**Assignment 3**

1. Why are functions advantageous to have in your programs?

2. When does the code in a function run: when it's specified or when it's called?

3. What statement creates a function?

4. What is the difference between a function and a function call?

5. How many global scopes are there in a Python program? How many local scopes?

6. What happens to variables in a local scope when the function call returns?

7. What is the concept of a return value? Is it possible to have a return value in an expression?

8. If a function does not have a return statement, what is the return value of a call to that function?

9. How do you make a function variable refer to the global variable?

10. What is the data type of None?

11. What does the sentence import areallyourpetsnamederic do?

12. If you had a bacon() feature in a spam module, what would you call it after importing spam?

13. What can you do to save a programme from crashing if it encounters an error?

14. What is the purpose of the try clause? What is the purpose of the except clause?

**Solutions :**

**1. Why are functions advantageous to have in your programs?**

Functions provide several advantages in programming:

* **Code Reusability**: Functions allow you to reuse code blocks multiple times without rewriting them.
* **Modularity**: Functions help break down complex programs into smaller, manageable parts, making the code easier to understand and maintain.
* **Ease of Maintenance**: When a function is modified, changes are automatically applied wherever the function is called, making the program easier to update.
* **Improves Readability**: Functions give structure to the code, improving readability and helping other developers understand the program flow.

**2. When does the code in a function run: when it's specified or when it's called?**

The code inside a function runs **when the function is called**, not when it’s defined.

**3. What statement creates a function?**

The def statement is used to create a function in Python. Here’s an example:

python

Copy code

def my\_function():

print("Hello, world!")

**4. What is the difference between a function and a function call?**

* A **function** is a block of code that is defined using the def keyword and only runs when called.
* A **function call** is when you execute the function by using its name followed by parentheses, like my\_function(). This actually runs the code inside the function.

**5. How many global scopes are there in a Python program? How many local scopes?**

* There is **only one global scope** in a Python program, which exists throughout the program's execution.
* **Local scopes** are created whenever a function is called. Each function call creates its own local scope, and the number of local scopes depends on the number of function calls.

**6. What happens to variables in a local scope when the function call returns?**

When a function call returns, all variables in the local scope are destroyed, and the local scope itself is discarded. These variables are no longer accessible outside of the function.

**7. What is the concept of a return value? Is it possible to have a return value in an expression?**

* A **return value** is the value that a function sends back to the place where it was called, using the return statement.
* Yes, it is possible to use a return value in an expression. For example, if a function returns an integer, you could use it in an arithmetic expression:

python

Copy code

def add(a, b):

return a + b

result = add(3, 5) \* 2 # Using the return value in an expression

**8. If a function does not have a return statement, what is the return value of a call to that function?**

If a function does not have a return statement, it returns None by default.

**9. How do you make a function variable refer to the global variable?**

To make a function variable refer to a global variable, you use the global keyword. For example:

python

Copy code

x = 10 # Global variable

def my\_function():

global x

x = 20 # Modifies the global variable

my\_function()

print(x) # Output will be 20

**10. What is the data type of None?**

The data type of None is NoneType. It represents the absence of a value.

**11. What does the sentence import areallyourpetsnamederic do?**

The statement import areallyourpetsnamederic attempts to import a module named areallyourpetsnamederic. If such a module doesn’t exist, Python will raise a ModuleNotFoundError.