Vol. 5 No. 2
August 2021

ISSN 2549-6824 (Online)
ISSN 2580-409X (Print)

INTENSIF

Jurnal Ilmiah
Penelitian Teknologi dan Penerapan Sistem Informasi

Program Studi Sistem Informasi
Fakultas Teknik
Universitas Nusantara PGRI Kediri

Editorial Board

INTENSIF: Jurnal Ilmiah Penelitian dan Penerapan Teknologi Sistem Informasi
Vol. 5 No. 2 August 2021 | ISSN 2549-6824 (Online) | ISSN 2580-409X (Print)

Editor In Chief :
Sucipto, M.Kom [Scopus]
Universitas Nusantara PGRI Kediri

Section Editors :
Teguh Andriyanto, S.T., M.Cs [Scopus]
Universitas Nusantara PGRI Kediri
Rini Indriati, M.Kom
Universitas Nusantara PGRI Kediri
Dr. Arta Moro Sundjaja, MM [Scopus]
Bina Nusantara University, Indonesia
Feri Wibowo, M.Cs [Scopus]
Universitas Muhammdiyah Purwokerto
Siti Mutrofin, M.Kom [Scopus]
Universitas Pesantren Tinggi Darul Ulum
Anik Vega Vitianingsih, S.Kom., M.T [Scopus]
Universitas Dr.Soetomo Surabaya
Anis Rahmawati Amna, MBA., M.Kom [Scopus]
Universitas 17 Agustus 1945 Surabaya

Reviewers :
Dr. Azhari SN [Scopus]
Universitas Gadjah Mada
Wayan Firdaus Mahmudy, S.Si, M.T, Ph.D [Scopus]
Universitas Brawijaya
Robbi Rahim, M.Kom [Scopus]
Sekolah Tinggi Ilmu Manajemen Sukma
Uky Yudatama, M.Kom [Scopus]
Universitas Muhammadiyah Magelang
Emil R. Kaburuan, Ph.D [Scopus]
Universitas Informatika Dan Bisnis Indonesia
Aidina Ristyawan, M.Kom
Universitas Nusantara PGRI Kediri
Erna Daniati, M.Kom [Scopus]
Universitas Nusantara PGRI Kediri
Anita Sari Wardani, M.Kom
Universitas Nusantara PGRI Kediri
Ervin Kusuma Dewi, M.Cs [Scopus]
Universitas Nusantara PGRI Kediri
Arie Nugroho, S.Kom., M.M [Scopus]
Universitas Nusantara PGRI Kediri
Muhammad Qomarul Huda, M.Kom [Scopus]
Universitas Islam Negeri Syarif Hidayatullah Jakarta
Johan Reimon Batmetan, MT.,ITILF [Scopus]
Universitas Negeri Manado
Dra. Erna Budhiarti Nababan, M.IT, PhD [Scopus]
Universitas Sumatera Utara Medan
Heliza Rahmania Hatta, M.Kom [Scopus]
Universitas Mulawarman

Sulfikar Sallu, M.Kom., ITIL., MTA [Scopus]
Universitas Sembilanbelas November Kolaka
Johannes Hamonangan Siregar, Ph.D [Scopus]
Universitas Pembangunan Jaya
Renny Sari Dewi, M.Kom [Scopus]
Universitas Internasional Semen Indonesia
Agus Hermanto, S.Kom, M.MT, ITIL, COBIT [Scopus]
Universitas 17 Agustus 1945 Surabaya
Agustinus Fritz Wijaya, S.Kom., M.Cs., GCE. [Scopus]
Universitas Kristen Satya Wacana
Falahah, S.Si., MT [Scopus]
Universitas Widyatama
Dr. Hartarto Junaedi, M.Kom [Scopus]
Sekolah Tinggi Teknik Surabaya
Adhi Rizal, S.Pd., MT [Scopus]
Universitas Singaperbangsa Karawang
Ahmad Habib, S.Kom., MM [Scopus]
Universitas 17 Agustus 1945 Surabaya
Ilham, M.Kom [Scopus]
Universitas Islam Negeri Sunan Ampel Surabaya
Ripto Mukti Wibowo, S.Kom.,M.Eng
Harbin University of Science and Technology
Siska Komala Sari, S.T., M.T
Universitas Telkom
Wawa Wikusna, M.Kom
Universitas Telkom
Titus Kristanto, M.Kom
Institut Teknologi Telkom Surabaya

Published by Universitas Nusantara PGRI Kediri
Managed by Program Studi Sistem Informasi Fakultas Teknik Universitas Nusantara PGRI Kediri
Address Jl. Mojoroto Gg.I No.6 Mojoroto Kampus II Universitas Nusantara PGRI Kediri 64112
Website ojs.unpkediri.ac.id/index.php/intensif
Email intensif@unpkediri.ac.id

INTENSIF is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Table of Contents

INTENSIF: Jurnal Ilmiah Penelitian dan Penerapan Teknologi Sistem Informasi
Vol. 5 No. 2 August 2021 | ISSN 2549-6824 (Online) | ISSN 2580-409X (Print)

Title: The Natural Disaster Prone Index Map Model in Indonesia Using the Thiessen Polygon Method **DOI:** https://doi.org/10.29407/intensif.v5i2.14612 **Authors:** Kevin Hendra William, Kristoko Dwi Hutomo	148-160
Title: Disease Detection of Dragon Fruit Stem Based on The Combined Features of Color and Texture **DOI:** https://doi.org/10.29407/intensif.v5i2.15287 **Authors:** Lutfi Hakim, Sepyan Purnama Kristanto, Dianni Yusuf, Mohammad Nur Shodiq, Wahyu Ade Setiawan	161-175
Title: Semi-Adaptive Control Systems on Self-Balancing Robot using Artificial Neural Networks **DOI:** https://doi.org/10.29407/intensif.v5i2.15296 **Authors:** Eko Setiawan, Dahnial Syauqy	176-192
Title: 3 Dimensional Dynamic Map on Buildings at University of Darussalam Gontor Based on Augmented Reality **DOI:** https://doi.org/10.29407/intensif.v5i2.15327 **Authors:** Faisal Reza Pradhana, Taufiqurrahman Taufiqurrahman, Ady Fauzan	193-205
Title: Learning at Home During the Covid-19 Pandemic by Optimizing Video Based Tutorials **DOI:** https://doi.org/10.29407/intensif.v5i2.15348 **Authors:** Muhammad Sholeh, Suraya Suraya, Dina Andayani	206-217
Title: A Website-based Information System Design of SME Development Facilitation Registration **DOI:** https://doi.org/10.29407/intensif.v5i2.15399 **Authors:** Iman Sudirman, Indryati Sunaryo, Atya Aisha, Joe Monang, Ilham Reza Prasetyo	218-233
Title: Analysis of Functional Suitability and Usability in Sales Order Procedure to Determine Management Information System Quality **DOI:** https://doi.org/10.29407/intensif.v5i2.15537 **Authors:** Sri Ariyani, Made Sudarma, Putu Aryasuta Wicaksana	234-248
Title: Implementation of the Rational Unified Process (RUP) Model in Design Planning of Sales Order Management System **DOI:** https://doi.org/10.29407/intensif.v5i2.15543 **Authors:** Made Sudarma, Sri Ariyani, Putu Aryasuta Wicaksana	249-265
Title: Geographic Information Systems Application to Drought Distribution Identification with Standardized Precipitation Index (SPI) Method in Trenggalek Regency **DOI:** https://doi.org/10.29407/intensif.v5i2.15645 **Authors:** Aditya Utama, Mohammad Pramono Hadi, Emilya Nurjani	266-278
Title: Design of Checkers Game Using Alpha-Beta Pruning Algorithm **DOI:** https://doi.org/10.29407/intensif.v5i2.15863 **Authors:** Achmad Naufal Wijaya Jofanda, Mohamad Yasin	279-295

