**Project Report**

**Title:** Automated Restaurant Data Scraper using Selenium

**Objectives:**

* The project aims to develop an automated tool to extract restaurant details from Google Maps using Selenium.
* The extracted details include restaurant names, ratings, addresses, and phone numbers, which are then stored in a CSV file for further analysis.

**Methodology:**

1. Web Scraping with Selenium: The script launches Google Maps and searches for restaurants in a specified location.

2. Dynamic Data Extraction: The user selects a restaurant, and the script extracts its name, rating, address, and phone number.

3. Data Storage: The extracted data is stored in a CSV file, ensuring no duplicate entries.

4. Automation Handling: The script waits for elements to load and handles errors to ensure smooth execution.

**Challenges Faced:**

* Address and Phone Number Not Extracting Properly: The XPath used was not reliable, causing missing data. This was fixed by using WebDriverWait() and ensuring elements were fully loaded before extraction.
* Data Not Storing Correctly in CSV: Some restaurant names were missing due to timing issues. This was resolved by implementing a proper waiting mechanism and checking if the restaurant name was already stored before writing to the file.

**Outcomes & Results:**

* Successfully extracted restaurant details dynamically from Google Maps.
* Ensured proper handling of missing data and prevented duplicates.
* Improved script efficiency by optimizing element selection and waiting times.

**Conclusions:**

The project successfully automates restaurant data collection using Selenium. The refined method ensures accurate data extraction while handling challenges like missing elements and data storage errors.

**Future Applications:**

* Expanding the scraper to collect reviews and menu details.
* Automating searches for multiple locations.
* Integrating the collected data into a recommendation system for users.