

ANALYSIS OF WEB-BASED MANAGEMENT INFORMATION SYSTEM DESIGN TO IMPROVE THE EFFECTIVENESS AND EFFICIENCY OF THE NEW EMPLOYEE RECRUITMENT PROCESS AT ONE OF THE FAST MOVING CONSUMER GOODS (FMCG) COMPANIES IN DKI JAKARTA

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Abstract: The process of recruiting new employees is an important aspect in human resource management in the company. In the era of digitalization and the development of information technology, web-based management information systems can be a solution to improve the effectiveness and efficiency of the recruitment process. The purpose of this study is to investigate the design of a web-based management information system that can improve the effectiveness and efficiency of the recruitment process of new employees in FMCG companies in DKI Jakarta. This study used qualitative research methods. Data collection techniques are carried out by observation, interviews and literature studies. The process of designing an employee recruitment selection system using UML (Unified Modelling Language) Tools namely Use Case Diagram, Activity Diagram, Sequence Diagram with Visual Paradigm software. The results of the study show that the ability to select applicant data becomes more effective in terms of time and the amount of work completed when using technology than just using human labor. In the process, humans professionally and as individuals will adapt and feel helped by technology. Therefore, companies need to make changes to balance the era of technological disruption that occurs.

Keywords: Information System, Web, Recruitment

INTRODUCTION

The results of a survey by the Ministry of Manpower stated that around 88 percent of companies affected by the pandemic over the past six months were generally in a state of loss. It was even mentioned that 9 out of 10 companies in Indonesia were directly affected by the Covid-19 pandemic. The data is based on a survey conducted online, including by telephone and email to 1,105 companies selected by probability sampling of 95 percent and margin of error (MoE) of 3.1 percent in 32 provinces in Indonesia. The pandemic caused a huge loss because sales declined, production eventually had to be reduced resulting in a decrease in demand, production and profits. Companies that are unable to compete will be left behind and experience serious difficulties.

The impact of Covid-19 on companies is not only layoffs, workers are laid off but also the decline in the company's "health" conditions and causes many workers to resign and move to companies that are considered more capable of competing.

In addition, the company is also difficult to improve conditions because it is difficult to get qualified workers due to good competition in sales, getting supplies but also getting potential candidates who can be paid according to the company's capabilities is also a challenge for the company. The implications after the pandemic indicate that technology and communication skills are the first choice and mandatory

for companies to compete and become more efficient and communicate in operational and sales activities. The Covid-19 pandemic has indirectly accelerated changes and developments in the world of technology.

Not spared also one of the fast moving consumer goods (FMCG) companies located in DKI Jakarta, precisely in East Jakarta. The company is also trying to maintain its existence in the world of sales. In this effort, the company needs experts who support and are able to restore the company's condition to be more stable or even generate more profits.

Therefore, in this era, the company needs an adaptation process and instant changes that must be carried out by human resources by all fields of activity, including in the process of recruiting new employees which is an important component and is a definite process in activities within the company where the company needs experts who are important assets in the company.

The old recruitment process still uses a manual method, namely sending files or application documents using paper or *hardcopy* files entrusted to the company's receptionist. There are several candidates who have sent via email and finally printed by HR staff into *hardcopy files* then sorting or selecting candidate data is carried out. The selection takes a long time because there is also only 1 (one) person who handles the recruitment process among the many needs of employees or additional personnel from each division.

According to the narrative revealed by the employee of the recruitment department, it takes at least 3-4 months to get one new candidate in the company. This is due to limitations in sorting and selecting data, the difficulty of obtaining the required documents from candidates due to the time of sending documents using expeditions or waiting for the candidate to be called back to the company, then the company

also does not have a data bank for storing applicant data from unprocessed to those who have undergone the process to a certain stage of the recruitment process.

Attached is a list of the needs of new employees without being equipped with the positions needed in the company from March 2023 to June 2023 that have not been met by candidate requests.

Tabel 1. Tabel Permintaan Karyawan di salah satu perusahaan fast moving consumer goods (FMCG) di DKI Jakarta

	Maret 2023	April 2023	Mei 2023	Juni 2023
Divisi Supply Chain	2 orang			
Divisi HRD		1 orang		
Divisi Finance	3 orang			
Divisi Marketing			2 orang	
Divisi General Service				1 orang
Divisi Sales (All Area Jawa Bali)	15 orang	20 orang	23 orang	18 orang
Divi Sales (All Area Sumatera)	25 orang	24 orang	35 orang	38 orang
Divi Sales (All Area Sulawesi)	15 orang	10 orang	23 orang	18 orang
Divi Sales (All Area Kalimantan)	28 orang	4 orang	16 orang	22 orang
Total	88 orang	55 orang	101 orang	97 orang

Sumber: Divisi Recruitment di satu perusahaan fast moving consumer goods (FMCG) di DKI Jakarta

Based on this need data, companies need to make changes so that existing problems or needs can be resolved properly. Therefore, the company decided to support new technologies that are sophisticated and can help existing work within the company, but are also economical due

to the company's condition that is still trying to return to stable conditions. The technology adopted by the company certainly also needs to be balanced with the capabilities or budget that can be spent by the company when deciding to adopt by purchasing, shaping, maintaining and from other factors.

