

## Python Task 2

Topic :List

### Exercise 1

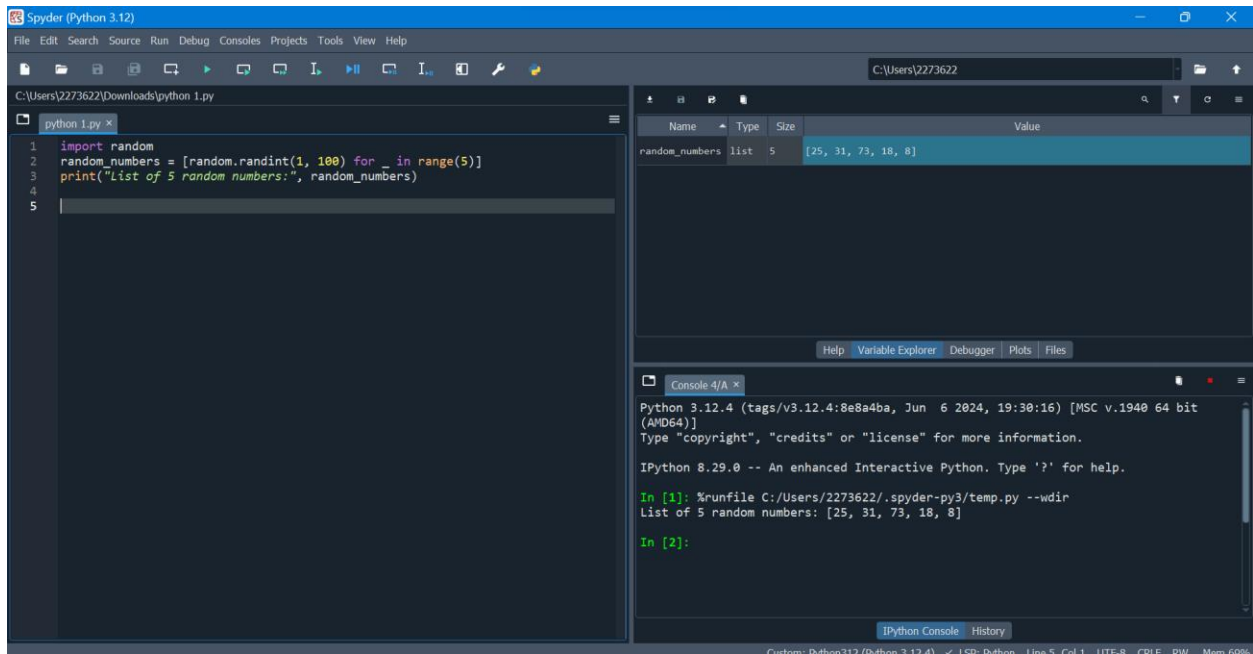
Q1. Create a list of 5 random numbers and print the list.

Q2. Insert 3 new values to the list and print the updated list.

Q3. Try to use a for loop to print each element in the list.

