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## Application For Determining The Best Tourism In Jombang District Using The Weighted Product Method Based On Android

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### ABSTRACT

*This research aims to develop an Android application that uses the Weighted Product (WP) method to determine the best tourist destinations in Jombang Regency. In today's digital era, the need for applications that can help tourists in choosing tourist destinations that suit their preferences and needs is increasing. The Weighted Product Method was chosen because of its ability to evaluate and give weight to various factors that affect tourist satisfaction, such as natural beauty, supporting facilities, accessibility, and safety. This research follows a systematic approach using the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development model. The analysis stage includes identifying user needs, analyzing system requirements, and determining evaluation criteria. Furthermore, an application design that considers a friendly and functional user interface is created based on the results of the previous analysis. Application development is carried out by utilizing various latest technologies in Android software development. Application implementation involves trials using data on tourist destinations in Jombang Regency to test the effectiveness and accuracy in determining the best tourist destinations. Evaluation is done through feedback from users and analysis of comparison results between destination recommendations provided by the application and user preferences. It is expected that the results of this research will not only make a positive contribution to tourism development in Jombang Regency by improving the quality of service to tourists, but also become a foundation for further research in the development of similar applications using the Weighted Product Method.*

**Keywords:** *Weighted Product Method, Android Application, Tourism Destinations, Jombang Regency, System Analysis, Application Design, ADDIE Model, User Evaluation*

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### INTRODUCTION

The development of tourism becomes a strategic economic sector that is able to move the wheels of a region's economy. An important key in tourism development is selecting the best tourist attractions. The best tourism is a tourist destination that has attractiveness and is able to attract the attention of tourists to visit the area. According to Kristanto, et al. (2023), there are several factors that need to be considered to choose a suitable place for tourists, including the entrance fee required, the distance traveled to the tourist destination, the facilities of the tourist destination, and the popularity of the tourist attraction.

Jombang is one of the districts in East Java which has many religious tourism areas and is nicknamed the city of Islamic students. However, there are still many tourists who have difficulty determining the right tourist area to visit in Jombang. Apart from religious tourism areas, Jombang also has natural tourism areas, study tours and other tourism areas that do not yet use good management concepts, such as the use of information technology.

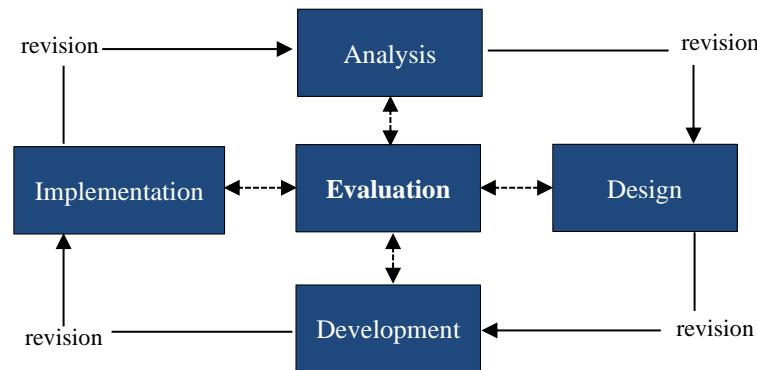
According to Mantala (2017), technological advances should make it easier for people to obtain various information related to tourist attractions such as tourist destinations, tourist locations, and so on. Research by Dengo, et al. (2022), shows that the development of a tourism information system application makes it easier for tourist attraction managers as well as helping potential tourists in finding the latest information regarding facilities, status, accommodation, prices and location points of tourist attractions. Therefore, it is necessary to develop an Android-based decision-making application regarding tourist

attractions in Jombang. Android is an operating system used on smartphones and tablet PCs which has the same function as iOS on Apple, Symbian on Nokia, etc. (Saputra, et. al., 2017).

This application development uses the ADDIE (Analyze, Design, Development, Implementation and Evaluation) development model. The ADDIE development model was chosen because it acts as a guide in building effective training program tools and infrastructure (Wibowo & Kurniadi, 2021). The research results of Udayana, et. al. (2015), shows that the ADDIE model was successfully used to develop an Android-based tourist guide application.