By investing in the new technology, the company hopes that there will be assistance to human resources in overcoming various types of work, as well as faster so that efficiency in work, and with the new breakthrough in the form of sophistication in technology, there will be many new things that can be obtained from the application of the new system.

In the initial implementation, the company advertises job vacancies through a job search application platform which can accelerate the

expansion of information on vacancies that are being opened and facilitate filtering candidate data. However, unfortunately the data of candidates who apply is not permanent because the platform is paid and has a limited shelf life. In addition, the advertising budget on this platform also needs to be reviewed whether it is effective to use these expenses by considering the results received.

The following is an overview of the budget spent when advertising in the Company:

Tabel 2. Biaya Pasang Iklan Lowongan pada Platform Berbayar di Perusahaan pada Periode Juli 2022 - Februari 2023

Waktu	Biaya Iklan
Juli 2022	Rp. 6.029.370,00
Agustus 2022	Rp. 6.029.370,00
September 2022	Rp. 6.029.370,00
Oktober 2022	Rp. 6.029.370,00
November 2022	Rp. 6.029.370,00
Desember 2022	Rp. 6.029.370,00
Januari 2023	Rp. 6.029.370,00
Februari 2023	Rp. 6.029.370,00

Sumber: Divisi Recruitment di satu perusahaan fast moving consumer goods (FMCG) di DKI Jakarta

Actually, the budget spent by the company can be saved while still reaping the benefits of the advantages on the paid platform to reach a wider range of potential candidates. The author proposes and has been approved to design a company information system that is adjusted to company rules and made directly by the company's

information technology staff so that every company vacancy advertisement does not cost money and raises the professional image of the company itself.

By implementing a website-based information system, the selection of prospective participants can be minimized in terms of time and cost,

information processing is faster and more efficient and helps get the best prospective employees in accordance with the position needed.

This has been widely applied by leading companies in Indonesia. The company's own website is not a rare thing, the website has been widely used by many other companies and moreover

the website is equipped with a career menu for the inclusion of job vacancies opened by the company to find the best candidates to fill vacant positions or those needed by the company. Attached are examples of company websites that have a career menu to help the recruitment process.

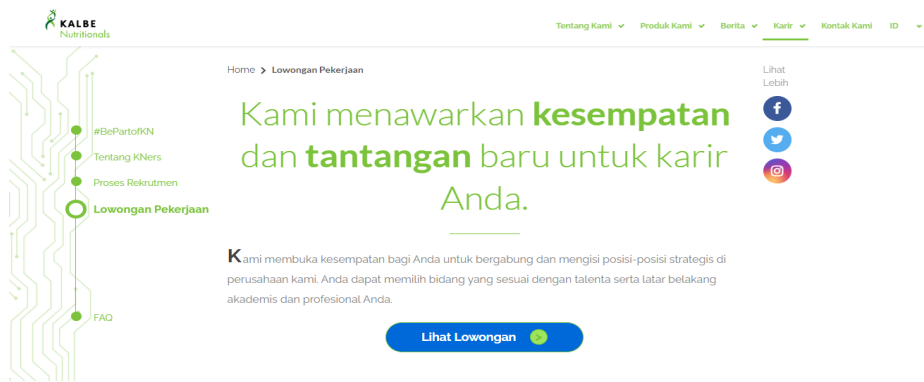


Figure 1. Website karir dari Kalbe Nutritional (PT. Sanghiang Perkasa)



Figure 2. Website karir dari PT Tempo Scan Pacifik Tbk

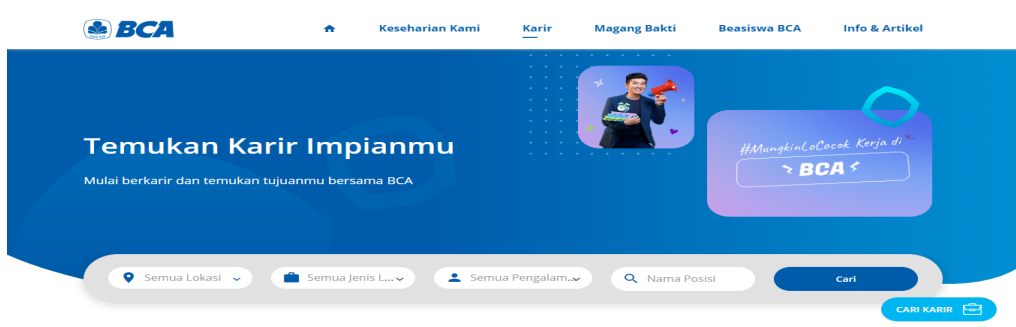


Figure 3. Website karir dari PT Bank Central Asia, Tbk.