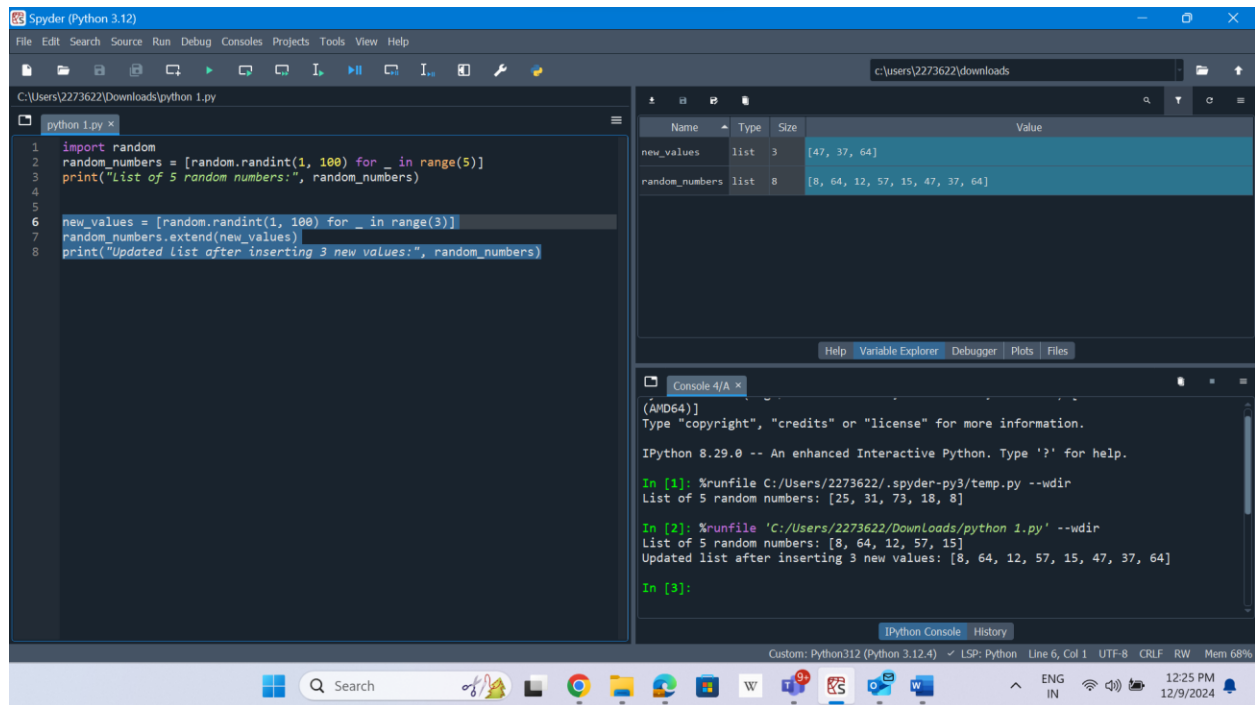
### Code Q1:

```
import random
random_numbers = [random.randint(1, 100) for _ in range(5)]
print("List of 5 random numbers:", random_numbers)
```



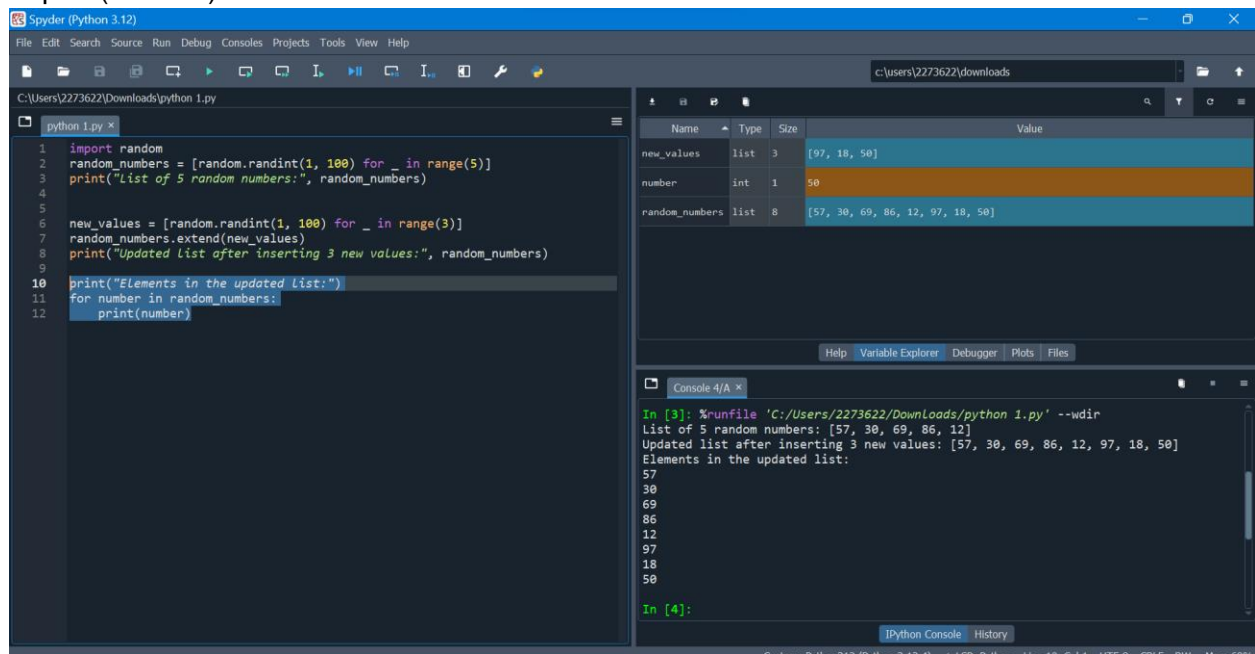
### Code Q2:

```
new_values = [random.randint(1, 100) for _ in range(3)]
random_numbers.extend(new_values)
print("Updated list after inserting 3 new values:", random_numbers)
```



