

INSTITUTE OF ENGINEERING AND TECHNOLOGY
CER4C3- ABSTRACTION AND PARADIGMS FOR PROGRAMMING
LANGUAGE COMPUTER ENGINEERING
CLASS TEST III

Max Marks – 60

NOTE:

1. Attempt all questions

2. There is an internal choice in each question. Attempt any 2 questions from each

Q1. Attempt any 2.....(6+6)

- a) Discuss Dynamic Typing v/s Static Typing
- b) Write short notes on –
 - i. Parallel Programming
 - ii. Concurrent Programming
- c) Answer the following:
 - i. What are the open source softwares? Discuss with examples.
 - ii. Discuss Object Oriented Programming in detail.

Q2. Attempt any 2.....(6+6)

- a) Discuss mutable and immutable objects in python in detail and with examples.
- b) Write the command-
 - 1. To log all the packages used in a project.
 - 2. To log all the print statements in a file.
 - 3. To activate virtual environment in both - 1. linux environment 2. Windows Environment
 - 4. To install all the packages from the given logged requirement file
- c) Discuss the following:
 - 1. Importance of self while building class in python
 - 2. Role of Python Package Manager

Q3. Attempt any 2.....(6+6)

a) The Fibonacci numbers, commonly denoted $F(n)$ form a sequence, called the Fibonacci sequence, such that each number is the sum of the two preceding ones, starting from 0 and 1.

That is,

$$F(0) = 0, F(1) = 1$$

$$F(n) = F(n - 1) + F(n - 2), \text{ for } n > 1.$$

Take any input n from the user using STDIN, calculate $F(n)$ and print it.

b) Take n elements from the user on STDIN and save it in a List. Given this array **nums** of size n , return *the majority element*.

The majority element is the element that appears more than $\lfloor n / 2 \rfloor$ times. You may assume that the majority element always exists in the array.

Print the majority element.

c) Given a string s , reverse the order of words in the sequence. For example -

Input - "I love my india"

Output - "India my love I"

Q4. Attempt any 2.....(6+6)

a) **Create a Flask Application -**

"/search" api-

Take an input from user through radio buttons as options(should come dynamically from JSON keys) and click on submit button.

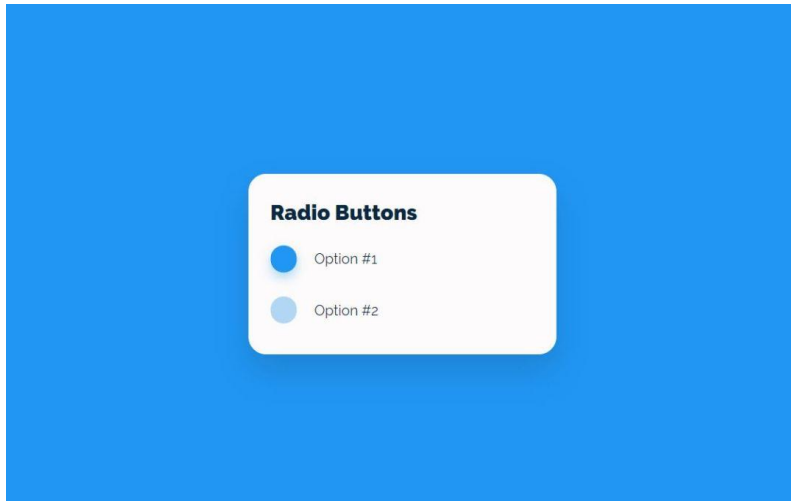
The category chosen by the user should search in the json file and on submission give out the json key's value.

Example-

Category chosen - "electronics" (out of a list of options)

Output - Mobile phones, tablet, washing machine, refrigerator

JSON file - {"electronics":["Mobile phones", "tablet", "washing machine", "refrigerator"], "fashion":["watches", "shoes", ...].....}



b) Create a Flask Application -

"/add_category" api-

Take two input box -

1. Category
2. Values

Append these values in the JSON file and this should reflect the changes in the JSON file.

c) Answer the following-

- What is the utility of using the Flask framework?
- What is the default port in Flask? How do we change it?
- How do we initialize the Flask application on the terminal?
- Why do we get the WSGI error in Flask? How to rectify?

Q5. Attempt any 2.....(6+6)

a) Print the record of the table “EMPLOYEE” with the highest Salary, using the appropriate python SQL library.

EMPLOYEE

Emp_Code	Employee_Name	Salary
1001	BOB	40000
1002	LILY	50000
1003	JOHANNES	25000
1004	DAINA	33000

b) Given a string s containing just the characters '(', ')', '{', '}', '[' and ']', determine if the input string is valid.

An input string is valid if:

1. Open brackets must be closed by the same type of brackets.
2. Open brackets must be closed in the correct order.

Write the Output in the file Output.txt, which will contain either a “true” or “false”, given an input.

Example 1:

Input: s = "()"

Output: true

Example 2:

Input: s = "()[]{}"

Output: true

Example 3:

Input: s = "(]"

Output: false

Example 4:

Input: s = "([)]"

Output: false

Example 5:

Input: s = "{[]}"

Output: true

c) Write the first 10 multiples of a number taken from the user into a file.

Sample:

Input - 15

Output - the contents in the file **output.txt** must contain output as below:

Multiples of file:

15

30

45

....

*****ALL THE BEST*****