Designing an on-Demand Job Application for Online Employment Company

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Abstract

The existence of increasingly rapid technological advances can increase effectiveness and efficiency in increasing productivity and high competitiveness of workers. This can indirectly affect the practice of human resource management within the organization or company. The Gig Economy is an economic condition that occurs as a result of the shift in the status of company workers, who are generally permanent workers, to become short-term contract workers or temporary workers) or in other words, they are referred to as On Demand Workers. The purpose of this study is to create an On Demand Job application design strategy for of online employment company. This study uses the SDLC (Software Development Life Cycle) method and will focus up to the application design stage which will produce output of a quality application design that can be used by On Demand Workers and of course in accordance with the expectations of Online Employment Company. The result is that using the SDLC method used in this study can provide solutions from Online Employment Company by understanding the needs of On Demand Job application users from the On Demand Worker side and also the Company/Client side. This research succeeded in finding solutions related to designing features that will be implemented in On Demand Jobs application.

Keywords
SDLC, Gig Economy, On Demand Job, Application Systems, On Demand Worker

1. Introduction
Today's technology is very important. The reason is, with the rapid advancement of technology, it can increase effectiveness and efficiency in increasing productivity and high competitiveness. However, this can indirectly affect the practice of human resource management within the organization. Where, of course, this will be related to the large demands of work that force companies to have reliable and professional human resources (HR) in their fields.

The Covid-19 outbreak has also changed the way office workers work. Office workers can carry out all their work activities from home, it turns out that this kind of work model is usually done by some workers. Call it the workers On Demand Worker. Trends or work models like this continue to develop over time because they are balanced by current, up-to-date technological developments.

It is estimated that by 2025, one-third of all workers in the world will find work through digital platforms (Standing, 2016). Meanwhile worldwide, the number of people who find work through job search platforms is estimated at more than 70 million (Heeks 2017). According to data released in a 2015 study by McKinsey, up to 540 million people will benefit from job search platforms by 2025. As many as 230 million people find new jobs faster and can reduce the duration of unemployment, while 200 million are inactive or working. part-timers can earn additional hours via the On Demand Job platform.

There are issues with the study in this case study, including: (a) there is an increase in freelance workers (On Demand Workers) in 2022 of 3.33% (BPS, February 2022); (b) there are 100.4 million workers whose pay or salary is below the minimum standard (BPS February, 2022); (c) the most unemployed age group is at the age of 20-24 years, namely 2.54 million people, where this group is of productive age which is the largest number of internet users in Indonesia; (d) many companies are demanding to get reliable and professional employees in their fields.

1.1 Objectives
Design an On Demand Job application that is easy to use by On Demand Workers in finding work.

2. Literature Review
2.1 Gig Economy
The gig economy is a labor market consisting of temporary jobs or certain projects undertaken by individuals or groups that are not permanently tied to one company. Gig workers are usually considered independent contractors, not company employees, and do not have the same rights as full-time full-time workers. The gig economy is often identified with the emergence of online applications that connect gig workers with clients who need their services. Businesses entering the gig economy offer many employment options for individuals seeking flexibility and freedom in determining their work time. In 2017, it was recorded that 57 million adults or 36% of the qualified workforce were involved in the gig economy (Hayzlett, 2018). The gig economy appeals to many people because it provides many benefits.

2.2 On Demand Worker
Digital workers are individuals who are involved in the system and act as workers (Faisal, 2019). Digital workers can also be called on demand workers. According to Graham, Hjorth, and Lehdonvirta (2017), the emergence of a digital workforce is due to two main reasons. First, the problem of unemployment and lack of job opportunities in several regions of the world. Second, the increase in fast internet connectivity. These two reasons led to the idea of creating a method that facilitates meetings between workers and work through platforms that are easy to use and accessible to everyone (Scholz, 2012). There is a significant increase in the number of on demand workers. The projected number of on demand workers shows a growth of 3.5% per year. In recent years, many jobs have been carried out remotely by overseas companies, and most of the employees are working remotely. For example, companies in the United States employ workers from India to handle customer service via telephone or online conversations (Khristian, Laila, Prio, Rifda, 2020). On Demand Workers are identified with three main characteristics that must exist, namely project-based compensation, temporary commitments, and flexibility in time/location/continuity) (Gokkoca, 2022).