### Code Q3:

```
print("Elements in the updated list:")
for number in random_numbers:
    print(number)
```



## Advantages:

Key advantages of lists in Python:

1. **Dynamic Size:** Lists can grow and shrink as needed.
2. **Heterogeneous Elements:** Store different data types in one list.
3. **Indexed Access:** Easily access elements by their index.
4. **Built-in Methods:** Useful methods like `append()`, `remove()`, `sort()`, etc.
5. **Iteration:** Easily loop through elements with a `for` loop.

Topic: Dictionary

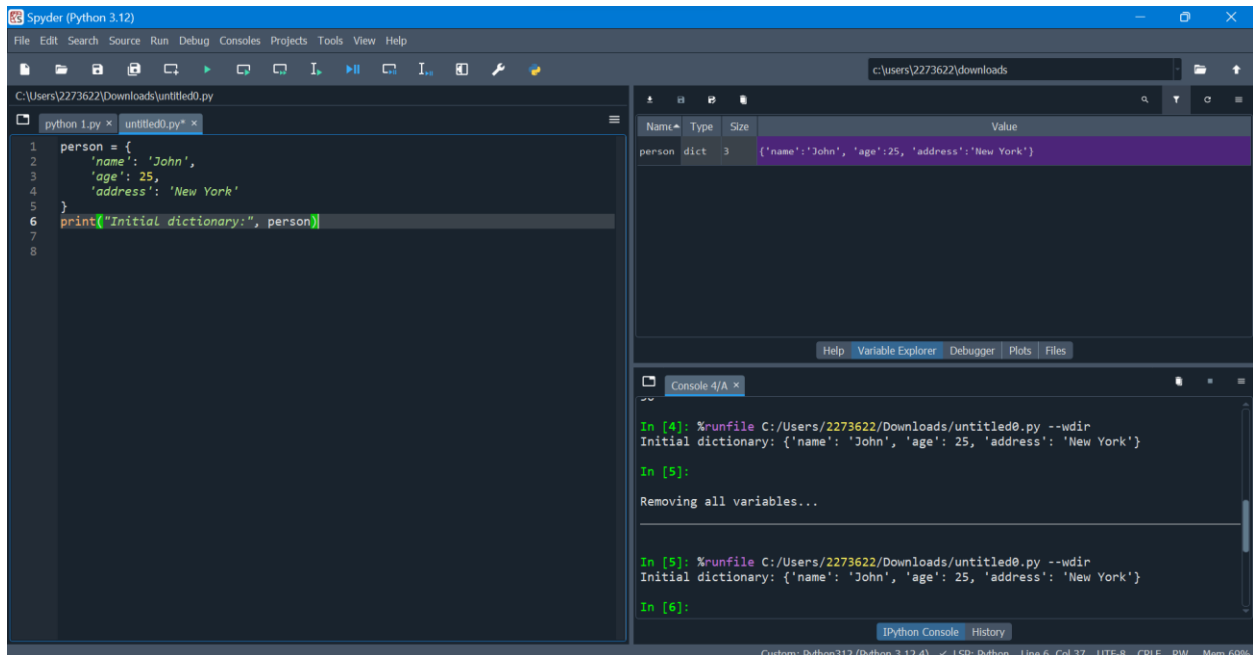
Exercise 2

Q1. Create a dictionary with keys 'name', 'age', and 'address' and values 'John', 25, and 'New York' respectively.

Q2. Add a new key-value pair to the dictionary created in Q1 with key 'phone' and value '1234567890'.

