**GTSC2143 Machine Learning for Business Analytics**

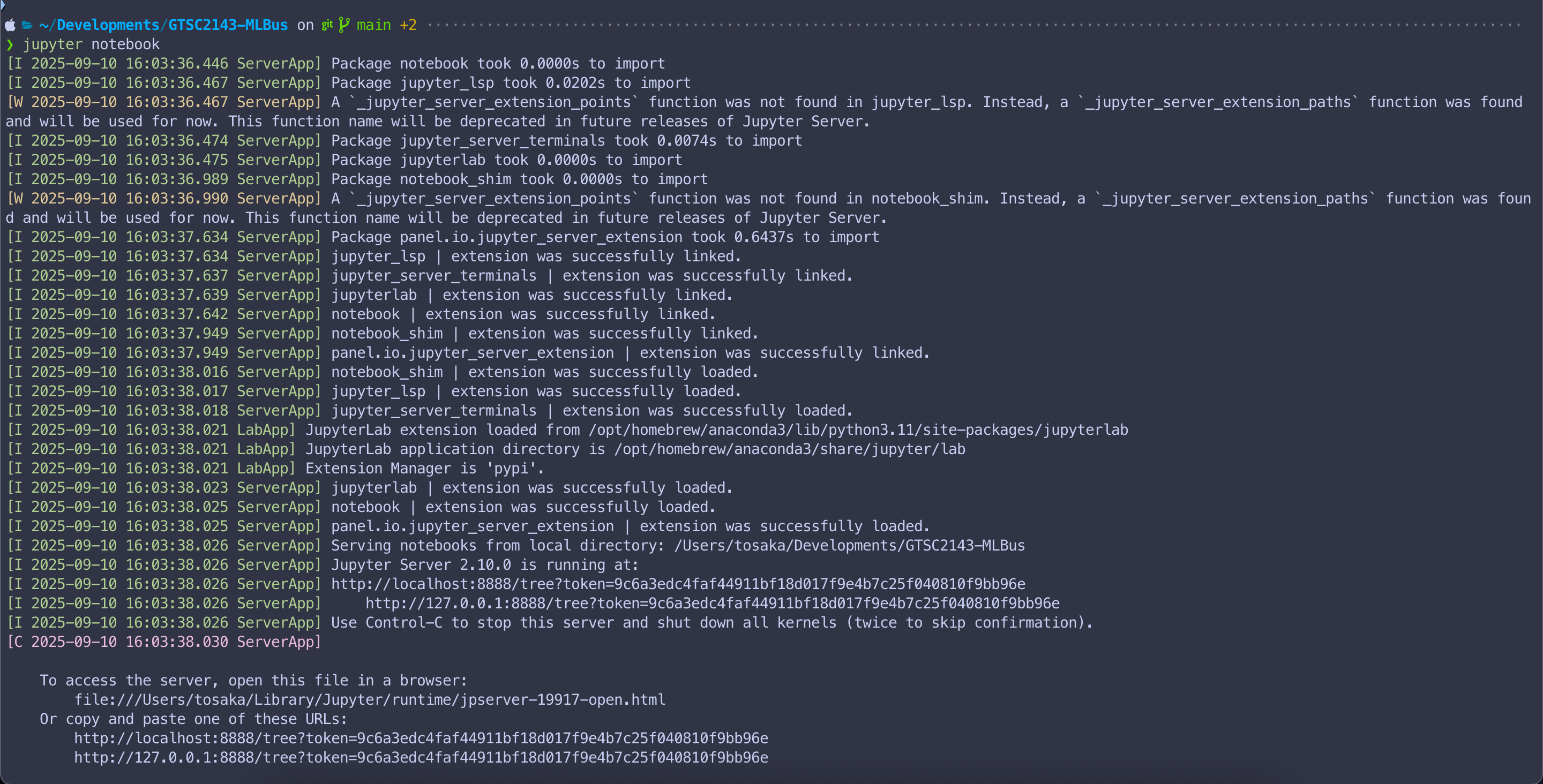
**Tutorial 1 – Python Basics**

**Please write down your answers in this document and submit it at iSpace by the end of this tutorial.**

### Jupyter Notebook Experience

1. Launch Jupyter Notebook using one of these methods:

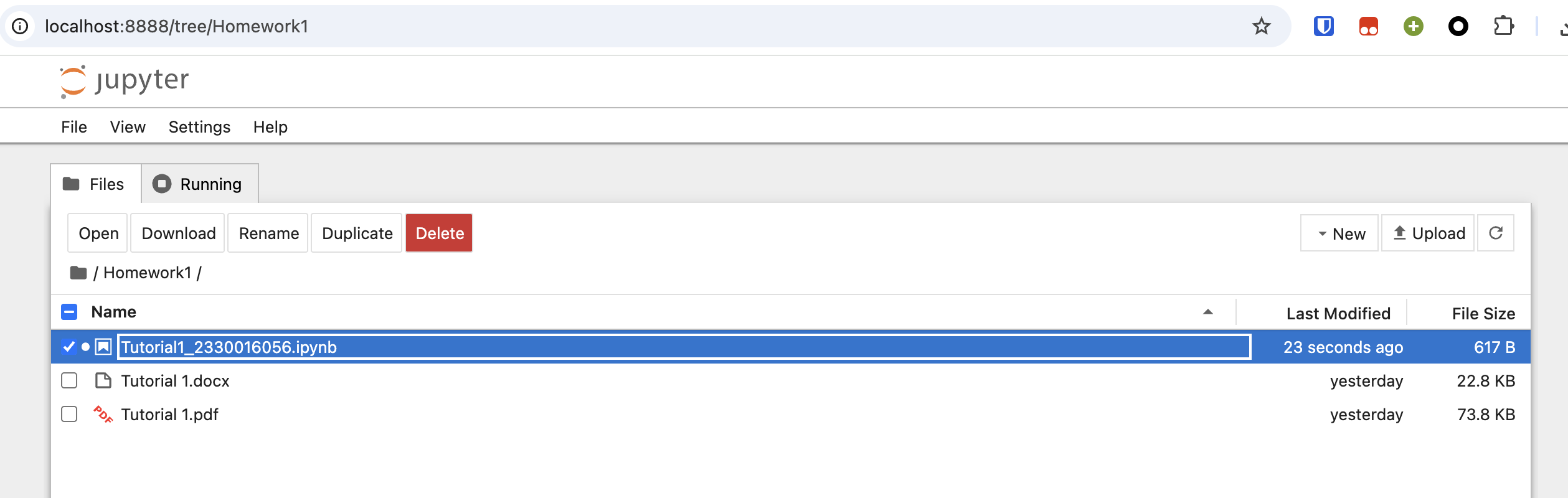
1. Command line: Type jupyter notebook