2.3 Platform on Demand Job
The gig economy refers to a digital application that facilitates between on demand workers and individuals or companies to share work services in the short term. Gig economy is linked by an application that allows for job demands for on demand workers. According to Kuhn, 2016; Jansen, 2017; Stanford, 2017. Since 2005, On Demand Job applications have become increasingly important and have brought about major changes in various industries. On Demand Job applications create serious challenges, not only for established businesses, but also for countries and social welfare systems (Schmidt, 2017).

2.4 System Development Life Cycle
System Development Life Cycle (SDLC) is a process that aims to identify how information systems can support business needs by designing, building, and implementing a system as needed (Dennis, Wixom, & Tegarden, 2015). This method has another important goal, which is to ensure the successful implementation of a system that can meet the company's strategic goals. In this case, the SDLC can assist in designing the necessary design, development and methodological frameworks to ensure the work is done on time and within the budget that has been made. Thus, SDLC becomes a very useful tool for project management to achieve predetermined business goals. (Azhar, 2021). SDLC is an overview of the process of making a system that always runs like a wheel, by going through several stages, starting from the investigation, analysis, design, implementation, testing, to maintenance. Each phase of the SDLC consists of a series of steps that use a certain way to achieve the goal.

3. Methods

The research methodology consists of four stages: problem identification, methods and data collection, analysis and results, and conclusions as shown in Figure 1.
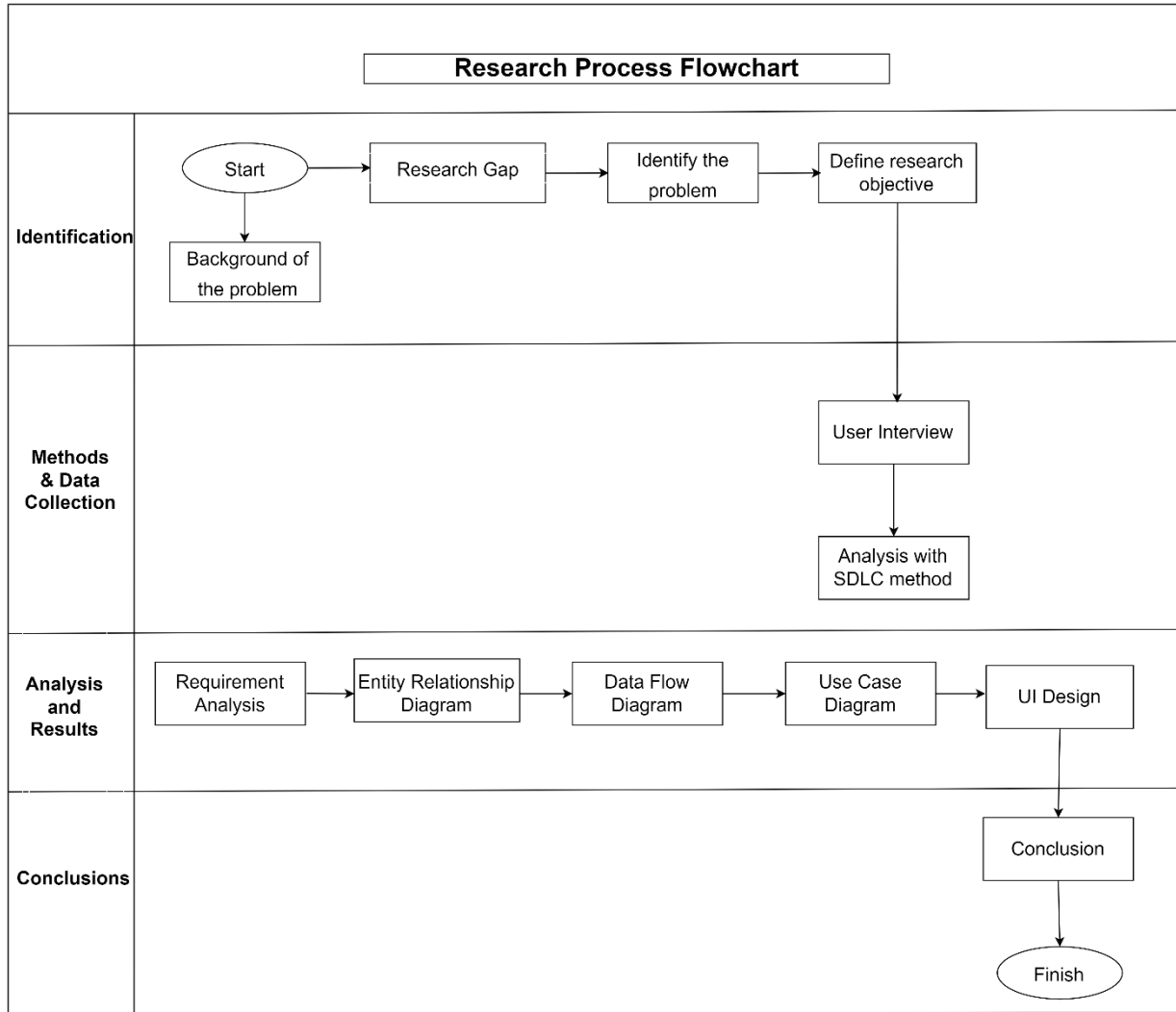

