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ASOIT

Python Assignment-3

Python Library and Modules

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Python Library

A library is a collection of modules. It is a reusable chunk of code that you may want to include in your programs/projects.

**Some python
libraries are:-**

Numpy

Pandas

pyttsx3

wikipedia

Numpy

Numpy is considered as one of the most popular machine learning library in Python. Array interface is the best and the most important feature of Numpy. This interface can be utilized for expressing images, sound waves, and other binary raw streams as an array of real numbers in N-dimensional.

Example 1-

```
import numpy as np  
arr = np.array([1, 2, 3, 4, 5])  
print(arr)  
print(type(arr))
```

Output- [1 2 3 4 5]
<class 'numpy.ndarray'>

Example 2-

```
import numpy as np  
arr = np.array([[1, 2, 3], [4, 5, 6]])  
print(arr)
```

Output- [[1 2 3]
[4 5 6]]

Pandas

Pandas is a Python library used for working with data sets. It has functions for analyzing, cleaning, exploring, and manipulating data. It allows us to analyze big data and make conclusions based on statistical theories. It can clean messy data sets, and make them readable and relevant.

Example1

```
import pandas as pd  
data = {'Name':[' Janny ', 'Amit','Suji']  
        'Age':[28,34,29,42]}  
df = pd.DataFrame(data)  
print df
```

Its **output** is as follows –

	Age	Name
0	28	Janny
1	34	Amit
2	29	Suji

Pyttsx3

pyttsx3 is a text-to-speech conversion library in Python.
Unlike alternative libraries, it works offline.

```
import pyttsx3  
engine = pyttsx3.init()  
engine.say("I will speak this text")  
engine.runAndWait()
```

Wikipedia

Wikipedia is a Python library that makes it easy to access and parse data from Wikipedia. Search Wikipedia, get article summaries, get data like links and images from a page, and more.

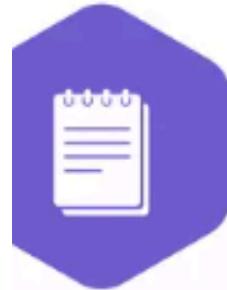
Example1

```
import wikipedia  
  
# finding result for the search  
# sentences = 2 refers to numbers of line  
result = wikipedia.summary("India", sentences = 2)  
  
# printing the result  
print(result)
```



Tkinter

Tkinter is a graphical user interface (GUI) module for Python, you can make desktop apps with Python and can develop **GUI** applications like **calculator, login system, text editor, etc.**



Tkinter Widgets

Tkinter provides various controls, such as buttons, labels and text boxes used in a GUI application. These controls are commonly called widgets.



Important method of Tkinter

1. **Tk(screenName=None, baseName=None, className='Tk', useTk=1) :-**

This method is mainly used **to create the main window.**

2. **The mainloop() Function:-**

This method is used to start the application. The mainloop() function is an **infinite loop** which is used to run the application, it will wait for **an event to occur** and **process the event** as long as the window is not closed.

Github Link: [https://github.com/zala2006/Python Assignment 3](https://github.com/zala2006/Python_Assignment_3)

Output:

```
== COVID-19 Dataset ==
   Country  Total Cases  Total Deaths  Total Recovered
0      USA      34000000          609000      28000000
1     India      31000000          410000      30000000
2    Brazil      19000000          530000      17000000
3   Russia      6000000          150000      5800000
4      UK       5000000          130000      4800000

== Dataset with Rates ==
   Country  Total Cases  ...  Death Rate (%)  Recovery Rate (%)
0      USA      34000000  ...      1.791176      82.352941
1     India      31000000  ...      1.322581      96.774194
2    Brazil      19000000  ...      2.789474      89.473684
3   Russia      6000000  ...      2.500000      96.666667
4      UK       5000000  ...      2.600000      96.000000

[5 rows x 6 columns]

== Summary ==
USA has the highest number of total cases.
India has the highest recovery rate among the sample countries.
Death and recovery rates vary across different countries.
```

THANK YOU!