

Assignments of Functions and Advanced Data Type

Q1. Write a program to check if the given year is a leap year or not.

Use following guidelines to decide whether a year is leap year or not:

- The year can be evenly divided by 4, is a leap year, unless:
The year can be evenly divided by 100, it is NOT a leap year, unless:
The year is also evenly divisible by 400. Then it is a leap year.
- The program should read year from a user.
- The year should be passed to a method `is_leap_year()` as an argument.
- The method should return a boolean value.
- Print the value returned by the method.

Input: 2024

Output: True

Input: 2025

Output: False

Q2. Write a program using recursion to calculate super digit of a given integer.

Input:

5624434677

Output:

3

Q3. Write a program to perform following tasks:

- Read a list of integers from a user.
- Remove duplicate values from this list. We call it a super list.
- In a single scan of the super list, perform following operations:

- If the number is not perfectly divisible by 3, discard it.
- If the number is greater than 30, add 5 to it. Else, subtract 5 from it.
- Display contents of the list.

Given a piece of text, write a program to build a frequency listing of words and display them in a sorted order on 'key'.

Note: first remove all non-alphanumeric characters and convert all words in either of the case, i.e. lower case or upper case.