

T.Y.B. Sc. Semester 5

Subject: 506 - Python Programming

Python Practical List:

**** How to start working with Python IDE**

Follow below instruction to start jupyter notebook in Linux environment.

Step 1:

Run following command on Linux terminal:

1. `source pyenv/bin/activate`
2. `jupyter notebook`

Step 2: Start new Python 3 notebook from Jupyter and Rename notebook as per exercise.

Assignment – 1

Topic: String Slicing Operations and Functions

Aim : To learn string indexing, slicing and string functions in python.

For Q.1 to 3 Take following input and generate given output.

Q.1 Input : `s = 'King Arthur'`

Output: `'ruhtrA gniK'`

Q.2 Input : `snack = "Chocolate cookie."`

Output 1: `cookie` Output 2: `Vanila Cookie`

Q.3 Input `str = "Welcome to the world of Python"`

Output : `WcehwloPh`

Q.4 Count and print the occurrence of word “Apple” in following paragraph.

Apple Inc. is an American multinational technology company headquartered in Cupertino, California, that designs, develops, and sells consumer electronics, computer software, and online services. It is considered one of the Big Four of technology along with Amazon, Google, and Facebook. The company's hardware products include the iPhone smartphone, the iPad tablet computer, the Mac personal computer, the iPod portable media player, the Apple Watch smartwatch, the Apple TV digital media player, the Apple AirPods wireless earbuds and the HomePod smart speaker. Apple's software includes the macOS, iOS, iPadOS, watchOS and tvOS operating systems, the iTunes media player, the Safari web browser, and the iLife and iWork creativity and productivity suites, as well as professional applications like Final Cut Pro, Logic Pro, and Xcode. Its online services include the iTunes Store, the iOS App Store, Mac App Store, Apple Music, Apple TV+, iMessage, and iCloud. Other services include Apple Store, Genius Bar, AppleCare, Apple Pay, Apple Pay Cash, and Apple Card. Apple was founded by Steve Jobs, Steve Wozniak, and Ronald Wayne in April

1976 to develop and sell Wozniak's Apple I personal computer, though Wayne sold his share back within 12 days. It was incorporated as Apple Computer, Inc.

Q.5 Replace word “Apple” with “Google” in above paragraph find position of word “TV”.

Q.6 Write a program to parse an email id to print from which email server it was sent and when.

Info : “ From priti.rad@gmail.com Sun Oct 16 20:29:16 2016”

Output: The email has been sent through gmail.com

It was sent on Sun Oct 16 20:29:16 2016

Q.7 Take string input as below and create short form of list.

S = “ Violet Indigo Blue Green Yelllow Orange Red”

Output: VIBGYOR

Q.8 Switch the case in given string and generate following output.

var = 'TechBeamers'

Output : tECHbEAMERS

Q.9 Split given string and generate following output.

var = "This is a good example"

Output 1: ['This', 'is', 'a', 'good', 'example']

Output 2: ['This', 'is', 'a', 'good example']

Q.10 Split given paragraph in to four parts and count length of each statement.

“A paragraph is a series of sentences that are organized and coherent, and are all related to a single topic. Almost every piece of writing you do that is longer than a few sentences should be organized into paragraphs.”

Assignment – 2

Aim : To learn string and list operations in python.

Basic:

Q.1 Write a Python program to count words in a sentence and arrange words in descending order.

Q.2 Write a Python program to sum all the items in a list

Q.3 Create an empty list in python and append English dictionary words to list. Arrange list items In alphabetical order and find position of specific words in list.

Moderate:

Q.4 Take input of any short text and check words of message that either they are standard dictionary words or not. Use another for English dictionary words.

Example: Hi..How are u

Output :

Dictionary Words: How , are

Non Dictionary Words: Hi, u

Q.5 Write a Python program to check if a given string is python Keyword or not.
(Can be implemented with list and keyword library both)

Advanced :

Q.6 Take input of any number and generate all possible binary strings.

Example : Input no: 2

Output:

Binary Strings : 00 10 10 11

Assignment-3

Aim: To learn list and dictionary traversing in python.

