

▼ Individual Project 1

Course Name:	Systems & Technologies	Course Code:	SEC210
Release Date:	Sunday, February 7th, 2021	Release Time:	08:00
Submission Date:	Sunday, February 21st, 2021	Submission Time:	08:00
Submission Note:	Submission will be completed using the assignment link on Week 6 in Moodle		
Course Learning Outcome:	2 (20%) and 5 (80%)	% of Final Grade:	20%

▼ Instructions

Starting the project

- Please download and put the SEC210 Individual Project 1 notebook and covid_data.txt in the same folder on your laptop
- Open Navigator and launch Jupyter Notebook
- Go to the folder above and open SEC210 Individual Project 1
- Run the cell Step 1 - Importing the Covid 19 Data

Please update the information in the markdown cell below. You will need to put in your ID number, Student Name and Program of Study.

Student ID#: R01810037

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Program of Study: Homeland Security

▼ Project 1 Description

During the first four weeks of the Spring 2021 semester we have looked at the basics of Python.

We focused on

- integers `int`
- floating point numbers `float`

- strings `str`
- lists `list`

You will be working with **Covid-19** data from January 30th, 2021.

▼ Step 1 - Importing the Covid 19 Data

Please do not touch the code below.

Just run the cell to load the data. Please make sure you have the `covid_data.txt` file saved in the same folder as this Jupyter Notebook

All of the data will be stored in a new `list` called `covid_data`. This `covid_data` list can be used for the rest of the individual project

```
1 import csv
2
3 covid_data = []
4
5 with open('covid_data.txt', newline = '') as covid:
6
7     txt_reader = csv.reader(covid, delimiter='\\t')
8     for row in txt_reader:
9         covid_data.append(row)
```

▼ Student Task 1 (CLO 5):- (Marks: 5)

How many items are in the `covid_data` list?

```
1 #<--Student code for task 1 goes below-->
2
3 print("the number of items is,",len(covid_data))

the number of items is, 192
```

▼ Student Task 2 (CLO 5):- (Marks: 10)

Using the `type` function that we used in Week 2 please determine the type of each item in `covid_data` list. You might use a `for` loop to go through each item in the list. We covered this in

class in Week 4

```

1  #<--Student code for task 2 goes below-->
2
3  for i in range(0,len(covid_data)):#iterating over the covid data list
4      print("Item #",i,"is",covid_data[i])
5      print("Type:",type(covid_data[i]))#printing type of each item
6      print("#####\n")
7

```

Item # 0 is ['country_code', 'continent', 'country', 'date', 'total_cases', 'new_case']
Type: <class 'list'>
#####

Item # 1 is ['AFG', 'Asia', 'Afghanistan', '1/30/2021', '55008', '69', '2400', '1', '1279']
Type: <class 'list'>
#####

Item # 2 is ['ALB', 'Europe', 'Albania', '1/30/2021', '77251', '901', '1369', '11', '1279']
Type: <class 'list'>
#####

Item # 3 is ['DZA', 'Africa', 'Algeria', '1/30/2021', '107122', '235', '2888', '4', '1279']
Type: <class 'list'>
#####

Item # 4 is ['AND', 'Europe', 'Andorra', '1/30/2021', '9885', '48', '101', '1', '1279']
Type: <class 'list'>
#####

Item # 5 is ['AGO', 'Africa', 'Angola', '1/30/2021', '19782', '59', '464', '0', '601']
Type: <class 'list'>
#####

Item # 6 is ['ATG', 'North America', 'Antigua and Barbuda', '1/30/2021', '218', '0', '1279']
Type: <class 'list'>
#####

Item # 7 is ['ARG', 'South America', 'Argentina', '1/30/2021', '1922264', '6902', '479']
Type: <class 'list'>
#####

Item # 8 is ['ARM', 'Asia', 'Armenia', '1/30/2021', '166901', '173', '3071', '2', '56']
Type: <class 'list'>
#####

Item # 9 is ['AUS', 'Oceania', 'Australia', '1/30/2021', '28811', '5', '909', '0', '1279']
Type: <class 'list'>
#####

