

RANKING OF HISTORICAL TOURISM PLACES IN PERAK USING FUZZY TOPSIS

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Abstract

Perak is rich in historical places that reflect Malaysia's cultural and colonial heritage. However, many of these places are under-promoted and lack strategic development. This study aims to systematically rank historical tourism places in Perak using the Fuzzy Technique for Order preference by Similarity to Ideal Solution (Fuzzy TOPSIS), a method particularly effective under uncertainty. Seven criteria were used for the evaluation: facilities, safety, uniqueness of the heritage, accessibility, cleanliness, historical significance and promotional efforts. Data were collected through structured expert interviews and surveys with 60 respondents. Each criterion and location were assessed using fuzzy linguistic variables. The results showed that historical significance and uniqueness were the most important factors. Ubudiah Royal Mosque, the Royal Museum and the Kellie Castle topped the list. The findings provide valuable guidance to local authorities and stakeholders to improve planning, conservation and marketing strategies. This study contributes to the sustainable development of cultural tourism and greater recognition of Perak's cultural assets.

Keywords: Fuzzy TOPSIS, MCDM, historical tourism, heritage ranking, decision-making

1. Introduction

Neglected historical buildings in Perak are valuable but underutilized assets for cultural tourism. This study investigates how these places can be better prioritised for development and conservation. The main objective is to prioritise historical tourism places in Perak using Fuzzy TOPSIS, a decision-making approach that takes into account both subjective and objective assessments. The scope includes ten significant places, such as Kellie's Castle, the Royal Museum and the Pasir Salak Historical Complex, which are evaluated based on seven key tourism criteria. The results are intended to help tourism planners, local governments and investors identify the most important areas for tourism enhancement to ultimately promote cultural appreciation and economic growth.

2. Methodology

This study uses the fuzzy TOPSIS method, a type of multi-criteria decision making (MCDM) that incorporates fuzzy logic to evaluate complex and uncertain judgements. Data were collected through surveys of 60 respondents, including locals, tourists and tour guides. The assessment covered ten historic sites and seven criteria: Facilities, Safety, Uniqueness of Heritage, Accessibility, Cleanliness, Historical Significance and Promotional Efforts. Linguistic variables were used to convert qualitative opinions into triangular fuzzy numbers. The analysis followed the typical fuzzy TOPSIS process: (1) formulating the fuzzy decision matrix, (2) normalising the values, (3) calculating the weighted fuzzy matrices, (4) identifying the positive fuzzy ideal solution (FPIS) and the negative fuzzy ideal solution (FNIS), and (5) calculating the coefficient of similarity (CCi) for the ranking. The higher the coefficient, the closer the location is to the ideal destination. The calculations were performed using Microsoft Excel based on equations from the existing literature.

3. Results / Findings

The results of the ranking show that the Royal Museum, Ubudiah Royal Mosque and the Kellie Castle scored the highest closeness coefficients, making them the best historical tourism places in Perak. These places demonstrated strong performance across all criteria, particularly historical significance, uniqueness and facilities. The lower scoring places, such as Kota Belanda and Sybil's Clinic, scored lower due to their limited accessibility, promotion and infrastructure. Among the seven criteria, historical significance and uniqueness of heritage were rated highest, while promotion was rated lowest. This emphasises the need for improved marketing strategies for hidden gems. The results are consistent with national tourism objectives and provide data-driven guidance for stakeholders seeking to improve visitor satisfaction, site development and long-term sustainability.

4. Novelty of Research

This study is a first to apply the Fuzzy TOPSIS approach specifically to the ranking of heritage places in Malaysia, thereby filling a gap in the existing literature on decision-making. While previous studies applied general ranking or statistical models, this study utilises both expert input and fuzzy logic to address uncertainty in tourism preferences. It is also the first study to quantitatively evaluate ten historical tourism places in Perak based on seven clearly defined criteria. Furthermore, the integration of triangular fuzzy numbers and linguistic variables provides a flexible, realistic framework that reflects subjective human judgement, a nuance that traditional methods often fail to capture. Using Fuzzy TOPSIS in this context allows tourism planners to make informed decisions based on a transparent and reproducible ranking system. The study supports the TMP2024 (Visit Perak Year) initiative and provides a model that can be extended to other states or high-yield regions in Malaysia. In this context "the conservation of historic sites, buildings, and artefacts will continue to be the step to preserve the country's historical heritage and increase the number of tourist attractions" (Jusoh et al., 2017)

5. Conclusion or Future Work

In this study, Fuzzy TOPSIS was successfully applied to rank historical tourist places in Perak. Future research could integrate real-time feedback from tourists, digital platforms, and GIS based analyses to improve decision making. Extending the model to other Malaysian states could further support national heritage tourism development, strategic conservation planning and cultural preservation efforts.

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