

DEVELOPMENT OF DYNAMIC TICKET APPLICATIONS WEBSITE BASED

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ABSTRACT

Ticket is a tool for proof of payment, purchase and guarantee of a transaction. Tickets have evolved along with the way to become online tickets. Many factors affect a consumer to buy tickets online, namely the experience of queuing easier and easier to buy. PT Inzpire Tech is an IT company that provides a unique solution in the business model, the company is located in Bandung and Jakarta. This company serves requests from clients for making applications in the form of web or mobile. According to interviews that they have difficulty in making tickets from various clients. Making tickets dynamically is used to solve problems that occur. A client will only need to make a minimum effort to make a ticket template and easily create a ticket made specifically for them. The application of the test results to the system that was built using black boxes and beta testing concluded that this system can help create, change and delete ticket templates as desired by the client. This system can also be connected with dynamic data sent from the client website and is easier to make than the previous procedure.

Keywords : Ticket, Website, Custom, Flight, *Self-service*

1. INTRODUCTION

1.1. Background

Ticket is a tool for proof of payment, purchase and guarantee of a transaction. Because tickets have evolved over time, online tickets have become the solution of tickets. Many factors influence a consumer to buy a trip ticket online, namely the experience of queuing, ease of purchase, the accuracy of the delivery of information and the efficiency of time and cost[1].

The use of tickets that do not have to physically issue documents has many advantages for its users, among others, is the ticket system user or we just call it E-ticketing is not limited by time and energy. Costs needed for communication between customers and officers can be reduced [2]

PT. Inzpire Tech is an IT company that provides unique solutions in business models. This company is located in Bandung and Jakarta. Many applications

that have been built by this company include AerOne, AerOticket and PocketMus. In addition this company serves requests from clients for making applications in the form of web or mobile.

This company also runs a business-to-business model, where they sell application engines that are used by several clients. This application model, besides facilitating maintenance, also makes it more economical than special / private applications for clients.

According to the results of an interview with Mr. Arief as Project Manager that they experienced difficulties in making tickets from the request various clients. Clients often ask to add new ticket designs and change ticket designs. Client wants in his company there is a ticket that distinguishes between ordinary tickets and special tickets. The ticket made contains information on the results of data processing in the system such as purchases and purchases.

Based on observations there is a website canva.com which can provide a website page that can design and make tickets online. From the application there is no integration of information with the system, such as dynamic information data based on needs and if there is a change in the data, design changes must be made.

From the problems that have been described above, it can be concluded that it is necessary to develop a web-based software that can make changes, create and add custom tickets by the user and can be integrated with existing information systems.

By utilizing technologies such as javascript and APIs for managing ticket designs and APIs for sending and receiving data for integration between systems built with current systems.

1.2. Research Methodology

Research methodology is a process used to solve a logical problem, which requires data to support the implementation of a research. Data collection methods used are the following methods: Data collection methods used in this study are as follows:

a. Study of literatur

Data collection by studying, researching and analyzing various literatures from the library sourced

from books, texts, scientific journals, sites on the internet and readings relating to application development

b. Interview

In this stage the authors make observations at the case study site, PT. Inzpire to find out the system requirements, user characteristics and supporters in system development.

1.3. Software Development Method

The method in making software uses software paradigm waterfall model from R. Pressman. Which covers several stages as follows:

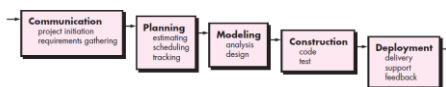


Figure 1. 1 Waterfall Model

a. Communication

Analyzing software and data collection requirements. Software requirements are identified by conducting a questionnaire to collect the data needed.

b. Planning

Arranging plans that will be carried out during software development includes making a schedule of each stage carried out and preparing all needs.

c. Modeling

Model each software requirement using tools including flowmap, ERD and UML, as well as database design, menu structure, interface, message and procedural.

d. Construction

Writing code with programming language and MySql as a database management system (DBMS) based on the results of modeling and then testing the program code created using the black box testing method.

e. Deployment

Submission of software to the user to find out feedback from programs that have been made.

2. Research Content

2.1. Ticket

Ticket is a printed document, through an electronic process or other form that is evidence of an agreement from both parties. Givers and recipients.