Figure 4. Website karir dari Indomaret Group

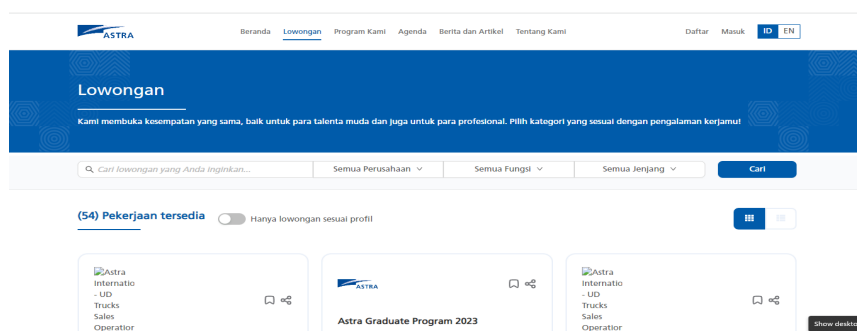


Figure 5. Website dari Astra Grup

Based on existing examples, the Company is increasingly convinced to use a web-based information system that is tailored to the needs and rules of the company so that the development of the recruitment process becomes more effective and efficient. After the implementation of this system, the company conducted an analysis of this

design and prepared the author's thesis entitled "Analysis of Web-Based Management Information System Design to Improve the Effectiveness and Efficiency of the New Employee Recruitment Process in One of the *Fast Moving Consumer Goods (FMCG) Companies* in DKI Jakarta"

Penelitian Terdahulu

Tabel 3. Penelitian Terdahulu

No	Judul	Sumber	Peneliti	Hasil Penelitian
1.	Rancang Bangun Sistem Seleksi Rekrutmen Karyawan Dan	Vol 1 No 2 Desember (2020): ADI Bisnis Digital Interdisiplin	1. Haella Purwanti 2. Zaenab Fuji Rahayu	Untuk merancang sistem seleksi rekrutmen karyawan dan guru berbasis Website peneliti menggunakan <i>Visual Paradigm Enterprise</i>

Guru Berbasis Website Pada Sekolah Citra Bangsa Tangerang		3. Windy Amelia 4. Rosmawati Dwi 5. Hilshie Maulida Bilqis	<i>Edition for Unified Modeling Language (UML)</i> untuk membuat model diagram, <i>Hypertext Preprocessor (PHP)</i> sebagai bahasa pemrograman dalam membuat program, XAMPP adalah <i>tools</i> yang mendukung untuk banyak sistem operasi, MySQL sebagai <i>database</i> yang akan digunakan dalam sistem, <i>Sublime Text 3</i> untuk mendesain sistem yang dibuat, dan untuk pengujian sistem menggunakan <i>Black Box Testing</i>
2. Rancang bangun sistem informasi rekrutmen karyawan pada pt. Mitraniaga ciptasolusi berbasis web	Vol 10 No 2 (2022): Jursima Vol. 10 No. 2, Agustus Tahun 2022	1. Fauziyah 2. Rifka Irhamna 3. Alexius Ulan Bani	Sistem Informasi Rekrutmen Karyawan pada PT. Mitraniaga Ciptasolusi dirancang dengan menggunakan pemodelan sistem berbasis UML menghasilkan use case diagram dengan 6 activity diagram dan menghasilkan 7 tabel class diagram yang telah di normalisasi. Menggunakan sistem manajemen basis data MySQL dan menggunakan Hypertext PreProcessor (PHP) dan pemrograman web PHP serta telah di uji melalui black box testing.
3. Rancang Bangun Sistem Informasi Akademik Berbasis Web: Studi Kasus: SD Negeri 18 Tanah Abang	Jurnal Pengembangan Sistem Informasi dan Informatika e-ISSN: 2746-1335 Vol. 2, No. 3, July 2021	1. Putri Marlina Ariansyah 2. Khana Wijaya	Dengan dibuatnya Sistem Informasi Akademik ini semoga dapat membantu dan mempermudah dalam pengolahan data siswa, data guru, data kelas, data mata pelajaran dan data nilai di SD Negeri 18 Tanah Abang.

METHOD

Research Objects

The object studied is a website-based information system with the aim of e-recruitment in a private company in Jakarta with a total of 300 - 500 employees.

Types of Research

This research is designed to solve practical problem formulations or meanings to solve existing problems by creating new systems or technologies. Therefore, this research is included in Applied Research or Applied Research and Descriptive Research.

Research Resource Persons

In this study, interviews will be conducted by 2 managers, namely HRD Managers and IT Managers to perfect the implementation of the designed website.

Research Methods

The type of research to be used in this paper is qualitative descriptive. The purpose of this descriptive research is to make a systematic, factual and accurate description, picture, or painting of the facts, properties and relationships between the phenomena investigated.

Data Types and Sources

The approach used in this study is a qualitative approach, which is an approach in the form of collecting data, processing, and analyzing and interpreting qualitatively. The research location is in one of the companies in DKI Jakarta engaged in *fast moving consumer goods (FMCG)*.

Data Collection Techniques

In the development of systems /

applications, of course, an accurate type of data is needed in accordance with the system to be developed, therefore an appropriate data collection technique is needed. The type of data obtained is then used in the analysis stage and design stage. The methods used for data and information collection are as follows:

a. Observation

This method is a data collection technique carried out by observing directly to obtain a picture related to the job vacancy system that has been created by other companies.

b. Interview

In this case, researchers conduct direct questions and answers about the problems to be studied to prospective candidates and website administrators. This interview aims to clarify and convince the facts or information obtained through observation.

c. Literature study

In addition to interviews, researchers collect data by looking for data sources from related books, as comparison material in this writing.

Data Analysis Methods

The method of testing the effectiveness and efficiency of using a website-based information system is a table analysis method with the creation of measurement ratios at each level.