## METHOD

The application development model used in this research is the ADDIE development model which consists of five research stages, namely analysis, design, development, implementation, and evaluation, which are as follows.



**Figure 1.** ADDIE Model

- **Analysis**

This stage is carried out by analyzing problems related to tourist attractions in Jombang starting from tourist attractions, management, problems faced by managers and visitors, as well as other problems that are deemed necessary to find solutions to improve the services of tourist attraction managers while making things easier for visitors. After finding an urgent problem that must be resolved immediately, namely regarding determining the best tourism in Jombang Regency, it is necessary to develop an application that is able to assist tourists in determining the best tourist location in Jombang Regency.

- **Design**

After the analysis stage has been completed, the second stage continues, namely design. At this stage, an Android-based application for determining the best tourist locations is designed, namely creating display designs, descriptions of tourist attractions, etc.

- **Development**

The next stage is the development of an Android-based application for determining the best tourist locations in accordance with the design created in the previous stage. After the application has been created, it continues with functional testing to ensure the suitability of the application that has been developed.

- **Implementation**

After the application developed is suitable for use, the next stage is implementing the application. The application that has been developed is tested on users to find out the shortcomings of the application in terms of users. If problems are still found then a system evaluation is carried out.

- **Evaluation**

The final stage of this activity is evaluating various input from users, which is then carried out to improve the application to provide comfort to users.

## RESULT AND DISCUSSION

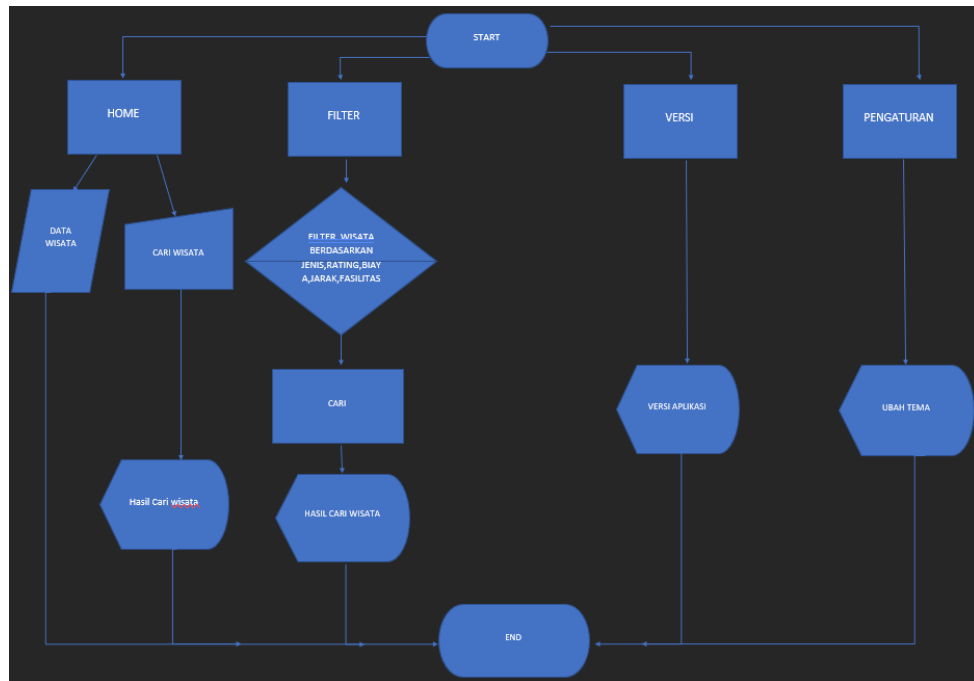
This chapter discusses the planning and development of application systems. After the development stage is complete, testing of system performance is carried out in the application being developed.

