UNIVERSITY OF ST. GALLEN

School of Management, Economics,
Law, Social Sciences, International Affairs and Computer Science

Python project

Restaurant-selecting device

Clara La Gennusa (20-417-614)

Meyra Müftüoglu (23-626-229)

Constança Canha Junqueira (23-625-924)

University of St. Gallen

Skills: Programming - Introduction level

Prof. Dr. Mario Silic

24.05.2024

Table of contents

Summary of the project

This program, known as the “Restaurant recommendations device”, empowers users to explore curated dining options in Switzerland and Spain based on their personalized preferences. Users can choose between two datasets that were created at random for the sake of experimenting the efficiency of the program: Swiss_Restaurants and Spanish_Restaurants. After selecting one of the datasets, users can specify the desired criteria, including: city, food type, restaurant type, price range, and even Michelin star ratings. The program meticulously matches these preferences with the attributes of each restaurant in the dataset, utilizing specialized functions for each criterion.

Validation mechanisms ensure the accuracy of input data, mitigating potential errors and providing informative feedback for revision when necessary. Furthermore, the program provides personalized recommendations thanks to the alignment of gastronomic establishments with user preferences. This seamless process promotes user-friendly experience, allowing individuals to discover their ideal dining experiences effortlessly.

Datasets

1) Swiss_Restaurants

```
McDonalds,Basel,burgers,fast food,$,0
Le Cardinal,Neuchâtel,multiple,casual dining,$$,0
Giesserei,Zürich,multiple,fine dining,$$$,0
Lansin,Sankt Gallen,multiple,casual dining,$$,0
Un po’ di piu,Lausanne,pizza,casual dining,$$,0
The Burger factory,Genève,burgers,fast food,$,0
Da Bucolo,Bern,pizza,casual dining,$$,0
Restaurant de l’Hôtel de ville,Crissier, multiple,fine dining,$$$,3
La Dispenza,Neuchâtel,multiple,fine dining,$$$,1
Vegitat,Lucerne,multiple,casual dining,$,0
Taphouse Burgers & Ales,Fribourg,burgers,fast food,$,0
Kostas der Grieche,Sankt Gallen,multiple,casual dining,$$,0
Za’atar,Zürich,multiple,casual dining,$$,0
The Japanese Restaurant,Andermatt,multiple,fine dining,$$$,2
The View,Lugano,multiple,fine dining,$$$,1
```

2) Spanish_Restaurants

```
Pizzart Villa Canalejas,Madrid,pizza,casual dining,$$,0
Level Veggie Bistro,Madrid,vegan,casual dining,$$$,0
Lasarte,Barcelona,multiple,fine dining,$$$,3
Steakburger Atocha,Madrid,burgers,casual dining,$$,0
Smoked Room,Madrid,multiple,fine dining,$$$,2
Massana,Girona,multiple,fine dining,$$$,1
Oven Mozzarella Atocha,Madrid,pasta,casual dining,$$,0
Angle,Barcelona,multiple,fine dining,$$$,2
Burger King,Girona,burgers,fast food,$,0
Imaginary pop-up,Barcelona,multiple,pop-up,$$,0
```

