Design of Advertisement Tax Calculation Application Based on Android using the Extreme Programming at Dispenda Tasikmalaya

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Abstract. Advertise tax is one of the important sources of Regional Revenue to finance the implementation of Development and Government in the Region, so it needs to be regulated separately. So far the Regional Office of Financial and Asset Management in Tasikmalaya during the calculation of advertisement tax has used Microsoft Excel and calculators (calculators). But the obstacles that are often experienced when using Microsoft Excel are frequent advertisement tax calculation errors, when officers are in the field then the calculating machine (calculator) sometimes occurs errors that cause advertisement tax calculation errors and billboard price standard tables must always be taken because the officers do not memorize all advertisement standard price. Then the use of smartphone technology is needed to help the problems that exist in the calculation of advertisement tax in the field. The use of smartphones in the field of government cannot be maximized so that new breakthroughs are needed that can support work, especially work that requires precision in work. Therefore given a solution in this study is to create an advertisement tax calculation application that applies the advertisement tax rules to optimize the use of smartphones, especially Android in the field of government and facilitate the management of local revenue in the city of Tasikmalaya. The results of this study are in the form of prototypes of the advertisement tax calculation application.

1. Introduction
Based on the regional regulation of the city of Tasikmalaya number: 5 of 2003 concerning advertisement tax that advertisement tax is one of the important sources of regional income in order to finance the implementation of development and government in the region, so it needs to be regulated separately. Advertisement Tax, hereinafter referred to as Tax, is a Regional Charges for Organizing an Advertiser. An advertisement is an object, tool, deed, or media that according to its shape, structure and / or variety for commercial purposes is used to introduce, praise or promote an item, service of a person or body that is organized or placed or can be seen, read and or heard from place by the public except those carried out by the Government.
Regional Office of Financial and Asset Management Revenues Tasikmalaya City is a government agency charged with collecting regional revenues through coordination and collection of taxes, levies, tax sharing, balance funds, and so on. So far the Regional Office of Financial and Asset Management in Tasikmalaya during the calculation of advertisement tax has used Microsoft Excel and calculators (calculators). But the obstacles that are often experienced when using Microsoft Excel are frequent advertisement tax calculation errors, when officers are in the field then the calculating machine (calculator) sometimes occurs errors that cause advertisement tax calculation errors and billboard price standard tables must always be taken because the officers do not memorize all advertisement standard price. Besides that, in calculating advertisement tax it always takes a long time because in the advertisement price standard there are several criteria that require the officer to always be able to determine the standard price for advertisement tax calculation. Therefore the use of smartphone technology is needed to help the problems that exist in the calculation of advertisement tax in the field. The use of smartphones in the field of government cannot be maximized so that new breakthroughs are needed that can support work, especially work that requires precision in work. The solution given in this study is to create a prototyping advertisement tax calculation application that applies the advertisement tax rules which will later be used as a basis for creating advertisement tax calculation applications to optimize the use of smartphones, especially Android in the field of government and facilitate the management of regional revenue.

2. Literature Study

2.1. Definition of Advertising Taxes

Based on [3] concerning advertisement tax that advertisement tax is one of the important sources of regional income in order to finance the implementation of development and government in the region, so it needs to be regulated separately. Advertisement Tax, hereinafter referred to as Tax, is a Regional Charges for Organizing an Advertiser. An advertisement is an object, tool, deed, or media that according to its shape, structure and / or variety for commercial purposes is used to introduce, praise or promote an item, service of a person or body that is organized or placed or can be seen, read and or heard from place by the public except those carried out by the Government.

2.2. Extreme Programming (XP)

[4] Extreme Programming (XP) is a method of Agile Software Development. In the Extreme Programming (XP) method, there are 5 (five) value used, namely communication, simplicity, feedback, courage, and respect. In the process of Extreme Programming (XP), stakeholders and developers communicate informally. In addition, stakeholders and joint developers determine limits in program design needed for urgent needs. Any changes that occur in the program will be notified to stakeholders for feedback from stakeholders.

2.3. Android

[6] Android is a Linux-based mobile device operating system that includes the operating system, middleware, and applications.

3. Methodology

The research methodology used in the development of this software uses the Extreme Programming (XP) model which is one of the methods of the Agile Software Development. In the Extreme Programming (XP) method, there are 5 (five) value used, namely communication, simplicity, feedback, courage, and respect.

3.1. Data Collection

The stages of data collection in software development are very important to be carried out as the beginning of the research before entering the system design. Data collected in the form of advertisement data and advertisement tax in Tasikmalaya City. Furthermore, the data will be sorted and will produce the required data recap.

3.2. Analysis
At this stage of the analysis is carried out by identification and initial planning and gathering the needs of the software to be built. The stages carried out are as follows:

1. Problem Analysis
   So far the Regional Office of Financial and Asset Management in Tasikmalaya during the calculation of advertisement tax has used Microsoft Excel and calculators (calculators). But the obstacles that are often experienced when using Microsoft Excel are frequent advertisement tax calculation errors, when officers are in the field then the calculating machine (calculator) sometimes occurs errors that cause advertisement tax calculation errors and billboard price standard tables must always be taken because the officers do not memorize all advertisement standard price. Besides that, in calculating advertisement tax it always takes a long time because in the advertisement price standard there are several criteria that require the officer to always be able to determine the standard price for advertisement tax calculation.

2. Textual analysis
   Textual analysis is the basic description of the application that will be seen from the user's point of view. Textual analysis of the application of forecasting methods is as follows:
   a. Admin is given high authority in creating a new admin, creating new users, and entering advertisement tax data into the database.
   b. Employees are responsible for the advertisement tax data collection into applications that will be automatically calculated. Officers can also add other Officers whose responsibilities are the same, but cannot delete other officers.

4. Discussion
   4.1. Use Case Diagram Design
   The following is a proposed use case diagram for the Tax Calculation Application as follows

   ![Use Case Diagram](image)

   **Figure 1.** Use Case Diagram for Initial Data Processing

4.2. Design Activity Diagram
   Proposed design activity diagram for advertisement tax calculation application can be seen in the picture below:
4.3. Software Design

Following are the relationships between entities contained in the advertisement tax calculation system:

![Activity Diagram For Initial Data Processing](image)

**Figure 2.** Activity Diagram For Initial Data Processing

![Entity Relationship Diagram](image)

**Figure 3.** Entity Relationship Diagram
4.4. Class Diagram
The following is a description of class diagrams for the advertisement tax calculation application:

![Class Diagram](image)

**Figure 4. Class Diagram**

4.5 Sequence Diagram
The following is a description of sequence diagrams for proposed advertisement tax calculation applications:

![Sequence Diagram](image)

**Figure 5. Sequence Diagram**

5. Closing
5.1 Conclusion
Based on the research that has been done, it can be obtained:
1. A prototype tax bill calculation application has been designed
2. This application is used to facilitate employees in calculating advertisement tax so that the calculation process becomes more accurate
3. This application is used to be a tool to calculate advertisement tax

5.2 Suggestions
Suggestions that can be given from the results of this study are:
1. This research produced a prototype planning advertisement tax calculation application that can be used as a reference for the construction of information systems that are in accordance with its business functions. In order for this prototype to be successfully implemented, we recommend that
the results of the advertisement tax calculation application documentation that have been made can be understood and accepted by the Dispenda
2. Making this prototype can be done further by using another method so that it is more maximal.
3. The prototype that has been made should be used as a reference to make an advertisement tax calculation application.

6. References
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