

Coursera Capstone Project

for IBM Professional Certification in Data Science

“The Battle of the Neighborhoods”

Analysis of business opportunities near Metro stations in Delhi.

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Problem Statement

Delhi, officially the National Capital Territory of Delhi (NCT), is a city and a union territory of India. The NCT covers an area of 1,484 square kilometers having population of about 18.6 millions.

Delhi Metro Rail Corporation Limited(DMRC) is a Centre-state Public Sector company that operates the Delhi Metro having about 250 stations.

Question: if we were to consider an investment opportunity to start a business near metro stations, what would be the recommended business and where would be the best place to do it?

Elements to consider:

- Proximity of Businesses to Metro stations.
- Metro station opening date.
- Station Layout

Preliminary Analysis

Proximity of Businesses to Metro stations:

There are few metro stations which are having different businesses like Shopping Mall, Restaurant, Coffee Shop, Hotels, Bookstore, Gift Shops, Mobile and Laptop shops, Pizza store, Bakery, etc. due to this these metro stations are always crowded. Also there is traffic and parking problem. While other metro stations having much space around don't have much business and people living nearby have to travel to far away places to spend their time. So we will explore the possibilities at other stations.

Metro station opening date:

Based on the opening date of metro station we will explore opportunities. Stations opened recently have very less businesses, so these are great opportunities. Also people nearby these stations will welcome the setups like Pizza store, Gift shops, etc. and they don't need to travel far away to get their needs fulfilled.

Station Layout:

There are 2 types of station layout: Elevated and Underground.

Stations having Underground layout are usually crowded places and are not great opportunities to start business as there is not much space available there and rent is high. While area near by elevated stations are spacious, so these are the places of our choice to start a business.

Data Overview

The data that we will use for this analysis is a combination of data from Wikipedia page(List of Delhi Metro stations) and the location venue information in foursquare.

Source 1: https://en.wikipedia.org/wiki/List_of_Delhi_Metro_stations

We will first determine the most likely neighborhood for setting a business based on proximity to metro station.

Using clustering techniques developed in previous exercises in the capstone project, we will examine the most common venues by neighborhood listed in Foursquare.

Screenshot of data

	StationName	Line	Opened	Layout
0	Adarsh Nagar	Yellow Line	4 February 2009	Elevated
1	AIIMS	Yellow Line	3 September 2010	Underground
2	Akshardham	Blue Line	12 November 2009	Elevated
3	Anand Vihar ISBT	Blue Line branch	6 January 2010	Elevated
4	Arjan Garh	Yellow Line	21 June 2010	Elevated
5	Arthala	Red Line	8 March 2019	Elevated
6	Ashok Park Main	Green Line	2 April 2010	Elevated
7	Ashram	Pink Line	31 December 2018	Underground
8	Azadpur	Yellow Line	4 February 2009	Elevated
9	Badarpur Border	Violet Line	14 January 2011	Elevated
10	Badkhal Mor	Violet Line	6 September 2015	Elevated
11	Bahadurgarh City	Green Line	24 June 2018	Elevated
12	Barakhamba Road	Blue Line	30 December 2005	Underground
13	Bata Chowk	Violet Line	6 September 2015	Elevated
14	Bhikaji Cama Place	Pink Line	6 August 2018	Underground
15	Botanical Garden	Blue Line	12 November 2009	Elevated