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AI VIII – Serious Games

UNIVERSITÄT BAYREUTH

Exercises for **Programming, Data Analysis, and Deep Learning in Python** (SoSe 2021)

Exercise Sheet no. 7, *Deadline*: Monday, June 7, 10:15

Notes

- Pay attention to the notes on the previous sheet.

Exercise 21 Pandas – Data Frames (programming exercise) (9 points)

Follow the steps in the corresponding Python file on E-Learning. Do not change the name of the corresponding csv file or its contents as it might falsify your answers. Do not submit the csv file. Only submit the resulting Python or IPython Notebook file.

Hint: Reading the following manual can be helpful:
`https://pandas.pydata.org/pandas-docs/stable/generated/pandas.DataFrame.html`

Exercise 22 Pandas – Grading Sheet (programming exercise) (8 points)

On E-Learning you will find a csv file that contains a list of students and attained points for exam questions. Do not change the name of the corresponding csv file or its contents as it might falsify your answers. Do not submit the csv file. Only submit the resulting Python or IPython Notebook file.

a) Download the csv file and import it as a Pandas DataFrame called `df`.

b) Add a column "sum" that contains the sum of all points for the respective student. (You can check your values against the list `L` provided in the Python file or by checking whether plotting the column instead of the list yields the same result. You may not directly use `L` to generate the column. If you are unable to generate the column you may use the list in the following parts. This will void your points for this part.)

c) Output the names of the 5% best (highest points) in descending order. (Depending on the point distribution, the 5% best could be more than 5% of the participants.)

d) When entering the points by hand in the csv file, typos could have occurred. List all rows in which at least one cell contains more points than attainable in the respective problem. The maximum attainable points were 8 points for Problems 1 and 5, 7 points for Problems 2, 3, and 6, and 6 points for Problem 4.

e) Calculate the percentage of students with less than 33% of points in Problem 1.