Lab 9 *(Due: Oct 28)*
Python Programming for Data Science - COSC 3360

Department of Computer Science and Electrical Engineering

Fall Semester, 2022

Exercises

*Create a **New Project** for every exercise. Take a screenshot of the source code along with its output and place the **source code** and the **screenshot** in a **zipped folder** named **LastNameFirstName_Lab9***

Exercise 1

Given the **DataFrame** of slide 241, ask user to enter the names of the rows, i.e., indices. You can use: *len(grades)* to get the number of rows of the **DataFrame**. In addition, using the **sort_index()** method, ask user whether they wish to **sort by rows** or **by columns** and whether to sort in **ascending** or **descending** order (do not use any *if-else* statements)

Exercise 2

Similarly to Ex.1, use the **sort_values()** method and ask user to enter values for all its three arguments

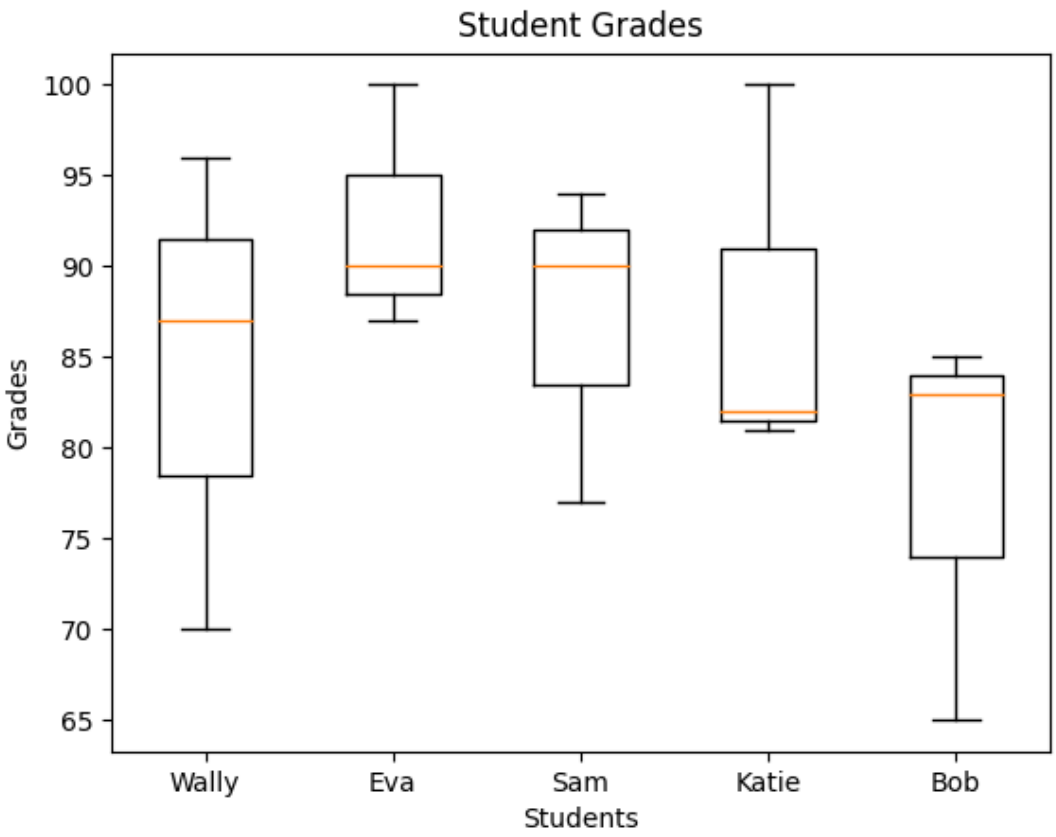
Note: If you sort by rows, i.e., *axis=0*, the **by** argument has to be followed by the name of a student; if you sort by columns, i.e., *axis=1*, the **by** argument has to be followed by the name of the assignment

Exercise 3

Using the same **DataFrame** from Ex. 1, plot 5 **box plots** one for each student within a single graph (see Figure in the next page). Your algorithm should produce boxplots for any number of columns not just 5

Note: Rename the **x-axis** data to students' names using: plt.xticks([1, 2, 3, 4 ,5], ['Student Name 1', 'Student Name 2', 'Student Name 3', 'Student Name 4', 'Student Name 5']), see Figure in the next page. The values in these two arguments should be retrieved automatically and should work for any number of students not just 5

Note: Submit through **Canvas**


Student Grades
Grades
100
95
90
85
80
75
70
65
Wally
Eva
Sam
Katie
Bob
Students