ali"
print("Hello Ali!")
```

○ Missing colon after condition

○ Wrong comparison operator

○ Indentation error

○ Both A and C

7 Lab Summary

> ✅ **Checkpoint:** Final checkpoint - make sure you have:

☐ Completed all exercises with your partner

☐ Written working if statements with proper syntax

☐ Used comparison operators (==, ! =, <, >, <=, >=)

☐ Fixed indentation errors

☐ Shown checkpoints to your teacher

Reflection (2 minutes)

Rate your understanding of today's concepts:

Concept	🙂 Need Help	🙂 Getting It	😊 Got It!
if statement syntax	○	○	○
Comparison operators	○	○	○
Indentation rules	○	○	○

One thing I learned today: _____

One thing I'm still confused about: _____

☺ Great work making Python think and decide!