

## Introduction: Business Problem

I'm Vietnamese and my friend is Italian, We will build **Italian restaurants** in Viet Nam. In this project we will try to find an optimal location for a restaurant. Specifically, this report will be targeted to stakeholders interested in opening an **Italian restaurant in Ho Chi Minh city**, Viet Nam.

## Problem

Since there are lots of restaurants in Ho Chi Minh, Viet Nam, we will try to detect **locations that are not already crowded with restaurants**. We are also particularly interested in **areas with no Italian restaurants in City**. We would also prefer locations **as close to city center as possible**, assuming that first two conditions are met.

We will use our data science powers to generate a few most promising neighborhoods based on this criteria. Advantages of each area will then be clearly expressed so that best possible final location can be chosen by stakeholders.

Based on definition of our problem, factors that will influence our decision are:

- number of existing restaurants in the neighborhood (any type of restaurant)
- number of and distance to Italian restaurants in the neighborhood, if any
- distance of neighborhood from city center

## Data

We decided to use regularly spaced grid of locations, centered around city center, to define our neighborhoods.

Following data sources will be needed to extract/generate the required information:

- centers of candidate areas will be generated algorithmically and approximate addresses of centers of those areas will be obtained using library **geopy.geocoders**
- number of restaurants and their type and location in every neighborhood will be obtained using **Foursquare API**
- coordinate of Ho Chi Minh center will be obtained using library **geopy.geocoders** of well known Ho Chi Minh location. (Bến thành Market)

Let's create latitude & longitude coordinates for centroids of our candidate neighborhoods. We will create a grid of cells covering our area of interest which is approx. 12x12 kilometers centered around Ho Chi Minh city center.