Assignment 22

# Q1

The code will output the string 'iNeuron'.

Explanation:

The variable X is assigned the string value 'iNeuron'.

The func function is defined, which simply prints the value of X.

When func() is called, it executes the function and prints the value of X, which is 'iNeuron'.

# Q2

The result of the code will be 'iNeuron'.

Explanation:

The variable X is initially assigned the string value 'iNeuron'.

The function func is defined, which assigns the string value 'NI!' to a local variable X. This local variable X shadows the global variable X.

When func() is called, it executes the function and assigns 'NI!' to the local variable X. However, this local variable X is separate from the global variable X.

After the function call, print(X) is executed, which refers to the global variable X. Since the global variable X was not modified within the function, it still holds the value 'iNeuron'.

# Q3

The code will print:

NI

iNeuron

Explanation:

The variable X is initially assigned the string value 'iNeuron'.

The function func is defined, which assigns the string value 'NI' to a local variable X and then prints its value.

When func() is called, it executes the function and assigns 'NI' to the local variable X. The print(X) statement inside the function prints the value 'NI'.

After the function call, print(X) is executed again. This time, it refers to the global variable X because the local variable X is confined to the scope of the function. The global variable X retains its original value 'iNeuron', so it is printed as the output.

# Q4

The code will print: NI

Explanation:

The variable X is initially assigned the string value 'iNeuron'.

The function func is defined, and within the function, the global keyword is used to indicate that X refers to the global variable instead of creating a new local variable.

Inside the function, the value of the global variable X is changed to 'NI'.

After calling func(), the print(X) statement prints the updated value of the global variable, which is 'NI'.

# Q5

The code will print:iNeuron

Explanation:

The variable X is initially assigned the string value 'iNeuron'.

The function func is defined, and within func, a new local variable X is defined and assigned the string value 'NI'.

Inside func, another nested function nested is defined.

When nested is called inside func, it prints the value of X, which is the local variable 'NI' defined within func.

After calling func(), the print(X) statement outside of any function scope prints the value of the global variable X, which is 'iNeuron'. The nested function nested does not affect the global variable X.

# Q6

The code will output: Spam

Explanation:

The function func defines a local variable X and assigns it the value 'NI'.

Inside func, another nested function nested is defined.

In the nested function nested, the nonlocal keyword is used to indicate that the variable X refers to the same X variable in the nearest enclosing scope, which is the X variable defined in func.

Inside nested, the variable X is reassigned the value 'Spam'.

Finally, func calls nested, and within nested, X is updated to 'Spam'.

After the nested function is executed, the print(X) statement in func outputs the value of X, which is 'Spam'.