INTENSIF is licensed under a Creative Commons Attribution-Share Alike 4.0 International License.

INTENSIF, Vol.5 No.2 August 2021
ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

Implementation of the Rational Unified Process (RUP) Model in Design Planning of Sales Order Management System

Implementasi Model Rational Unified Process (RUP) Dalam Perencanaan Desain Sistem Manajemen Sales Order

Received:
8 January 2021
Revised:
17 July 2021
Published:
8 August 2021

[1]*Made Sudarma, [2]Sri Ariyani, [3]Putu Aryasuta Wicaksana
[1,2,3] Departement of Electrical and Computer Engineering, Post Graduate Program, Udayana University
[1,2]Denpasar, Indonesia
E-mail: [1]msudarma@unud.ac.id, [2]sriariyani@unud.ac.id, [3]aryasutawicaksana@gmail.com

*Corresponding Author

Abstract— Sales order documents at retail companies are a very important procedure in the project or work initialization process. However, the management of the sales order which is still done manually creates several problems in the process. This research will try to offer a solution by building a sales order management system that is developed by applying the Rational Unified Process (RUP) method. 4 stages in the RUP must be carried out, namely: the initial stage, the elaboration stage, the construction stage, and the transition stage. To reduce the risk of changes desired by the user, testing is carried out at the end of each phase. The results of this study have succeeded in building an SO management system where each feature designed is successfully implemented, which is indicated by the results of measuring the functional suitability of the system at each stage getting a value of 1.

Keyword— Information System, Rational Unified Process (RUP), Sales Order Management System.

Abstrak— *Dokumen sales order pada perusahaan ritel merupakan prosedur yang sangat penting dalam proses inisialisasi proyek atau pekerjaan. Namun pengelolaan sales order yang masih dilakukan secara manual menimbulkan beberapa kendala dalam prosesnya. Penelitian ini akan mencoba menawarkan solusi dengan membangun sistem manajemen pesanan penjualan yang dikembangkan dengan menerapkan metode Rational Unified Process (RUP). Ada 4 tahapan dalam RUP yang harus dilakukan yaitu: tahapan awal, tahapan elaborasi, tahapan konstruksi dan tahapan transisi. Untuk mengurangi risiko perubahan yang diinginkan oleh pengguna, pengujian dilakukan pada akhir setiap fase. Hasil dari penelitian ini telah berhasil membangun sebuah sistem manajemen SO dimana setiap fitur yang dirancang adalah fitur yang berhasil, yang ditunjukkan dengan hasil pengukuran kesesuaian fungsional sistem pada setiap tahapan mendapatkan nilai 1.*

Kata Kunci— *Information System, Rational Unified Process (RUP), Sales Order Management System.*

INTENSIF, Vol.5 No.2 August 2021
ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

I. INTRODUCTION

PT. Bali Yoni Saguna is a company engaged in Information and Communication Technology (ICT). In its business activities, of course, PT. Bali Yoni Saguna has a procedure that must be done, one example is Sales Order (SO). In carrying out a sale or project, internally it will always begin with a sales order document made by the marketing division which is then forwarded to the sales admin and warehouse divisions. Currently, the procedure is still done manually and no system can handle the procedure of sales orders, so some problems often occur such as loss of sales order documents due to storing hard copy documents, then it is difficult to monitor and supervise the process of sales orders, then wasteful of paper and ink because in carrying out a job one must print a minimum of 4 sales order documents to be forwarded to divisions that need them. The current manual system creates many problems as previously mentioned, and looks ineffective, inefficient, and requires excessive or wasteful resources. So in this study will establish a web base sales order management system that is expected to be the solution to existing problems.

The use of information technology is a solution that has proven to be very effective. Even the use of information technology has become a necessity, including in world business. With technology, information can be obtained quickly and accurately, and with fast and accurate information it can be an added value that can make a company superior to other companies [1]. Developing an information system that is good and has quality, can be achieved by using a methodology or framework [2]. Several methods are widely used in developing an information system, for example, the use of the Waterfall method in developing an industrial geographic information system in Tegal Regency [3], the application of the waterfall method to an inventory information system [4], and the use of the waterfall method in developing a monitoring and evaluation system for village development [5]. Then other methods such as the SDLC (System Development Life Cycle) method in designing a web-based course registration system simulation [6] and the development of school information applications based on the short message service gateway [7]. In addition to the two methods mentioned, there are also other methods such as the Scrum method in developing a test engine try-out certification [8] and Scrum modeling for the development of a health information system in the Ar-Rokhim Sragen clinic [9]. Then another method is the design sprint method or design thinking to develop a Covid-19 early detection information system [10]. From some of the studies mentioned, it can be concluded that developing an information system will become more structured when utilizing a methodology in its development. The use of methods can also simplify the process of analysis and design of

ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

information systems, but of course, each method will have its advantages and disadvantages in certain situations and conditions.