Used as proof to get services and proof of payment [3].

2.2. Website

Website or we can say the site can be interpreted as a collection of pages that are used to display text information, still or motion pictures, animations, sounds and or a combination of all, both of a status or dynamic nature that forms a series of interrelated buildings. This circuit is connected with page networks.

Here are the types of web based on the nature or style:

a. Dynamic Website

Websites that provide content that is always changing at all times. The programming languages used include PHP, ASP, .NET and utilizing a MySQL or MS SQL database.

b. Static Website

Content on static websites is rarely changed, using programming languages like HTML and not yet utilizing databases such as web profiles and web organizations. [4]

2.3. HTML

HTML is an abbreviation of Hyper Text Markup Language. HTML is a programming language that has certain rules or syntax in writing it. The syntax or rule functions to display information in the browser by reading HTML codes.

HTML tags always start with <x> and end with </x> where x is an HTML tag, the tags are like b, i, and u [5].

Table 2. 1 Tag-tag HTML

Tag	Function
	make bold text
	Display image
<table>	Make Tabel
<tr>	Make a row in table
<p>	Make a sentence

2.4. PHP

PHP is a web-based programming language written by and for web development. PHP has the advantage as one of the web-based programming language that is:

a. Free. PHP can be downloaded and used for free. PHP was developed by the open source community and will always be distributed free of charge. From, by and for developers.

b. PHP is licensed by the GNU General Public License (GPL). This is a guarantee that all versions of PHP will always be distributed free of charge.

c. Reliable Performance. PHP is very efficient. With an inexpensive server specification, it can serve millions of access per day.

d. Database Support. PHP supports almost all database devices, from MySQL, Oracle, PostgreSQL, Informix, Interbase, Sybase, MariaDB to SQLite.

e. Default Library. PHP was built specifically for web-based applications. Therefore, there are lots of built-in libraries (libraries) that are related to the web that can be directly used.

f. Cross Platform. PHP can run well on almost all Operating Systems such as Linux, Unix, Windows or Mac Os.

g. Easy to learn. PHP commands are very easy to learn, because most PHP commands are adopted from popular programming languages such as C / C ++, Java and Perl. [6]

2.5. UML

UML is an abbreviation of Unified Modeling Language, which translates to standard modeling. The modeling language can be anything that contains notation and description. However, there are several advantages and disadvantages in using UML as modeling, one of which is formal and clear language, so that we do not need to worry about the description of our model will be misinterpreted.. [7]

2.6. Use Case

Use Case explains the functionality of the system to be modeled from an external perspective. Use Case will later be needed to explain what will be done later. [7].

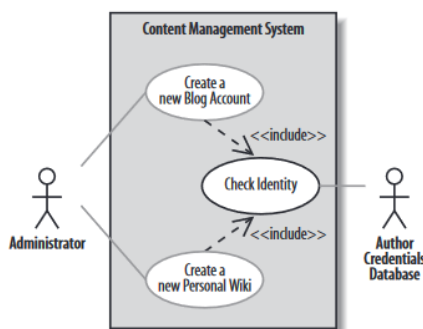


Figure 2. 1 Use Case Diagram

Use case name	Create a new Personal Wiki	
Related Requirements	Requirement A.2.	
Goal In Context	A new or existing author requests a new personal Wiki from the Administrator.	
Preconditions	The author has appropriate proof of identity.	
Successful End Condition	A new personal Wiki is created for the author.	
Failed End Condition	The application for a new personal Wiki is rejected.	
Primary Actors	Administrator.	
Secondary Actors	Author Credentials Database.	
Trigger	The Administrator asks the CMS to create a new personal Wiki.	
Main Flow	Step	Action
	1	The Administrator asks the system to create a new personal Wiki.
	2	The Administrator enters the author's details.
	3	The author's details are verified using the Author Credentials Database.
	4	The new personal Wiki is created.
	5	A summary of the new personal Wiki's details are emailed to the author.
Extensions	Step	Branching Action
	3.1	The Author Credentials Database does not verify the author's details.
	3.2	The author's new personal Wiki application is rejected.

