**1. What is a Tuple in Python? What is the Difference Between List and Tuple?**

**Tuple:**  
A tuple in Python is an immutable, ordered collection of elements. Once a tuple is created, its elements cannot be changed. Tuples are defined by placing elements inside parentheses () separated by commas.

**Difference Between List and Tuple:**

**List:** Mutable, meaning elements can be added, removed, or changed after the list is created. It is defined using square brackets []. It is slightly slower than tuples due to the overhead of mutability. Used when the data is likely to change.

**Tuple:** Immutable, meaning the elements cannot be changed once the tuple is created. It is defined using parentheses. Faster than list as they are immutable and require less memory. Used for fixed collection of items, like constants.

**2. What are the Rules for Local and Global Variables in Python?**

**Local Variables:**

* Defined within a function.
* Accessible only within the function where they are defined.
* When a variable is assigned a value within a function, it is by default a local variable.

**Global Variables:**

* Defined outside any function, usually at the top level of the script.
* Accessible throughout the entire script, in both functions and other parts of the code.
* To modify a global variable inside a function, you must use the global keyword.

**Rules:**

* If a variable is defined inside a function, it is local by default unless declared global.
* If you try to modify a global variable inside a function without using the global keyword, Python will create a new local variable with the same name.

**3. What is Python's Parameter Passing Mechanism? Name It and Explain It.**

**Python’s Parameter Passing Mechanism:**  
Python uses a mechanism called **"pass-by-object-reference"** or **"pass-by-assignment"**. This means that when arguments are passed to a function, the references to the objects (not the actual objects) are passed.

* **Immutable Objects:** For immutable objects (like integers, strings, and tuples), since they cannot be changed, any operation on the object inside the function will not affect the original object outside the function.
* **Mutable Objects:** For mutable objects (like lists and dictionaries), changes made to the object inside the function will affect the original object outside the function.

**4. Write a Method to Open a Text File and Display Its Content**

Import pandas as pd

content = pd.read\_csv(file\_path, delimiter="\n", header=None)

print(content.to\_string(index=False, header=False))

**5. List and Dictionary Comprehensions**

**1.**

strList = ["Vishesh", "For", "Python"]

valList = [1, 2]

result = {'key2': strList, 'key1': valList}

**2.**

strList = ["Vishesh", "For", "Python"]

valList = [1, 2]

result = {'key1': valList + [strList]}

**3.**

valList = [1, 2, 3]

result = {str(i): [i, i+1] for i in valList}