**Department of Computer Science and Engineering**

**PES University, Bangalore, India**

**Python for Computational Problem Solving (UE24CS151A)**

**Problem Statement: Level-2(Orange)**

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**Dept. of CSE, PESU** **Timing: 1:45PM to 4:00PM**

## Problem: Candy Store - **PES has opened a new candy store. Design an application using python and tkinter to help customers find the candies they like.**

## Instructions:

1. Create a GUI using tkinter, where the user can enter preferences for candies in checkboxes.
2. Proceed to filter and display the candies from the csv file based on these preferences(on the press of a button).
3. Users should be able to clear preferences.
4. A candy should only be added to the filtered list if it matches all the preferences, i.e. if the user has not marked the preference for chocolate, no candies with chocolate should be displayed. If no candies are found for the selected preferences, display the top five candies in the store. Also display the top candy in the filtered list, based on popularity.
   For example if the candy "100 Grand" is to be displayed, the user has to have selected the preferences for "chocolate", "caramel", "crispedricewafer" and "bar" and the other preferences should have not been marked .

## Dataset: Candy-data.csv

| competitorname | chocolate | fruity | caramel | peanutyalmondy | nougat | crispedrice | hard | bar | pluribus | sugarpercent | price | popularity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 Grand | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0.73199999 | 8.6 | 66.97173 |
| 3 Musketeers | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0.60399997 | 5.11 | 67.60294 |
| One dime | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.011 | 1.16 | 32.26109 |
| One quarter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.011 | 5.11 | 46.11651 |
| Air Heads | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.90600002 | 5.11 | 52.34147 |
| Almond Joy | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0.465 | 7.67 | 50.34755 |
| Baby Ruth | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0.60399997 | 7.67 | 56.91455 |
| Boston Baked Beans | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0.31299999 | 5.11 | 23.41782 |
| Candy Corn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.90600002 | 3.25 | 38.01096 |

## Deliverable: The complete code in .py format

## Tools/Technologies:

- Language: Python 3.10 or above.
- Concepts to Apply:
  Data Structures: Use lists or dictionaries to store and organize candy data.
  Control Structures: Use loops and conditionals to manipulate and analyze the data
  GUI using tkinter module – Use different widgets

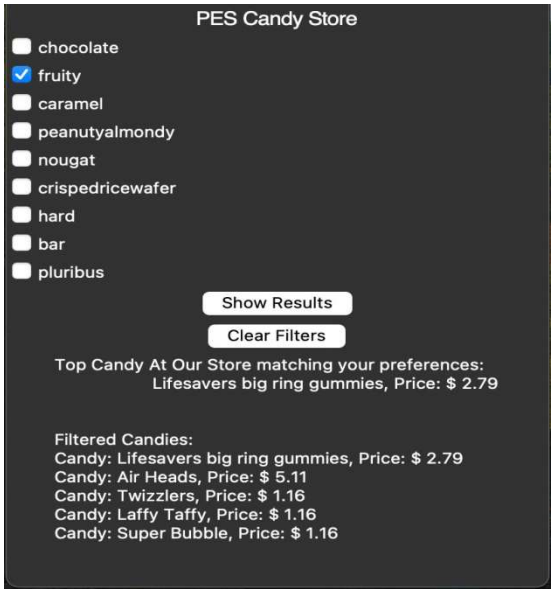
## Methodology:

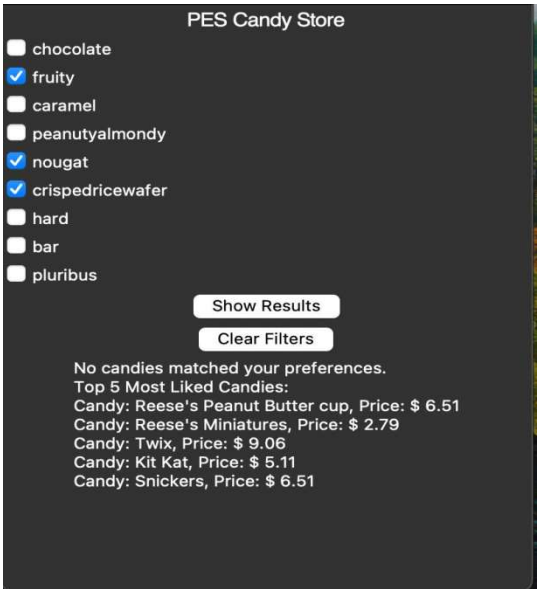
1. Import Necessary Libraries: Import all required libraries such as tkinter, and csv.
2. Load the Dataset: Load the sales dataset from a CSV file into  csv reader object
3. Data Exploration: Explore the dataset to understand basic statistics and visualize key metrics.
4. Detailed Analysis: Identify if there are any candies that align with the users preferences, and display accordingly. Display the top candy in the filtered list.

## Implementation: Language:Python3.10 or above.

- Use data structures such as lists , sets and dict store and organize the data.
- Use/write appropriate functions–Specific to Data structures and also user defined functions for each functionality.
- Make use of operators ,loops and conditionals
- Use widgets of tkinter module

## Expected outputs





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