In this study, in developing a sales order management information system the method chosen is the Rational Unified Process (RUP). Of course, this method was chosen because it has advantages such as the RUP method that can be applied using a single developer [11]. In previous research, the RUP method was used in developing a Web-based E-Kos information system [11], where there are 4 phases carried out, namely inception, elaboration, construction, and transition. So that the result is an E-Kos information system that helps to board house owners in promoting boarding houses and makes it easier for students to find boarding houses. Another advantage of the RUP method is that it can anticipate a less detailed definition of system requirements at an early stage [12]. In previous research, namely the application of RUP in the development of a medical check-up information system, the anticipation of a less detailed definition of needs can be overcome by conducting tests at the end of each phase of the RUP. Another related research is the design of a new grave ordering information system using the Rational Unified Process method [13], the research conducted at the Joglo Public Cemetery in West Jakarta begins with a process of observation and interviews with employees who are directly involved in grave ordering activities which are then continued on the stages in the RUP. Another study was to study conducted a comparison between the RUP model and the Prototype method [14], From this research, the RUP method is felt to be very suitable for object-oriented system development and the use of the RUP method can accept changes to improve existing prototypes so that they can produce an acceptable system, and the changes that occur are considered as part of the development process itself. Next is research on the development of a web-based building rental information system with the RUP method which was carried out at Wisma Rata Medan [15], with the phases carried out are the inception, elaboration, construction, and transition phases. The results in this study that the building rental information system that was built was well received by its users based on tests carried out on five respondents from each actor. The next related research is the development of an Android-based color blind test simulation application with the Ishihara method [16], In this study, the application design method used is the RUP method. The purpose of this research is to make it easier for users to do a color blind test that can be done independently.

Based on previous studies, this study in developing a sales order management information system will use an information system development methodology. The method chosen is the Rational Unified Process (RUP) method, this method was chosen because it is considered following the current conditions and has advantages as previously mentioned.

INTENSIF, Vol.5 No.2 August 2021
ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

II. RESEARCH METHOD

The sales order management information system built is a web-based application built using the Rational Unified Process method which consists of 4 phases, namely inception, elaboration, construction, and transition.

A. Rational Unified Process (RUP).

Rational Unified Process (RUP), is a method in software development developed by Rational Software with an iterative approach and uses use cases [17]. Basically RUP is a structured software engineering process with 4 phases in it, namely inception, elaboration, construction, and transition, which is generally depicted in Figure 1 below.

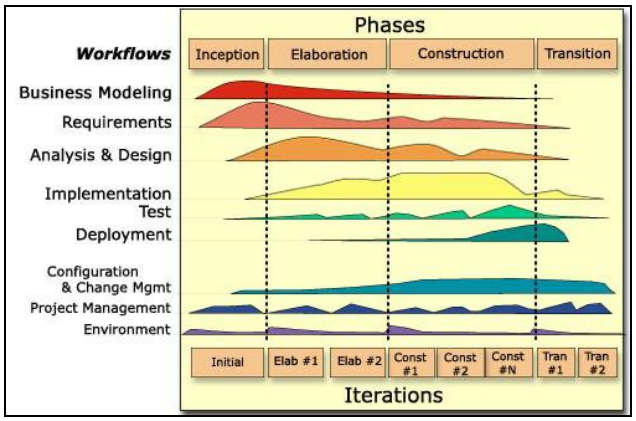

Figure 1. RUP ARCHITECTURE

The RUP method is also a software development method that prioritizes user satisfaction so that in the development process the developer will interact with users more often, and users can be directly involved in the development process [18]. The four phases that must be carried out in the RUP are:

1. Inception.

   At this stage, it is more on modeling the required business processes, defining the system requirements to be made, and the analysis and design process.

2. Elaboration

   At this stage more on system analysis and design and system implementation that focuses on system prototypes.

3. Construction

   At this stage, implementation is carried out in the form of program code or the process of realization of the analysis and design in the form of program code.

4. Transition

   At this stage, the deployment or system installation stage is understood by the user.

INTENSIF, Vol.5 No.2 August 2021
ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

Tests are carried out at the end of each RUP phase to anticipate the less detailed definition of system requirements at the initial stage. Testing at the end of the inception and elaboration stage is based on the actors involved and the actions or functions in the resulting use cases [15]. The test was carried out with a questionnaire prepared based on the use case and Guttman measurements which contained a firm statement from the respondent regarding good or bad, agree or disagree, appropriate or inappropriate. [19]. Testing at the stage before deployment, namely construction, is carried out by testing BlackBox testing [20]. And in this study, briefly the iterations carried out can be seen in Figure 2.

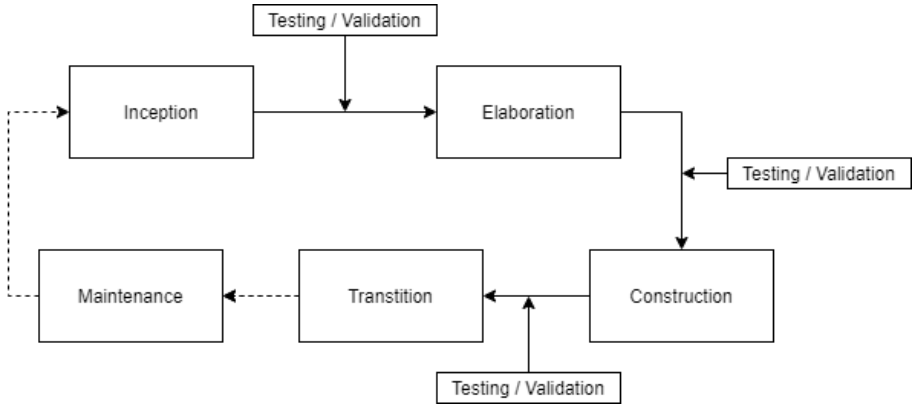

Figure 2. RESEARCH ITERATION

Each stage of testing uses a form, where the structure of the test form at each stage can be seen in Table 1, Table 2, and Table 3 respectively.

Table 1. INCEPTION STAGE VALIDATION FORM

Number	Required Functionality	Use Case			
		Actor1	***Actor2***	***Actor3***	***Actor...***
1	Required Functionality 1				
2	Required Functionality 2				
3	Required Functionality 3				
...	...				

Table 2. ELABORATION STAGE VALIDATION FORM

Number	User	Feature	Validation	
			Agree	***Disagree***
1	User 1	Feature 1.1		
2		Feature 1.2		
3		Feature 1.3		
...	...	...		

INTENSIF, Vol.5 No.2 August 2021
ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

Table 3. BLACKBOX TESTING FORM

Number	Function	Expected results	As Expected	Not As Expected
1	Function 1	Expecting Result		
2	Function 2	Expecting Result		
...	...	...		

III. RESULT AND DISCUSSION

A. Inception

In the inception phase, the processes carried out include business modeling, requirements, analysis and design, and the validation process.

1. Business Modelling

The business modeling process is carried out by creating a Business Modeling Canvas (BMC) which can be seen in Figure 3 below. Business modeling is done to determine the business processes and needs expected by users [21]. The business process at this stage is also carried out to determine and describe the business subject areas of existing functionality requirements. The selected subjects are used as the basis for determining the fact table in the next step [22].