1. Anaconda Navigator: Click the Jupyter Notebook icon

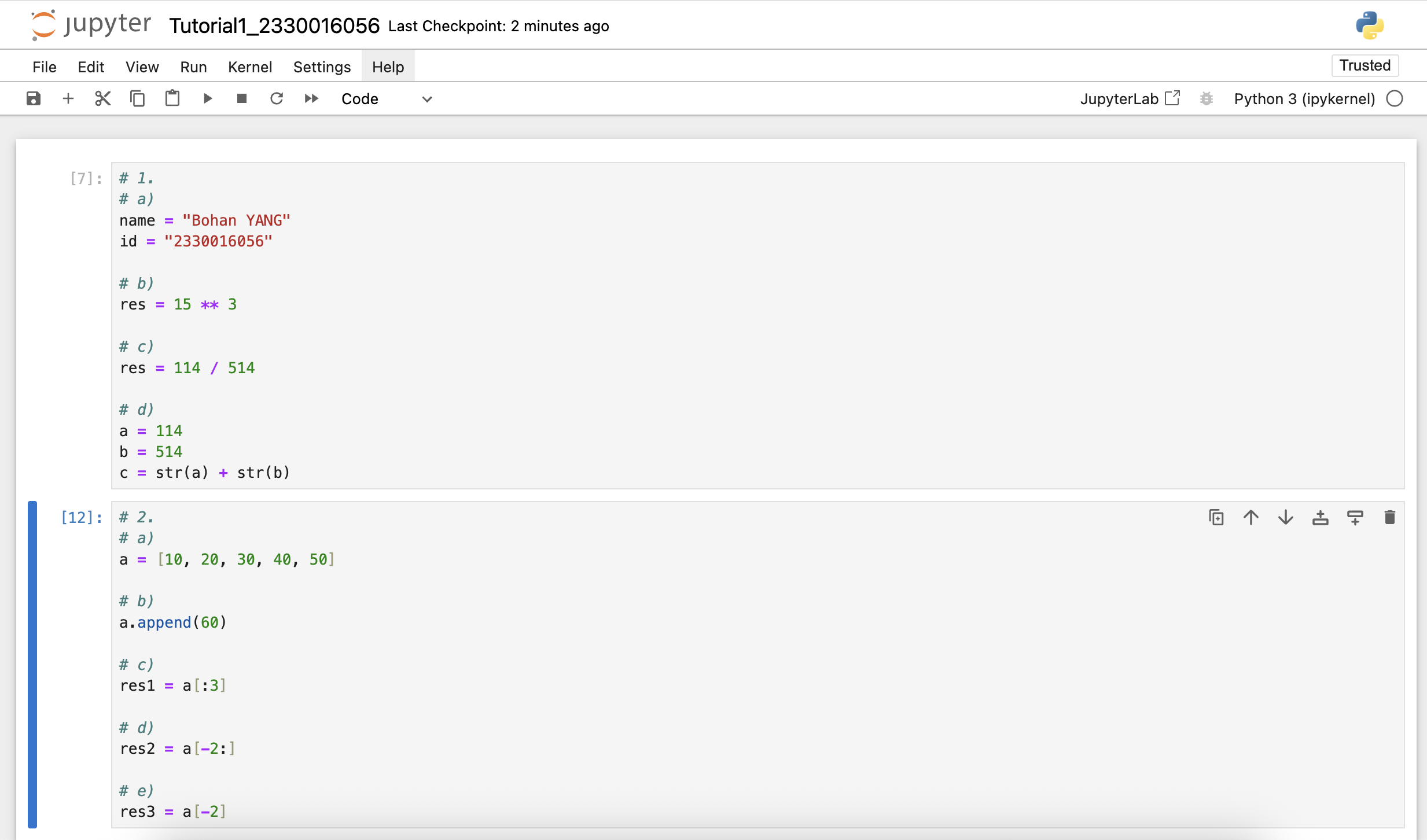
2. Create New Notebook

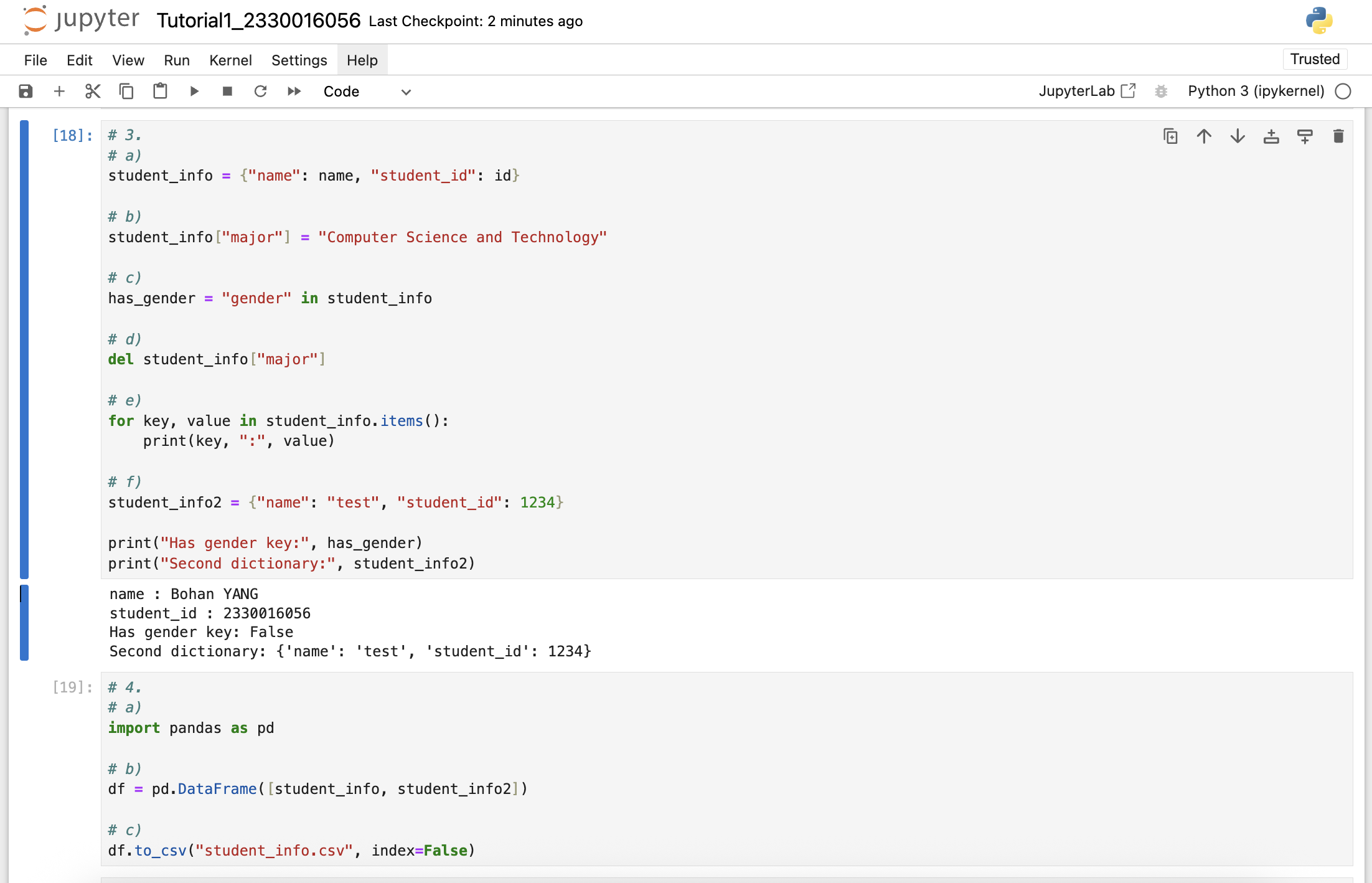
1. Create a new notebook and name it: Tutorial1\_<your\_student\_id>



3. Execute Python Exercises

1. Complete Activity 2 exercises in separate Jupyter notebook cells





### Python Basic Exercise

1. Basic Data Types and Operations

1. Create variables to store your name and student ID
2. Calculate 15 to the power of 3
3. Divide two integers to get a float result
4. Convert numbers to strings and perform string concatenation

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| # 1.  # a)  name = "Bohan YANG"  id = "2330016056"  # b)  res = 15 \*\* 3  # c)  res = 114 / 514  # d)  a = 114  b = 514  c = str(a) + str(b) |

2. List Operations

1. Create a list containing 5 numbers
2. Append a new element to the end of the list
3. Get the first 3 elements of the list
4. Get the last 2 elements of the list
5. Access the second-to-last element using negative indexing

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| # 2.  # a)  a = [10, 20, 30, 40, 50]  # b)  a.append(60)  # c)  res1 = a[:3]  # d)  res2 = a[-2:]  # e)  res3 = a[-2] |