Design Method

The process of designing an employee recruitment selection system

using UML (Unified Modelling Language) Tools namely Use Case Diagram, Activity Diagram, Sequence Diagram with Visual Paradigm software. In addition, this information system uses PHP Hypertext Processor (PHP) programming language, css, java script, bootstrap and uses MySQL-based databases.

RESULTS AND DISCUSSION

Proposal Procedure

In the design of this proposed system system using UML (Unified Modelling Language) diagrams using Visual Paradigm for UML 8.0 Enterprise Edition software to illustrate Use Case Diagrams, Activity Diagrams, Sequence Diagrams and Class Diagrams

Use Case Diagram

a. Use Case Model Applicants

Use case diagrams are a medium to visualize simply the functionality expected from a system that is built. According to Munawar (2005) In the depiction of usecase diagrams, the emphasis to be presented is "what" the system does not "how" the system works. Use case diagrams are a medium for illustrating how users interact with the system.

The use of *use case diagrams* is intended to assist in compiling *requirements* that must be met in designing an information management system for the recruitment process based on WEB technology. In this study, there are two main system actors / users who have different roles, namely applicants as users and HRD staff, HRD Managers as administrators.

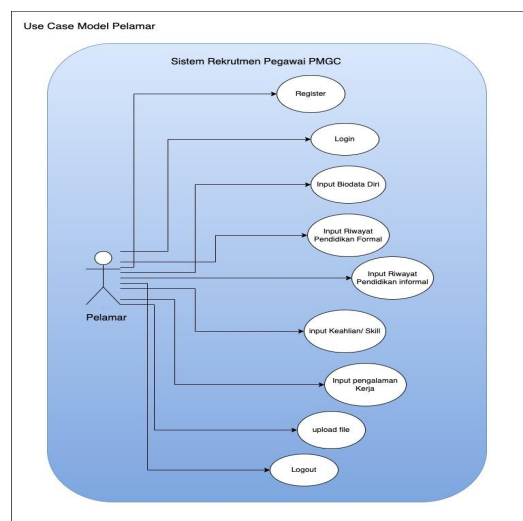


Figure 6. Use Case Model Pelamar

b. Use Case Model Staff HRD & Manager HRD

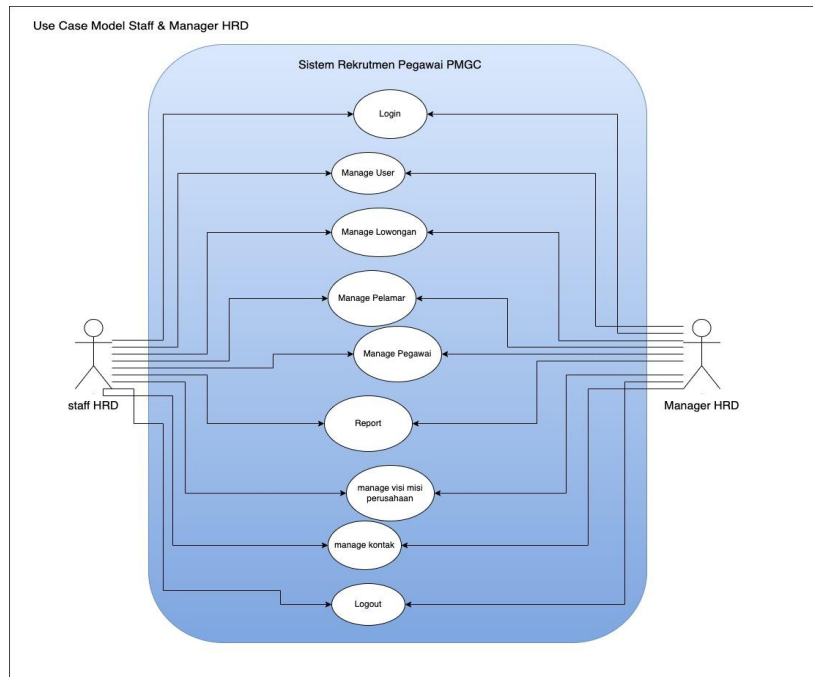


Figure 7. Use Case Model Staff & Manager HRD

Activity Diagram

Activity diagram is a medium for depicting the flow of system activities that are built. The following is an activity

diagram contained in the recruitment information management system based on WEB.

a. Activity Diagram Register

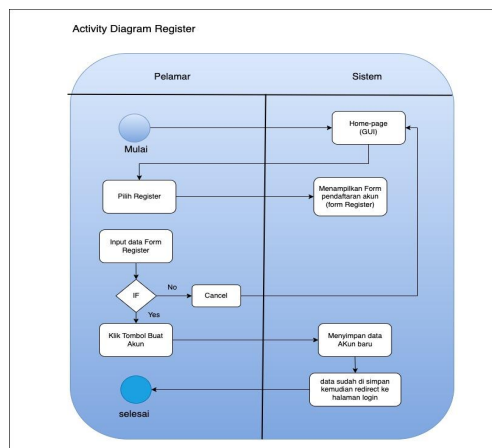


Figure 8. Activity Diagram Register (User as Pelamar)

Figure 8 shows the process of new account registration activity, in this case the user who registers is a user from the job applicant's side. At

this stage the user inputs basic data in creating an account such as filling in the name, email and password.

