TX00FL42-3001

FUNCTIONS

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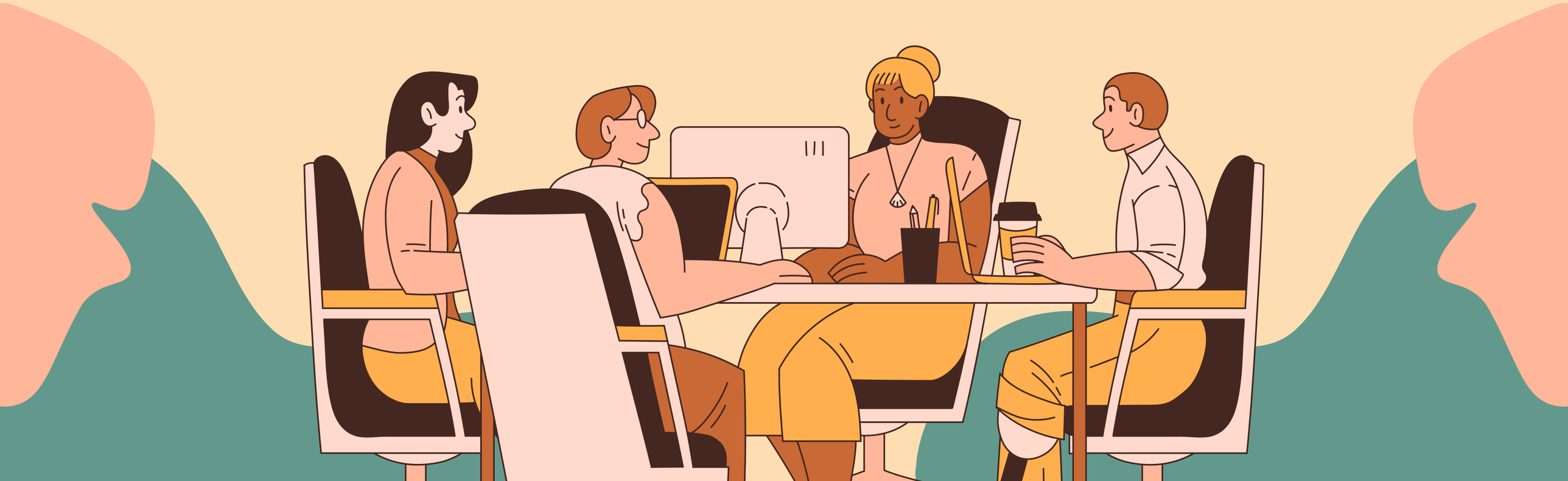