Code : Restaurant recommendations device

```
# Define a function to check if the selected city matches the city of a
restaurant
def city_place(city,city_array) :
   point = 0
   if city == "" :       # If no city is specified by the user: If user
leaves it blank
       point += 1
   elif city == city_array :     # If the city matches
       point += 1
   else :                   # If the city does not match
       point += 0
   return point
# Define a function to check if the selected food category matches the food
category of a restaurant
def food_category(food,food_array) :
   point = 0
   if food == "":              # If no food category is specified by the
user : If user leaves it blank
       point += 1
   elif food == food_array:        # If the food category matches
       point += 1
   else:                           # If the food category does not match
       point += 0
   return point
# Define a function to check if the selected restaurant type matches the
restaurant type
def restaurant_function(restaurant,restaurant_array):
   piste = 0
   if restaurant == "":
       piste += 1
   elif restaurant == restaurant_array:
       piste += 1
   else:
       piste += 0
   return piste
# Define a function to check if the selected price range matches the price
range of a restaurant
def price_range(price,price_array) :
   point = 0
   if price == "":
       point += 1
   elif  price == price_array :
       point += 1
   else:
       point += 0
   return point
# Define a function to check if the selected Michelin star rating matches
the Michelin star rating of a restaurant
def michel_stars(star,array_star) :
```

```
    piste = 0
    if star == "":
        piste += 1
    elif star == array_star:
        piste += 1
    else:
        piste += 0
    return piste

import sys

def main() :
    print("Welcome to the Restaurant Lover! We offer you different
restaurant recommendations according to your own liking in Spain and in
Switzerland! Let's start")
    # Ask user the name of the file which the user want to use(the swiss or
the spanish one)
    file_name = input("Enter the name of the file you'd like to
read:Choices(Swiss_Restaurants or Spanish_Restaurants)\n")
    if file_name == "Swiss_Restaurants":
        print("Swiss city options are : Basel, Neuchâtel, Zürich, Sankt
Gallen, Lausanne, Genève, Bern, Crissier, Lucerne, Fribourg, Andermatt,
Lugano")
    elif file_name=="Spanish_Restaurants":
        print("Spanish city options are: Madrid, Barcelona, Girona")
    else:
        print("File not found. Program ends. Please check that you spelled
the file name correctly.")
        sys.exit (1)

    # Get the user's criteria for the restaurant
    print("Enter your criteria for the restaurant. Submit an empty line if
the specific criterion does not matter.")
    city_choice = input("Which city should the restaurant be located in?\n")
    valid_city = ["Basel", "Neuchâtel", "Zürich", "Sankt Gallen",
"Lausanne", "Genève", "Bern", "Crissier", "Lucerne", "Fribourg",
"Andermatt", "Lugano" , "Girona", "Barcelona" , "Madrid"]
    if city_choice not in valid_city:
        print ("invalid city entered. Program ends. Please check that the
city name was spelled correctly.")
        sys.exit(1)
    valid_food = ["pizza", "pasta", "burgers", "vegan", "multiple"]
    food_choice = input('What type of food would you like? The options are
"pizza", "pasta", "burgers", "vegan" and "multiple".\n')
    if food_choice not in valid_food:
        print ("invalid food choice entered. Program ends. Please check that
the chosen food type was spelled correctly.")
        sys.exit(1)
    valid_restaurant = ["fine dining", "casual dining", "fast food",
"pop-up"]
    restaurant_options = input('How about the kind of restaurant you would
like to go to? The options are "fine dining", "casual dining", "fast food"
and "pop-up".\n')
```

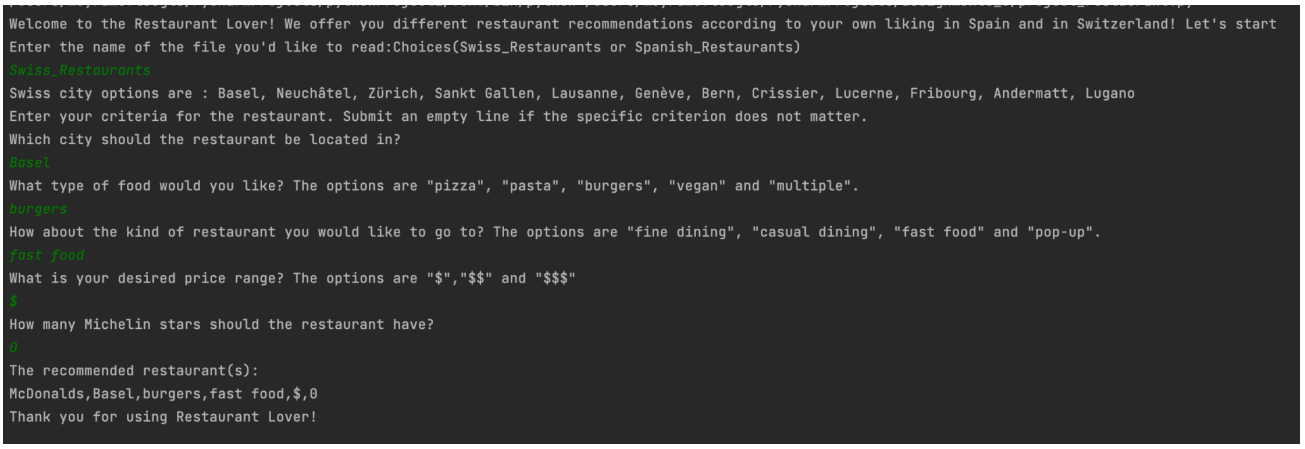
```
    if restaurant_options not in valid_restaurant:
        print ("invalid restaurant type entered. Program ends. Please check
that the chosen restaurant type was spelled correctly.")
        sys.exit(1)
    valid_price =  ["$","$$","$$$"]
    price_choice = input('What is your desired price range? The options are
"$","$$" and "$$$"\n')
    if price_choice not in valid_price:
        print ("invalid price range entered. Program ends. Please check that
the chosen price range was spelled correctly.")
        sys.exit(1)
    valid_star  = ["1","2","3","0"]
    michel_star_choice = input("How many Michelin stars should the
restaurant have?\n")
    if michel_star_choice not in valid_star:
        print ("invalid michelin star choice entered. Program ends. Please
note that the amount of possible stars ranges from 0 to 3.")
        sys.exit(1)
    # Creating lists to store points and chosen restaurants
    points = []
    chosen_restaurants = []
    word_list = {}
    i = 0
    recommendations = []
    try :
        # Open the specified file for reading
        file = open(file_name, "r")
        for array in file :
            array = array.rstrip()
            parts = array.split(",")
            if len(parts) != 6 :   # Validate the format of each line
                print("Invalid line:",array)
                print()
            else :
                # Calculate points based on user criteria
                city = city_place(city_choice,parts[1])
                if city == 1 :
                    food = food_category(food_choice,parts[2])
                    restaurant =
restaurant_function(restaurant_options,parts[3])
                    price = price_range(price_choice,parts[4])
                    michelin_star =
michel_stars(michel_star_choice,parts[5])
                    point = int(city) + int(food) + int(restaurant) +
int(price) + int(michelin_star)
                    # Store the points and corresponding restaurant
                    points.append(point)
                    chosen_restaurants.append(array)
                    word_list[array] = point
        file.close()    # Close the file
        # Sort points to find the chosen  restaurants
        points2 =sorted(points)
        for word in range(len(word_list)) :
```

```
            if word_list[chosen_restaurants[i]] == points2[len(points2)-1] :
                recommendations.append(chosen_restaurants[i])
            i += 1
        # Print the recommended restaurant(s)

        if len(recommendations)  == 0 :
            print("Unfortunately, no restaurants that matched any of your
criteria were found. We apologize for the inconvenience and recommand you
to change your search criterion.")

        else :
            print("The recommended restaurant(s):")
            for ravinto in recommendations :
                print(ravinto)
                print("Thank you for using Restaurant Lover!")

    except OSError :
        print("There was an error in reading the file. Program ends.")


# Run the main function
main()
```

