BEST HOTEL IN DOWNTOWN TORONTO

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1. **Introduction**
   1. **Background**

Ontario is the most populous province in Canada and Toronto is provincial capital of Ontario. Toronto is the most populous city in Canada and the fourth most populous city in North America. As per 2016, the population of Greater Toronto Area (GTA) is 6,417,516. Toronto is an international center of business, finance, arts, culture, and is recognized as one of the most multicultural and cosmopolitan cities in the world. Toronto has a diverse population as it is an important destination for most immigrants coming into Canada. People belonging to around 200 different ethnic groups reside in Toronto area.

Toronto serves as the financial capital of Canada and hosts high concentration of banks and brokerage firms in the financial district area. The five largest financial institutions in Canada known as Big Five (Royal Bank of Canada (RBC), Toronto-Dominion Bank (TD), Bank of Nova Scotia (Scotiabank), Bank of Montreal(BMO), Canadian Imperial Bank of Commerce(CIBC)) have national offices in Toronto. Toronto serves as headquarters for many companies such as Bell Media, Rogers Communications and Torstar. Toronto is also home to software companies such as Ecobee, Shopify, Amazon, Paytm Labs etc. There are many universities in Toronto such as University of Toronto in downtown area and there are three other universities present in the same area. The downtown Toronto also hosts many hospitals such as the Sick Kids Hospital and Mount Sinai hospital.

Toronto is also the prominent center for music, theatre, motion picture and television production. It is a popular tourist destination attracting lot of people from all over the world for these. The most popular tourist attractions in Toronto are Royal Canadian Museum, CN tower, Toronto Zoo and Hockey hall of fame. There are numerous galleries and museums in Toronto to visit.

Everyday thousands of people come to Toronto for various purposes and it is important for them to know about good hotels to stay in downtown Toronto.

A large body of water with a city in the background

Description automatically generated

* 1. **Problem**

The information about hotels located in downtown Toronto and their ratings can help one decide about where to stay while in Toronto. With lot of companies in downtown Toronto, these hotels would help them stay close to the workplace. Downtown Toronto is busiest part of the city with large number of neighborhoods. People visiting Toronto would love to know about good hotels and their locations in Toronto. Any firm interested in building a new hotel would like to know about the current hotels in the area and their ratings.

A close up of a sign

Description automatically generated

* 1. **Beneficiaries**

The information about good hotels in downtown Toronto would be useful to someone who wants to find answers to the following questions:

1. What are the good hotels to stay in downtown Toronto?
2. Which neighborhoods in downtown Toronto would be ideal to build a new hotel?

**2.Data**

**2.1 Data Source**

I have collected the information about the Toronto neighborhoods from the Wikipedia [page](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M) using the get requests command. I have used the **Beautiful Soup** package library to transform the data in the table into the required data frame.

Geocoder Python package is used to get the latitude and longitude values of a geographical location. Given that this package is very unreliable, I have used the csv file (<http://cocl.us/Geospatial.data>) to get the latitude and longitude values of the Postal Codes in the Toronto area. I have added the latitude and longitude values to the existing data frame.

I have used the Foursquare API to get the list of Hotels in the downtown Toronto area. I have created a developer account on the Foursquare and used my client ID and client Secret and made regular calls to extract information about hotels in the downtown Toronto area using the Foursquare API. A new DataFrame is created with the list of hotels in the neighborhoods of downtown Toronto.

I have merged both the DataFrames and created a new DataFrame for further data analysis. I have again used the client ID and client Secret and made premium calls using the Hotel ID to get the ratings of the hotels and merged them into the existing DataFrame. This DataFrame is used for further analysis to get the required information on hotels in downtown Toronto.

**2.2 Data Cleaning**

Cleaning the data and changing into the required format is an important part of the data analysis. After downloading the Toronto neighborhood information, I have deleted all the rows with that are not assigned a borough. All the neighborhoods with same postal code are combined into one row. All the boroughs that have an empty neighborhood have been assigned the same name as that of the borough.

The first data frame is created with three rows which are postal code, neighborhood, and borough after making the above changes. I have added the latitude and longitude values to the DataFrame.

I have also cleaned the information I extracted using the Foursquare API by deleting all the unwanted columns from the table. I have also dropped the rows that do not match with the category as ‘Hotel’. I created the second DataFrame with the name of the hotel name, its Id, and its latitude and longitude values. I have merged the two DataFrames on latitude and longitude and created a new DataFrame for further exploratory data analysis.