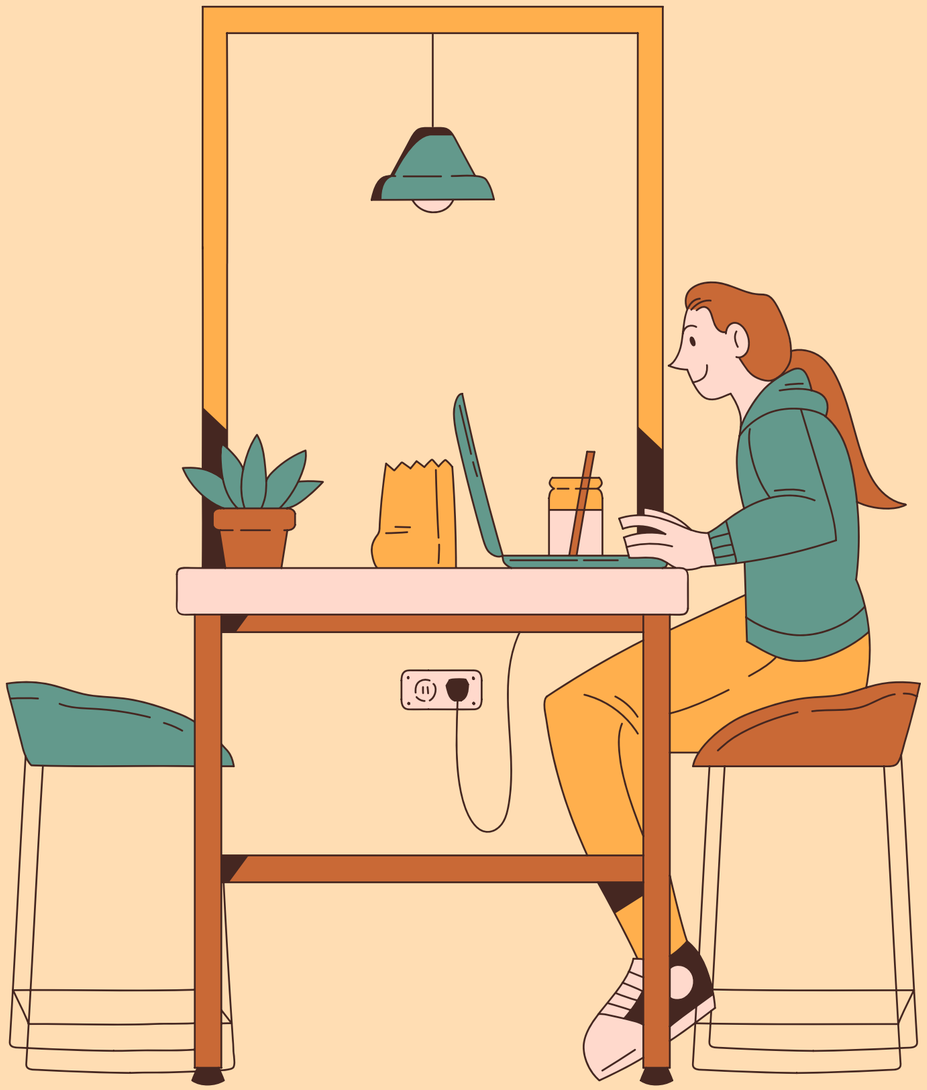
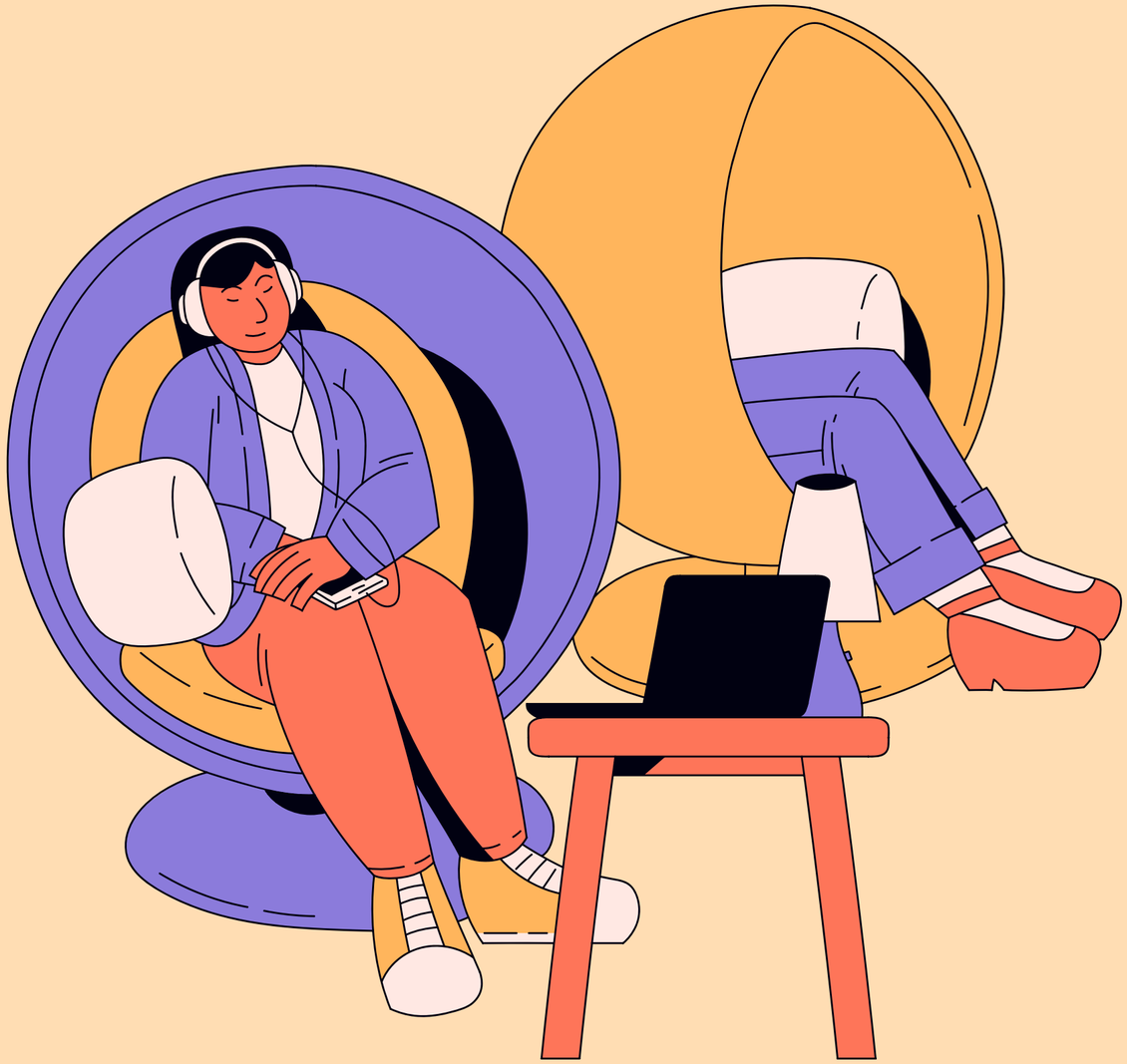


LET’S CHECK THE EXAM!



