**Week 2 Day 2 Tasks**

**Task 11 : Using Built-in Functions**

**Objective: Practice using Python’s built-in functions**.

**Steps:**

1. Use the len() function to find the length of a string.

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1. Use max() and min() to find the largest and smallest values in a list.

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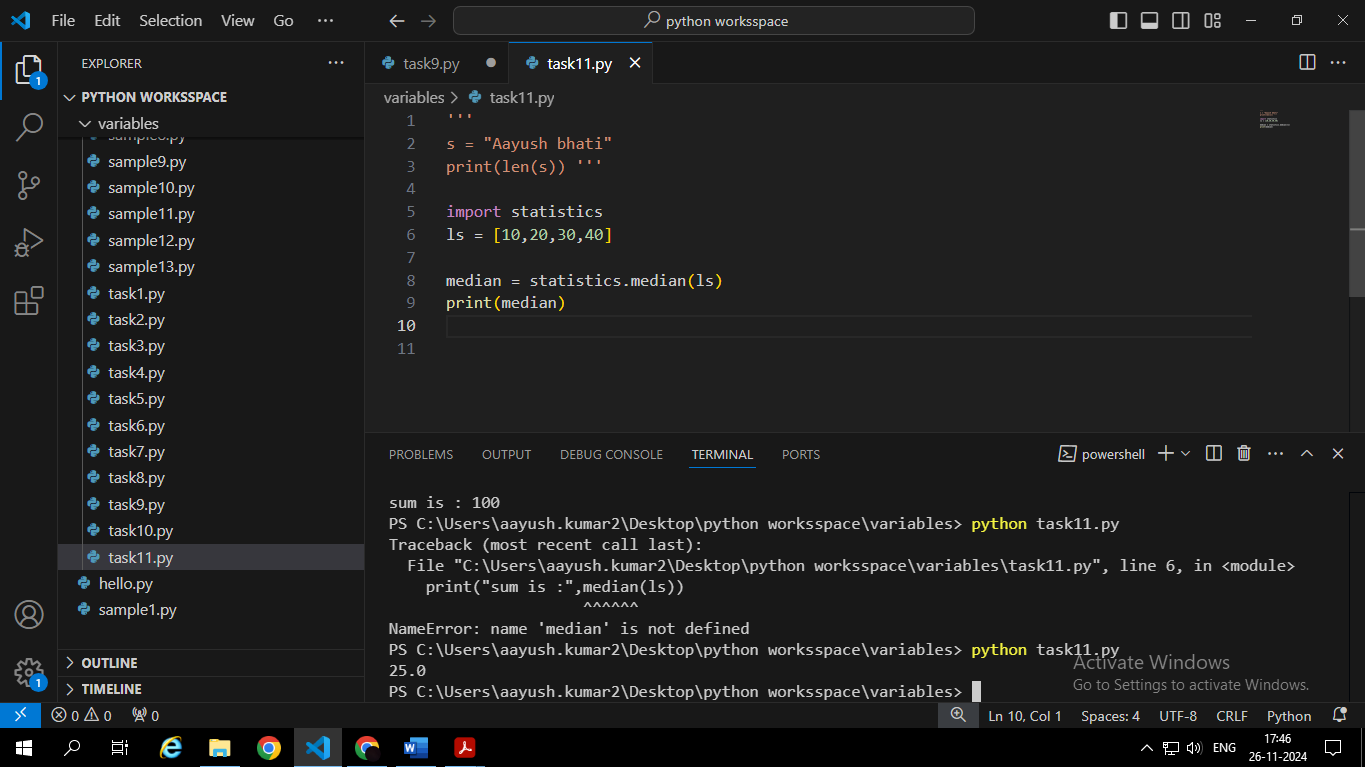
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1. Use sum() to find the sum of all elements in the list.

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**Question: How would you find the median of a list using built-in functions?**

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**12. Task: Working with Lists (Add, Modify, Remove)**

** Objective: Understand how to manipulate lists in Python.**

 Steps:

1. Create a list of five numbers.

2. Add a new number to the list.

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1. Remove the first number from the list.

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1. Modify the third element in the list.

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 **Question: What happens if you try to access an index that doesn’t exist in the list?**

A **IndexError: list index out of range** came

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**Task 13: Tuples and Immutability**

 **Objective: Learn how to work with tuples and their immutability.**

** Steps:**

1. Create a tuple with different data types (string, integer, float).

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1. Try modifying an element in the tuple and see what happens.