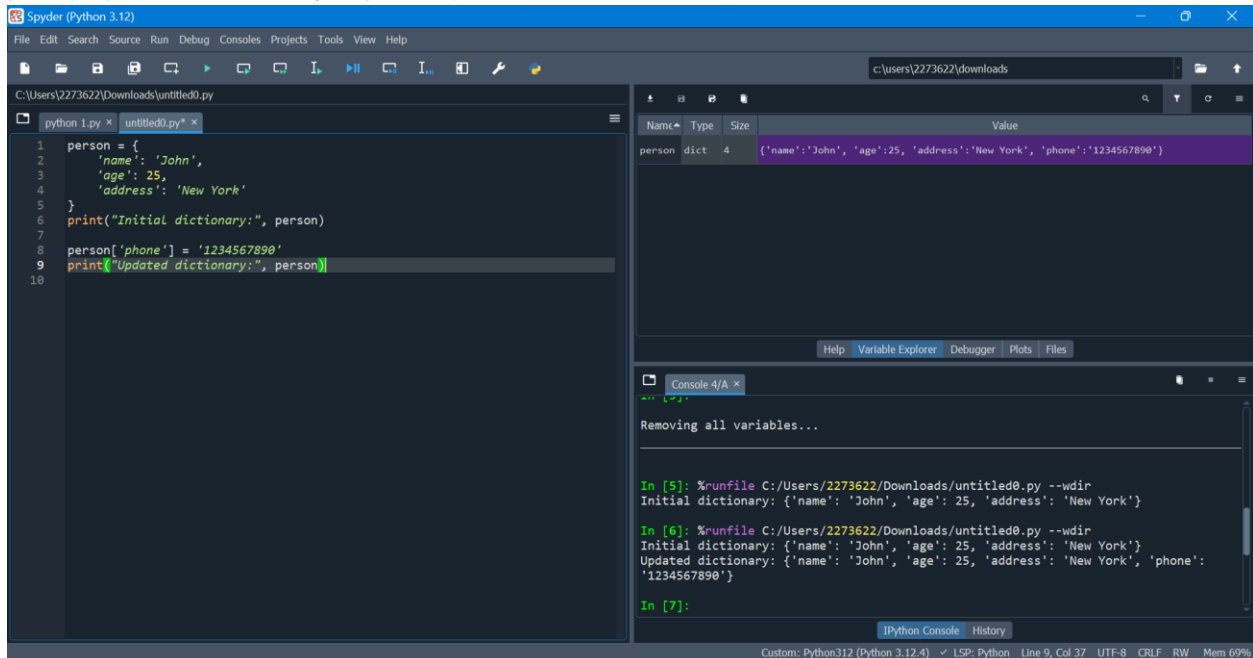
### CodeQ1:

```
person = {  
    'name': 'John',  
    'age': 25,  
    'address': 'New York'  
}  
print("Initial dictionary:", person)
```



### CodeQ2:

```
person['phone'] = '1234567890'  
print("Updated dictionary:", person)
```



- **Advantage:** A Python dictionary is a data structure that stores the value in **key: value** pairs. Values in a dictionary can be of any data type and can be duplicated, whereas keys can't be repeated and must be *immutable*.

Topic: Set

Exercise 3

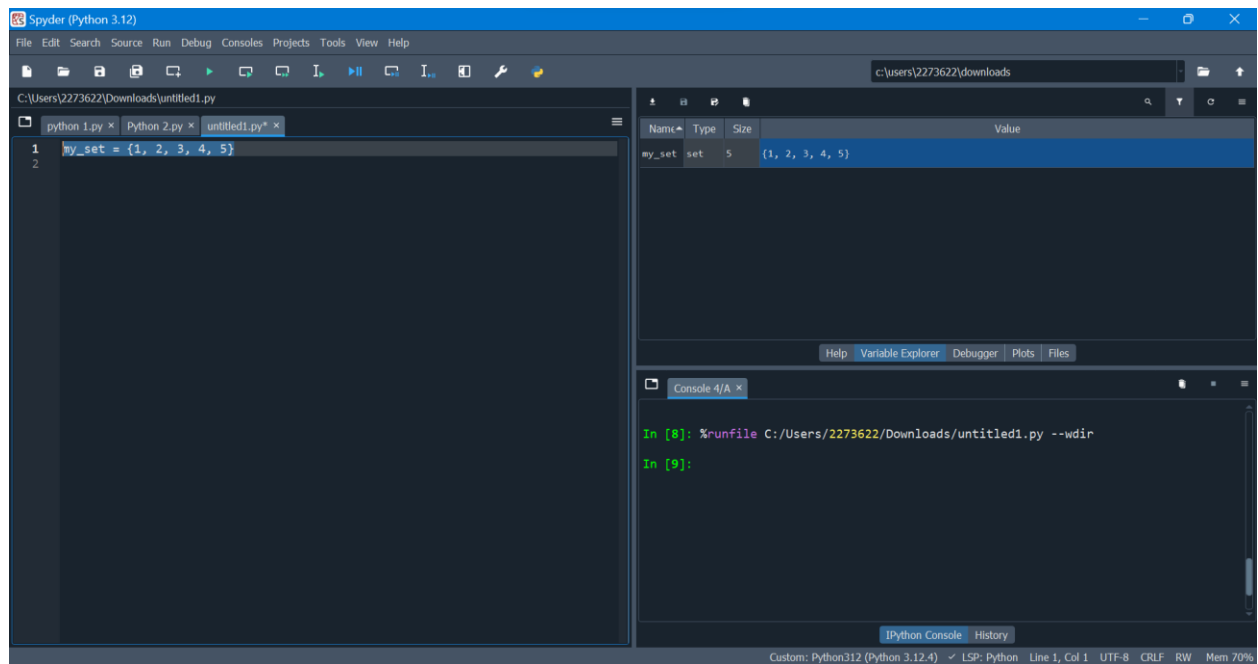
Q1. Create a set with values 1, 2, 3, 4, and 5.

