Name: Date: Class:

Google Colab Preparation Worksheet Answer Key

Objective: This worksheet aims to prepare you to effectively use Google Colab, a cloud-based platform for writing and executing Python code. The following questions and tasks will help you become familiar with the basic functionalities of Google Colab.

Question 1: Account Setup
Task: Create a Google account if you do not have one.

Question: Why is it necessary to have a Google account to use Google Colab?
Answer: A Google account is required because Google Colab is a service provided by Google, and it uses Google Drive for storing and managing notebooks.

Question 2: Accessing Google Colab
Task: Navigate to the Google Colab website by visiting Google Colab.

Question: What do you see on the Google Colab homepage, and what are the options for creating a new notebook?
Answer: On the Google Colab homepage, you should see options to create a new notebook, upload an existing notebook, view recent notebooks, and access example notebooks. To create a new notebook, you can click on "New Notebook."

Question 3: Basic Notebook Operations
Task: Create a new notebook and name it "My First Notebook."

Question: Describe the process of renaming a notebook in Google Colab.
**Answer**: To rename a notebook, click on the default name (usually "Untitled") at the top left of the notebook interface. This will allow you to type in a new name. Press Enter to save the new name.

Question 4: Running Code Cells
Task: In your new notebook, write and run a simple Python code that prints "Hello, Google Colab!"

Question: How do you execute a code cell in Google Colab, and what keyboard shortcut can you use to run the current cell?
Answer: To execute a code cell, click the "Run" button on the left side of the cell or press Shift + Enter. This will execute the code in the current cell and move to the next cell.
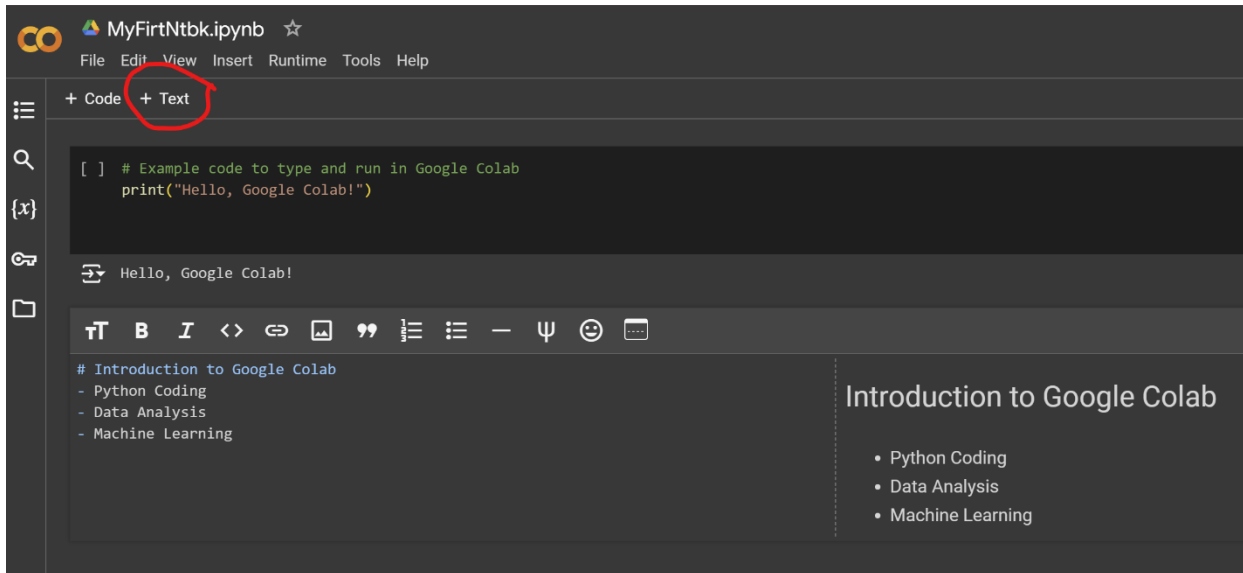


```python
# Example code to type and run in Google Colab
print("Hello, Google Colab!")
```
```
Hello, Google Colab!
```
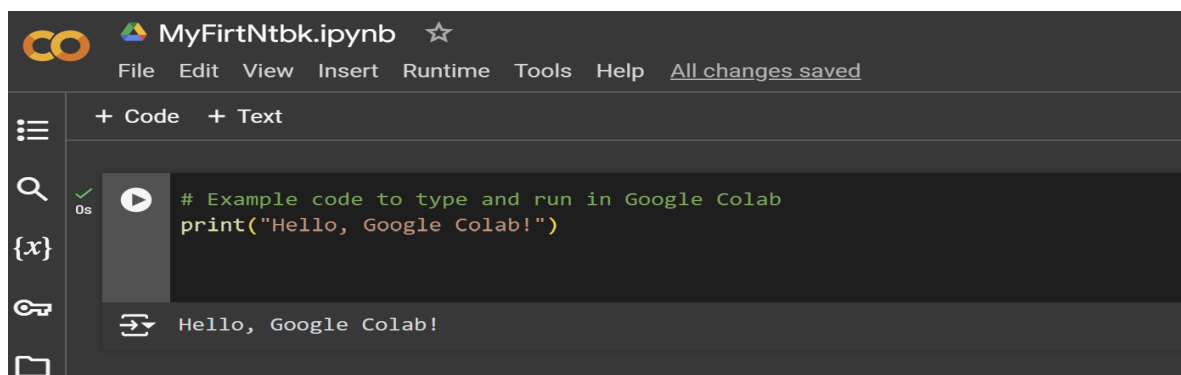
Question 5: Using Markdown Cells
Task: Add a new text cell and use Markdown to create a heading that says "Introduction to Google Colab" and a bullet list with the items "Python Coding," "Data Analysis," and "Machine Learning."

