

Pet Service Information System Using the Rational Unified Process Method (Case Study on One of The Pet Shop in Bandung)

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Abstract

Pet ownership is prevalent in the present period, and Pet Shops are enterprises that have arisen in conjunction with this phenomenon. One of The Pet Shop in Bandung is a small to medium-sized firm that caters to pet aficionados by offering a wide range of pet goods, including food and grooming services. One of The Pet Shop in Bandung has faced various obstacles in its business operations, such as inadequate documentation of item availability and insufficient product information provided to clients.

In order to tackle these difficulties, the researcher utilized the Rational Unified Process (RUP) methodology to construct a website for One of The Pet Shop in Bandung. The RUP technique is appropriate for this research because it incorporates user perspectives throughout every stage. The website underwent Usability Testing with five user responders utilizing the System Usability Scale questionnaire. The questionnaire assessment utilizing the Likert scale and Usability measurement yielded a score of 72%, signifying its appropriateness..

Keywords : Rational Unified Process, Website, Pet shop

INTRODUCTION

Pet shops are retail establishments that offer a wide range of pet goods and services related to pet care. Pet requirements encompass sustenance, cleanliness apparatus, adornments, supplements, and pharmaceuticals. The usual range of services provided includes medical examinations, grooming, sterilization, accommodation, and pet care.

One of The Pet Shop in Bandung is a small to medium-sized firm that caters to pet aficionados by offering a range of pet goods, including food and grooming services. One of The Pet Shop in Bandung is situated on Bojong Koneng Street in Rancamanyar, Bandung Regency.

One of The Pet Shop in Bandung is currently grappling with two main challenges. Firstly, there needs to be a solution to the inventory

tracking system, leading to delays in its company operations. Secondly, there needs to be more information regarding the products offered by One of The Pet Shop in Bandung. One of The Pet Shop in Bandung continues to rely on traditional methods for selling goods and services.

System

The system comprises three components: input, process, and output. Input is the primary catalyst or source of energy that propels the functioning of a system, while output signifies the desired outcome or objective of the system's operation. The process refers to the specific actions or operations that convert the input into the desired output. (Morkevicius et al., 2017)

Data

Information refers to data that has undergone processing to become valuable and is

advantageous in making decisions. (Joseph Christianto et al., 2022)

Data processing requires information to adhere to specific requirements, including timeliness, relevance, and reliability. (Luo et al., 2019)

An information system is a complex network of interconnected components that gather, manipulate, retain, and disseminate data to facilitate organizational decision-making and oversight. An information system integrates diverse elements such as hardware, software, network devices, cognition, and data. This integration enables the system to be utilized to organize, manipulate, oversee, and improveization. (Zhou et al., 2020)

Website

A website is a network of interconnected web pages that store and provide information accessible to everyone worldwide, as long as they have an internet connection. The website consists of interlinked structures, each including pages that display various types of data such as text, images, animations, sound, and videos. These structures are linked together using hyperlinks. (Alzahrani et al., 2019)

Bootstrap 5

Bootstrap is a pre-built software program used to design a website's visual layout and style. The Bootstrap package comprises a collection of CSS files, fonts, and JavaScript. Bootstrap is precisely engineered to streamline the website design process for users of all proficiency levels, ranging from novices to experts. The attractiveness of Bootstrap stems from its user-friendly nature, functionality, uncluttered and straightforward arrangement, aesthetically

pleasing design, and contemporary aesthetic (Nili et al., 2017)

The Rational Unified Process (RUP)

The Rational Unified Process (RUP) is a framework for conducting requirements engineering activities. The main objective of the RUP standard is to guarantee the delivery of superior-quality software to the user.