Figure 1. Reseacrh Process Flowchart

The first stage of this research is problem identification which consists of four steps: background of the problem, research gap, identify the problem, define research objective. This stage focuses on identify and analyze problems, compare them with those identified in previous studies, and propose solutions to solve the problems encountered.

The second stage is the method and data collection. This research was conducted through user interviews for further analysis using the SDLC method.

The third stage of the research is analysis and results. The results of this study are Requirement Analysis, Entity Relationship Diagrams, Data Flow Diagrams, Use Case Diagrams, which will help the process of making On Demand Job applications.

The fourth stage in this reseacrh is the conclusion and suggestions.

4. Data Collection

In this research, the focus will be on up to the design stage using the Software Development Life Cycle method. This research will produce output, namely the design results of On Demand Job applications for companies providing job

vacancies. This application will be used by On Demand Workers as a forum and also their link. in searching for jobs to companies that provide job vacancies.
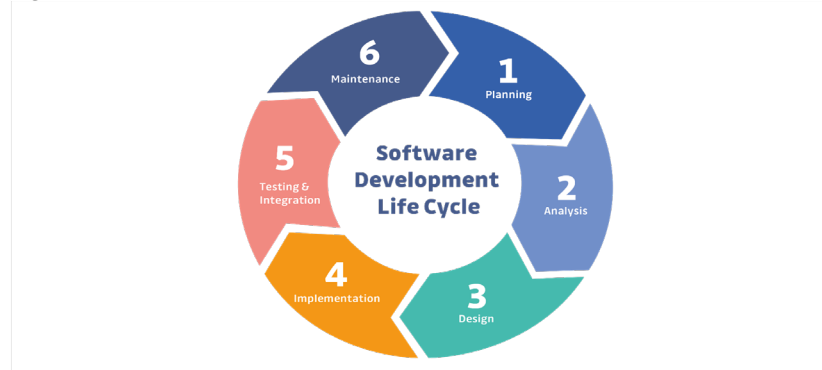

Figure 2. System Development Life Cycle Methodology

4.1 Primary Data
Primary data is a source of research data obtained directly from original sources (not through intermediary media), in the form of individual or group object (person) opinions, results of observations of (physical) objects, events or activities, and test results. In this study, the primary data used were expert interviews and direct observation. The interview was conducted at one of the private companies providing job vacancies in Indonesia. Interviews were conducted with the CEO (Chief Executive Officer), Head of Business, Head of IT.

4.2 Secondary Data
Secondary data is a source of research data obtained indirectly through intermediary media (obtained and recorded by other parties). Secondary data in this study are data obtained from database searches from companies, writings, the internet, or other relevant data. The secondary data that the authors use are documentation techniques and literature studies.

After the interviews and observations were successfully carried out, the research continued to the analysis stage of the On Demand Job application design. Data from interviews and observations will be used to determine user requirements in the On Demand Job application design, Data Flow Diagrams (DFD), Use Case Diagrams (UCD).

