Ввод [24]:

```
import pickle
import numpy as np
import pandas as pd
import os
import matplotlib.pyplot as plt
import seaborn as sns
from surprise import Dataset
from surprise import Reader
from surprise import SVD
import difflib
import random
from googletrans import Translator, constants
from pprint import pprint
```

Ввод [ ]:

```
user_rating_file_path = "rating_final.csv"
geolocation_file_path = 'geoplaces2.csv'
data = pd.read_csv(user_rating_file_path)
location_data = pd.read_csv(geolocation_file_path)
data = pd.merge(data, location_data[['placeID', 'name']], on='placeID')
data = data[['userID', 'placeID' ,'name', 'rating', 'food_rating', 'service_rating']]
reader = Reader(rating_scale=(0,2))
rating_data = Dataset.load_from_df(data[['userID', 'placeID', 'rating']], reader)
svd = pickle.load(open('Model_Restorants.sav', 'rb'))
```

Ввод [26]:

```
def get_rest_id(rest_name, data):
    rest_names = list(data['name'].values)
    closest_names = difflib.get_close_matches(rest_name, rest_names)
    rest_id = data[data['name'] == closest_names[0]]['placeID'].iloc[0]
    return rest_id

def predict_rating(user_id, rest_name, data, model=SVD):
    rest_id = get_rest_id(rest_name, data)
    estimated_ratings = model.predict(uid = user_id, iid = rest_id)
    return estimated_ratings.est

def ten_users():
    print ('10 пользователей из датасета \n')
    for i in range(10):
        random_user_id = np.random.choice(list(np.unique(data['userID'].values)))
        print ('Пользовтель с номером', random_user_id)
        print (pd.Series(data.loc[np.where(data.userID==random_user_id)]['name'].values))
        print ()
    return

def recommend_restaurants(user_id, data=data, model=svd, threshold=1.7):
    recommended_restaurants = {}
    unique_rest_names = list(np.unique(data['name'].values))
    random.shuffle(unique_rest_names)
    for rest_name in unique_rest_names:
        rating = predict_rating(user_id=user_id, rest_name=rest_name, data=data, model=svd)
        if rating > threshold:
            recommended_restaurants[rest_name] = np.round(rating,2)
    print("Генерация рекомендаций ресторана для идентификатора пользователя {} : ".format(user_id))
    restaurant_names = np.array(list(recommended_restaurants.keys())).reshape(-1,1)
    restaurant_ratings = np.array(list(recommended_restaurants.values())).reshape(-1,1)
    results = np.concatenate((restaurant_names, restaurant_ratings), axis=1)
    results_df = pd.DataFrame(results, columns=['Restaurants', 'Rating (0-2)']).sort_values(by='Rating (0-2)', ascending=False)
    return results_df.reset_index().drop('index', axis=1)
```

Ввод [27]:

```
ten_users()
```

```
Пользовтель с номером U1002
0                   Tortas Locas Hipocampo
1                    Restaurant la Chalita
2                          puesto de tacos
3    La Fontana Pizza Restaurante and Cafe
4            Restaurante El Cielo Potosino
5                   La Cantina Restaurante
6                  Restaurante la Gran Via
7                      Gorditas Doa Gloria
8                          Pizzeria Julios
dtype: object

Пользовтель с номером U1063
0                                     vips
1                       Gorditas Dona Tota
2           little pizza Emilio Portes Gil
3    carnitas mata calle Emilio Portes Gil
4                 Pollo_Frito_Buenos_Aires
dtype: object
```

Ввод [28]:

```
print ('Введите номер пользователя, список ресторанов которого к вам ближе всего: ')
random_user_id = (input());
recommend_restaurants(user_id = random_user_id)
```

```
Введите номер пользователя, список ресторанов которого к вам ближе всего:

 U1063

Генерация рекомендаций ресторана для идентификатора пользователя U1063 :
```

Out[28]:

	Restaurants	Rating (0-2)
0	Restaurant Las Mananitas	2.0
1	la Cochinita Pibil Restaurante Yucateco	2.0
2	Cabana Huasteca	1.99
3	carnitas mata calle Emilio Portes Gil	1.9
4	Gorditas Dona Tota	1.86
5	cafe punta del cielo	1.84
6	Michiko Restaurant Japones	1.84
7	El Rincon de San Francisco	1.78
8	Restaurant Bar Hacienda los Martinez	1.78
9	Arrachela Grill	1.73
10	Mariscos El Pescador	1.71