

Implementation of a Website for Booking Hajj Umrah and Tour Tickets Using the Waterfall Method

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Abstract

PT. Qonita Zikra Semesta fully needs an information system that supports and provides information and good service for customers. That is why the writer tries to make her Final Assignment concerning with the travel ticket reservations system with waterfall method, choosing this method because this method is ordered starting from the analysis, design, coding, testing, and support. Because at this time the existing system is still done manually, starting from customer registration to storing data related to the order process, to making reports. So that it is possible when the order process takes place arises problems such as recording errors during registration, loss of data, duplication of data, burning of documents, and late reporting because the data must be searched first and takes a long time. The design of this information system is the best solution to solve the problems that exist in this company. With a computerized system that can make a company work effectively and efficiently and in a booking system that is now much more conducive and well recorded than the system that is still manual as before.

Keywords: Implementation, Website, Ticket Booking, Waterfall

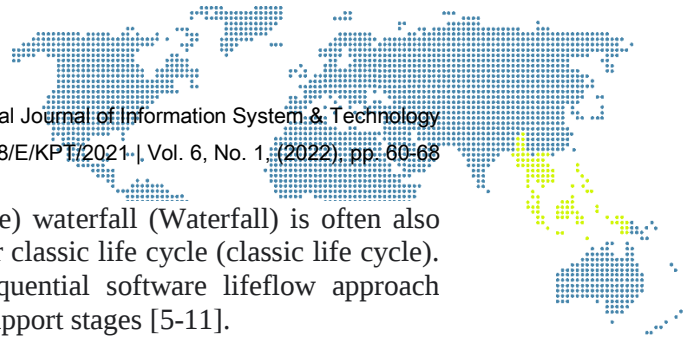
1. Introduction

PT. Qonita Zikra Semesta is a travel service bureau company located in Jakarta, this travel service provides Hajj, Umrah and halal tour services. Currently the ticket booking system at PT. Qonita Zikra Semesta is still manual with the way buyers have to come directly to register, order, and pay for tickets.

Problems that can arise using a manual system are in the form of irregular accumulation and storage of documents, registration documents can be damaged and burned, there is duplication of ticket buyers, the loss of the list of ticket buyers due to piling up documents, the occurrence of document falsification, delays in reports so that it will cause problems. take quite a while. The existing system is still not appropriate, because the ticket ordering process is still done manually by means of the public having to come directly to order tickets [1][2]. There are also documents whose physical form has been damaged, for example, torn or folded, even in terms of searching for documents, it is even more difficult because these documents are not stored regularly and take a long time just to find documents [3]. In the problems experienced, PT. The Qonita Zikra Semesta requires an online ordering information system. With the ordering information system, it can help in the ticket booking process easily without having to come to the place directly. Not only helps in ordering products and document security, it is also not easy to lose, burn and damage because all data is already in the system.

2. Research Methodology

The internet is a very wide and large and worldwide computer network, connecting computer users from one country to another around the world, in which there are various sources of information and internet service [4].

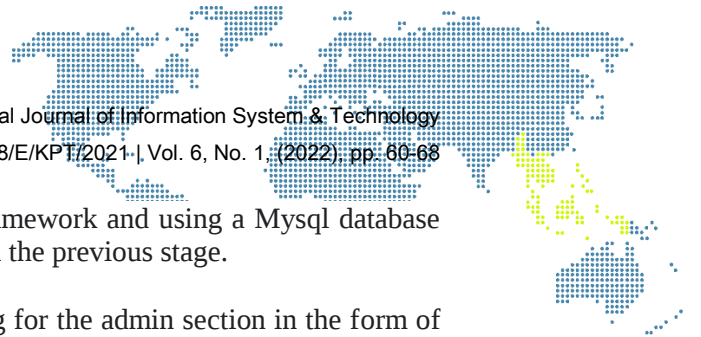


SDLC model (Software Development Life Cycle) waterfall (Waterfall) is often also called a linear sequence model (Sequential linear) or classic life cycle (classic life cycle). The waterfall model provides a sequential or sequential software lifeflow approach starting from analysis, design, coding, testing, and support stages [5-11].

- a) Software requirements analysis.
The process of collecting data requirements is carried out in an incentive to specify software so that it can be understood what kind of software is needed by the user. Software requirements specifications at this stage need to be documented.
- b) Design.
Software design is a multi-step process that focuses on the design of a software program including data structures, software architecture, interface representations, and coding procedures. This stage translates software requirements from the requirements analysis stage to the design representation so that it can be implemented into a program at a later stage. The software design produced at this stage also needs to be documented.
- c) Program code generation.
The design must be translated into a software program. The result of this stage is a computer program in accordance with the design that has been made at the design stage.
- d) Testing.
Testing focuses on the software logically and functionally and ensures that all parts have been tested. This is done to minimize errors and ensure that the output produced is as desired.
- e) Support (support) or maintenance (maintenance).
It is possible for a software to experience changes when it has been sent to the user. Changes can occur due to errors that appear and go undetected during testing or the software has to adapt to a new environment. The support or maintenance phase can repeat the development process from specification analysis to changes to existing software, but not to creating new software.