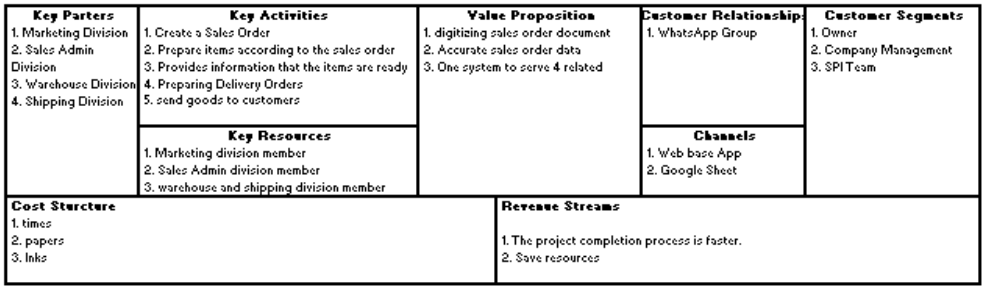

Figure 3. BUSINESS MODELLING

From the BMC in Figure 3, it can be seen that the key partners in the system to be built are the marketing division, sales admin, warehouse, and shipping division. And the key activity that can be done by the system is making sales orders, providing accurate information related to sales orders so that the division in charge of preparing goods can prepare goods according to sales orders and proceed to information on delivery of goods based on sales orders. This will reduce the cost of time and others. With the system, it will also provide value such as digitizing sales orders, and integrating the divisions mentioned earlier. Not only that, those who become consumers or who will benefit from this system are

ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

the company owners, management, and internal supervisory teams who can monitor the work of each division on project or work completion. Based on the BMC then translated into system requirements.

2. Requirements

The inception stage begins with a system requirements analysis by observing the sales order procedure and interviewing stakeholders to determine system functionality requirements. From the results of interviews and observations, it was found that the sales order procedure at PT. Bali Yoni Saguna, the divisions that are directly involved are the marketing division, sales admin, warehouse, and shipping division. Where is the procedure for sales orders at PT. Bali Yoni Saguna can be depicted in Figure 4 below. From the results of interviews and observations, it was also found that the sales order document will contain information such as the name of the customer, the delivery address, the name of the agency, the project number, and data on the ordered goods, such as quantity and price.

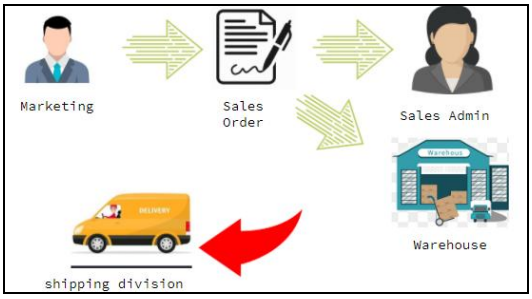

Figure 4. PROCESS OF SALES ORDER

So sales orders are made by the marketing division which will be forwarded to the sales admin and warehouse. The warehouse is in charge of preparing goods based on sales orders from marketing. When the items are ready, the sales admin will prepare the delivery order, then when the delivery order is ready, the delivery team will send the order to the customer. Based on this process, the system functional requirements of this study are in table 4 below.

Table 4. FUNCTIONALITY REQUIREMENTS OF THE SYSTEM

Number	Functionality Requirements	Actor
1	Manage user data (add, delete, update)	Administrator
2	Manage sales order data (add, update)	Marketing
3	Upload sales order documents	Marketing
4	Manage sales order data (Set status to "Preparing Items")	Warehouse
5	Manage sales order data (Set status to "Items Ready")	Warehouse
6	Manage sales order data (Set status to "create delivery orders")	Sales Admin
7	Manage sales order data (Set status to "Ready to ship")	Sales Admin
8	Manage sales order data (Set status to "Sent")	Shipping Division

INTENSIF, Vol.5 No.2 August 2021
ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

3. Analysis and Design

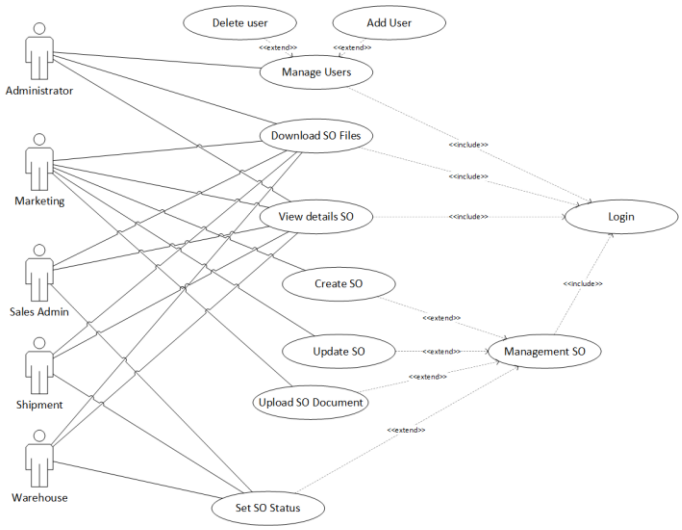

Figure 5. USE CASE DIAGRAM

The analysis and design at the inception stage are explained by the use case diagram in Figure 5. Where there are 5 actors, namely administrator, marketing, sales admin, warehouse, and shipping division who have access to the system functionality in table 4. From the use case diagram, each user must first login to be able to access the features of the system. Each user has different access rights on each feature according to the needs analysis. Each actor can access detailed features of SO and download SO files. The administrator has access rights to the user management feature which includes the features of adding users and deleting users. Sales admin, shipping, and warehouse actors can only change SO status, while marketing actors can access SO management such as creating SO data, and updating SO data.

4. Validation

Table 5. VALIDATION OF SYSTEM FUNCTIONALITY REQUIREMENTS

No	Functionality Requirements	Actor				
		A	***M***	***W***	***SA***	***SH***
1	Manage user data (add, delete, update)	√				
2	Manage sales order data (add, update)		√			
3	Upload sales order documents		√			
4	Manage sales order data (Set status to "Preparing Items")			√		

Table captions :
A: Administrator
M: Marketing
W: Warehouse
SA: Sales Admin
SH: Shipping Division

ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

Validation at the inception stage involved 5 respondents representing all actors taken from the head of each division. The validation results at the inception stage show that the use cases designed at this stage are following user needs. So the next process is to continue to the Elaboration phase.