Examples: Input and output

1) First Example (Swiss_Restaurants)

Welcome to the Restaurant Lover! We offer you different restaurant recommendations according to your own liking in Spain and in Switzerland! Let's start
Enter the name of the file you'd like to read:Choices(Swiss_Restaurants or Spanish_Restaurants)
Swiss_Restaurants
Swiss city options are : Basel, Neuchâtel, Zürich, Sankt Gallen, Lausanne, Genève, Bern, Crissier, Lucerne, Fribourg, Andermatt, Lugano
Enter your criteria for the restaurant. Submit an empty line if the specific criterion does not matter.
Which city should the restaurant be located in?
Basel
What type of food would you like? The options are "pizza", "pasta", "burgers", "vegan" and "multiple".
burgers
How about the kind of restaurant you would like to go to? The options are "fine dining", "casual dining", "fast food" and "pop-up".
fast food
What is your desired price range? The options are "$","$$" and "$$$"
$
How many Michelin stars should the restaurant have?
0
The recommended restaurant(s):
McDonalds,Basel,burgers,fast food,$,0
Thank you for using Restaurant Lover!



2) Second Example (Spanish_Restaurants)

Welcome to the Restaurant Lover! We offer you different restaurant recommendations according to your own liking in Spain and in Switzerland! Let's start
Enter the name of the file you'd like to read:Choices(Swiss_Restaurants or Spanish_Restaurants)
Spanish_Restaurants
Spanish city options are: Madrid, Barcelona, Girona
Enter your criteria for the restaurant. Submit an empty line if the specific criterion does not matter.
Which city should the restaurant be located in?
Madrid
What type of food would you like? The options are "pizza", "pasta", "burgers", "vegan" and "multiple".
pizza
How about the kind of restaurant you would like to go to? The options are "fine dining", "casual dining", "fast food" and "pop-up".
casual dining
What is your desired price range? The options are "$","$$" and "$$$"
$$
How many Michelin stars should the restaurant have?
1
The recommended restaurant(s):
Pizzart Villa Canalejas,Madrid,pizza,casual dining,$$,0
Thank you for using Restaurant Lover!


```
Welcome to the Restaurant Lover! We offer you different restaurant recommendations according to your own liking in Spain and in Switzerland! Let's start
Enter the name of the file you'd like to read:Choices(Swiss_Restaurants or Spanish_Restaurants)
Spanish_Restaurants
Spanish city options are: Madrid, Barcelona, Girona
Enter your criteria for the restaurant. Submit an empty line if the specific criterion does not matter.
Which city should the restaurant be located in?
Madrid
What type of food would you like? The options are "pizza", "pasta", "burgers", "vegan" and "multiple".
pizza
How about the kind of restaurant you would like to go to? The options are "fine dining", "casual dining", "fast food" and "pop-up".
casual dining
What is your desired price range? The options are "$","$$" and "$$$"
$$
How many Michelin stars should the restaurant have?
1
The recommended restaurant(s):
Pizzart Villa Canalejas,Madrid,pizza,casual dining,$$,0
Thank you for using Restaurant Lover!
```

3) Third Example (wrong user input)

Welcome to the Restaurant Lover! We offer you different restaurant recommendations according to your own liking in Spain and in Switzerland! Let's start
Enter the name of the file you'd like to read:Choices(Swiss_Restaurants or Spanish_Restaurants)
f
File not found. Program ends. Please check that you spelled the file name correctly.