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**Question: Why can’t you change the values in a tuple?**

Because tupe is immutable in nature we can’t modified its value once it created.

**14. Task: Working with Dictionaries (Key-Value Pairs)**

 **Objective:** Learn how to work with dictionaries.

 **Steps:**

1. Create a dictionary with name, age, and location as keys.

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1. Add a new key-value pair for "job".

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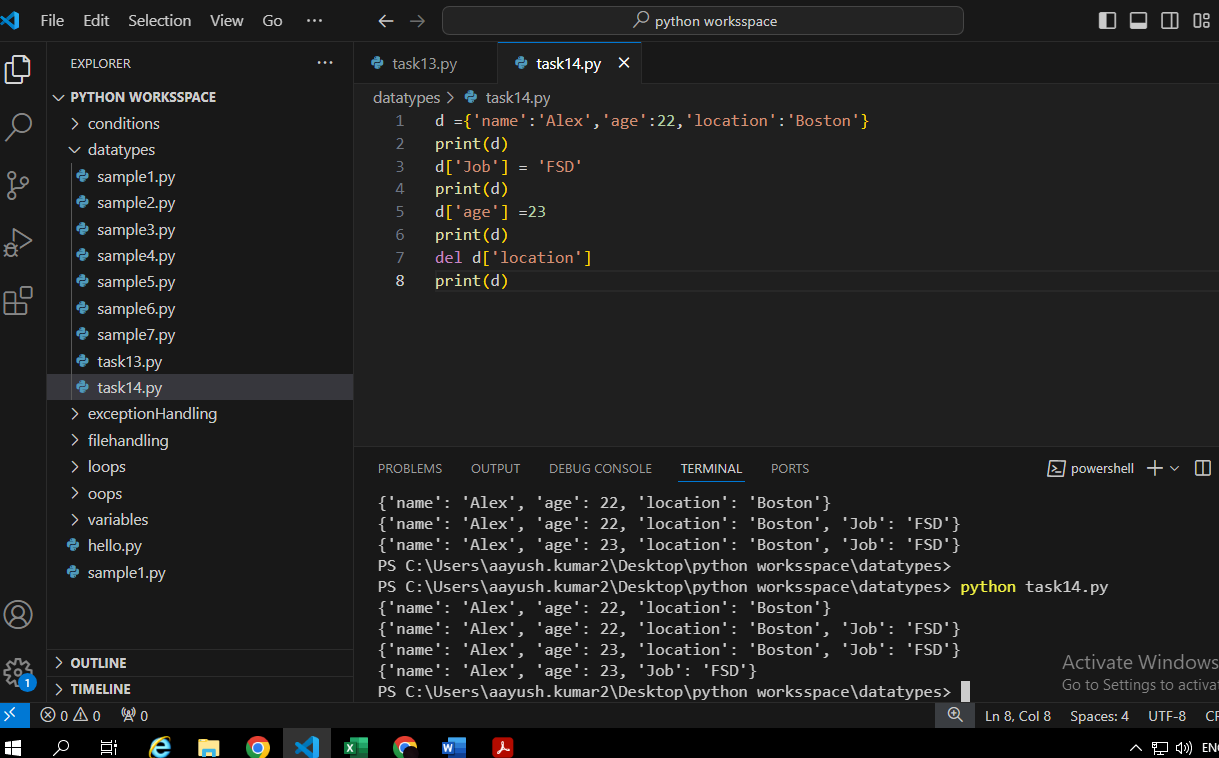
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1. Update the "age" value.

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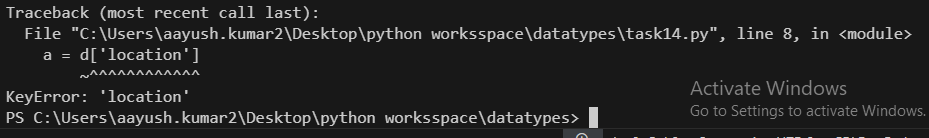
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1. Remove the "location" key.



 **Question:** What happens if you try to access a key that doesn't exist in the dictionary?

A KeyError will appear.



**15. Task: Sets and Set Operations**

 **Objective:** Understand how to use sets in Python.

 **Steps:**

1. Create two sets: one containing odd numbers and the other containing even numbers.

2. Use the union and intersection operations to combine the sets.

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1. Check if an element exists in a set.

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 **Question:** What happens when you try to add a duplicate element to a set?

