Summary of Python Assignment

Exercise 1: Arithmetic Operators

- **Objective:** Perform basic arithmetic operations.
- **Approach:**
  - Input two numbers from the user.
  - Use arithmetic operators to calculate addition, subtraction, multiplication, division, modulus, exponentiation, and floor division.
- **Key Learnings:** Understanding how to use different arithmetic operators in Python and handling user input.

Exercise 2: Comparison Operators

- **Objective:** Compare two numbers.
- **Approach:**
  - Input two numbers from the user.
  - Use comparison operators to check if the first number is greater than, equal to, or less than/equal to the second number.
- **Key Learnings:** Learning about comparison operators and how to evaluate conditions in Python.

Exercise 3: Logical Operators

- **Objective:** Combine boolean values using logical operators.
- **Approach:**
  - Take three boolean inputs from the user.

    - Use and, or, and not to combine the boolean values and print the results.
- **Key Learnings:** Understanding logical operations and how they can be used to evaluate multiple conditions.

Exercise 4: String Manipulation

- **Objective:** Manipulate and analyze strings.
- **Approach:**
    - Input a string from the user.
    - Calculate and display the string's length, first and last characters, reversed string, and its uppercase and lowercase forms.
- **Key Learnings:** Gaining proficiency in string operations and methods available in Python.

Exercise 5: String Formatting

- **Objective:** Format strings using user input.
- **Approach:**
    - Prompt the user for their name and age.
    - Use f-strings to format and display a greeting message.
- **Key Learnings:** Learning how to format strings dynamically in Python.

Exercise 6: Substring Search

- **Objective:** Search for a word in a sentence.
- **Approach:**
    - Input a sentence and a word to search for from the user.

    - Check if the word exists in the sentence and display its index if found.
- **Key Learnings:** Understanding how to search for substrings within strings and retrieve their positions.

Exercise 7: List Operations

- **Objective:** Perform operations on a list of numbers.
- **Approach:**
    - Input five numbers from the user and store them in a list.
    - Calculate and display the sum, largest, and smallest numbers.
- **Key Learnings:** Gaining experience with list operations and built-in functions like sum(), max(), and min().

Exercise 8: List Manipulation

- **Objective:** Manipulate a list of favorite fruits.
- **Approach:**
    - Create a list of five fruits, add another fruit, and remove the second fruit.
    - Print the updated list.
- **Key Learnings:** Understanding how to modify lists using append() and pop() methods.

Exercise 9: Sorting a List

- **Objective:** Sort a list of numbers.
- **Approach:**
    - Input five numbers from the user.

    - Sort the list in both ascending and descending order and display the results.
- **Key Learnings:** Learning how to sort lists using the sorted() function.

Exercise 10: List Slicing

- **Objective:** Use list slicing to access specific elements.
- **Approach:**
    - Given a list of numbers, print the first five elements, last five elements, and elements from index 2 to 7.
- **Key Learnings:** Understanding how to slice lists to access subsets of data.

Exercise 11: Nested List

- **Objective:** Work with nested lists to store student information.
- **Approach:**
    - Input names and scores of three students, store them in a nested list, and calculate each student's average score.
- **Key Learnings:** Learning how to create and manipulate nested lists in Python.