Question: What is the purpose of Markdown cells in Google Colab, and how do you add a heading and a bullet list using Markdown?
Answer: Markdown cells are used for adding formatted text, explanations, and documentation to your notebook. To add a heading, use the # symbol followed by a space (e.g., # Introduction to Google Colab). To create a bullet list, use - or * followed by a space (e.g., - Python Coding).

Question 6: Installing Python Libraries
Task: In a new code cell, install the pandas library using pip.

Question: What is the command to install the pandas library in Google Colab, and why might you need to install additional libraries?
Answer: The command to install the pandas library is `!pip install pandas`. Additional libraries might be needed to extend the functionality of your Python environment, allowing you to perform specific tasks such as data analysis, visualization, or machine learning.
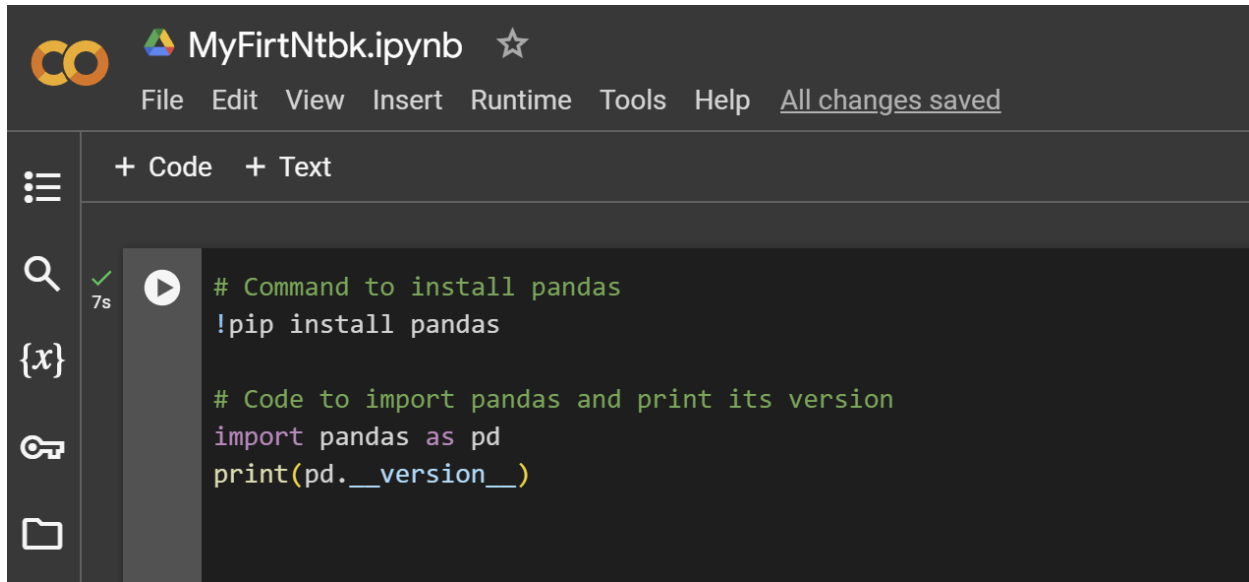
Question 7: Verifying Library Installation

Task: Verify the installation of the pandas library by importing it and printing its version.

Question: Write the code to import pandas and print its version. What is the importance of verifying library installation?