Q2. Add the value 6 to the set created in Q1.

Q3. Remove the value 3 from the set created in Q1.

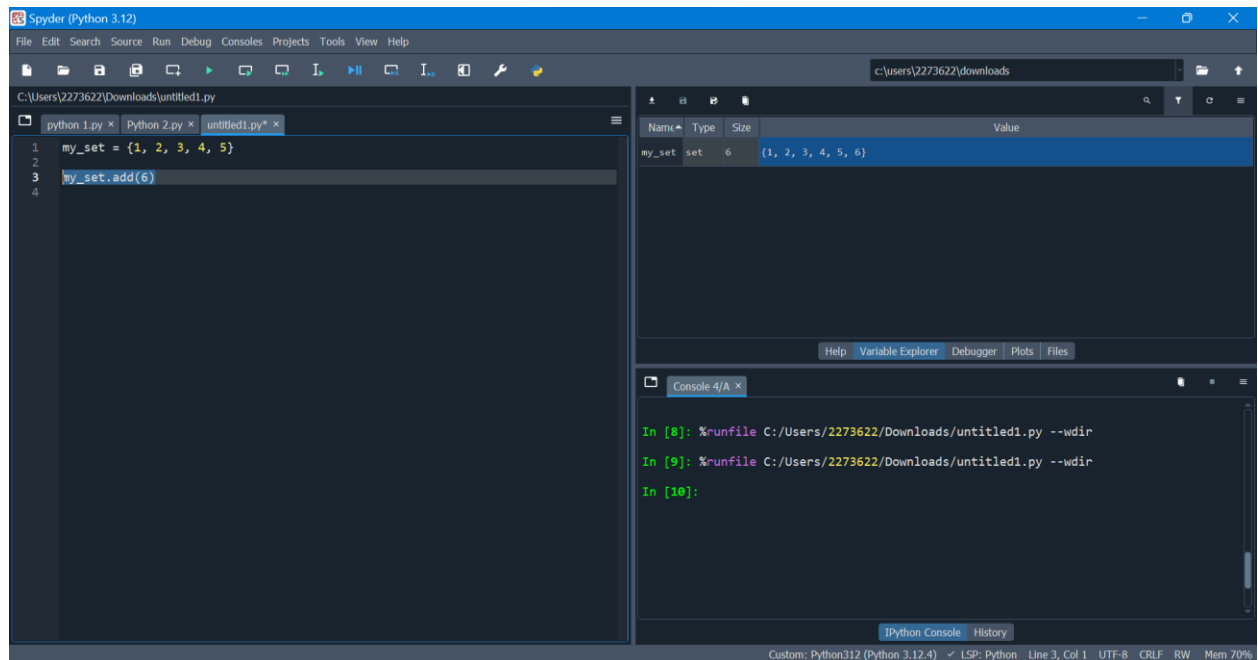
### CodeQ1:

```
my_set = {1, 2, 3, 4, 5}
```



