

# IBM Professional Certificate Applied Data Science Capstone

Week – 4 (Part - 1)

## Using Data Science and ML to find the best location to open a restaurant in Maharashtra, India

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*(nana chowk skywalk, Mumbai, Maharashtra, India)*

(source : [https://live.staticflickr.com/3919/15012790117\\_39732003d4\\_b.jpg](https://live.staticflickr.com/3919/15012790117_39732003d4_b.jpg))

# INTRODUCTION

## SOME BACKGROUND ON MAHARASHTRA, INDIA

With my basic understanding, India is divided into many states. Maharashtra is one of the states among those. It is located in the western part of the country. It is the second-most populous state and third-largest state by area. Spread over 307,713 km<sup>2</sup> (118,809 sq mi). It is also the world's second-most populous subnational entity. It has over 112 million inhabitants and its capital, Mumbai, has a population around 18.4 million making it the most populous urban area in India. Nagpur hosts the winter session of the state legislature. Pune is known as the 'Oxford of the East' due to the presence of several well-known educational institutions. Nashik is known as the 'Wine Capital of India' as it has the largest number of wineries and vineyards in the country. Maharashtra is the most industrialised state in India while state capital Mumbai is India's financial and commercial capital. The state continues to be the single largest contributor to the national economy with a share of 15% in the country's gross domestic product (GDP). The economy of Maharashtra is the largest in India, with a gross state domestic product (GSDP) of ₹28.78 lakh crore and has the country's 13th-highest GSDP per capita of ₹208,000. Maharashtra has the 15th highest ranking among Indian states in human development index.

Looking at the above and considering the factors like popularity and population in the state of Maharashtra we can conclude that a restaurant business will be a decent idea. In this hypothetical scenario, an entrepreneur wants to open a restaurant in the state of Maharashtra. But is unable to decide the exact location of this new restaurant.

He appoints me to figure out some optimal locations in the state to find open the restaurant. This Capstone will use location data and via the Foursquare API will explore the venues around these locations. Finally based on K-Means clustering we will be able to cluster the neighbourhoods and inspecting them will allow us to come up with the optimal location for this new restaurant.

## **BUSINESS PROBLEM**

The objective of this project will be to find the optimal location for an entrepreneur to open a new restaurant in the Maharashtra state in India. Using data science and Machine Learning Algorithms to figure out the optimal location.

We will do this and answer the question: -

In Maharashtra, if an entrepreneur wants to open a restaurant, what should be the optimal location in the state?

## **TARGET AUDIENCE**

This project is very useful to entrepreneurs who want to open a new restaurant in Maharashtra State, India. This project is also very useful now as Maharashtra is a growing state and with the large population there will be large demands to restaurants and even small eateries in the state.

As stated earlier, the state of Maharashtra has 'Oxford of the East' which will surely drive in a lot of youth population which likes to eat outside rather than eat at home.

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