B. Elaboration

After going through the inception phase, the next phase is the Elaboration phase. At this stage, the process carried out is the requirements, analysis and design, implementation, and validation processes.

1. Requirements

In the requirements process, there are additional functionality requirements in table 5 in the previous stage, namely the sales admin actor who can input the delivery order number.

2. Analysis and Design

The analysis and design process in the elaboration phase is explained by use case diagrams, activity diagrams, and ERD.

Use case diagrams in the elaboration stage are use case diagrams produced in the previous phase, namely the inception phase. And a review of user needs was carried out. After a review and needs analysis, it turned out that at this stage the sales admin division asked for additional features in sales order management. This feature is used for sales admins so that they can input the shipping label number which will later become the identity of the package before shipping. So that at this stage an update is made to the use case diagram that was previously made at the inception stage. So that we get a use case diagram at the elaboration stage which is described in Figure 6 below.

INTENSIF, Vol.5 No.2 August 2021
ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

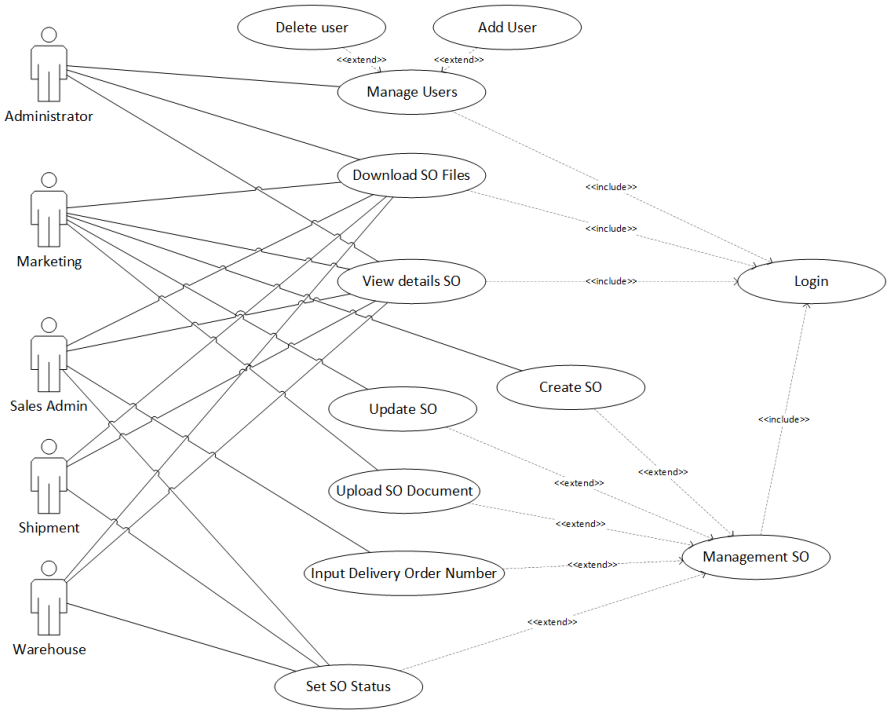

Figure 6. USE CASE DIAGRAM OF THE ELABORATION PHASE

Furthermore, a review of the use case diagram is carried out and no user needs are overlooked. After there are no additional features in the elaboration stage, it is continued in making activity diagrams of each actor, some of which can be seen in Figure 7 and Figure 8 below.

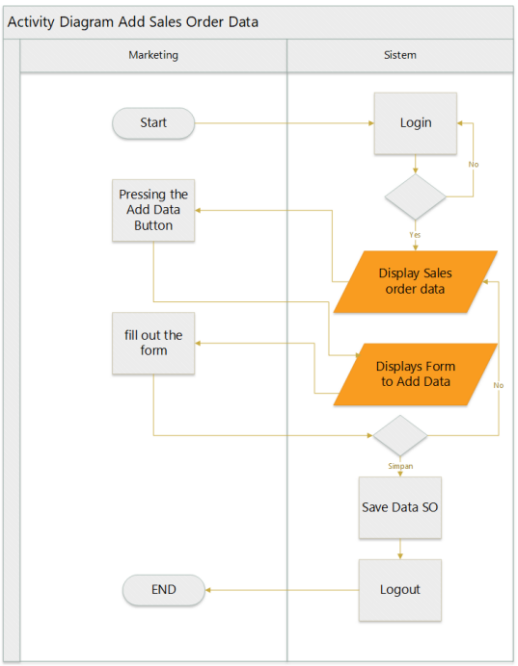

Figure 7. ACTIVITY DIAGRAM MARKETING DIVISION

INTENSIF, Vol.5 No.2 August 2021
ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

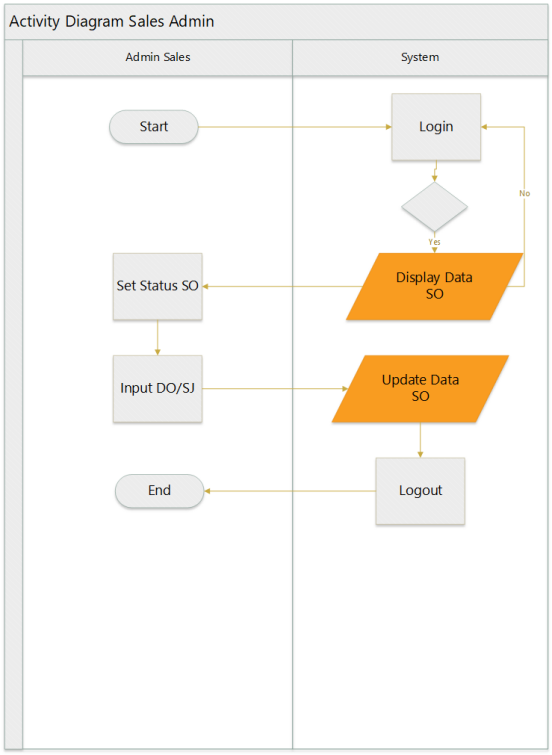

Figure 8. ACTIVITY DIAGRAM SALES ADMIN

After the use case and activity diagram have been successfully defined, the next step is to create an ERD system to be built, it can be seen in Figure 9 below, where there are 3 tables to be built, namely the user table, division table, and SO table.