It will not added because set don’t allow duplicate.

**Task 16: String Operations**

 **Objective:** Practice working with strings in Python.

 **Steps:**

1. Create a string and perform operations like upper(), lower(), and replace().

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1. Concatenate two strings.

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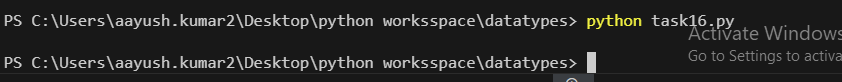
1. Use slicing to extract a substring.

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 **Question:** What happens if you try to slice a string using an index that is out of range?

Program will execute successfully but don’t print anything.



**Task 17: Writing a Program with Functions and Lists**

 **Objective:** Combine functions and lists in a program.

 **Steps:**

1. Write a function that accepts a list of numbers and returns the largest number in the list.
2. Call the function with a sample list.

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 **Question:** How would you modify the function to return the smallest number in the list?

We just simply use min() function in place of max().

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**Task 18: Classes and Objects**

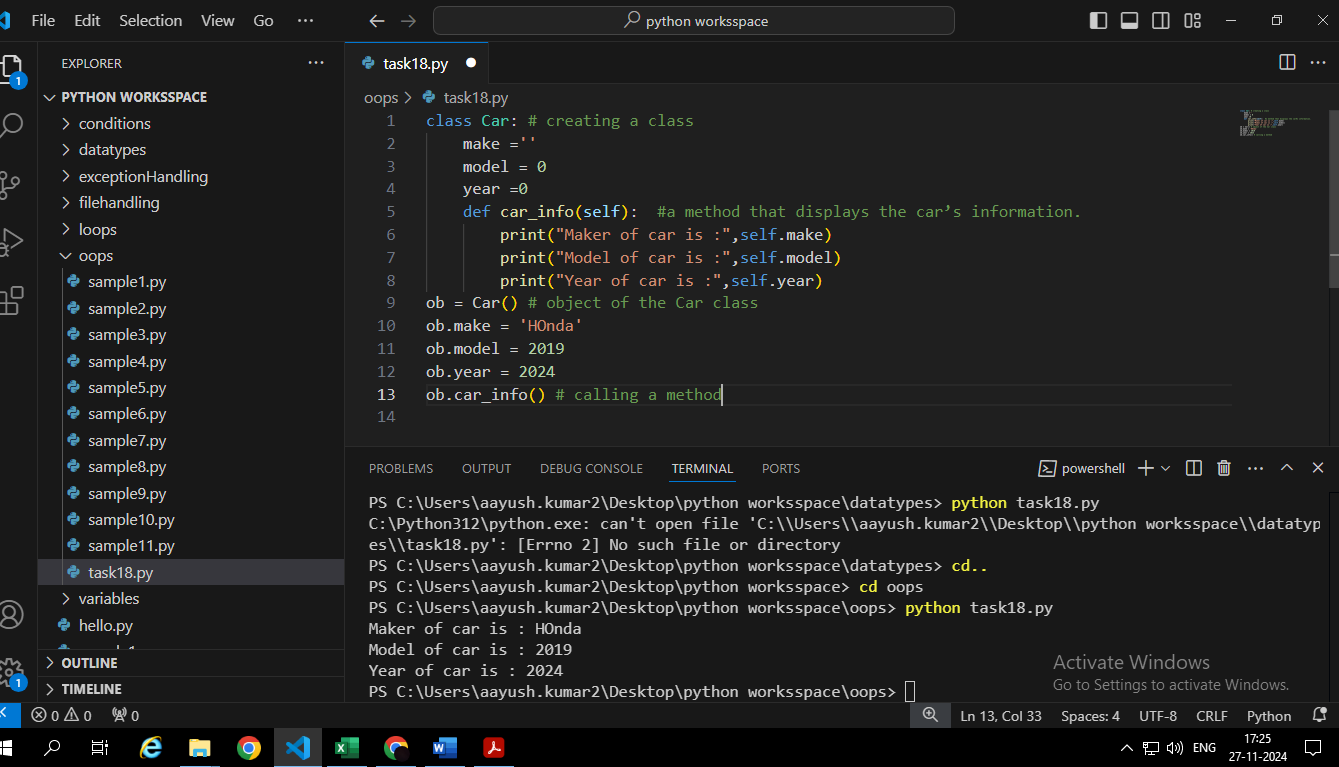
 **Objective:** Learn the basics of object-oriented programming with classes and objects.