Evaluation of User Experience

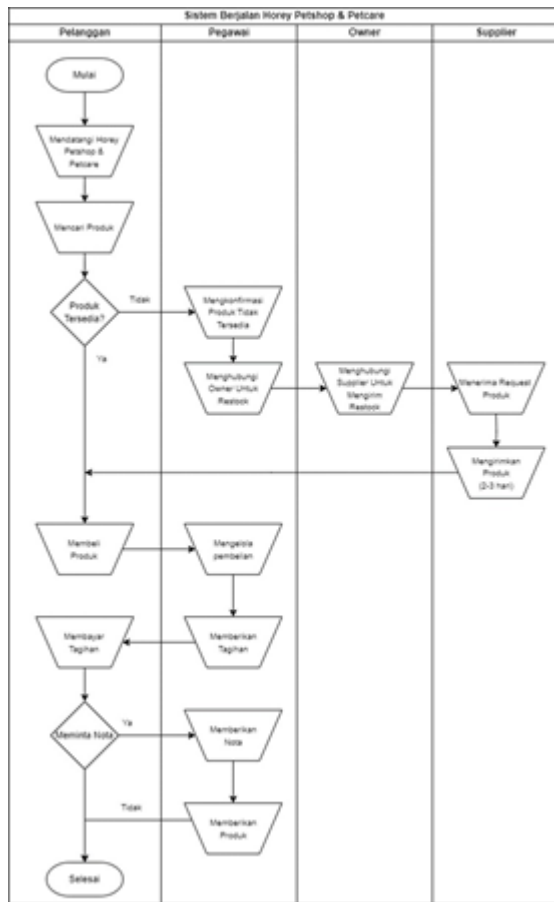
Usability Testing, also known as User Evaluation, is a testing procedure that requires users to acquire knowledge and utilize a product. This approach aims to attain user comfort factors such as efficacy, productivity, and overall user contentment with the system. (Ilie & Turel, 2020; Shafiee et al., 2020)

Given the problems above and the data, the author's objective is to develop a pet service system on a website, employing the Rational Unified Process methodology. The Rational Unified Process (RUP) is a methodology that incorporates user viewpoints across all stages of system development to create a system that fulfills user requirements. The objective is to aid One of The Pet Shop in Bandung in effectively overseeing its operations and enabling pet owners to conveniently access essential pet services via internet connections and smart devices.

METHOD

a) Conducting System Analysis

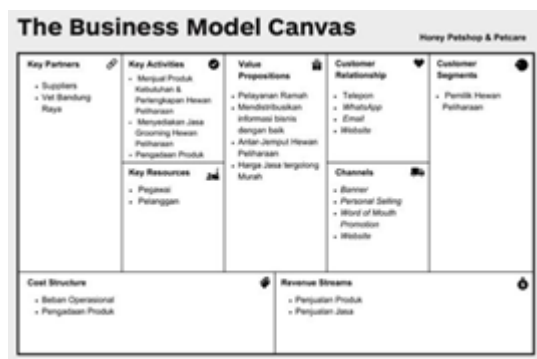
The subsequent text illustrates the sequential progression of operations occurring at One of The Pet Shop in Bandung:



b) Commencement

There are multiple Rational Unified Process (RUP) procedures during the conception stage. These include building a Business Model to represent the necessary business activities for One of The Pet Shop in Bandung and specifying the system requirements.

i. Business Models



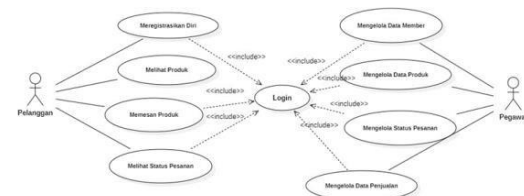
The data utilized in this research comprises vital activities, customer relationships, and channels, as indicated in the provided business model canvas.

ii. System Requirements

The discovered system requirements resulting from the current system analysis process and earlier modeling are presented in the following table.

No	Kebutuhan Fungsional	Aktor
1.	Melakukan pendaftaran sebagai member	Pelanggan
2.	Mendapatkan informasi ketersediaan produk kebutuhan hewan peliharaan	Pelanggan
3.	Memesan produk kebutuhan hewan peliharaan	Pelanggan
4.	Mendapatkan informasi status pesanan	Pelanggan
5.	Mengelola data member	Pegawai
6.	Mengelola data ketersediaan produk	Pegawai
7.	Mengelola status pesanan	Pegawai
8.	Mengelola data penjualan	Pegawai

