Level – 2: Medium (Orange Problem)

Problem 1:Travel Destination Finder

PES is introducing a travel destination recommendation system to help users discover destinations they'll love. Create an application using Python and Tkinter that allows users to find destinations based on their preferences.

Instructions:

1. Create a GUI:
   Use Tkinter to create a user interface where users can specify their preferences for travel destinations using checkboxes (e.g., Tropical, Adventure, Cultural).

2. Filter Destinations:
   Filter and display destinations from a CSV file based on the selected preferences when the "Find Destinations" button is pressed.

3. Reset Preferences:
   Provide a "Clear Preferences" button to reset all preferences.

4. Filtering Logic:
   A destination should only be included in the recommendation list if it matches all the selected preferences. For example

   - If the user selects "Tropical" and "Adventure," only destinations that are both Tropical and Adventure will be displayed.

5. Default Recommendations:
   - If no destinations match the selected preferences, display the top five popular destinations in the dataset as a fallback.

6. Highlight Top Pick:
   - Highlight the most popular destination from the filtered list as the "Top Pick."

Deliverable:

A `.py` file containing the complete code.

Tools/Technologies:

- Language: Python 3.10 or above.
- Concepts to Apply:
  - Data Structures: Use lists or dictionaries to store and organize movie data.
  - Control Structures: Use loops and conditionals to manipulate and analyze data.
  - File Handling: Read and process the CSV dataset.

- GUI Programming: Design and implement a user-friendly interface using Tkinter

Methodology:

1. Import Necessary Libraries such as `tkinter` and `csv`.

2. Load the Dataset:

- Load the travel destination dataset from a CSV file named travel_destinations.csv.
- Use Python's `csv.DictReader` to parse the file and load the data into a list of dictionaries.
- Ensure the dataset contains the following columns:
  - competitorname: The name of the destination.
  - popularity: The popularity score (0–100).
  - price: The average travel cost in USD.
  - Preferences: Separate columns for each category (e.g., Tropical, Adventure, Cultural), encoded as 1 (present) or 0 (not present).

3. Data Exploration:
   Perform basic exploration of the dataset to confirm its structure and data consistency.

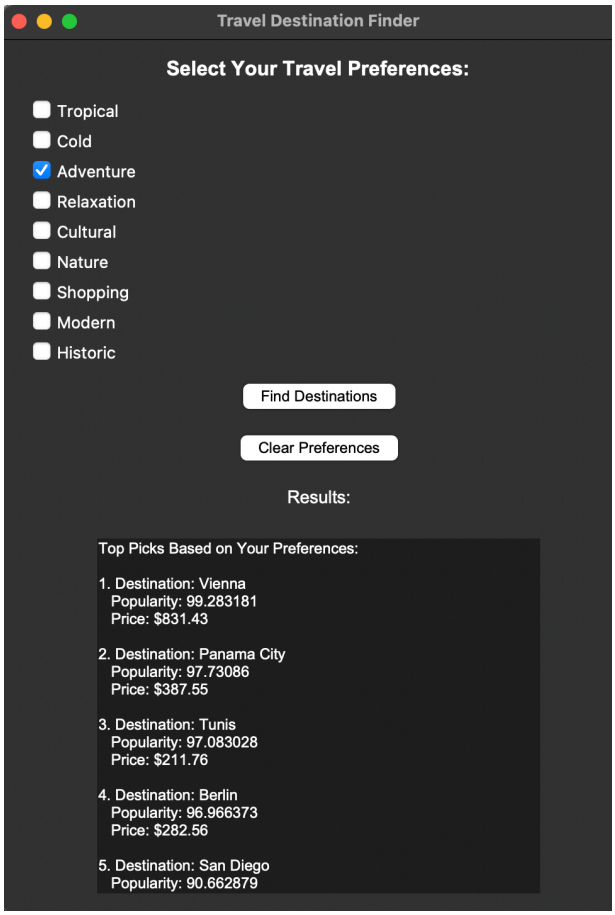
4. Detailed Analysis:

