219114/115 Programming I

**Week 12: OOP programming laboratory**

You can access a solution repo for last week’s lab here:

<https://github.com/parujr/oop_lesson_2>

It will also serve as a starting point for this week’s laboratory.

Please fork it and then clone it to your local repo. If you are not familiar with forking a Github repository, consult the following link for instructions:

<https://docs.github.com/en/get-started/quickstart/fork-a-repo>

You will then do the lab tasks for this week in that directory, commit your change and push it back to your Github repository for grading later. Please also name your remote repo as oop\_lesson\_2.

Access the data files that we will use via the following link:

[week12\_oop\_lab](https://drive.google.com/drive/folders/1SOlXqoLu4t621qpgvVydCFhW0ODtUckI?usp=sharing)

**Task 1:**

* Modify your data\_processing.py to add these data sets as tables into the database
  + Titanic.csv
  + Players.csv
  + Teams.csv
* Commit your change and write a meaningful and relevant message to go with it
* For Players and Teams, modify your data\_processing.py to accommodate the following queries:
  + What player on a team with “ia” in the team name played less than 200 minutes and made more than 100 passes? Select to display the player surname, team, and position
  + The average number of games played for teams ranking below 10 versus teams ranking above or equal 10
  + The average number of passes made by forwards versus by midfielders
* Commit your change and write a meaningful and relevant message to go with it
* For Titanic, modify your data\_processing.py to accommodate the following queries:
  + The average fare paid by passengers in the first class versus in the third class
  + The survival rate of male versus female passengers
* Commit your change and write a meaningful and relevant message to go with it
* Do a git push to your remote repo at this point and show it to the TAs or the instructor

**Task 2:**

* To begin this task, make sure you are in the same working directory as Task 1
* Use the following git commands to create a branch called pivot\_feature

git branch pivot\_feature

git checkout pivot\_feature

and you will switch to pivot\_feature from the main branch

* Create a file named combination\_gen.py that is to contain a function named gen\_comb\_list with the following specifications

def gen\_comb\_list(list\_set):

'''

Parameters:

list\_set: a list of lists where each contains at least one element

Returns:

a list of lists, each of which is made from a combination of elements in each list in list\_set

Examples:

gen\_comb\_list([[1, 2, 3]]) returns [[1], [2], [3]]

gen\_comb\_list([[1, 2, 3], [4, 5]]) returns [[1, 4], [2, 4], [3, 4], [1, 5], [2, 5], [3, 5]]

gen\_comb\_list([[1, 2, 3], [4, 5], [6, 7, 8]]) returns [[1, 4, 6], [2, 4, 6], [3, 4, 6], [1, 5, 6], [2, 5, 6], [3, 5, 6], [1, 4, 7], [2, 4, 7], [3, 4, 7], [1, 5, 7], [2, 5, 7], [3, 5, 7], [1, 4, 8], [2, 4, 8], [3, 4, 8], [1, 5, 8], [2, 5, 8], [3, 5, 8]]

'''

* Code up this function and commit this file to this pivot\_feature branch
* Do a git push to your remote repo and you should see this new branch there as well