iii. Analysis and Design

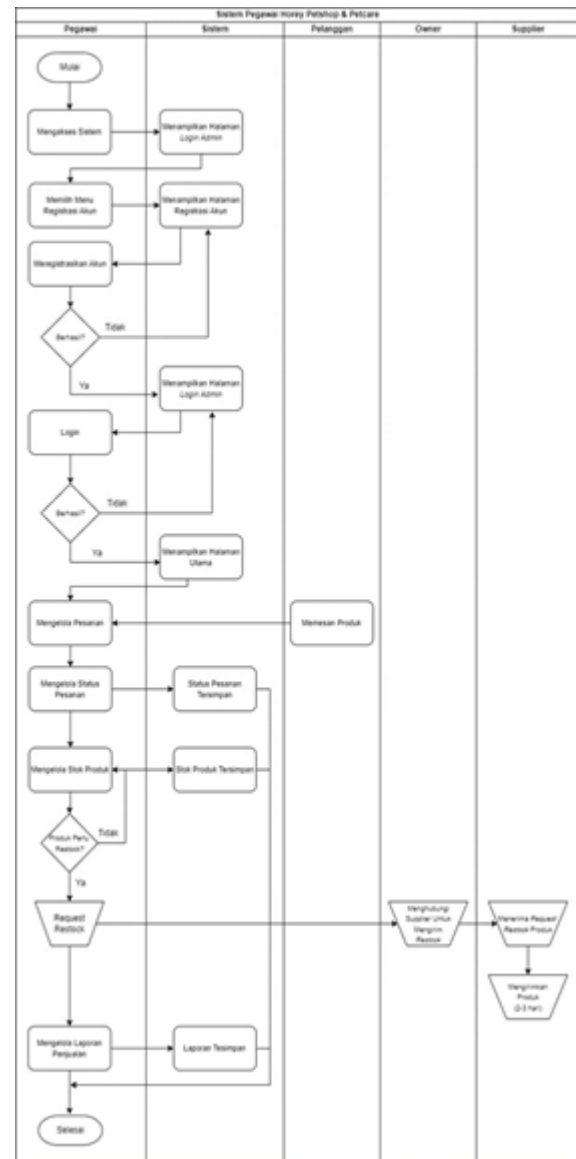
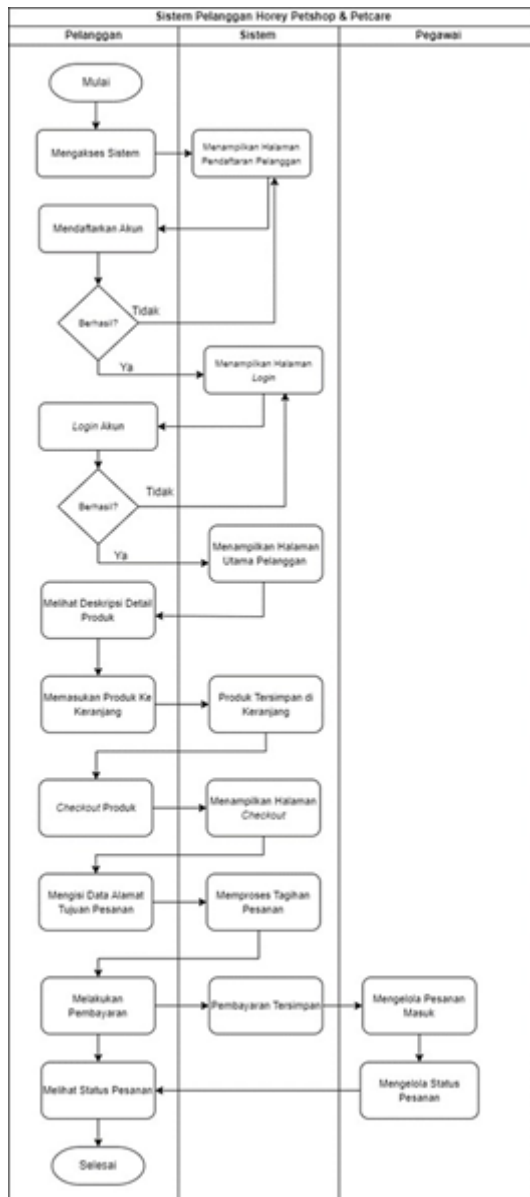


The analysis conducted during the Inception stage is represented by a use case diagram, as depicted in the image above. This design comprises two entities, specifically Customers and Employees. The two actors engage in distinct activities based on their requirements.