b. Activity Diagram Login

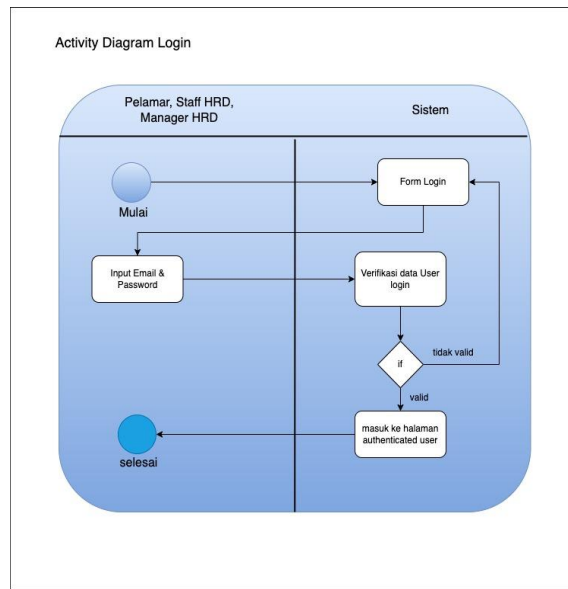


Figure 9. Activity Diagram Login (User as Pelamar)

Figure 9 shows the process of Login activity, the login process is designed as simple as possible to make it easier for users to use it. At this stage the user inputs basic data in carrying out account login activities such as filling in emails and

passwords. The input will then be submitted to verify the existence of the input email registered in the database which then continues the process of matching the input password with the user password stored in the database.

c. Activity Diagram Homepage

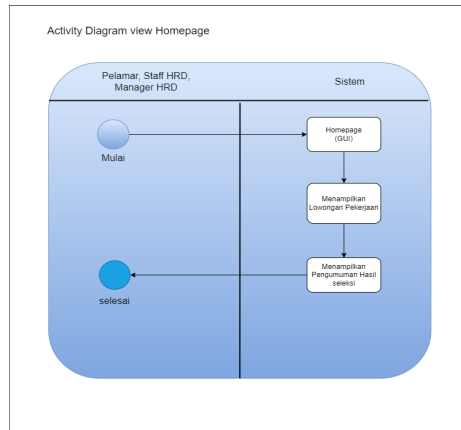


Figure 10. Activity View Homepage

Figure 10. shows the process of opening the main home page of the website by Users (Staff & Applicants). This activity is carried out to see job

vacancy information, company details, procedures for applying for jobs, etc.

