

LAB ASSIGNMENTS
PYTHON PROGRAMMING LAB
MCA 1st Year 1st Semester, 2023
Subject Code: MCA1152

Day 2

Write Python scripts to:

1. Check if a string is palindrome or not.

Sample

| Input | Output |
|-----------------------------|----------------|
| Was it a car or a cat I saw | Palindrome |
| Never odd or even | Palindrome |
| Students of MCA | Not Palindrome |

2. Find all duplicate characters in a string.
3. Find words in a string which are greater than some given length k.

Sample

Input: "If debugging is the process of removing bugs, then programming must be the process of putting them in.", k=7

Output: debugging, removing, programming, putting

4. Format input names, given as strings, as follows

Sample

| Input | Output |
|--------------------------|---------------|
| Aryadev | Aryadev |
| Rajsekhar Basu | R. Basu |
| Nabaneeta Dev Sen | N. D. Sen |
| Dawlat Wazir Bahram Khan | D. W. B. Khan |

5. Accept a string of comma separated words as input and generate a string of comma separated words (from the input string) sorted alphabetically.

Sample

Input: 'mba, bca, btech, mca'

Output: 'bca, btech, mba, mca'

6. Accept a string of comma separated 4-digit binary numbers as input and print a comma separated string containing the numbers that are divisible by 3.

Sample

Input: "0100, 0011, 1010, 1001"

Output: "0011,1001"

7. Check if the items in a list are sorted in ascending order, or descending order, or not sorted.
8. Find N largest elements from a list.
9. Move a specified element to the end of a list.

| | |
|--------|--|
| Sample | Input: ['BSC', 'MSC', BTECH', 'MTECH', 'BLIB', MLIB], element: 'MTECH' |
| | Output: ['BSC', 'MSC', BTECH', 'BLIB', MLIB', 'MTECH'] |

10. Sum the digits of individual elements in a list of numbers.

| | |
|--------|--------------------------|
| Sample | Input: [21, 77, 76, 232] |
| | Output: [3, 14, 13, 7] |

11. Given a string, generate a list of nonempty prefixes of the string, ordered from shortest to longest.

| | |
|--------|---|
| Sample | Input: "Banana" |
| | Output: ['B', 'Ba', 'Ban', 'Bana', 'Banan', 'Banana'] |

12. Given a list of filenames, generate a new list to rename all the files with extension 'cpp' to the extension 'h'.

```
Sample Input: ["program.c", "stdio.cpp", "sample.cpp", "a.out", "math.cpp", "cpp.out"]
Output: ['program.c', 'stdio.h', 'sample.h', 'a.out', 'math.h', 'cpp.out']
```

13. Given a list of courses, create a new list of courses that are offered by the department of Computer Applications (i.e., courses that start with MCA)

| | |
|--------|---|
| Sample | Input: ['MCA1205', 'MCA2125', 'HUM2191', 'MTH2102', 'MCA1295'] Output: ['MCA1205', 'MCA2125', 'MCA1295'] |
|--------|---|

14. A list contains the roll nos. of students of MCA 1st and 2nd year who enrolled in the debate club. The roll no. of the students is prefixed with the year (2 digits) of admission. From that given list, create two separate lists for 1st year students and 2nd year students.

| | |
|--------|--|
| Sample | Input: [2182001, 2182023, 2282022, 2282056, 2182049, 2282036, 2182053] |
| | Output: [2182001, 2182023, 2182049, 2182053] |
| | [2282022, 2282056, 2282036] |

15. Given a list of names, generate a list where each element is the surname of the corresponding element in the input list.

| | |
|--------|---|
| Sample | Input: ['A Prasad Sen', 'Ananth B Chand', 'Heera Juhuri', 'Tapasi Das', 'Gambhir Mudi'] |
| | Output: ['Sen', 'Chand', 'Juhuri', 'Das', 'Mudi'] |

16. Break a list into chunks of size N.

17. Pair up consecutive elements of a given list.

Sample Input: [1, 3, 2, 5, 4]
 Output: [[1, 3], [3, 2], [2, 5], [5, 4]]

18. The `str.count()` counts the number of non-overlapping occurrences of a specified substring in a string. E.g., if `myStr = 'Banana'`, `myStr.count('an')` returns 2, but `myStr.count('ana')` returns 1. Write a Python script that includes the overlapping cases also.
19. Given a string, generate a string of the longest substring of consecutive consonants. If more than one such substring has the same length, the first should appear in the string.

Sample

| Input | Output |
|----------|--------|
| Program | Pr |
| Python | Pyth |
| Strength | ngth |
| crisp | cr |