

Simulation exam scientific programming (DS= 22-23)

PART A 8/11/22

You have to study the performance of students in a math exam.

You are given two csv file: exams.csv and parent_education_level.csv

exams.csv

	id	gender	race/ethnicity	parent_education_level	lunch	test_prep_course	math
0	1001	female	group B	2	standard	none	72
1	1002	female	group C	5	standard	completed	69
2	1003	female	group B	4	standard	none	90
3	1004	male	group A	1	free/reduced	none	47
4	1005	male	group C	5	standard	none	76

id: it is the student ID

gender: the gender of the student

race/ethnicity: 5 different groups

parent_education_level: it represent the highest education level of the parents.

Lunch: whether the student receives free/reduced or standard lunch

test_prep_course: whether the student took the test preparation course.

Math: The score obtained in the math course.

parent_education_level.csv

	id	parent_education_level	education_level
0		0	associate's degree
1		1	bachelor's degree
2		2	high school
3		3	master's degree

This file allow you to convert the codes into the education level.

QUESTIONS:

1. Build a function to search for the id of the students getting the maximum score (100), and print it.

2. Build a function to print the race/ethnicity of the following students id:

1624,1963,1150

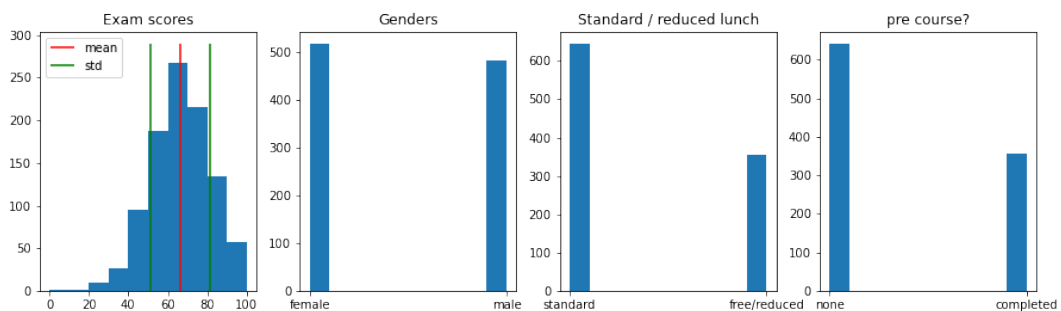
3. Search for the id and gender of the student that obtained the highest score in math that did not take the test_prep_course

4. Print the parents education level of the following students:

[1450,1451,1452,1453,1454]

we don't want to see the code! We would like to have the actual value! (i.e. do not print 1453 → 1, you have to print 1453 → bachelor's degree)

5. Make a unique plot with distributions `**plt.hist(list)**` of scores, gender, lunch test_prep_course. In the same plot containing the histogram of exam scores add the mean (red) and standard deviation +- (green) [`plt.vline(x,ymin,ymax)`]. You should obtain a plot like the following:



DOCS:

numpy.org pandas.pydata.org matplotlib.org antonionlonga.github.io docs.python.org

SUBMIT:

Load to EXAMINA your solution. **NAME THE FILE** like follow:

name_surname_id.py

For instance (Antonio_Longa_123456.py)