d. Activity Diagram View Company Vision and Mission

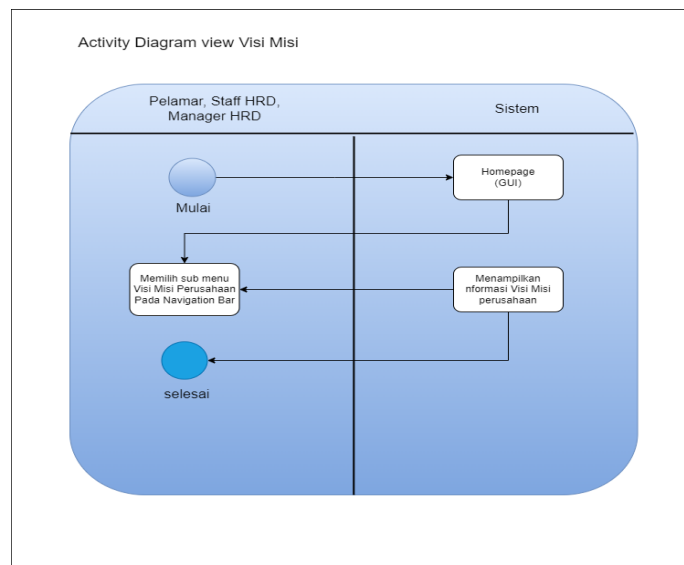


Figure 11. Activity View Visi Misi Perusahaan

e. Activity Diagram View List Pelamar

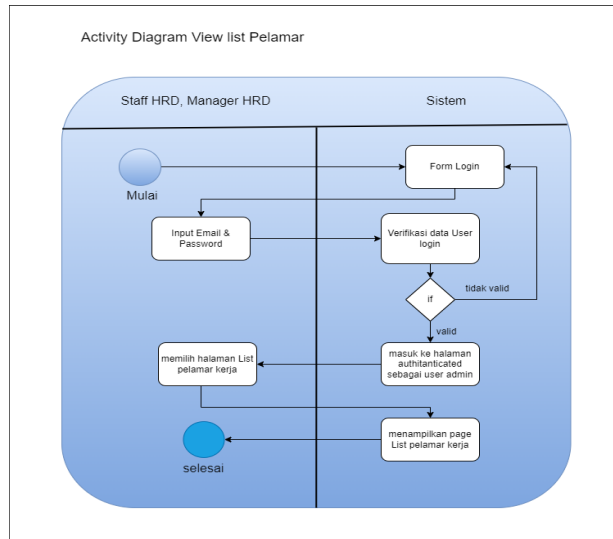
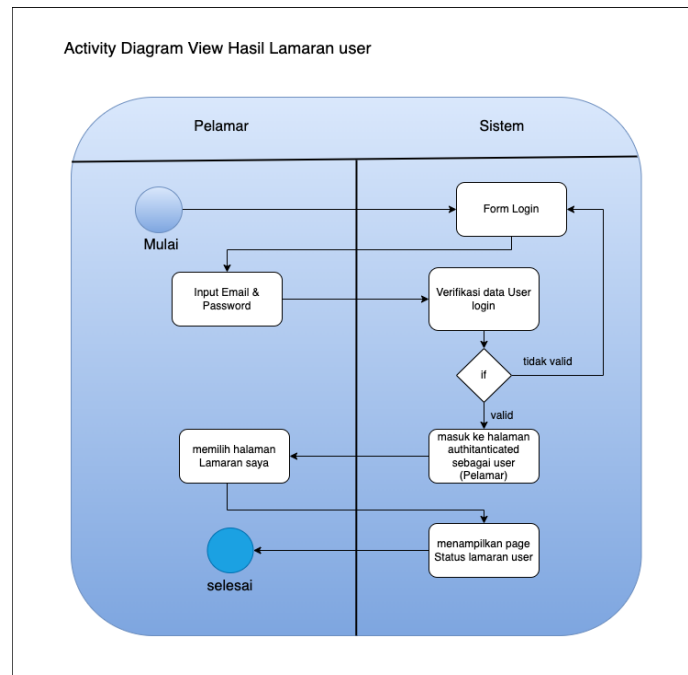


Figure 12. Activity Diagram View List Pelamar (User as Staff HRD/ Manager HRD)

Figure 12 shows the activity process of viewing the list of job applicants who have applied for job vacancies on the company's website, this list view process begins with logging in to the user as HRD staff or manager. At this stage the user inputs basic data in carrying out account login activities such as filling in emails and passwords. The input will then be submitted to verify the existence of

the email in the input registered in the database which then continues the process of matching the input password with the user password stored in the database. In addition, there is authentication of the type of user who is logged in to provide different access rights to the applicant view list feature, which can only be accessed by HRD Staff dan; Manager users.

f. Activity Diagram Announcement of Selection Results



Gambar 13. Activity Diagram View Hasil Lamaran User Pelamar

Figure 13 shows the activity process of looking at the results of job application selection. The activity begins with logging in to the applicant's user by inputting email data and password. Then the system will verify the email input and password entered. After successfully logging in, the applicant user can open his profile page to select the My

Application tab to see the status of the application that has been submitted.

Sequence Diagram

Sequence diagram is a depiction medium that in detail presents the sequence of processes carried out by the system to achieve the objectives of the depiction on the *use case diagram*.

Sequence Diagram Login

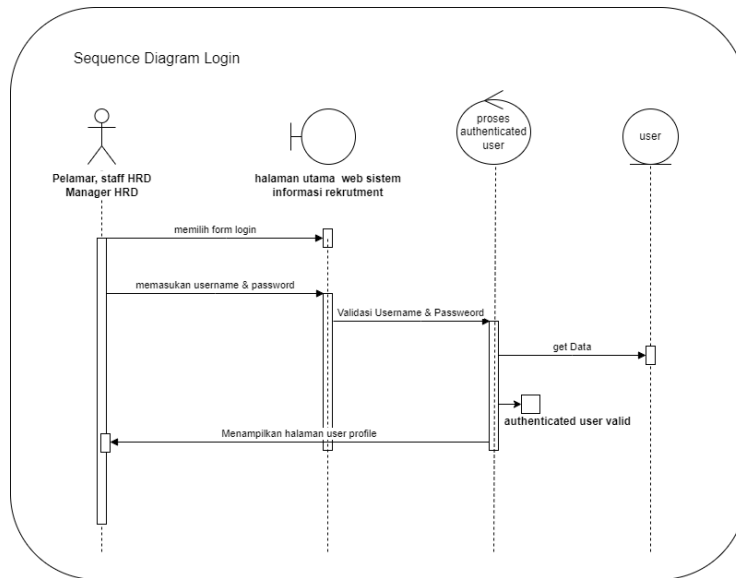


Figure 14. Login Sequence Diagram

Figure 14 shows in detail the stages that occur when logging in. This login is done to get access to several features that can only be used when the user has been authenticated by the system. The login process is carried out

on the login page which contains an input form consisting of an email and password. Users are required to fill out the form to request access rights to the use of accounts on the FMCG employee recruitment information system website.