WHAT IS A FUNCTION?



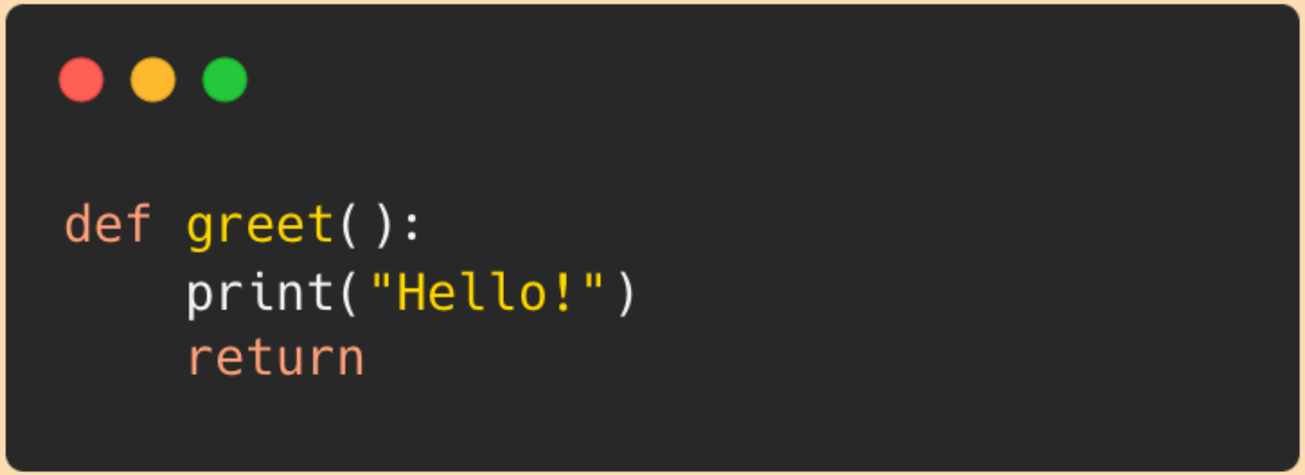
WHAT IS A FUNCTION?

- Block of reusable code that performs a specific task
- Helps organize and simplify code, making it more modular, readable, and maintainable.
- Can take input parameters and optionally return a value to the caller

STRUCTURE OF A FUNCTION

```
def function_name(parameters):
    # Code block to perform the task
    return value  # Optional
```

STRUCTURE OF A FUNCTION



FUNCTION CALLING

```
def greet():
    print("Hello!")
    return

print("A new day starts with a greeting.")
greet()
```

FUNCTION PARAMETERS

```
def greet(times):
    for i in range(times):
        print("Round " + str(i+1) + " of saying hello.")
    return

print("A new day starts with greetings.")
greet(5)
print("Let's greet some more.")
greet(2)
```

EXERCISE

VARIABLE SCOPE

```
def change():
    city = "Vantaa"
    print("At the end of the function: " + city)
    return

city = "Helsinki"
print("At the beginning in the main program: " + city)
change()
print("At the end of the main program: " + city)
```

MULTIPLE PARAMETERS

```
def greet(greeting, times):
    for i in range(times):
        print(greeting + " round: " + str(i+1))
    return
```

EXERCISE

RETURN VALUE

```python
def sum_of_squares(first, second):
    result = first**2 + second**2
    return result

number1 = float(input("Enter the first number: "))
number2 = float(input("Enter the second number: "))
result = sum_of_squares(number1, number2)
print(f"The sum of squares for numbers {number1:.3f} and {number2:.3f} is {result:.3f}.")
```

LISTS AS FUNCTION PARAMETERS

```
def inventory(items):
    print("You have the following items:")
    for item in items:
        print("- " + item)
    return

backpack = ["Water bottle", "Map", "Compass"]
inventory(backpack)
backpack.append("Swiss Army knife")
inventory(backpack)
```

EXERCISE

FUNCTIONS WITH LIST MODIFICATIONS

```python
def inventory(items):
    print("You have the following items:")
    for item in items:
        print("- " + item)
    # Items disappear during the invetory
    items.clear()
    return

backpack = ["Water bottle", "Map", "Compass"]
inventory(backpack)
backpack.append("Swiss Army knife")
inventory(backpack)
```

EXERCISE