Figure 2. 2 Use Case Scenario

2.7. Activity Diagram

Activity Diagrams are used to explain in more detail how the system will accomplish its objectives. Activity diagram shows actions that are interconnected with each other to show the processes that exist in a system. [7]

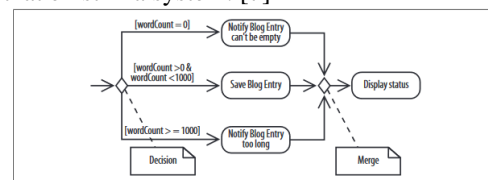


Figure 2. 3 Activity Diagram

2.8. Class Diagram

Class diagram is a blueprint of the object that we will create. Like for example a car, a car has thousands of types, but only one car class, four-wheeled and has an engine. A class has details about important things in the model and system. [7]

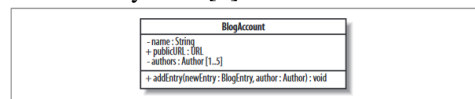


Figure 2. 4 Class Diagram

2.9. CSS

CSS or Cascading Style Sheets is simply a method used to shorten the writing of HTML tags such as fonts, colors, text and tables to be shorter. CSS is used to adjust the appearance of documents. CSS allows us to display the same page in different formats.

CSS has several uses and benefits including the following:

a. Shorten the writing of HTML tags. No need to define every tag with the same property and value.

b. Speed up the rendering process or HTML reading because there is no repetition of writing.

c. Easy and fast to maintain due to CSS files created separately. If you want to make changes, just change one file without changing the entire HTML file.

d. CSS can do what HTML cannot, for example, we can provide color to the input box or scrollbar.

Writing CSS scripts is divided into three parts, i.e.:

a. **Inline Style Sheet**

Writing CSS syntax inside HTML elements. The way to write is the same as when we write properties in HTML tags. Suppose we want to change the color of the text in the <p> tag, then the method of writing is as follows:

```
<p style="color: blue">
```

b. **Embedded Style Sheet**

Writing CSS syntax in an HTML document using the embedded style sheet method uses the <style> and </style> tags.

```
<style type='text/css'>
h1 {color: red}
</style>
```

c. **Linked Style Sheet**

Writing CSS scripts on different pages or separate from HTML. Users by linking to css files that have been made. For this method use the <link rel> tag attached to the <HEAD> tag in HTML [8].

2.10. JAVASCRIPT

Javascript is a popular scripting language used to create web pages that interact with users and can respond to events that occur on the page. Javascript is the glue that holds web pages together. Javascript is related to the browser, it is very integrated with HTML. When the browser loads a page, the server will send the full context of the document, including HTML and Javascript statements.

The HTML content is then read and interpreted line-by-line until the opening javascript tag is read, at that time the Javascript interpreter takes over. When the full JavaScript tag is grabbed, HTML processing continues.

Javascript program is used to detect and act on events caused by users. With this we can improve the website with the help of navigational, dialog boxes and dynamic imagery. Javascript is used to control page views. Javascript data produces web pages that are structured, stylish and interactive. [9]

2.11. Framework

Framework is a collection of commands or basic functions that form certain rules and interact with each other so that in making a website application, we must follow the rules of the framework. With Framework, we don't need to think about the command code / basic functions of our website application. Like how to retrieve data from the database for display. We only need to think about the basic command code / function of our website application. [10]

3. ANALISIS

3.1. Analisis Prosedur yang sedang berjalan

Analysis of ongoing procedures is a systematic description of the activities that occur in making ticket templates in the provider company. The procedures for analyzing the procedures for making ticket templates that are currently running at the provider companies are as follows:

- a. The client makes a draft ticket template that will be created.
- b. The client provides the design to the provider company.
- c. Provider companies make ticket templates
- d. The provider company submits information that the template has been successfully created and is ready for use.

Analysis of the system built is a complete picture of the proposed system. The proposed system analysis is also based on problem analysis, ongoing system analysis and similar system analysis. So from the three analyzes will get an overview of the application that will be proposed along with the application procedure that will be proposed. In this study, the application that will be proposed must meet the needs and solutions of the problem that is making a ticket template in a costumed manner.