Sequence Diagram Register

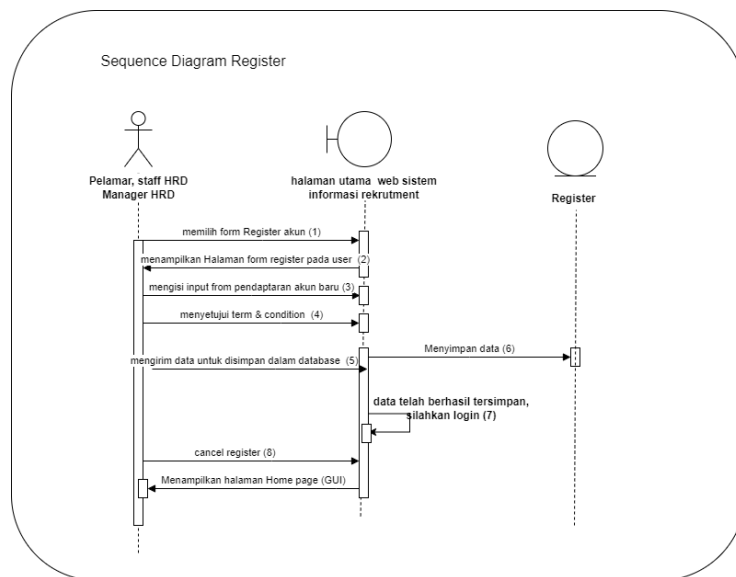


Figure 15. Sequence Diagram Register

Figure 15 shows in detail the stages that occur when registering an account. This registration is done to register to get an account that can be used on the employee recruitment information system website. The registration process is not much

different from the login process. Register is done on the Sign Up page which contains an input form consisting of username, email and password. Users are required to fill out the form to register and get a personal account from the registration that has been done.

Sequence Diagram Isi Biodata Pelamar

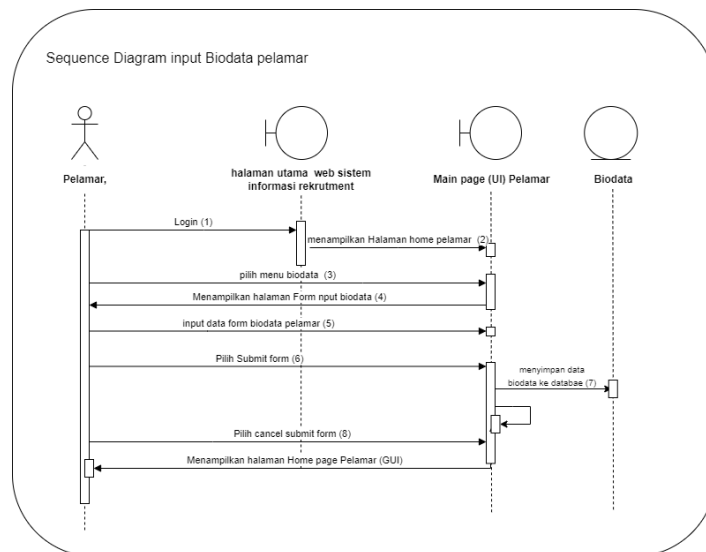
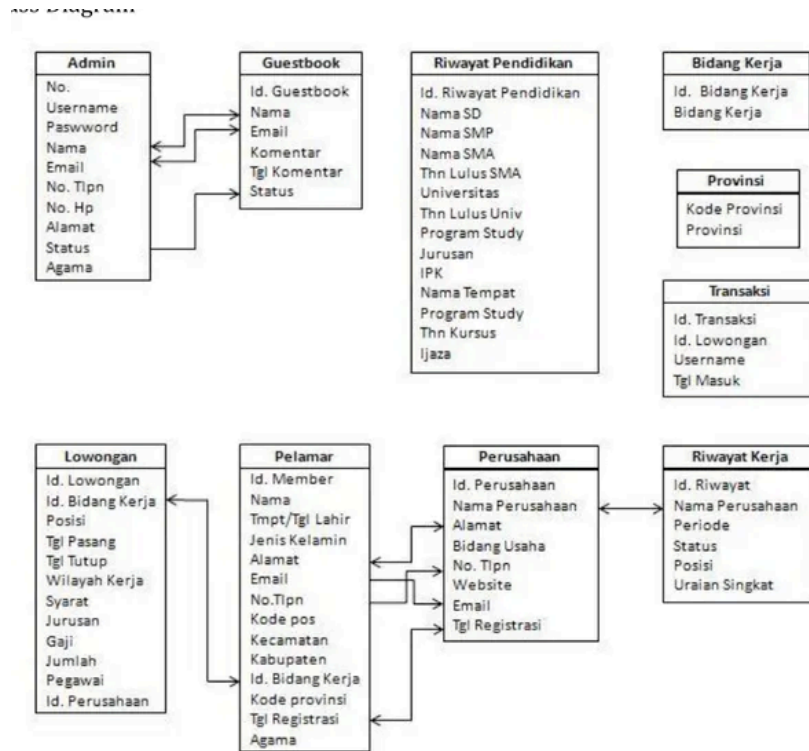


Figure 16. Applicant User Biodata Input Sequence

Figure 16 shows in detail the stages that occur when doing Biodata Input. Biodata input is done to complete personal data which can later be attached along with applications made on the recruitment information system website. Users are required to complete personal data if they want their application to pass the selection.

Class Diagram

Activity diagram is a medium for depicting the flow of system activities that are built. The following is an *activity diagram* contained in the recruitment information management system based on WEB.

