

التحكم في التدفق والتكرار

أنواع البيانات البوليانية والمشغلين المقارنين

أمثلة

```
print(15 > 3)
print(15 == 15)
x1 = 5
y1 = 5
print(x1 is not y1)
x2 = 'Hello'
y2 = 'Hello'
print(x2 is y2)
```

التدفق الشرطي

1. جملة If الشرطية

Coffee on the street example

```
password = "123"
user_input = input("Enter the password: ")
if user_input == password: # false
    # if true, code here will be executed
    print("Hello, You are logged in!!")
else:
    # if false, code here will be executed
    print("Invalid Password! ")
print("*****")
```

If-else

white mocha – Coffee – Tea - Water

```
# Ask the user for their age
age = int(input("Enter your age: "))

# Determine the ticket price based on age
if age < 5:
    print("Ticket is free! 🧒")
elif age < 13:
    print("Child ticket: $5 🧒")
elif age < 18:
    print("Teen ticket: $8 🧑")
elif age < 60:
    print("Adult ticket: $12 🧑")
else:
    print("Senior discount ticket: $7 🧓")
```

مثال: التحقق من قابلية القسمة

```
Num = int(input("أدخل رقماً: "))
if Num % 3 == 0 and Num % 4 == 0:
    print("الرقم يقبل القسمة على كل من 3 و 4")
elif Num % 3 == 0 or Num % 4 == 0:
    print("الرقم يقبل القسمة على إما 3 أو 4")
else:
    print("الرقم لا يقبل القسمة على 3 أو 4")
```

التكرار (Loops):

استخدام جملة for

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

استخدام جملة while

```
count = 0  
while count < 10:  
    count += 1  
    print(count)
```

أمثلة على التكرار

مثال: حساب متوسط الدرجات للطلاب

```
# A list of item prices in the shopping cart  
cart = [12.5, 25.0, 9.99, 5.5, 20.0]  
  
total = 0  
  
# Loop through each item in the cart  
for price in cart:  
    total += price # Add each price to the total  
  
print(f"Total amount: ${total:.2f}")
```

تعليمات break و continue

1. استخدام break

```
# Correct password
correct_password = "python123"

# Allow the user up to 3 attempts
attempts = 0

while attempts < 3:
    entered_password = input("Enter your password: ")
    if entered_password == correct_password:
        print("✅ Access granted. Welcome!")
        break # Exit the loop immediately
    else:
        print("❌ Incorrect password. Try again.")
        attempts += 1

if attempts == 3:
    print("🚫 Too many failed attempts. Access denied.")
```

استخدام continue

```
# List of student scores (some are invalid)
scores = [85, 90, -1, 78, 0, 92, -5, 88]

print("Valid scores only:")
for score in scores:
    if score <= 0:
        continue # Skip invalid or zero scores
    print(score)
```

تمارين

1. Student Attendance

Ask the user for the number of classes attended and the total number of classes.
If the attendance percentage is 75% or higher, print **"Eligible for Exam"**; otherwise print **"Not Eligible"**.

2. Secret Number Game

The secret number is 12.
Keep asking the user to guess the number until they enter the correct value.

3. Largest of Three Numbers

Ask the user for three numbers and print the largest one.

4. Count Even Numbers

Ask the user to enter 8 numbers.
Print how many of the entered numbers are even.

5. Skip Multiples of 5

Print the numbers from 1 to 50, but do not print numbers that are divisible by 5.

6. Sum Until Zero

Keep asking the user for numbers and add them to a total.
When the user enters 0, stop and print the final sum.

7. Multiplication Table

Ask the user for a number and display its multiplication table from 1 to 10.

Example for 4:

$$4 \times 1 = 4$$

$$4 \times 2 = 8$$

...

$$4 \times 10 = 40$$

8. Password Verification

The correct password is:

python2025

Allow the user a maximum of 3 attempts.

If they fail all attempts, print:

Access Denied

9. Number Pattern

Ask the user for a number N and print:

1

12

123

1234

...

until N rows are displayed.

Example for N = 5:

1

12

123

1234

12345

10. Find the First Number

Find and print the first number between 100 and 500 that is divisible by both 8 and 9, then stop searching immediately.