# Numpy and Pandas

## PART A

**1.Find those groups which have more "True" values than**

**"False" values in the below dataframe:**

**df = pd.DataFrame({'A': ['group1', 'group1', 'group2', 'group1','group2', 'group1', 'group2', 'group2','group2','group1'],**

**'B': ['true', 'true', 'true', 'false', 'false', 'false', 'false', 'true','false','true']})**

**2.**

**a.Get the items not common to both series A and series B (Without using loops)**

**b.Get the items  common to both series A and series B(Without using loops)**

*# input*

**ser1 = pd.Series([1, 2, 3, 4, 5])**

**ser2 = pd.Series([4, 5, 6, 7, 8])**

3.a.Generate a random series of length 10 and  find the positions of numbers that are multiples of 3 from a series?

b.Compute the cumulative difference between the consecutive number for the same series(without using loops).

*# input*

Series ==>[1, 3, 6, 10, 15, 21, 27, 35]

*# Desired Output*

*# [nan, 2.0, 3.0, 4.0, 5.0, 6.0, 6.0, 8.0]*


## PART B
### Use the data (Grouby_Assignment_Data.csv) for the below questions(1,2,3,4) !!

**1. Find the Average price of project from each state**

**2.**

**a. Find the total number of projects previously  posted   by all the teachers belonging to each teacher prefix.**

**For Example all the teachers having prefix as dr have posted a total of 13 projects combined previously.**

**b. Find the prefix of the teacher who has posted the      maximum of projects previously**


**3. Find the number of projects approved for each project subject category belonging to the project grade category 'grade_9_12'**


**4.Replace teacher_prefix with the average number of approved projects for each teacher prefix**

## 5.Find the desired output as shown in the image below.

**Note** : Create the data frame (Train Data) as shown in the image below

(Output can be in fraction form or decimal form )

Train Data

| State | class |
|-------|-------|
| A | 0 |
| B | 1 |
| C | 1 |
| A | 0 |
| A | 1 |
| B | 1 |
| A | 0 |
| A | 1 |
| C | 1 |
| C | 0 |

OUTPUT

Resonse table(only from train)

| State | Class=0 | Class=1 |
|-------|---------|---------|
| A | 3 | 2 |
| B | 0 | 2 |
| C | 1 | 2 |

hint ↗

Encoded Train Dat

| State_0 | State_1 |
|---------|---------|
| 3/5 | 2/5 |
| 0/2 | 2/2 |
| 1/3 | 2/3 |
| 3/5 | 2/5 |
| 3/5 | 2/5 |
| 0/2 | 2/2 |
| 3/5 | 2/5 |
| 3/5 | 2/5 |
| 1/3 | 2/3 |
| 1/3 | 2/3 |