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Point-of-Interest Recommendation in Location-Based Social Networks

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Preface

Location-based social networks (LBSNs) have become popular recently because of the explosive increase of smart phones that makes users easily to access to the LBSN Apps. More than 2.3 billion people worldwide use smartphones in 2017 as predicted by EMarketer, which prospers the online LBSNs. A typical LBSN such as Foursquare collects users' check-in information including visited locations' geographical information (latitude and longitude) and users' comments at the location and allows users to make friends and share information as well. Driven by the collected big data in LBSNs, point-of-interest (POI) recommendation arises to improve the user experience in the App, which attempts to suggest each user a list of POIs that the user may feel interesting and be willing to visit in the future.

Developing POI recommendation systems requires analytics of the human mobility with respect to real-world POIs. Different from watching on Netflix or shopping on Amazon, checking-in at a POI in LBSNs is a physical activity, which causes the most important feature in POI recommendation: geographical influence. In addition, check-ins exhibit specific temporal characteristics. For instance, users check-in at POIs around the office in the daytime while at bars in the evening. These geographical and temporal features make the POI recommendation more challenging than traditional recommendation systems.

In this book, we systematically study the problem of POI recommendation in LBSNs. In particular, we analyze the user mobility in LBSNs from geographical and temporal perspectives and further develop POI recommendation systems. First, we analyze the user mobility in LBSNs from geographical and temporal perspective, respectively, and show how to capture the geographical and temporal influence in a POI recommendation system. Then, we develop two POI recommendation systems: Geo-Teaser and STELLAR. Finally, we conclude this book and point out future work directions.

This book is intended for professionals involved in POI recommendation and graduate students working on the location-based services-related problems. It is assumed that the reader has a basic knowledge of mathematics, as well as a certain

background in recommendation systems. The reader can get an overview of the POI recommendation research area. We hope this monograph will be a useful reference for students, researchers, and professionals to understand basic methodologies of POI recommendations in LBSNs. This book can be used as a starting point for POI recommendation research topics.

Hong Kong, China
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