Enhancing Digital Governance and Economy (EDGE), Bangladesh Computer Council (BCC)

Final Examination

Department of CSE | Bangabandhu Sheikh Mujibur Rahman Science and Technology University

[Time : 1:30 hours] ***[Marks : 25]***

Name:		Batch No:	49	Batch SL No.	

Q1. You are working with a dataset representing the number of items sold in different stores. The data is provided as a dictionary, where the key is the store name and the value is another dictionary containing the product name as the key and the quantity sold as the value.

Task 1:

- Write a Python function, total_sales(store_data), that takes the dictionary as input and returns a dictionary with the total number of items sold for each product across all stores.

Task 2:

- Write a Python function, store_with_max_sales(store_data), that returns the store with the highest total sales across all products. The total sales of a store is the sum of the quantities sold for all products in that store.

Q2. Write a function my_triangle(b, h) where the output is the area of a triangle with base, b, and height, h. Recall that the area of a triangle is one-half the base times the height. Assume that b and h are just 1 by 1 float numbers.

Test Cases:

In: my_triangle(1, 1) Out: 0.5

In: my_triangle(2, 1) Out: 1

In: my_triangle(12, 5) Out: 30

Q3. Create a list and save it in a text file that each of the item in the list will take one line. Save the same list in problem 1 to a CSV file. Create a 2D numpy array, and save it to CSV file and read it back to a 2D array. Save the same array in problem 2 to a pickle file and load it back.

Q4. You are provided with the Iris dataset which contains information about 150 iris flowers from three different species: Setosa, Versicolor, and Virginica. Each flower is described by four features: sepal length, sepal width, petal length, and petal width.

Task 1 (NumPy):

- Load the **sepal length** and **sepal width** columns from the Iris dataset.

Task 2 (Pandas):

- Load the **Iris dataset** into a Pandas DataFrame, and perform the following tasks:
    1. Calculate the **mean**, **median**, and **standard deviation** for each of the four features (sepal length, sepal width, petal length, and petal width).
    2. Group the dataset by **species** and calculate the **average sepal length** and **average petal length** for each species.
    3. Filter the dataset to show only rows where the **sepal length** is greater than 5.0 cm.

Invigilator Name	:	

Enhancing Digital Governance and Economy (EDGE), Bangladesh Computer Council (BCC)

Final Examination

Department of CSE | Bangabandhu Sheikh Mujibur Rahman Science and Technology University

[Time : 1:30 hours] ***[Marks : 25]***

Examiner	:	
Obtained Marks	:	