### Result

- **System Design**

This system development flowchart diagram for the application for determining the best tourist attractions in Jombang Regency can be seen in Figure 2. Figure 2 explains that using the application

begins with a start menu which shows that the application is ready to use. after that, the user is directed to the home menu. The home menu contains Jombang district tourism data and tourist searches. If you press tourist data, the tourist search results will appear. Apart from the home menu, this application also contains a filter menu. This menu contains a menu for searching for the best tours in Jombang which has been adapted to user needs by inputting five criteria, namely type of tour, cost, rating, distance and facilities. Apart from that, there is a version menu which contains the version of the application being developed, and a settings menu which functions as a setting for changing themes in the application, namely dark mode and light model.



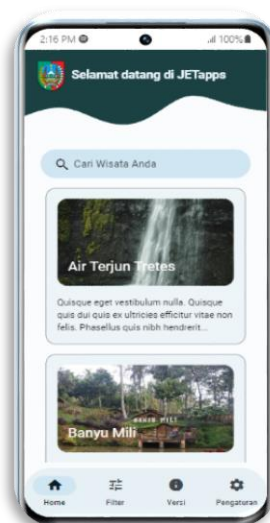
**Figure 2.** System Design

- **System Application View**

The application for selecting the best tourist attractions in Jombang Regency contains several menus as shown in the flowchart diagram, namely the home menu/main page, filter menu, application version, and settings.

- **Home Page**

The main page is the page that appears first when a user opens the application. In this menu users can see tourism data in Jombang Regency such as descriptions of tourism in Jombang Regency. The display of the home page can be seen in Figure 3.



**Figure 3.** Home Page

The home menu also contains a tourist search feature which allows users to quickly search for the desired tourist destination without having to scroll through a lot of data. The search menu display can be seen in Figure 4.



**Figure 4.** *Search Page*

- **Filter Page**

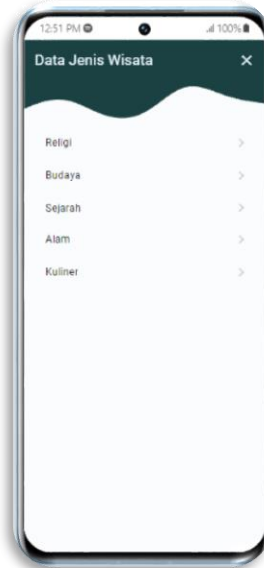
The filter menu contains several features, namely type of tour, cost, tourist spot rating, distance and facilities available at the tourist spot. The filter menu display can be seen in Figure 5.



**Figure 5.** *Filter Page Display*

- **Tourist Type Filter Display**

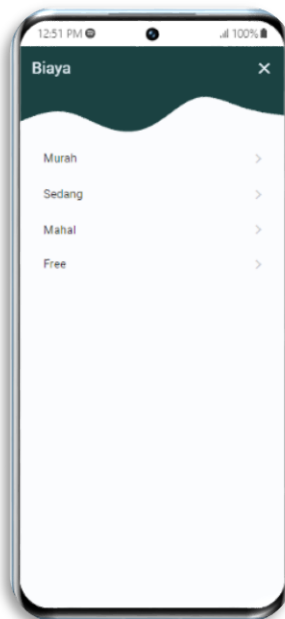
Tour tourism type menu contains choices of religious, cultural, historical, natural and culinary tourism types. With this menu, it is easier for users to determine tourist destinations according to their needs. The menu display for tourist types can be seen in Figure 6.



**Figure 6.** *Tourist Type Filter Display*

- **Cost Menu**

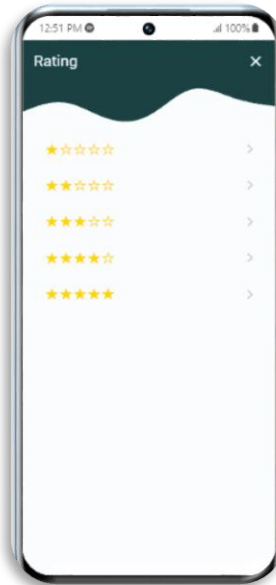
The costs menu contains the types of costs for each tourist attraction. This menu contains cost features ranging from cheap, medium, expensive and free. With this feature, users will find it easier to determine tourist destinations based on the cost of the tourist attractions they will visit. The cost menu display can be seen in Figure 7.