Entity Relationship Diagram The most widely used initial database modeling is using Entity Relationship Diagram (ERD). ERD was developed based on set theory in mathematics. ERD is used for relational database modeling [5][7-16]. The method used in this research is to use the waterfall method. The Waterfall method proposes an approach to software development, systems throughout analysis, design, code, testing, and maintenance. This method consists of several stages, namely: requirements analysis stage, design (design), coding, and testing [6][17-21].

- a) Needs Analysis.
Analyzing the system requirements needed at PT. Qonita Zikra Semesta, the analysis is included in the functional requirements, namely the process carried out by the system. The system needed must be able to process registration, ordering, and paying for tickets.
- b) Design.
The process of making the data structure used, interface representation, and coding procedures. This stage is a representation of the needs analysis which can later be implemented in the next stage. The resulting database design is in the form of ERD (Entity Relationship Diagram) and LRS (Logical Record Structure) and website navigation structure design in the form of admin navigation structure, customer navigation structure, visitor navigation structure.
- c) Coding.
At this stage is the translation of the design that has been made. The result of this stage is a website using programming languages, namely HTML, CSS, PHP,



JavaScript, JQuery using the CodeIgniter framework and using a Mysql database that is in accordance with the design made in the previous stage.

d) Testing.

Next, the author tested with blackbox testing for the admin section in the form of a login form, a category added form, a category change form, a departure date added form, a departure date change form, a package add form, a package change form, a payment detail form, a printed transaction report form, a form edit admin profile, change admin password form, add admin form, forgot admin password form. Meanwhile, for testing on the user side also using blackbox testing in the form of a user login form, member list form, user forgot password form, ticket order form, ticket order detail form, payment form, member profile change form, member password form. To create a ticket booking information system. Testing must go well and ensure the results are in accordance with the requirements of the buyer.

e) Maintenance.

The last is the maintenance or maintenance phase, at this stage changes are made to the system if an error occurs and the results do not match the results obtained during the testing phase.

The data collection stage used in this study is divided into three stages, namely:

a) Observation.

Make direct observations of activities and websites that exist in PT. Qonita Zikra Semesta includes registration, ordering, payment, to financial reports and tickets sold.

b) Interview.

Direct interviews with IT staff, namely Mr. Danang Dwi Harmoko, who are authorized, such as asking about the ticket sales process system at PT. Qonita Zikra universe to obtain information about the system that is running.

c) Literature Study.

Studying journals and various reference books related to the issues to be discussed and assisting in drafting writing concepts.

3. Results and Discussion

3.1. Needs Analysis

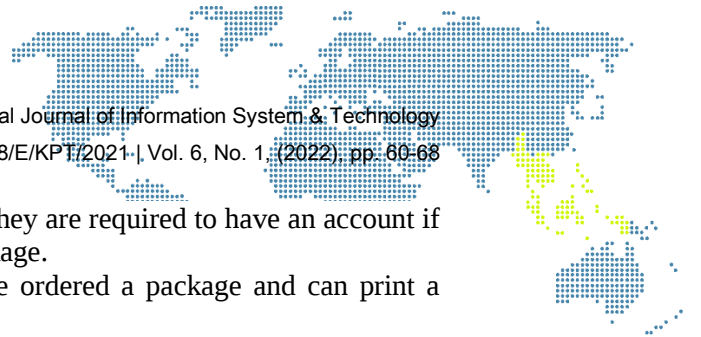
This website-based online ticket booking information system can be used by the public in finding information about hajj, umrah or tour travel, ordering tickets directly and without having to come to the place and being able to confirm quickly. In the analysis of this need can be divided into three users, namely as admin, customer, visitor. The admin needs for using this online ticket booking system are as follows:

A. Admin Needs

- 1) Admins can add, edit, delete products on the packages and also available departure schedules but are required to login with the admin account.
- 2) Admin can see customers who have registered such as names, phone numbers and addresses, and can delete customers that do not match.
- 3) Admin can see ticket orders made by customers such as the name of the package purchased and the name of the passenger who bought the ticket.
- 4) Admin can see payments made by customers and can input payment status.
- 5) Admin can make reports based on the date period input by the admin.

B. Customer Needs

- 1) Customers can see the contents and overall appearance of the website.
- 2) Customers can view existing menus, products and product details available with certain package terms and conditions.



- 3) Customers register to order tickets because they are required to have an account if they want to order tickets in the desired package.
- 4) Customers can make payments if they have ordered a package and can print a note at the time of ordering.