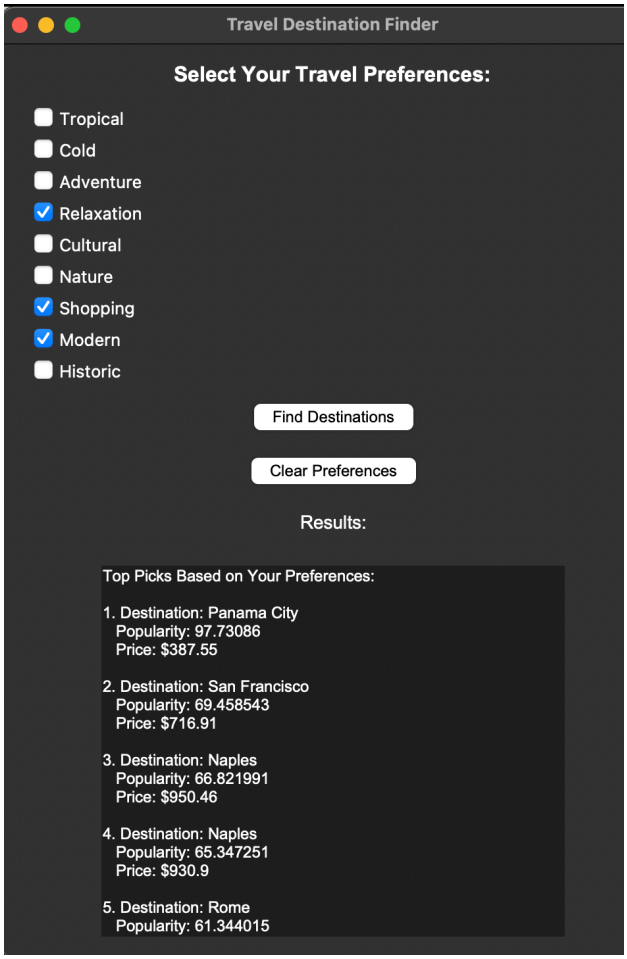
- Filtering Logic:
  - Implement a function to filter destinations based on user-selected categories using loops and conditional statements.
  - Include only destinations with a value of 1 in the corresponding columns for all selected categories.
- Default Recommendations:
  - If no destinations match the preferences, recommend the top 5 most popular destinations.
- Highlighting the Top Pick:
  - Sort the filtered destinations by popularity in descending order.
  - Highlight the most popular destination from the filtered list as the "Top Pick."

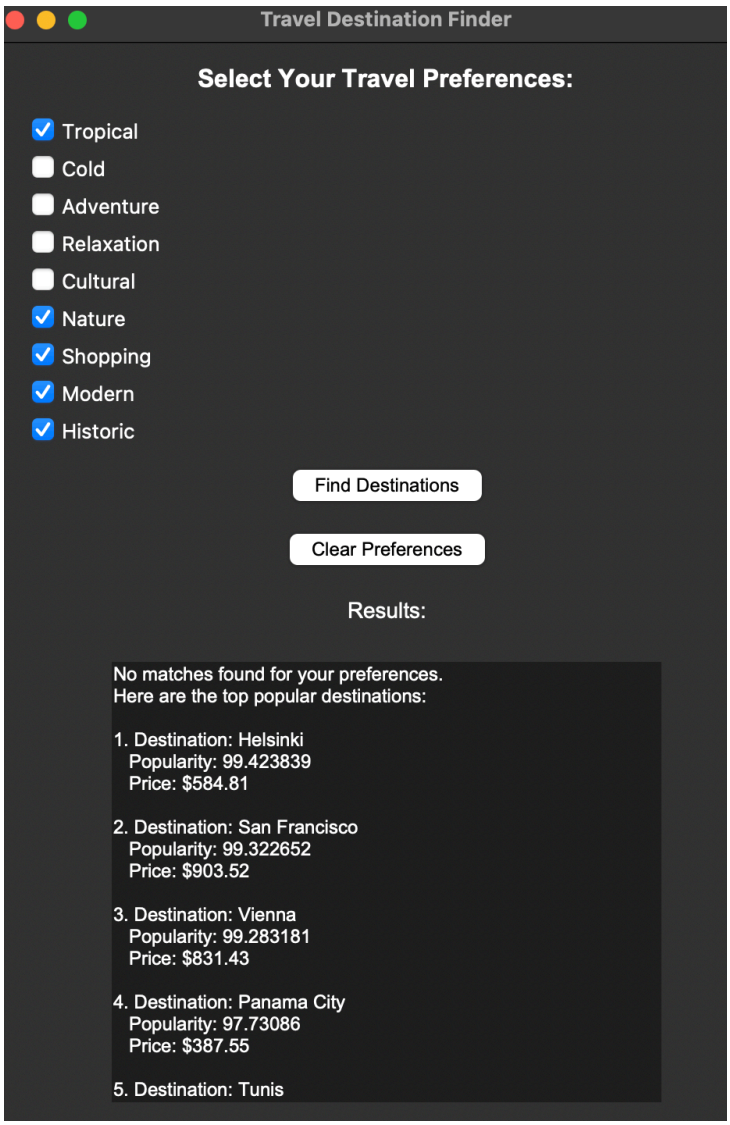
5. Build the GUI:

- Design the Interface:
  - Add a heading titled "Travel Destination Finder."
  - Include checkboxes for selecting categories (e.g., Tropical, Cultural, etc.).
  - Add buttons for "Find Destinations" and "Clear Preferences."
- Dynamic Results Display:
  - Display the "Top Pick" and the filtered list of destinations in a well-organized format within a Text widget.
  - If no matches are found, display a fallback message with the top five destinations.

Example Output:






Travel Destination Finder
Select Your Travel Preferences:
Tropical
Cold
Adventure
Relaxation
Cultural
Nature
Shopping
Modern
Historic
Find Destinations
Clear Preferences
Results:
No matches found for your preferences.
Here are the top popular destinations:
1. Destination: Helsinki
Popularity: 99.423839
Price: $584.81
2. Destination: San Francisco
Popularity: 99.322652
Price: $903.52
3. Destination: Vienna
Popularity: 99.283181
Price: $831.43
4. Destination: Panama City
Popularity: 97.73086
Price: $387.55
5. Destination: Tunis