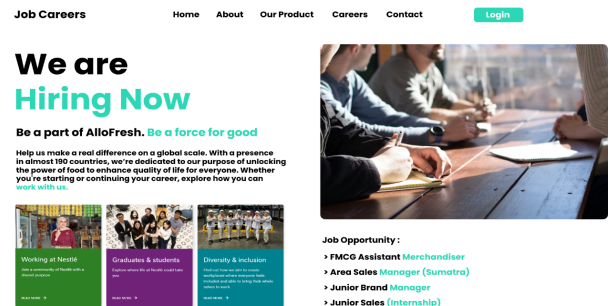


Implementation

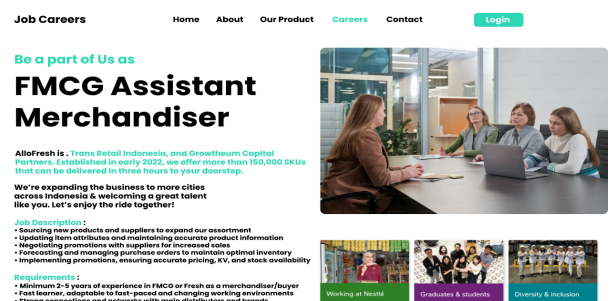
This WEB based recruitment information management design is implemented using several technology stacks that can support well and provide ease and time efficiency in implementation. The use of the laravel framework is the author's choice to implement this WEB design into a real project.

The database used in this development uses a SQL database namely MYSQL which is supported also with the use of Apache servers loaded in the XAMPP application.

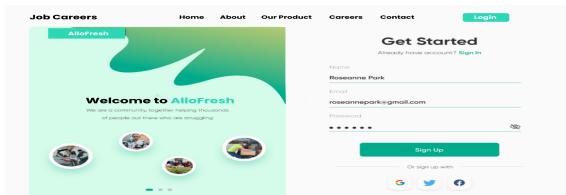
Main Homepage (GUI)



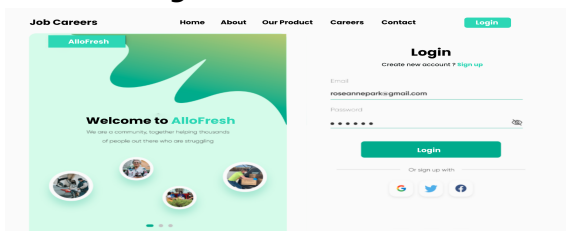
Halaman Job Career atau Lowongan Pekerjaan



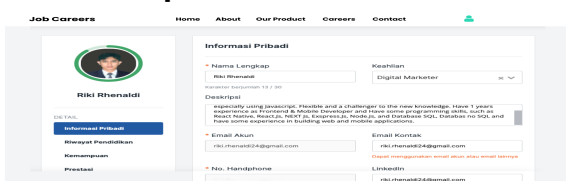
Halaman Register



Halaman Login



Halaman Input Biodata Pelamar



System Testing

Blackbox Testing

System testing implemented in this study is external testing or *blackbox testing*. This test is implemented by testing on each existing route/link using a test table. This test aims to check whether each page or page of the web has run as expected.

GUI (Graphical User interface) testing

At this stage of testing, the test carried out is a general level test, which is testing the navigation of each page, to ensure there is no incorrect navigation or errors. In addition, testing is carried out on the Component Button to ensure the functionality of the button such as the Submit Form button works as

expected or works according to its function,

User Testing

At this stage, testing is carried out specifically to the two types of users in this web-based employee recruitment information system. Trials are carried out on every feature that can be accessed by users such as in the User Applicant section, the features tested are biodata input features, applying for job applications, checking application status or job application results. while for HRD users & managers, the features tested are features to view employee application lists, manage reports, manage employees, manage interview time, etc..

CONCLUSIONS

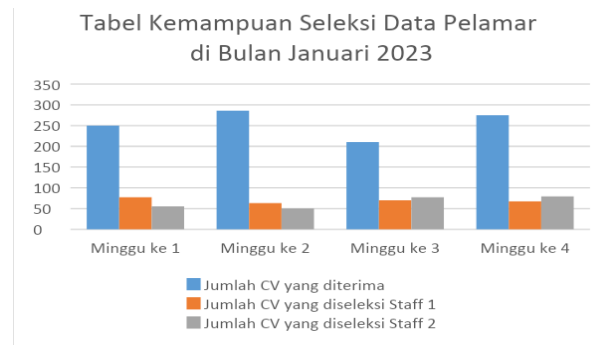


Diagram 1. The ability of HR staff to manually select CVs in January 2023 for secretary vacancies in company S.

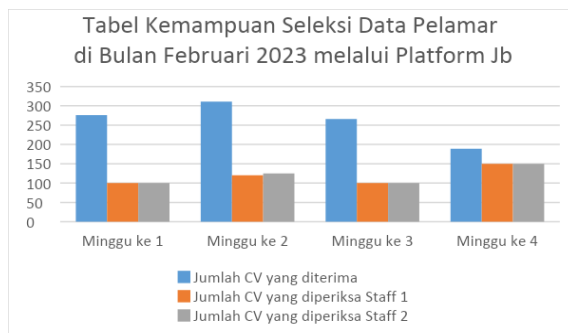


Diagram 2. The ability of HR Staff to select CVs through the Jb Platform in February 2023 for secretary vacancies in company S.

Seen in the diagram, the significant difference between manual work using technology in screening curriculum *vitae* (CV) job applicants per week according to surveys and direct observations from writers in one company. The ability to select applicant data becomes more effective in terms of time and the large amount of work completed when using technology than just using human labor. In the process, humans professionally and as individuals will adapt and feel helped by technology. Therefore, companies need to make changes to balance the era of technological disruption that occurs.

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