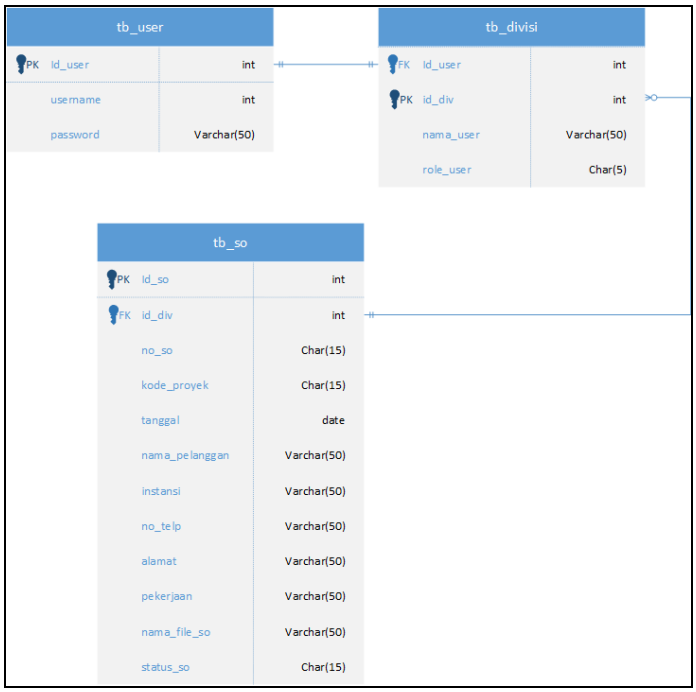

Figure 9. ERD OF THE SYSTEM

INTENSIF, Vol.5 No.2 August 2021
ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

Next is the implementation, the implementation process in the elaboration phase is the design of the system interface. One of the designs of the system user interface is in Figure 10 below.

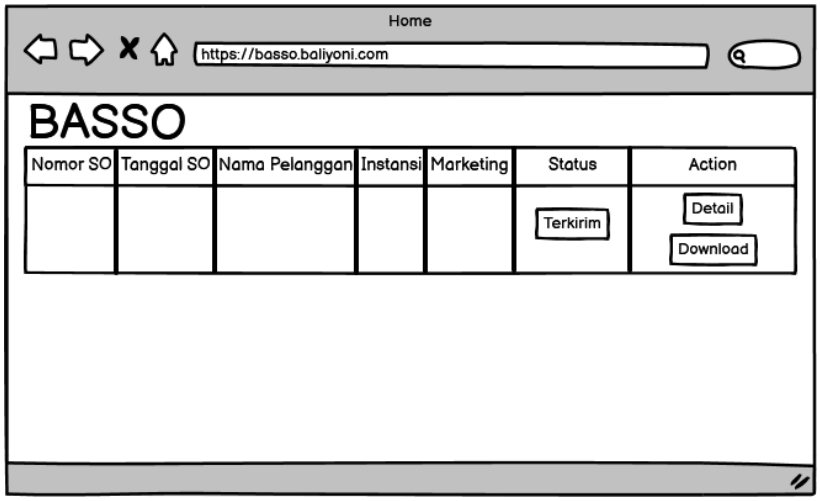

Figure 10. DASHBOARD INTERFACE DESIGN

After going through the analysis and design process at the elaboration stage, the next step is the validation stage. In the validation phase, the elaboration phase involves 5 respondents who will validate the features designed at this stage. The goal is to find out whether the features designed are following user needs or not. The following in table 6 shows briefly the results of the validation of the features designed.

Table 6. FEATURE VALIDATION AT THE ELABORATION STAGE

Number	User	Feature	Validation	
			Agree	***Disagree***
1	Administrator	Add new user	√	
2		Delete user	√	
3		See detailed sales order data	√	
4	Marketing	Create new sales order data	√	
5		Update sales order data	√	
6		Upload sales order document	√	
7		Download sales order document	√	
...	...	...	...	...

INTENSIF, Vol.5 No.2 August 2021
ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

Based on the results of the validation, it is found that all the features that are designed are following user needs. So that the next process is to step into the next stage, namely Construction.

C. Construction

At this stage, the implementation and testing process is carried out. The implementation process at the construction stage is the coding stage of the system based on the results of the elaboration stage. The sales order management information system development process was built using Bootstrap framework as a front-end and a combination with the PHP programming language for back-end development. MySQL database is used to build the database.

The following is a display of some of the system coding results at the construction stage. Figure 10 is a login page display, Figure 11 is a dashboard page display. Figure 12 is one of the tables in the system database.