c) Elaboration

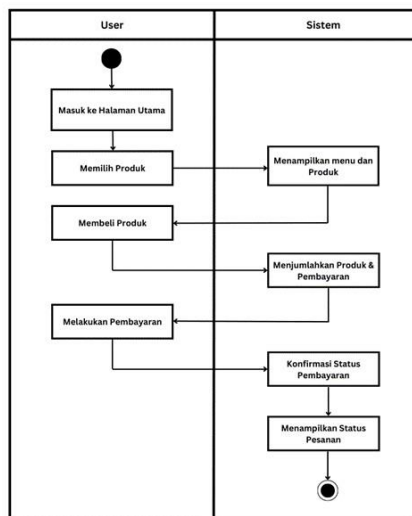
The Elaboration stage is dedicated to systematically planning system design, utilizing the outcomes of the preceding stages. This stage encompasses UML modeling, system component design, database design, and user interface design.

i. Customer System Flowchart

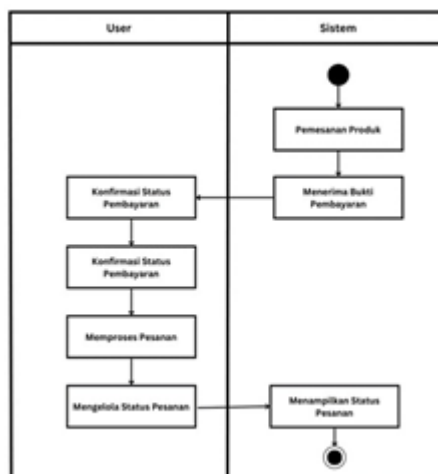


ii. Employee System Flowchart

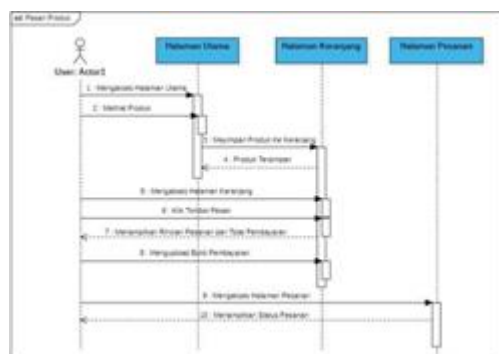
iii. Customer Activity Diagram



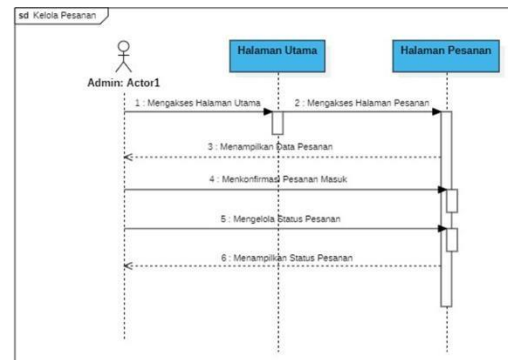
iv. Employee Activity Diagram



v. Customer Sequence Diagram



vi. Employee Sequence Diagram



vii. Class Diagrams

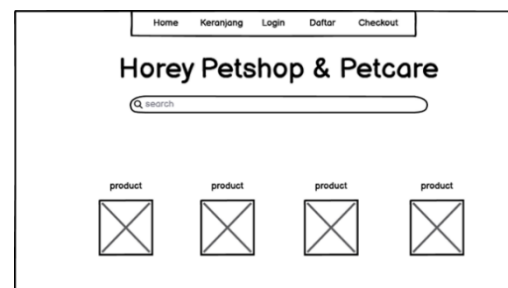


viii. Database Design

No	Elemen Data	Nama Field	Type	Size	Keterangan
1.	Id pelanggan	id_admin	int	11	Primary Key
2.	Nama	nama_pelanggan	varchar	100	
3.	Email	email	varchar	100	
4.	Password	password	varchar	25	
5.	No Telfon	no_telfon	varchar	100	
6.	Alamat	alamat	text		