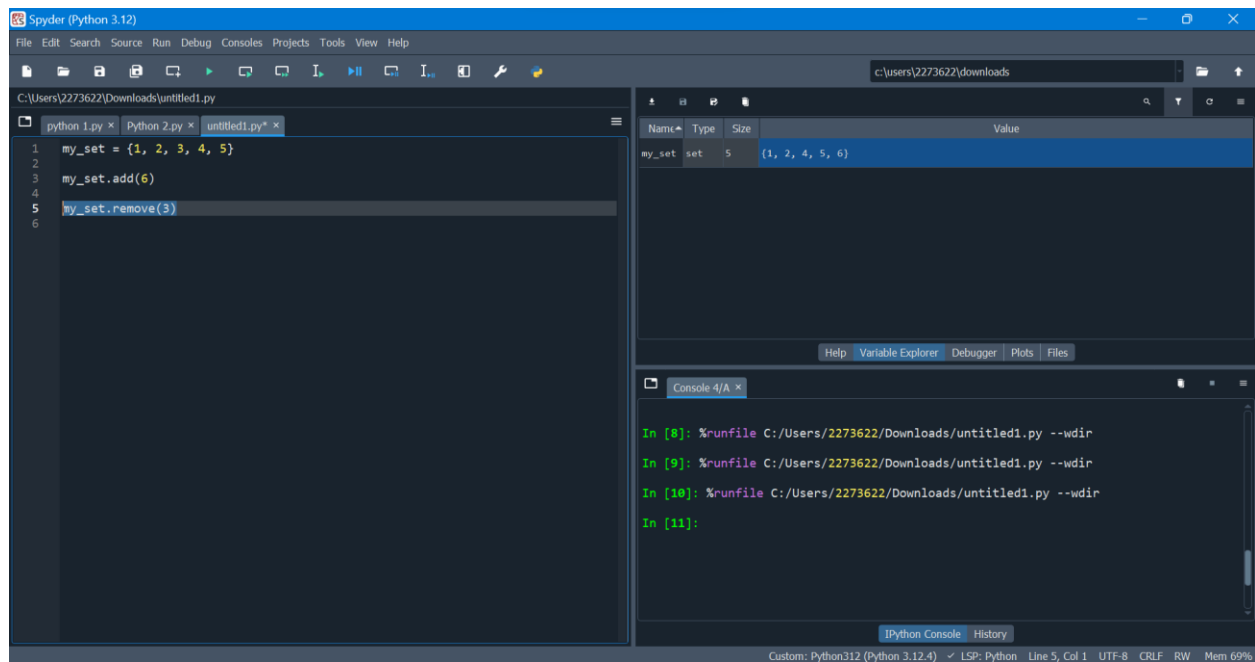
**CodeQ2:**

`my_set.add(6)`



**CodeQ3:**

`my_set.remove(3)`



### Advantage:

- Set can be used to store unique values in order to avoid duplications of elements present in the set.
- Elements in a set are stored in a sorted fashion which makes it efficient.
- Set are dynamic, so there is no error of overflowing of the set.