3. Dictionary Operations

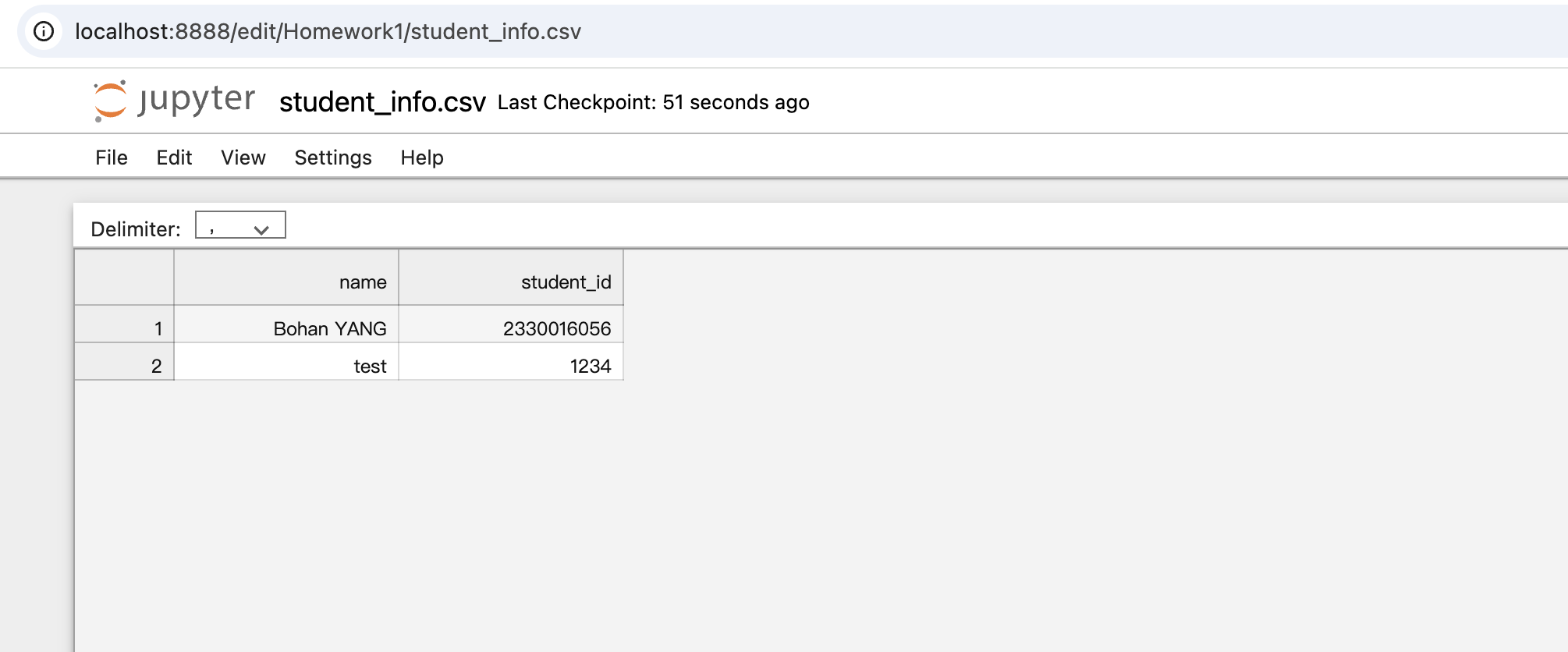
1. Create a student information dictionary containing your name and student ID
2. Add a new key-value pair to include your major information
3. Check if a certain key (“gender”) exists in the dictionary
4. Delete the key-value pair (major information) from the dictionary
5. Iterate through all key-value pairs in the dictionary
6. Create another student information dictionary with name: “test” and student ID: 1234

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| # 3.  # a)  student\_info = {"name": name, "student\_id": id}  # b)  student\_info["major"] = "Computer Science and Technology"  # c)  has\_gender = "gender" in student\_info  # d)  del student\_info["major"]  # e)  for key, value in student\_info.items():  print(key, ":", value)  # f)  student\_info2 = {"name": "test", "student\_id": 1234}  print("Has gender key:", has\_gender)  print("Second dictionary:", student\_info2) |

4. Package Import and Usage

1. Import Pandas
2. Create a DataFrame from the two student information dictionary
3. Export the DataFrame to a CSV file

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| # 4.  # a)  import pandas as pd  # b)  df = pd.DataFrame([student\_info, student\_info2])  # c)  df.to\_csv("student\_info.csv", index=False) |



- End of Tutorial 1 -