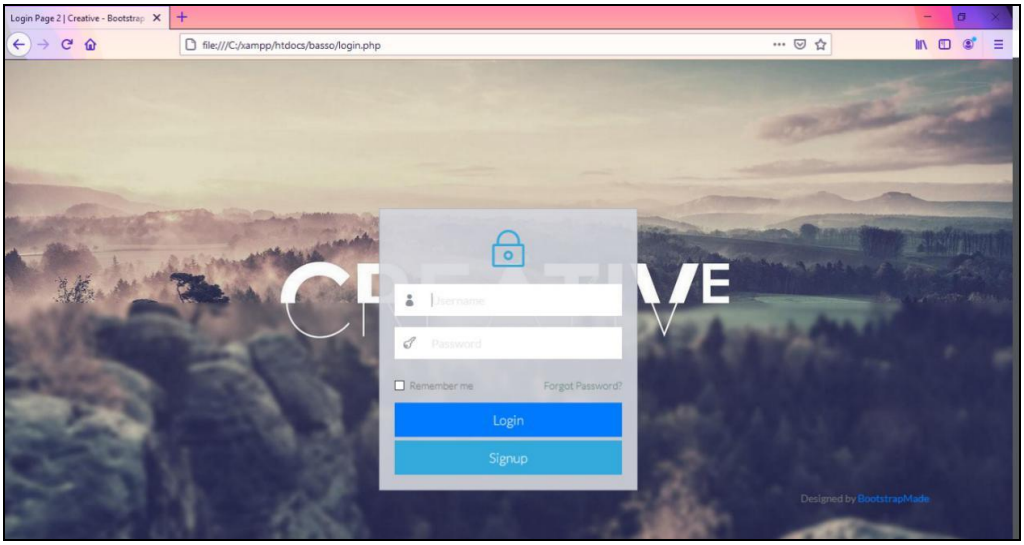

Figure 11. LOGIN PAGE

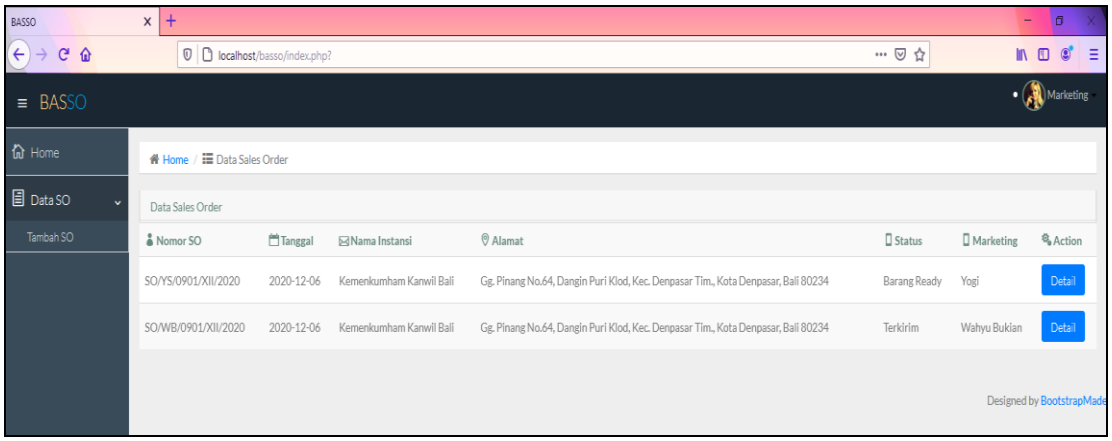

Figure 12. DASHBOARD PAGE

INTENSIF, Vol.5 No.2 August 2021
ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

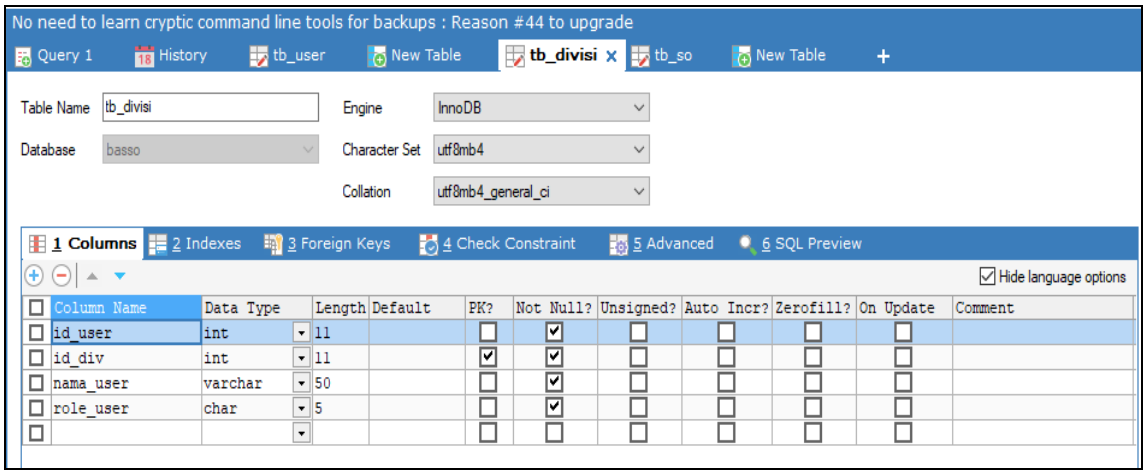

Figure 13. DIVISION DATABASE TABLE

At the construction stage, testing is carried out in the form of BlackBox testing, where testing is carried out to test whether the features and functionality of the system being built can run correctly before deploying at the transition stage. Some of the results of system testing with BlackBox testing are shown in table 7 below.

TABLE 7. BlackBox Testing Results

No	Function	Expected results	Test result	
			As Expected	Not As Expected
Administrator				
1	Login as Administrator	The login function as administrator is running correctly.	√	
2	Adding new user data	The add new user function is running correctly	√	
3	Delete user	The user delete function is running correctly	√	
Marketing				
4	Login as Marketing	The login function as marketing is running correctly.	√	
5	Add sales order data	The new add sales order function is running correctly	√	
6	Update sales order data	Sales order data update function is running correctly	√	

From the test results with the BlackBox testing, it was found that all the functions that had been built were running correctly. So that the next process can be continued to the transition stage.

D. Transition

The transition stage is the stage where the deployment or installation of the system is carried out. At this stage, it also focuses on training users in using information systems and carrying out system maintenance.

ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

IV. CONCLUSION

In this study, we have succeeded in building a sales order management system using the Rational Unified Process method. Whereby utilizing the RUP method, the development of information systems becomes more structured starting from the initial stage, namely inception, then the elaboration stage, the construction stage, and at the final stage, namely the transition stage where the system can be used by users and is carried out periodic maintenance. Defining system requirements that are not detailed at the initial stage can be overcome by validating at the end of each RUP stage, where at the inception stage validation is carried out on the system functionality requirements, which indicates that the functional requirements are following the user's wishes and the process can be continued to the next stage. Likewise, at the elaboration stage, the features designed are tested so that it is based on the test results which show that all the features designed are following the user's needs.

From this research, it can also be concluded that we have succeeded in building a web-based sales order management system that was built using the RUP method. This is also shown in the results of testing with the BlackBox Testing method, where the tests carried out show that every function designed has been successfully implemented and produces output as expected by its users.

This research still has weaknesses, where the testing has not been carried out at the transition stage so that it opens opportunities for further research to be able to test the sales order management information system, both from the point of view of user acceptance of information systems [23], or the quality of the system based on its usability [24]. By conducting further testing, it is also expected to know the level of quality and usability of the system.

ACKNOWLEDGMENTS

Thank you very much for PT. Bali Yoni Saguna, who has been permitted to conduct research related to the analysis and design of a sales order management information system to be a solution to the problems of the current sales order procedure. Hopefully, this research will provide benefits for the continued use of the sales order management information system in the future.

ISSN: 2580-409X (Print) / 2549-6824 (Online)
DOI: https://doi.org/10.29407/intensif.v5i2.15543

REFERENCES

[1] A.Saputra, Zulfachmi, M. Sudarma, "Designing Data Warehouse for Analysis of Culinary Sales with Multidimensional Modeling – Star Schema Design," Int. J. Eng. Emerg. Technol., vol. 3, no. 1, pp. 71–74, 2018.

[2] P. A. Ariawan, I. S. Putra, and I. M. Sudarma, "Analysis of Enterprise Architecture Design Using TOGAF Framework: A Case Study at Archival Unit of Faculty of Agricultural Technology of Udayana University," Int. J. Eng. Emerg. Technol., vol. 2, no. 2, pp. 52–57, 2017.

[3] G. W. Sasmito, "Penerapan Metode Waterfall Pada Desain Sistem Informasi Geografis Industri Kabupaten Tegal," J. Inform. Pengemb. IT, vol. 2, no. 1, pp. 6–12, 2017.