Basic: s

Q.1 : Write a Python program to count words in a sentence.

Q.2: Write a Python program to find sum of marks of different subject from python dictionary object.

Moderate:

Q.3 : Write a Python program to find uncommon words from two Strings.

Given two sentences as strings A and B. The task is to return a list of all uncommon words. A word is uncommon if it appears exactly once in any one of the sentences, and does not appear in the other sentence.

Input : A = "Geeks for Geeks"
 B = "Learning from Geeks for Geeks"
Output : ['Learning', 'from']

Input : A = "apple banana mango"
 B = "banana fruits mango"
Output : ['apple', 'fruits']

Q.4 : Write a Python program to find Frequency of substring in given string.

Advanced:

Q.5 : Sort words of sentence in ascending order Given a sentence, sort it alphabetically in ascending order.

Input : to learn programming refer geeksforgeeks
Output : geeksforgeeks learn programming refer to

Assignment-4

Aim: To learn list and dictionary sorting and searching with data in python.

Basic:

Q.1 Write a python program to display elements of list in reverse order.

Q.2 Write a python program to find biggest and smallest elements from list.

Q.3 Write a python program to create employee list with empid, emp name and salary and perform following operations.

- Sort employee list as per employee name.
- Sort employee list in descending order according to their salaries.

Moderate:

Q.4 Create dictionary for book detail and sort books according to their price from low to high.

Q.5 Create a dictionary for city wise temperature details and display city with highest, lowest and average temperature.

Q.6 Create dictionary with student marks details and find total marks, percentage and class from dictionary object.

Advanced:

Q.7: Create dictionary to store year wise population of city and sort data for identifying growth or decay pattern.

Note: Graph can be plotted optionally.

Assignment - 5

Aim: To learn array operation in python.

Basic:

Q.1 Write a Python code to create an array of 5 integers and display the array items. Access individual element through indexes.

Q.2 Write a Python code to reverse the order of the items in the array.

Q.3 Write a Python code to get the number of occurrences of a specified element in an array.

Moderate:

Q.4 Write a python program to sort array with any sorting algorithm.(e.g. bubble sort, quick sort)

Q.5 Write a python program to convert 2-D 3*3 matrix values in to zero to one.

Q.6 Write a python program to create inverse of 3*3 matrix.

Advanced:

Q.7 Create Python function to generate log values of 3*5 matrix.

Advanced Python Program List for Practice

1. Find mean, median, mode and standard deviation values from tuple of 20 decimal values of stock market prices.

2. Create python function to create cosine values of given square matrix.

3. Create a dictionary of words and their synonyms. Search word and its synonym from dictionary. Add new words to dictionary with its meaning.

4. Scraping And Finding Ordered Words In A Dictionary using Python

The approach will be to traverse the whole word and compare the ascii values of elements in pairs until we find a false result otherwise the word will be ordered.

So this task will be divided in 2 parts:

Scraping

1. Using the python library **requests** we will fetch the data from the given URL
2. Store the content fetched from the URL as a string
3. Decoding the content which is usually encoded on the web using UTF-8
4. Converting the long string of content into a list of words

Finding the ordered words

1. Traversing the list of words
2. Pairwise comparison of the ASCII value of every adjacent character in each word
3. Storing a false result if a pair is unordered
4. Otherwise printing the ordered word

5. Take input of text file and find word count for each unique word.

6. Take input of word file and remove given stop-words from the content as given in the list.

7. Import flask and create basic web application structure in python.

8. Create a random numpy array of and find out its shape and dimension using numpy functions.

Write a Python script to print a dictionary where the keys are numbers between 1 and 15 (both included) and the values are square of keys.

Write a Python program to combine two dictionary adding values for common keys.

Write a Python program to find the highest 3 values in a dictionary

Write a Python program to create and display all combinations of letters, selecting each letter from a different key in a dictionary.

Sample data : {'1':['a','b'], '2':['c','d']}

Output:

ac

ad

bc

bd

Create dictionary for state, capitals and rank for living. Sort data to find top 5 higher ranking states to live.