**Python List Manipulation Assignment**

Instructions:

* This assignment is designed to test your understanding of Python list manipulation, including slicing and indexing.
* Ensure your code is well-commented and follows best practices.
* Name your file as "list\_assignment.py".
* Submit your completed assignment by the specified deadline.

**Questions:**

Question 1: Basic List Operations

a) Create a list named `fruits` containing the following items: "apple", "banana", "orange", "grape", "kiwi".

b) Add "pear" to the end of the list.

c) Insert "mango" at the second position in the list.

d) Remove "orange" from the list.

Question 2: Slicing and Indexing

a) Create a list named `numbers` containing the integers from 0 to 9.

b) Print the element at index 3.

c) Print a sublist containing the elements from index 2 to 6 (inclusive).

d) Print the last three elements using negative indexing.

Question 3: List Comprehension

a) Create a list named `squares` using a list comprehension that contains the squares of numbers from 1 to 10.

b) Create a new list named `even\_squares` using a list comprehension that contains the squares of even numbers from the `squares` list.

Question 4: List Manipulation

a) Create a list named `colors` containing the following items: "red", "green", "blue", "yellow", "purple".

b) Swap the first and last elements of the list.

c) Reverse the order of the list.

d) Remove the second and third elements from the list.

Question 5: Advanced Slicing

a) Create a list named `letters` containing the letters from 'a' to 'j'.

b) Using slicing, create a new list `first\_half` containing the first half of the `letters` list.

c) Using slicing, create a new list `last\_three` containing the last three elements of the `letters` list.

Question 6: Nested Lists

a) Create a nested list named `matrix` with the following rows:

- [1, 2, 3]

- [4, 5, 6]

- [7, 8, 9]

b) Print the element in the second row and third column.

c) Use nested indexing to change the value at the second row and first column to 0.

**Submission:**

Submit your "list\_assignment and your name.pynp” file containing your code for each question.