No	Elemen Data	Nama Field	Type	Size	Keterangan
1.	Id produk	id_produk	int	11	Primary Key
2.	Id kategori	id_kategori	int	11	
3.	Nama produk	nama_produk	varchar	100	
4.	Harga	harga_produk	int	11	
5.	Berat	berat_produk	int	11	
6.	Deskripsi	deskripsi_produk	text		
7.	Stok	stok_produk	int	5	

ix. User Interface



Horey Admin Home Data Admin Produk Kategori Pembelian Laporan Pelanggan Logout	Data Produk													
	<table border="1"> <thead> <tr> <th>No</th> <th>Nama Produk</th> <th>Kategori</th> <th>Berat</th> <th>Foto</th> <th>Stok</th> <th>Aksi</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Whiskas</td> <td>Food</td> <td>1000g</td> <td></td> <td>30</td> <td> Edit Hapus Tambah </td> </tr> </tbody> </table>	No	Nama Produk	Kategori	Berat	Foto	Stok	Aksi	1.	Whiskas	Food	1000g		30
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1.	Whiskas	Food	1000g		30	Edit Hapus Tambah								

RESULT AND DISCUSSION

System Implementation

Construction



Customer System View

Horey Admin Home Data Admin Produk Kategori Pembelian Laporan Pelanggan Logout	Data Produk																																							
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Employee System View

Transition

This stage represents the ultimate phase in the Rational Unified Process (RUP) methodology. The Transition Phase is dedicated to the execution and evaluation of the system that has been developed.

i. Hardware Specifications

Perangkat Keras	Pegawai	Pelanggan
Processor	Intel Pentium IV 1,8 GHz	Intel Pentium IV 1,8 GHz
RAM	512MB	512MB
Monitor	LCD 14"	LCD 14"
Hard Disk	100 GB	20 GB
Keyboard	Ya	Ya
Mouse	Ya	Ya
Printer	Ya	Tidak
Modem	Ya	Ya

ii. Software Specifications

Perangkat Lunak	Pegawai	Pelanggan
Sistem Operasi	Microsoft Windows XP	Microsoft Windows XP
DBMS	MySQL 10.1.10	-
Web Server	Apache	-
Web Browser	Google Chrome, Mozilla Firefox, dan lain-lain	Google Chrome, Mozilla Firefox, dan lain-lain

iii. Testing

The testing procedure involved utilizing the five samples with the established technique and completing the SUS questionnaire. The test findings obtained using the System Usability Scale (SUS) are as follows:

Table 1. Respondent Scale Values

Responden	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Responden 1	3	3	5	2	4	2	4	2	4	3
Responden 2	4	2	4	2	4	2	4	1	4	3
Responden 3	3	2	4	3	4	3	5	2	4	3
Responden 4	5	2	5	3	4	2	5	2	4	4
Responden 5	3	2	5	2	4	2	5	2	3	3

Table 2. Data from SUS calculation results

Responden	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Jml	Jml x 2,5
Responden 1	2	2	4	3	3	3	3	3	1	28	70	
Responden 2	3	3	3	3	3	3	4	3	2	30	75	
Responden 3	2	3	3	2	3	2	4	3	3	27	67,5	
Responden 4	4	3	4	2	3	3	4	3	1	30	75	
Responden 5	2	3	4	3	3	3	4	3	2	29	72,5	
Total											360	

Upon utilizing the SUS provisions, the value data is processed. The subsequent step is determining the mean SUS value via the subsequent formula:

$$\text{Nilai rata-rata SUS} = \frac{\text{Jumlah skor SUS}}{\text{Jumlah responden}}$$

The average SUS score, calculated by dividing the total SUS score of 360 by the number of respondents (5), is 72. A score of 72

in the SUS assessment falls under the "Acceptable Good" category.

CONCLUSION

Based on the research completed at One of The Pet Shop in Bandung, as well as the prior discussion, numerous inferences can be made:

The created pet care service system can effectively handle problems related to neglect and delays in stocking products. This is accomplished by utilizing functionality that connects sales data with the inventory of products that are currently accessible.

The system has effectively addressed the issue of inadequate and easily obtainable information for clients. The system offers complete information on the products available at One of The Pet Shop in Bandung.

The Rational Unified Process development technique has demonstrated efficacy in generating a system that scored 72, denoting "Acceptable Good," through testing with the Usability Testing and System Usability Scale methodology. This indicates that users experience a sense of ease and contentment with the constructed system.

Here are some recommendations that may facilitate the advancement of the system in future investigations:

The next step in system development could involve incorporating supplementary features to enhance the user experience further.

Implementing a mobile application seamlessly integrated with the website system can enhance the adaptability and ease of use.

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