Answer: Verifying library installation ensures that the library is correctly installed and can be used without issues.

```
# Command to install pandas
!pip install pandas

# Code to import pandas and print its version
import pandas as pd
print(pd.__version__)
```
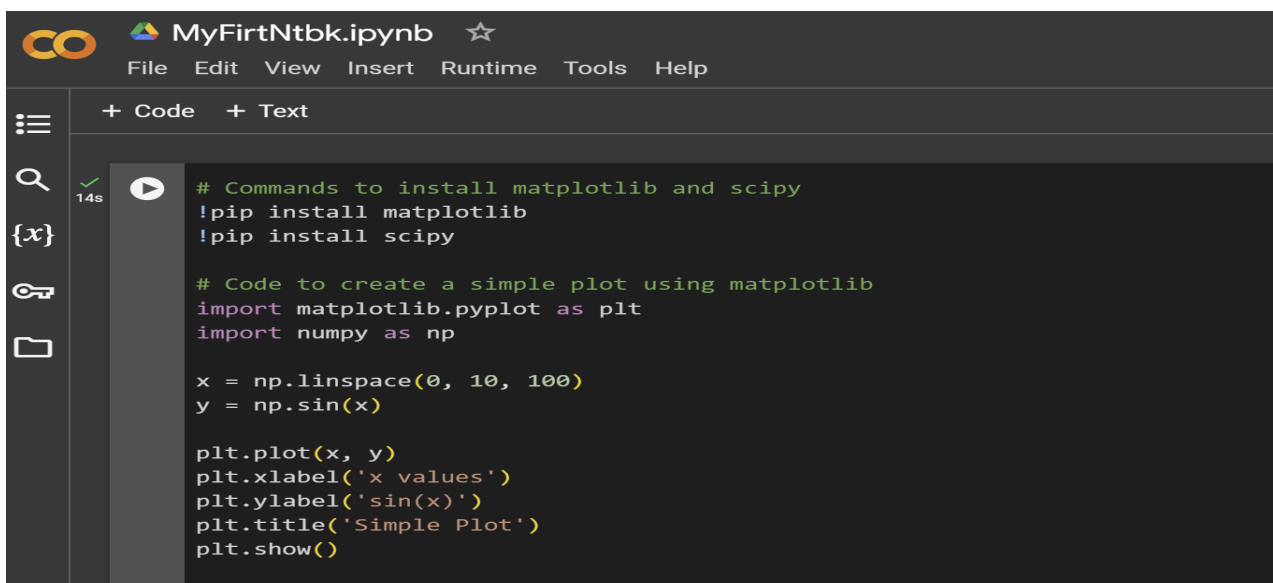

Question 8: Installing and Using Multiple Libraries

Task: Install matplotlib and scipy libraries, then create a simple plot using matplotlib.

Question: Write the commands to install matplotlib and scipy. Then, write a code snippet to create a simple plot using matplotlib.

Answer: The commands to install the libraries are `!pip install matplotlib` and `!pip install scipy`. A simple plot can be created using matplotlib.

```
# Commands to install matplotlib and scipy
!pip install matplotlib
!pip install scipy

# Code to create a simple plot using matplotlib
import matplotlib.pyplot as plt
import numpy as np

x = np.linspace(0, 10, 100)
y = np.sin(x)

plt.plot(x, y)
plt.xlabel('x values')
plt.ylabel('sin(x)')
plt.title('Simple Plot')
plt.show()
```
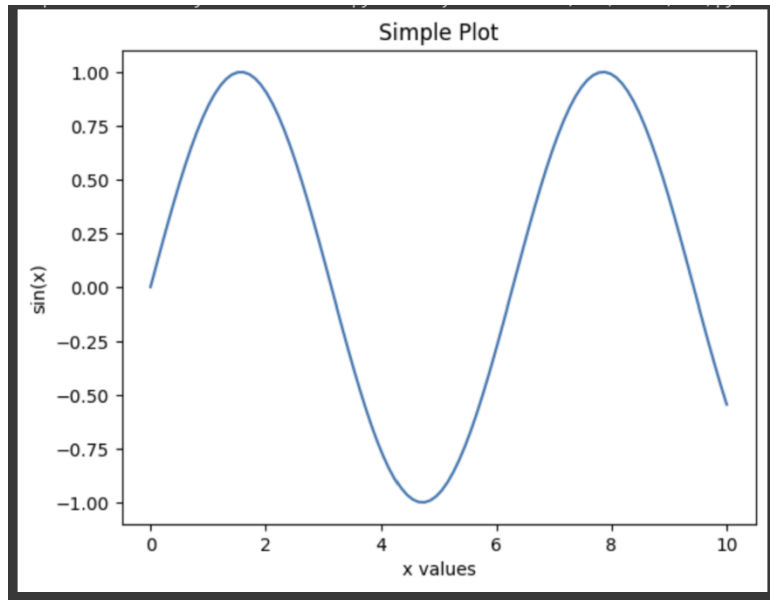
Completion: After answering these questions and completing the tasks, you should have a basic understanding of how to set up and use Google Colab, install necessary Python libraries, and run code cells.

Resources for Further Learning:
- Google Colab Welcome Page
- Google Colab Documentation
- Markdown Guide
- Pandas Documentation
- Matplotlib Documentation
- SciPy Documentation

Feel free to refer to these resources for additional information and advanced features of Google Colab.