The procedure of the proposed system analysis is:

- a. The provider company submits information that the template has been successfully created and is ready for use.
- b. The client creates the template as he wishes.
- c. The client saves the template that was created.
- d. The client chooses the template to be used.

This analysis phase aims to get an overview of the system to be built. Whether it's a description of the user to the data transaction to be built. An overview of the system architecture of the web-based dynamic ticket documentation builder application can be seen in Figure 3.10.

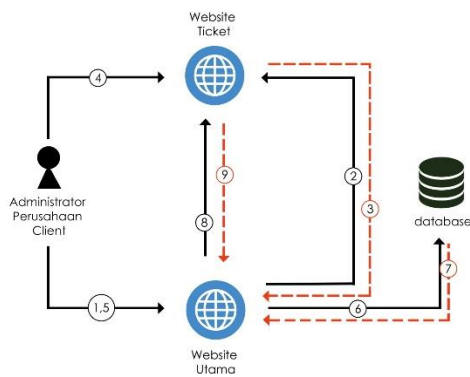


Figure 3. 1 *System architecture to be built.*

Following is an explanation of Figure 3.10 of the dynamic ticket documentation application based on the website:

- The Client Company Administrator activates the main website.
- The main website activates the system by registering and asking for a username & password
- Client Company Administrator enters and creates a ticket template.
- The Main Website requests transaction data regarding data to be printed into a database.
- The database provides data requested by the Main Website.
- The Main Website submits the ticket data to the ticket website to combine ticket material between the ticket data and the ticket template.
- The ticket website responds by providing tickets that have been combined with the ticket template.

Analysis of template creation is used to find out how users of the system to be built create templates. This analysis is done by looking at the results of the analysis of document analysis and analysis of similar applications. To meet the needs of dynamic data as well as making templates that are easy to choose the drag and drop method.

Drag and drop is a method for moving an object from one position to another by dragging the object and dropping the object to the destination position. The user will later be given a large selection of objects that are useful for creating templates.

These objects include text, images and tables. The text provided is text with a variety of font sizes including 24px, 18px and 12px. The image is obtained from user data contained in the main system. This picture was obtained when the user first registered at the ticket system. Images can be modified, uploaded and deleted. The table is useful for entering dynamic data which will later be combined when the user presses the ticket print button on the main system. Tables have table titles and table columns, while rows in the table will adjust. These objects are created through HTML tags. The html tags are used to create objects, i.e.:

- Tag ``

The `` tag is used for the introduction of a text object. The `` tag selection is compared to other text objects because this tag can be adjusted in position when creating the template. Here are the span tags used.

```
<span style="font-size: 36px; white-space: nowrap;">Add header type 1</span>
```

- Tag `<table>`

The `<table>` tag is used for table object recognition. This table will have several columns and one table name. The following table tags are used.

```
<table class="draggable ui-widget-content ui-draggable ui-draggable-handle" style="position: relative; width: 675px; inset: 40px auto auto 47px; height: 58px; width:"85%" border="1"><tbody><tr><th style="border:0;" colspan="2">bambang</th></tr><tr><td class="tdclick" style="padding: 3px;font-size:13px;">1</td><td class="tdclick" style="padding: 3px;font-size:13px;">2</td></tr></tbody></table>
```

- Tag ``

The `` tag is used for image object recognition. The object image can be directly inputted in accordance with the wishes of the client. The following is the image tag used.

```

```

These objects are added to the "draggable" class to make it easier to identify which objects can be dragged. The command is stored in a javascript code, the following is the drag and drop javascript code used

```
$("#content").children().draggable({
    containment: '#content'
}).on('click',function(){

$("#content").children().each(function(){
    $(this).removeClass('movemove');
});
```

After the objects are adjusted according to their position, javascript will group these objects into columns and page rows. The page is divided into sections. This division makes it easy to get the position of the object.