C. Visitor Needs

- 1) Visitors can see the content and overall appearance of the website.
- 2) Visitors can see the existing menu, product and package details available as well as the terms and conditions of the package.

3.2. Document Design

The draft document consists of input documents and output documents which are arranged and used in this ticket ordering system.

A. Draft Document Input

The form of the input document is all the documents that are entered and required in the system, the following are the available input documents:

Document Name	: Customer registration form.
Function	: To log in if you want to do ticket reservations.
Source	: System.
Purpose	: Customers.
Media	: Web.
Quantity	: 1 page.
Frequency	: Every customer who doesn't have an account yet.
Format	: Appendix A.1.

B. Draft Output Document

The form of the output document is a document issued by the system and is intended as a report, here are the output documents produced:

Document Name	: Package order note.
Function	: As proof of ordering the desired package
Source	: System.
Purpose	: Customers.
Media	: Web.
Quantity	: 1 page.
Frequency	: Customers who have already placed an order.
Format	: Appendix B.1.

3.3 ERD (Entity Relationship Diagram)

The database system design produces related tables which are described based on the Entity Relationship Diagram (ERD) and Logical Relational Structure (LRS) models. The following is an example of making a database system from a travel ticket booking system at PT. Qonita Zikra Universe.

3.4. Implementation

In this stage the authors carry out implementation based on the designs made and aims to find out whether the resulting system can be in accordance with the design that has been made.



Figure 1. Home Page (User)

On this home page, the user can see the menu on the topbar in the form of the homepage, gallery, facilities, and services, see the initial appearances on the user's website page.



Figure 2. Gallery Page (User)

On this gallery page, users can see photos and videos of customer testimonials.



Figure 3. Facility Page (User)

On the facilities page, the user can see the facilities provided by the company



Figure 4. Hajj Service Page (User)

The Hajj service page contains information about facilities, requirements, accommodation, costs not covered and travel plans and can order tickets for the Hajj service.



Figure 5. Umrah Service Page (User)

his page contains a list of available Umrah packages.



Figure 6. Umrah Package Details Page (User)

The Umrah package detail page contains complete information on Umrah packages provided by the company such as accommodation information, facility information, and include/exclude package information, and you can also order tickets.



Figure 7. Tour Service Page (User)

This page contains a list of available tour packages.

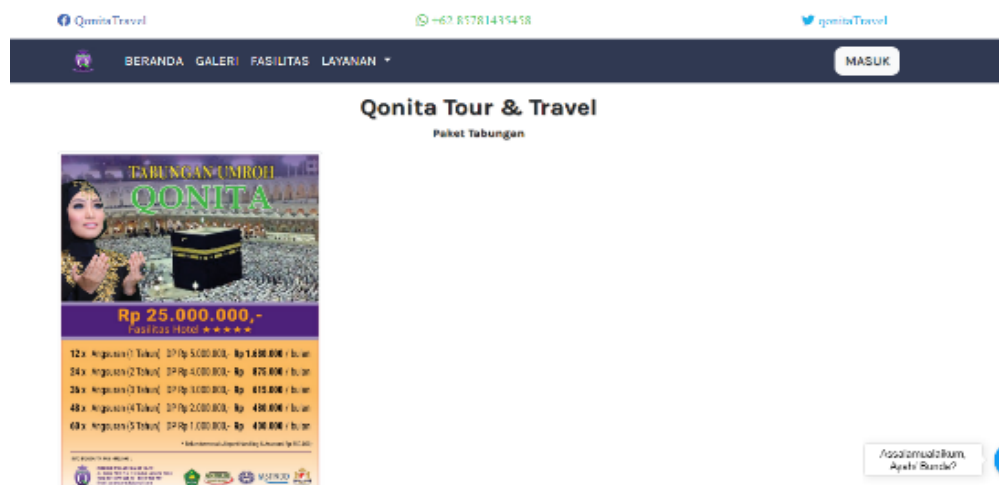


Figure 8. Tour Package Details Page (User)

This tour package detail page contains complete information on tour packages provided by the company such as accommodation information, facility information, travel destination information, and package information including/excludes, and you can also order tickets.



Figure 9. Savings Service Page (User)

This page contains a list of available savings packages.

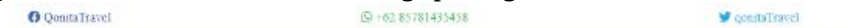


Figure 10. Savings Package Details page (User)

This page contains information for using travel with a saving system.

4. Conclusion

This online travel ticket booking feature can avoid illegal transactions, because the data that must be entered must be with real data. With this online travel ticket booking system, it can also avoid the accumulation of documents, damaged documents, burned documents, duplication of orders, loss of ordering documents, document falsification and late reports because all these data have been entered into the system by storing them in the database.

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