Item # 10 is ['AUT', 'Europe', 'Austria', '1/30/2021', '413208', '1478', '7703', '45']
Type: <class 'list'>
#####

```

Item # 11 is ['AZE', 'Asia', 'Azerbaijan', '1/30/2021', '230066', '131', '3126', '7',
Type: <class 'list'>
#####

Item # 12 is ['BHS', 'North America', 'Bahamas', '1/30/2021', '8174', '7', '176', '1'
Type: <class 'list'>
#####

Item # 13 is ['BHR', 'Asia', 'Bahrain', '1/30/2021', '102626', '655', '372', '0', '60
Type: <class 'list'>
#####

Item # 14 is ['BGD', 'Asia', 'Bangladesh', '1/30/2021', '534770', '363', '8111', '17'

```

▼ Student Task 3 (CLO 5):- (Marks: 30)

- Create a new list called `asia_countries`. Using a `for` loop along with an `if` statement go through the `covid_data` list and store all the countries from Asia in this new `asia_countries`.
- At the end please print out the number of countries in the `asia_countries` list.

Double-click (or enter) to edit

```

1 #<--Student code for task 3 goes below-->
2
3 asia_countries=[]
4 for i in covid_data:#iterating over lists of covid data
5     if i[1]=='Asia':#checking if the country is in asia
6         asia_countries.append(covid_data)#adding the country name in list if it is in Asi
7 print("The number of asia countries are ",len(asia_countries))#printing total number of c

The number of asia countries are 46

```

Double-click (or enter) to edit

```

1 len(asia_countries)

46

```

▼ Student Task 4A (CLO 5):- (Marks: 15)

- Create a new list called `highest_ten_deaths`
- Store the countries that are in the highest 10 deaths per million from the `covid_data`

```
1 #<--Student code for task 4A goes below-->
2
3 highest_ten_deaths = []
4 for i in range(1,len(covid_data)):
5     highest_ten_deaths.append(covid_data[i][10])
6
7 print("\n",highest_ten_deaths[0:10])
```



```
['61.652', '475.711', '65.859', '1307.19', '14.118', '71.481', '1060.519', '1036.368',
```

+ Code

+ Text

▼ Student Task 4B (CLO 2):- (Marks: 20)

During Week 4 we discussed the difference between Data and Information. If you are unsure please refer back to the slides and video recordings of the class from Week 4.

In the markdown cell below please write a 150 word report on the data collected in the text file that was loaded into the `covid_data` list.

It may be useful to describe the data types of the content and then possibly discuss how this data can be turned into information. You could write some code that would show some of the data being **processed** into information and displayed visually using packages such as `matplotlib`. Click [here](#) to learn more about the `matplotlib` visualisation tool in Python that allows us to display information as charts and graphs. It may be useful to click on **tutorials** in the website.

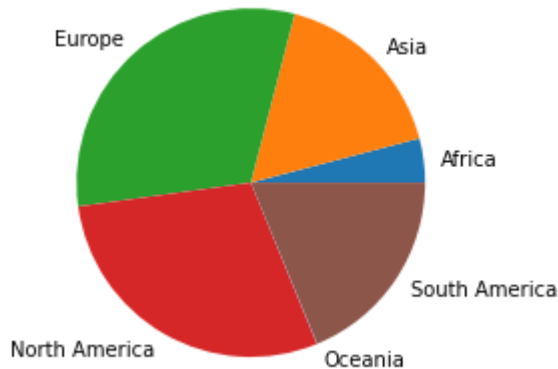
The dataset has 192 lists (Countries) and each list has twelve elements, first attribute shows the country code of the country whose data is stated in the list, country attribute contains the name of the country while the date indicates the date at which the reading has been taken or you can say the current data on that date is mentioned here, while the continent shows one of the six possible continent that are possible, same in the way the total deaths indicates the number of deaths so far in that country, new deaths indicates the number of deaths on the mentioned date, same in the case of total and new cases. while the cases per million indicates the number of people affected per ten lacs of population in that country and deaths per million indicates that these number of people died on every million of people in that country.

```
1 %matplotlib inline
2 import matplotlib.pyplot as plt#importing matplotlib for plotting graphs
```

```

1 Deaths = [90446, 372249, 689714, 640469, 945, 414551]#total number of deaths we found out
2 Continents = ["Africa","Asia","Europe","North America","Oceania","South America"]#labels f
3 plt.pie(Deaths,labels=Continents)#plotting pie graph using matplotlib and giving x and y p
4 plt.show()#displaying the graph

