DATA SCIENCE BASED APPROACH FOR BUSINESS LOCATION SUITABILITY RECOMMENDATIONS

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Degree of Master of Science

Department of Computer Science and Engineering
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Thesis/Dissertation submitted in partial fulfillment of the requirements for the degree

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DECLARATION

I declare that this is my own work, and this thesis/dissertation does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any other University or Institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text. I retain the right to use this content in whole or part in future works (such as articles or books).

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The above candidate has carried out research for the PhD/MPhil/Masters thesis/dissertation under my supervision. I confirm that the declaration made above by the student is true and correct.

Name of Supervisor: Dr. A.S. Perera

Signature of the Supervisor: Date: 2024-07-17

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ABSTRACT

While existing research primarily focuses on optimizing established businesses, it overlooks a critical group: aspiring entrepreneurs seeking to establish ventures in their own locales. Instead of relocating, businesses often pivot based on region-specific attractiveness. Rather than relocating businesses to more attractive areas, it is better to determine the intrinsic value of each geographical location. Such a methodology will explore additional factors impacting business success and have the potential to significantly enhance urban planning, policy-making, and resource allocation strategies, thereby fostering a more conducive environment for economic growth and development. However, selecting a high-demand business idea for the current location involves navigating various physical, economic, social, and environmental factors, underscoring the complexity of entrepreneurship in today's landscape.

In the past decades, the rapid increase of smartphones and enhanced location-based applications has united individuals on platforms like Yelp, Trip Advisor, Foursquare, and Zomato, facilitating the sharing of experiences across different locations. These platforms, known as location-based social networking (LBSN) platforms, are crucial for business owners seeking to understand customer interests through reviews and visitation patterns. Similar to finding the proper location and time for businesses, we can enhance business category selection mechanisms for a given location using data from LBSN platforms.

By analyzing the Yelp Dataset, we aim to establish a methodology that accurately assesses the suitability of different business categories for specific locations. To achieve this, we first identify key factors influencing business success and filter them based on their availability in the Yelp dataset. Our methodology prioritizes the Size Index aspect of the given area. Finally, we developed a recommendation model that predicts the order of suitable business categories, ranking them from highest to lowest suitability, with one model notably achieving an accuracy of 77.97% while testing the current success of the existing businesses.

Keywords: Location-based Social Networking (LBSN), Business category selection, Yelp Dataset, Entrepreneurship, Urban planning

TABLE OF CONTENTS

TABLE OF FIGURES

Figure **Description** **Page**

TABLE OF TABLES

Table **Description** **Page**