 **Steps:**

1. Create a Car class with attributes like make, model, and year.

2. Define a method that displays the car’s information.

3. Create an object of the Car class and call the method.



 **Question:** How would you modify the class to include a method that updates the car’s model?

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**19. Task: Inheritance**

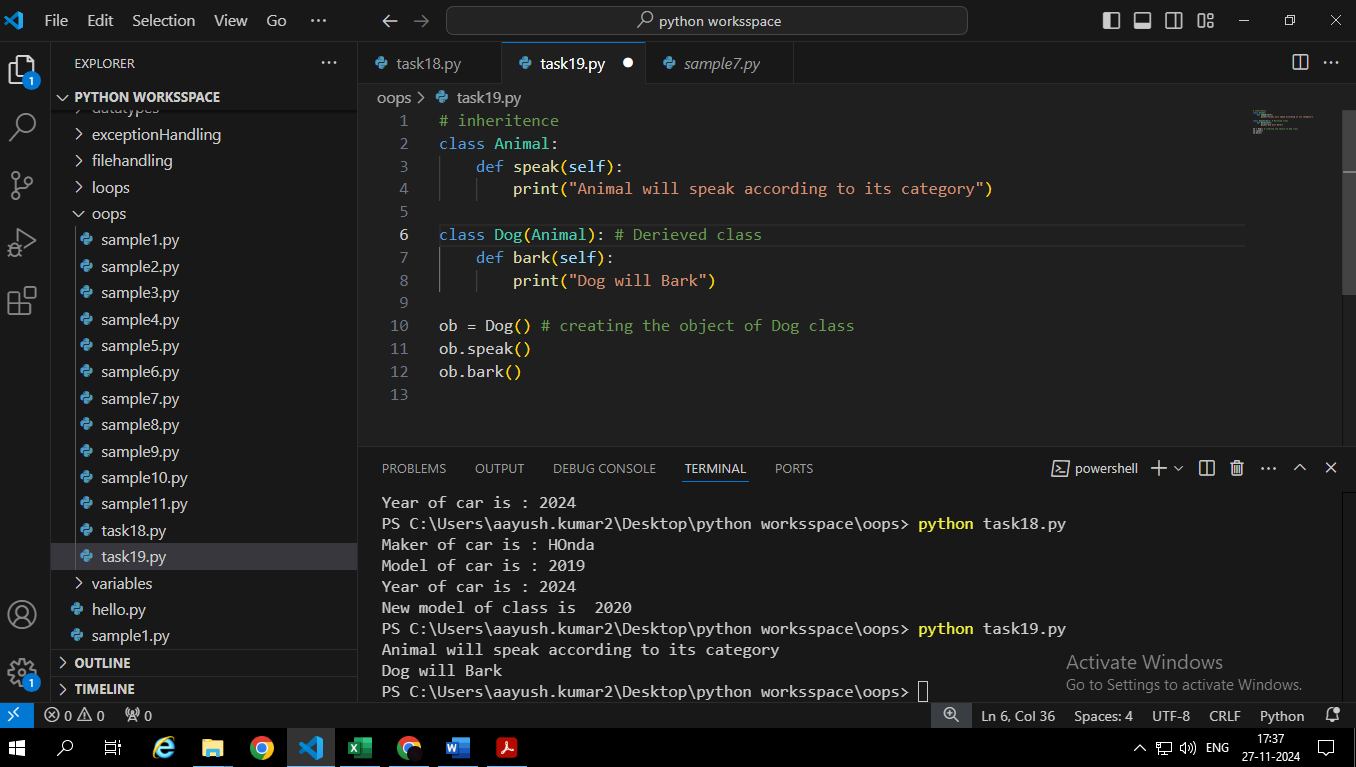
 **Objective:** Learn how to use inheritance in Python.

 **Steps:**

1. Create a base class Animal with a method speak().

2. Create a derived class Dog that inherits from Animal and adds a bark() method.

3. Create an object of the Dog class and call both methods.



 **Question:** Can you override the speak() method in the derived class? How would you do it?

Yes, we can override the speak method in the derived class.

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**Task 20: Constructor and Initialization**

 **Objective:** Understand how to initialize object attributes using the constructor (\_\_init\_\_).

 **Steps:**

1. Create a Book class with title and author as attributes.

2. Define the \_\_init\_\_ method to initialize the object.

3. Create an object of the Book class and print its attributes.

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 **Question:** How would you modify the class to include a price attribute?