```



▼ Student Task 5 (CLO 5):- (Marks: 20)

- The final step in your project
- The aim of this task is to create a new list called `totals` that will hold the **total deaths** on January 30th by continent.
- The structure of the list should follow below where
 - `totals[0]` contains the total deaths for Africa
 - `totals[1]` contains the total deaths for Asia
 - `totals[2]` contains the total deaths for Europe
 - `totals[3]` contains the total deaths for North America
 - `totals[4]` contains the total deaths for Oceania
 - `totals[5]` contains the total deaths for South America
- The instructor should be able to view any total by simply running the code

```

1 #<--Student code for task 5 goes below-->
2
3 for i in range(0,len(covid_data)):
4     if covid_data[i][6] == '':
5         covid_data[i][6] = '0'
6 totals = [0,0,0,0,0,0]
7
8 for i in range(1,len(covid_data)):#iterating over the covid data list

```

```

9   if covid_data[i][1] == 'Africa':#checking if the list has a data from an african count
10       totals[0]=totals[0]+int (covid_data[i][6])#adding total african deaths to current
11   if covid_data[i][1] == 'Asia':#checking if the list has a data from an asian country
12       totals[1]=totals[1]+int (covid_data[i][6])
13   if covid_data[i][1] == 'Europe':#checking if the list has a data from a European count
14       totals[2]=totals[2]+int (covid_data[i][6])
15   if covid_data[i][1] == 'North America':#checking if the list has a data from a North A
16       totals[3]=totals[3]+int (covid_data[i][6])
17   if covid_data[i][1] == 'Oceania':#checking if the list has a data from an Oceanian cou
18       totals[4]=totals[4]+int (covid_data[i][6])
19   if covid_data[i][1] == 'South America':#checking if the list has a data from a South A
20       totals[5]=totals[5]+int (covid_data[i][6])
21 print(totals)

```

```
[90446, 372249, 689714, 640469, 945, 414551]
```

```
1 totals
```

```
[90446, 372249, 689714, 640469, 945, 414551]
```

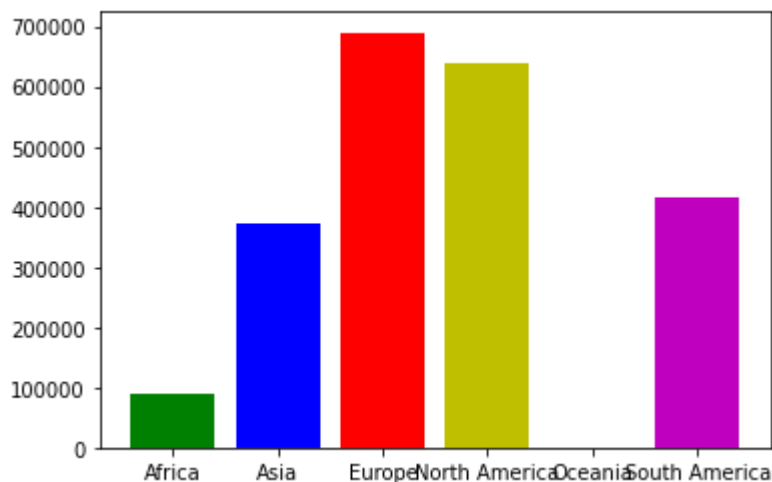
```

1 import matplotlib.pyplot as plt
2 plt.bar(["Africa","Asia","Europe","North America","Oceania","South America"],totals,color=

```

```
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:2: MatplotlibDeprecationWar
```

```
<BarContainer object of 6 artists>
```



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