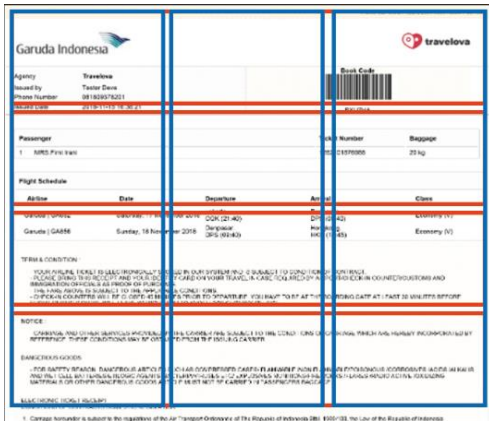


Figure 3. 2 Image Grouping Objects

The page is divided into rows and columns. Squares with a blue border indicate grouping for columns, while squares with a red border indicate grouping for rows.

After the user from the system presses the save button, javascript will work to dump these objects into pieces of html that are ready to be generated into a ticket. Here are the results of grouping objects on the system.

```
<table cellspacing="0" style="width: 100%; text-align: left; font-size: 11pt;"><tr><td style="width:36%;">undefined</td><td style="width:36%;">undefined<br><span style="font-size: 36px; white-space: nowrap; position: relative; width: 123px; inset: 37px auto auto 328px; height: 45px;" class="ui-draggable ui-draggable-handle objectke1"> INVOICE</span></td><td style="width:36%">undefined</td></tr></table>
<table cellspacing="0" style="width: 100%; text-align: left; font-size: 11pt;"><tr><td style="width:36%;">undefined</td><td style="width:36%;">undefined</td><td style="width:36%">undefined</td></tr></table>
<table cellspacing="0" style="width: 100%; text-align: left; font-size: 11pt;"><tr><td style="width:36%;">undefined</td><td style="width:36%;">undefined</td><td style="width:36%">undefined</td></tr></table>
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<table cellspacing="0" style="width: 100%; text-align: left; font-size: 11pt;"><tr><td style="width:36%;">undefined</td><td style="width:36%;">undefined</td><td style="width:36%">undefined</td></tr></table>
```

Generate ticket analysis is used to analyze how objects that have been created by users end up being dynamic data. These objects become ticket templates that are ready to be used to be converted into tickets. Every object created by the user contains code. The code is a marker. The marker is used to replace static data contained in the database into data that changes. Marker code for this is written when creating the template. Following is the marker code provided

Tabel 3. 1 Kode Penanda Data Dinamis

Kode	Keterangan
<< customer >>	Nama customer
<< agency >>	Nama agency
<< issueddate >>	Waktu transaksi dilakukan
<< issuedby >>	Pelaku transaksi
<< bookcode >>	Kode booking pada transaksi
<< phonenumber >>	Nomor telepon client

The codes must be written correctly. Because the system will only replace code that has been recognized into dynamic data. Marker code that has been written before will be combined with data sent from outside the system via the API.

```
curl -s \
-X POST \
https://eztiket.web.id/API_TIKET/generate \
-H 'Content-Type: application/json' \
-d '{
  "agency": "Nama Agency",
  "agency_contact": "Kontak Agency",
  "issuedby": "Nama pembuat",
  "secret": "Kode Secret",
  "issueddate": "Waktu Pembuatan",
  "transaction_detail": [
    "book_id": "Kode Book",
  ],
  "flight_schedule": [
    "flight_no": "Nomer penerbangan",
  ],
  "flight_passenger": [
    "flight_passenger": "Data Penumpang"
  ],
}
```

Figure 3. 3 Panduan API yang dikirimkan dari sistem luar tiket untuk generate tiket

After the ticket system receives dynamic data via the API. Ticket system changes text to dynamic data. With PHP code the text is replaced via the input data.

```
str_replace("&lt;&lt; agency &gt;&gt;", $agency, $content);
```

All data will be replaced based on the entered code. After all the processes have been carried out, the ticket system will throw back the combined ticket template data. The data is used to view tickets, print tickets and send them via email.

```
{
  "nama_ticket" : "Nama Tiket",
  "ukuran" : "Ukuran Tiket",
  "content" : "File siap cetak",
}
```

Figure 3. 4 Hasil Generate Tiket

Use Case Diagrams will show the relationship between actors and use cases. Actors represent a user or other subsystem that will interact with the system. Use cases are events that illustrate the interaction between the user and the system.