Topic: Tuple

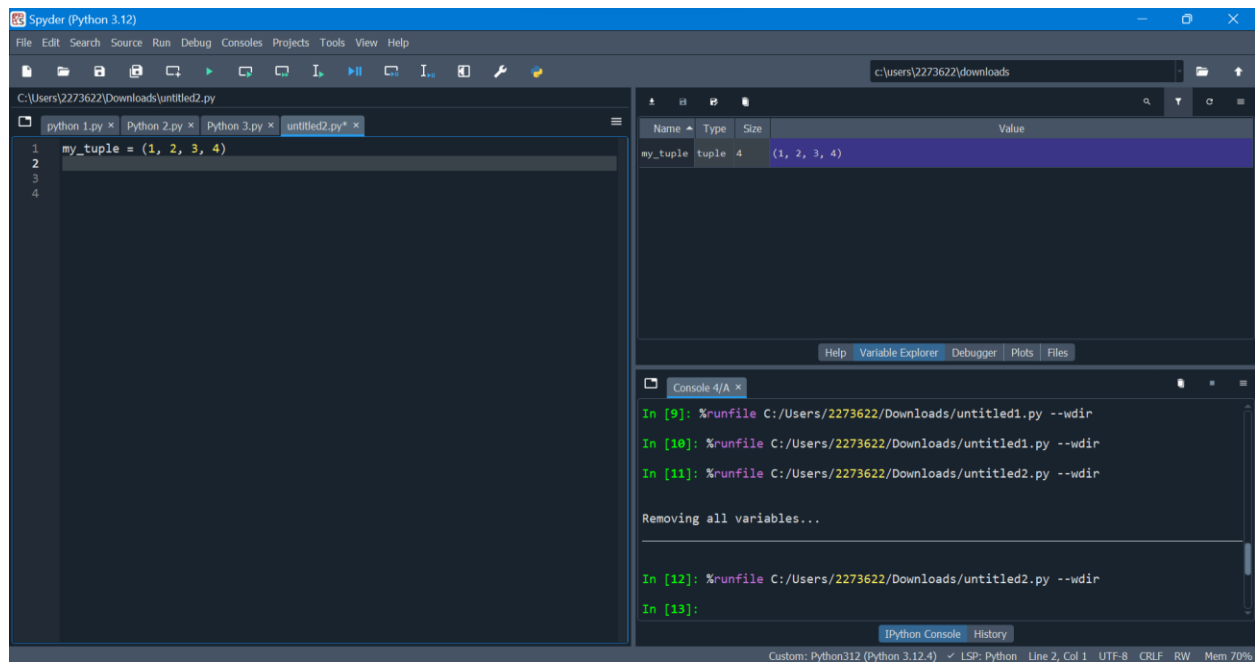
Exercise 4

Q1. Create a tuple with values 1, 2, 3, and 4

Q2. Print the length of the tuple created in Q1.

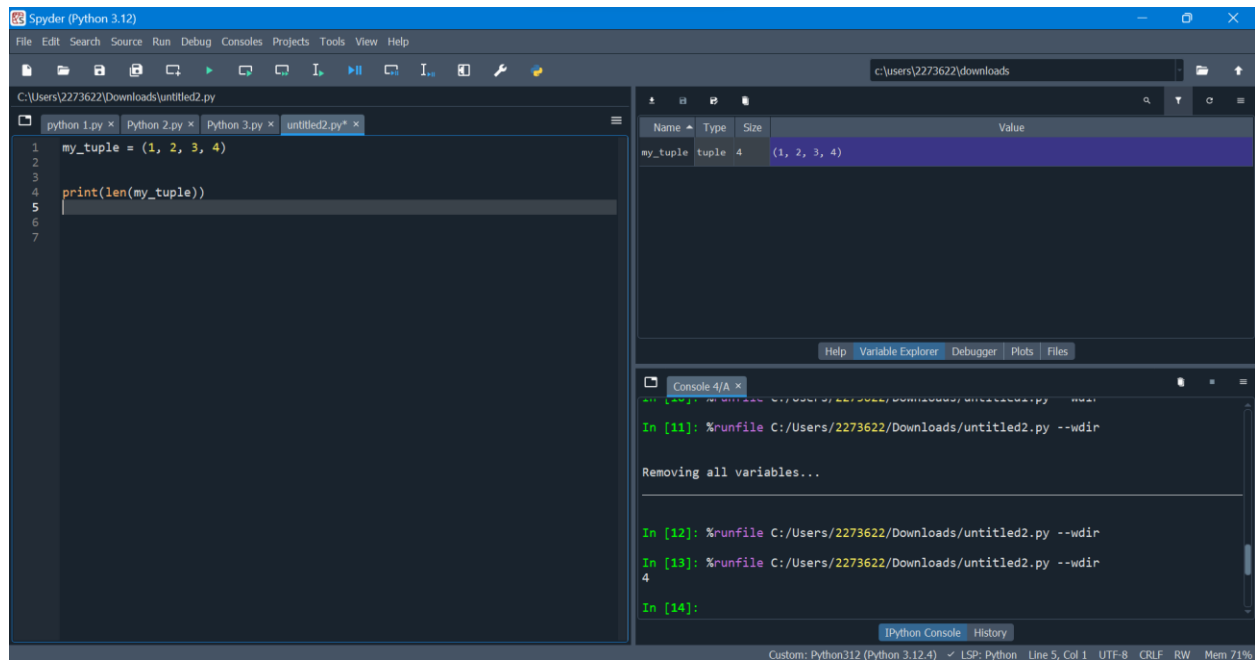
### CodeQ1:

```
my_tuple=(1,2,3,4)
```



**CodeQ2:**

`print(len(my_tuple))`



**Advantage:**

Tuples are one of the four built-in data types in Python used to store collections of data, the other three being List, Set, and Dictionary. They are used to store multiple items in a single variable and are written with round brackets. Tuples are characterized by being ordered and unchangeable, meaning that once a tuple is created, its items cannot be modified.