INTRODUCTION
The need for a reliable, unbiased, and objective assessment of hotel location has always been important. This study presents a new approach to evaluate potential sites for proposed hotel properties by designing an automated web GIS application: Hotel Location Selection and Analyzing Toolset (HoLSAT). The application uses a set of machine learning algorithms to predict various business success indicators associated with location sites. Using an example of hotel location assessment in Beijing, HoLSAT calculates and visualizes various desirable sites contingent on the specified characteristics of the proposed hotel. The approach shows considerable potential usefulness in the field of hotel location evaluation.

Evaluating and assessing a location site is an important aspect when establishing a new hotel to secure long-term business prosperity. Once located, it is nearly impossible for the hotel to relocate. To better facilitate the decision making of hotel location selection, a huge demand has arisen for the ability to transfer knowledge from scholarly location models to knowledge with great practical values. Despite the prevalence of IT applications, few have incorporated geographical information system (GIS) technology in hospitality management. By utilizing several machine learning models such as projection pursuit regression, artificial neural network, support vector regression, and boosted regression, we are able to overcome various data-related problems in the simple linear regression models, such as the non-linearity of relationships, the presence of noise, and the absence of necessary information on function form. As a web GIS application, HoLSAT enables the visualization of location prediction based on the calibrated models, and allows scenario analysis contingent on different characteristics of proposed hotels. Based on the characteristics specified by the users, the program can automatically visualize the predicted indicator of business success for each location following the calibrated models. Therefore, as an IT application coupled with machine learning tools, HoLSAT greatly improves the decision-making capability of hotel investors in assessing the location site of the proposed hotels.

GIS APPLICATIONS IN HOSPITALITY AND TOURISM MANAGEMENT
GIS is defined as a computerized system used for the storage, retrieval, mapping, and analysis of geographic data. The major uses of GIS include the research of tourism resource inventories/usage, location suitability, tourism impact analysis, and visitor flow management.

In this study, we are particularly interested in GIS applications on location analysis. In various tourism planning projects, based on the specified criteria, GIS has been employed to analyze the suitability of certain locations for particular uses under certain constraints. Although GIS tools are prevalent in recent hospitality and tourism research, only few web GIS applications have been developed. Web GIS applications integrate GIS with the Internet, resulting in greater convenience for potential users. Compared with non-web-based counterparts, web GIS applications are platform-free, have low distribution and maintenance costs, and represent ubiquitous access to the distributed information. Furthermore, previous GIS applications on hotel location studies conducted suitable analysis by simple spatial operations such as buffering, overlay, and map algebra based on pre-defined subjective criteria.