[4] A. Hirmawan, M. P, and D. Azizah, "ANALISIS SISTEM AKUNTANSI PENGGAJIAN DAN PENGUPAHAN KARYAWAN DALAM UPAYA MENDUKUNG PENGENDALIAN INTERN (Studi pada PT.Wonojati Wijoyo Kediri)," J. Adm. Bisnis S1 Univ. Brawijaya, vol. 34, no. 1, pp. 189–196, 2016.

[5] C. Tristianto, "PENGGUNAAN METODE WATERFALL UNTUK PENGEMBANGAN SISTEM MONITORING DAN EVALUASI PEMBANGUNAN PEDESAAN," J. Teknol. Inf. ESIT, vol. XII, no. 1, 2018, [Online]. Available: http://jurnal-eresha.ac.id/index.php/esit/article/view/51.

[6] I. G. S. Widharma, "Perancangan Simulasi Sistem Pendaftaran Kursus Berbasis Web Dengan Metode Sdlc," Matrix J. Manaj. Teknol. dan Inform., vol. 7, no. 2, p. 38, 2017, doi: 10.31940/matrix.v7i2.527.

[7] A. A. Sofyan, P. Puspitorini, and M. A. Yulianto, "Aplikasi Media Informasi Sekolah Berbasis SMS Gateway Dengan Metode SDLC (System Development Life Cycle)," J. Sisfotek Glob., vol. 6, no. 2, pp. 1–7, 2016.

[8] S. Sauda, N. Oktaviani, and M. Bunyamin, "Implementasi Metode Scrum Dalam Pengembangan Test Engine Try Out Sertifikasi," JISKA (Jurnal Inform. Sunan Kalijaga), vol. 3, no. 3, p. 70, 2019, doi: 10.14421/jiska.2019.33-07.

[9] I. Kurniawan and R. R. Sani, "Pemodelan SCRUM dalam Pengembangan Sistem Informasi Kesehatan pada Klinik Ar-Rokhim Sragen Kabupaten Sragen," JOINS (Journal Inf. Syst., vol. 4, no. 1, pp. 76–86, 2019, doi: 10.33633/joins.v4i1.2530.

[10] B. Etikasari, T. D. Puspitasari, A. A. Kurniasari, and L. Perdanasari, "Sistem informasi deteksi dini Covid-19," J. Tek. Elektro dan Komput., vol. 9, no. 2, pp. 101–108, 2020.

[11] S. Young, I. Nuryasin, and W. Suharso, "Penerapan Metode SDLC RUP (Rational Unified Proses) Dalam Pembuatan Sistem Informasi E-kos Berbasis Web," J. Repos., vol. 2, no. 3, p. 363, 2020, doi: 10.22219/repositor.v2i3.404.

[12] R. Perwitasari, R. Afawani, and S. E. Anjarwani, "Penerapan Metode Rational Unified Process (RUP) Dalam Pengembangan Sistem Informasi Medical Check Up Pada Citra Medical Centre," J. Teknol. Informasi, Komputer, dan Apl. (JTIKA), vol. 2, no. 1, pp. 76–88, 2020, doi: 10.29303/jtika.v2i1.85.

[13] S. Susilowati, "PERANCANGAN SISTEM INFORMASI PEMESANAN MAKAM BARU MENGGUNAKAN METODE RATIONAL UNIFIED PROCESS (Studi kasus pada Taman Pemakaman Umum Joglo Jakarta Barat)," Sniptek, vol. 13, no. ISBN: 978-602-72850-5-7, pp. 92–97, 2017, [Online]. Available: http://ejournal.nusamandiri.ac.id/ejurnal/index.php/pilar/article/view/342.

[14] F. Mubarok, H. Harliana, and I. Hadijah, "Perbandingan Antara Metode RUP dan Prototype Dalam Aplikasi Penerimaan Siswa Baru Berbasis Web," Creat. Inf. Technol. J., vol. 2, no. 2, p. 114, 2015, doi: 10.24076/citec.2015v2i2.42.

[15] D. J. Hutahaean, N. H. Wardani, and W. Purnomo, "Pengembangan Sistem Informasi Penyewaan Gedung Berbasis Web dengan Metode Rational Unified Process (RUP) (Studi Kasus: Wisma Rata Medan)," J. Pengemb. Teknol. Inf. dan Ilmu Komput., vol. 3, no. Vol. 3, No. 6, Juni, pp. 5789–5798, 2019.

[16] D. Kurniadi, M. M. Fauzi, and A. Mulyani, "Aplikasi Tes Buta Warna Berbasis Android Menggunakan Metode Ishihara," Penelit. Ilmu Komput. Sist. Embed. dan Log., vol. 2, no. 2, p. 452, 2014.

[17] P. Kruchten, "What Is the Rational Unified Process ? The RUP Is a Software Engineering Process," Ration. Softw., no. May 2014.

[18] P. Kroll and P. Kruchten, "Book review: Book review," J. Cutan. Pathol., vol. 30, no. 2, pp. 158–158, 2003, doi: 10.1034/j.1600-0560.2003.00021.x.

[19] A. Yulianto, U. P. Jaya, and S. Baru, "Pengujian Psikometri Skala Guttman untuk Mengukur," vol. 18, no. 2009, pp. 38–48, 2020.

[20] S. Nidhra and J. Dondeti, "Black Box and White Box Testing Techniques - A Literature Review," Int. J. Embed. Syst. Appl., vol. 2, no. 2, pp. 29–50, 2012, DOI: 10.5121/ijesa.2012.2204.

[21] K. Ary, B. Permana, G. B. Subiksa, and M. Sudarma, "Design Data Warehouse For Centralized Medical Record," Int. J. Eng. Emerg. Technol., vol. 2, no. 2, pp. 47–51, 2017, [Online]. Available: https://ojs.unud.ac.id/index.php/ijeet/article/download/35849/23184.

[22] H. R. Suharto, N. Gunantara, and M. Sudarma, "ANALYSIS OF DATA WAREHOUSE DESIGN," vol. 5, no. 2, pp. 11–18, 2020.

[23] R. Indrayani and H. R. Suwarman, "Ekspetasi Karyawan Terhadap Aplikasi Absensi Menggunakan Pendekatan Technology Acceptance Model (Tam) Studi Kasus Di Institusi X," Semin. Nas. Telekomun. dan Inform. (SELISIK 2018), no. Selisik, pp. 1–10, 2018.

[24] T. A. Ghaffur and Nurkhamid, "Analisis Kualitas Sistem Informasi Kegiatan Sekolah Berbasis Mobile Web Di Smk Negeri 2 Yogyakarta," Elinvo (Electronics, Informatics, Vocat. Educ., vol. 2, no. 1, pp. 94–101, 2017, doi: 10.21831/elinvo.v2i1.16426.

9 772549 682009