**Figure 7.** *Cost Menu Display*

- **Tourism Rating Menu**

The tourist rating menu contains a rating display in the form of stars that users can give after visiting the tourist attraction they want. The rating menu display can be seen in Figure 8.



**Figure 8.** *Rating Menu Display*

- **Distance menu**

The distance menu contains the distance from the closest to the furthest tourist attractions that tourists can visit. The distance menu display can be seen in Figure 9.

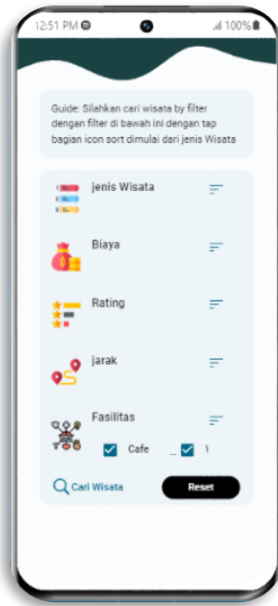


**Figure 9.** *Distance Menu Display*

- **Tourism Facility Menu**

The facility menu display contains the facilities available at the tourist attraction to be visited. The display of the tourist attraction facilities menu can be seen in Figure 10.

Then Figure 11 is a filter result that allows users to see the best tourism search results in Jombang Regency that match their needs. In these filter results, users can find the best travel recommendations that match the needs they input in this JetApps application. In addition, users can also find out the type of tour, price and rating.



**Figure 10.** Facility Menu Display



**Figure 11.** Filter Results Display

- **Version menu**

The version menu contains the version of the application currently being used by the user. The version menu display can be seen in Figure 12.



**Figure 12.** Version Menu Display

- **Setting menu**

The settings menu contains a feature for changing the application theme, namely changing to dark or light mode to increase user comfort in running the application. The settings menu display can be seen in Figure 13.



**Figure 13.** *Settings Menu Display*

**Discussion**

- **System Testing**

Application testing is carried out using Black Box Testing. Black Box Testing is a software testing technique where the basic knowledge structure of the application is not needed (Dewi, et.al., 2023). The results of testing the feasibility of the application can be seen in Table 1. Table 1 shows that the application for determining the best tourist locations in Jombang Regency is suitable to be implemented based on the results of the black box test. This is in accordance with research by Almuffarid, et. al. (2023), which shows that application testing.

**Table 1** Data Management Black Box Testing

No	Scenario	Expected Result	Test Result
1.	Click The Home	Display a page describing tourist attractions in Jombang Regency	Succeed
2.	Click The Filter Page	Display a page to filter tourist attractions based on various criteria	Succeed
3.	Click The Tourist Type Filter Display	Display a page to filter tourist attractions based on types of tourism	Succeed
4.	Click The Features Menu	Display a menu of options including cost, distance, rating, and facilities	Succeed
5.	Click The Cost Menu	Display options to filter tourist attractions based on cost categories	Succeed
6.	Click The Tourism Rating Menu	Allow users to rate tourist attractions using a star rating system	Succeed
7.	Click The Distance Menu	Display the distance range of tourist attractions	Succeed
8.	Click The Tourism Facility Menu	Display available facilities at tourist attractions	Succeed
9.	Click The Filter Result Display	Display Show the best tourism search results in Jombang Regency based on user input	Succeed
10.	Click The Version Menu	Display the version of the application being run	Succeed
11.	Click The Settings Menu	Provide options for light and dark mode settings	Succeed



## CONCLUSION

The Android application developed using the Weighted Product (WP) method to determine optimal tourist destinations in Jombang Regency marks a significant advancement in tourism management. By systematically analyzing user needs and employing the ADDIE development model, the application offers a user-friendly interface and precise destination recommendations. Through rigorous testing and evaluation, including Black Box Testing, the application has demonstrated its efficacy in providing tailored recommendations based on factors like natural beauty, amenities, accessibility, and safety. Moving forward, potential enhancements such as dynamic data integration and machine learning algorithms could further refine the application's capabilities, ensuring continuous improvement in the tourist experience and contributing to the economic growth of Jombang Regency's tourism sector.

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