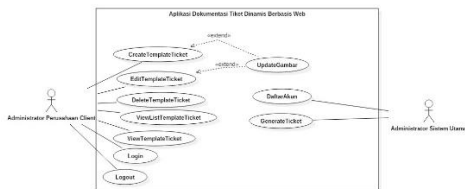


Figure 3. 5 Use Case Diagram Dokumentasi Tiket Dinamis

4. Testing and Implementation

4.1. Implementation

Display program is useful for the implementation of interface design, the following is a display of the program that has been made.

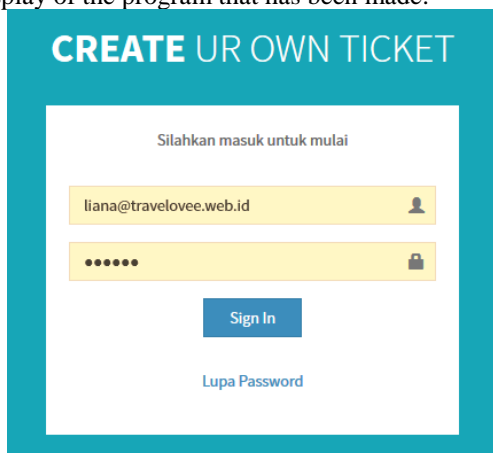


Figure 4. 1 Tampilan Login

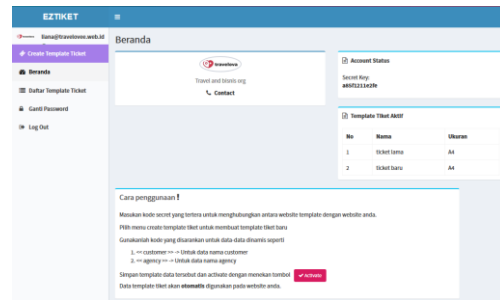


Figure 4. 2 Tampilan Halaman Beranda

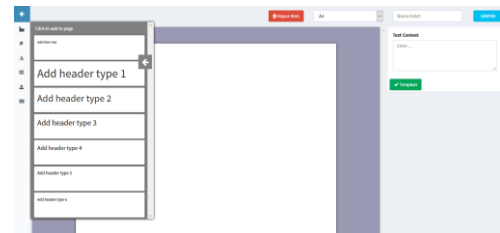
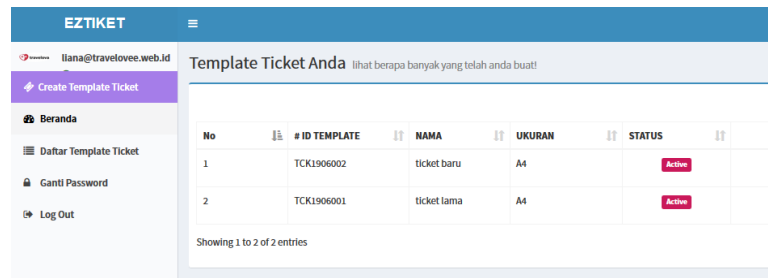


Figure 4. 3 Tampilan halaman create template, edit template dan lihat template



Gambar 4. 4 Tampilan halaman daftar template

4.2. Testing

Blackbox is a test used to test a new system. This test focuses on the functional requirements of the software. The test plan will be carried out by testing the system in alpha and beta. Testing this dynamic ticket application uses test data based on existing asset data at PT. Inzpire.

4.3. Testing Result

Based on the results of testing with test sample cases that have been carried out. Based on the results of this test it can be concluded that this software is in accordance with the expectations and needs of the user and is error free so that it is feasible to use.

5. Closing

5.1. Conclusion

Based on the analysis and implementation results obtained after conducting research in the development of "Development of a dynamic ticket-based website application". Then the conclusions obtained from the purpose of developing applications that have been analyzed and tested in order to obtain the following results:

- a. The ticket template website makes it easy to create custom tickets.
- b. The ticket template website is made according to the dynamic data / original data on the website that uses it.
- c. With this application, it is easier to make templates than the previous one.

5.2. Future Works

This dynamic ticket-based website application that was built is still lacking. Therefore there are a number of suggestions that can be used as a guide towards developing better software to support the growth of users and content on this software. The advice obtained is:

- a. Added features to change objects and add objects such as lines and add icons.
- b. Added hints for "how to use" when creating a ticket template

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