5. Results and Discussion
5.1 Requirement Analysis
After identifying the problem from collecting data through user interviews and also direct observation, the results of the analysis of the needs of the On Demand Job application to assist On Demand Workers in finding work are obtained. This requirement analysis consists of two actors, namely On Demand Worker and Company/Client. After that, a user story was created for the two actors. The importance table is useful for knowing which features are most needed and which are not really needed. The importance number refers to the formation of a priority scale starting from P0 which means the feature is really needed up to P3 which means the feature is not really needed at this time.

Table 1. Requirement Analysis Application on Demand Job

No.	Actor	Requirement	User Story	Importance	Notes
1.	On Demand Worker	Sign Up, Verify, Login	As an On Demand Worker and Cient/Company, I can sign up, verify and log in using personal data	P0	
2.		Enlist On Demand Job	As an On Demand Worker, I can see a list of On Demand Jobs	P0	All Jobs / Recommendation Jobs
3.		Apply for a job	As an On Demand Worker, I can apply for an On Demand Job	P0	
4.		Upload proof of work	As an On Demand Worker, I can upload proof of my work	P0	File Format : PnG, JPG, JPEG, PDF, Word, PPT, Max. 1 MB

5.		View job status	As an On Demand Worker, I can see the status of my work.	P0	
6.		Save work	As an On Demand Worker, I can save an On Demand Job to apply for at a later time	P1	
7.		List of saved jobs	As an On Demand Worker, I can see a list of On Demand Jobs that I have saved	P1	
8.		Dashboard On Demand Worker	As an On Demand Worker, I can see the work and status that I have done or are currently working on	P0	
9.		E-Wallet Withdrawal	As an On Demand Worker, I can withdraw funds. Withdrawals can be made to E-wallets and bank accounts	P0	
10.		Drafting On Demand Job	As a Company/Client, I can do On Demand Job drafting to post job vacancies	P0	
11.		List of applicants	As a Company/Client, I can see a list of applicants	P0	
12.		Change the job output status	As a Company/Client, I can change the status of the On Demand Worker's work (approve/reject) when the On Demand Worker has uploaded proof of work	P0	Status : Approve/Reject
13.	Company/Client	List of work results	As a Company/Client, I can see the results of the on demand worker work	P0	
14.		Drafting Job Payment	As a Company/Client, I can post On Demand Jobs and can reduce my top up funds (as payment)	P0	
15.		Pay sallary	On Demand Job application, can pay On Demand Worker wages to various bank accounts from funds that have been Top Up Company/Client	P0	

5.2 Entity Relationship Diagram (ERD)

Creating an ERD aims to assist system developers in designing relationships between tables in creating a database, so actually the ERD is a prospective table, if the ERD design is correct then the database design will also be correct. ERD describes the entity-relationship model which is a combination of the concepts of entities, attributes, and sets between entities. In this research there were 19 entities involved in the On Demand Job application.ERD diagrams are created using the Mysql Workbench tool. My Sql Workbench is connected to the MySQL server installed on the computer to help manage the database for ERD creation and the ERD entity list is created based on an analysis of user needs.

Table 2. List Entity Relationship Diagram (ERD)

No.	Entity	Actor
1	Work Experience	
2	Work Skill	
3	Worker Profile	
4	Worker Document	
5	Worker Language	On Demand Worker
6	Worker Education History	
7	Worker Time Preference	
8	Work Category	
9	Work Commuting	

10	FCM Token	
11	Job	Company/Client
12	Job Application	
13	Job Bookmark	
14	Work Location	
15	Project	
16	Wallet	
17	Company	
18	Wallet Transaction	
19	Wallet Transaction Detail	

Figure 3. Entity Relationship Diagram

5.3 Data Flow Diagram (DFD)

Data Flow Diargram (DFD) is a graphic technique used to explain data flow and data transformation that moves from data entry to output (Hidayat, 2010) DFD is able to describe a process in an application. In this research, DFD is divided into four levels, starting from DFD level 0, DVD level 1, DFD level 1.1, DFD level 2.
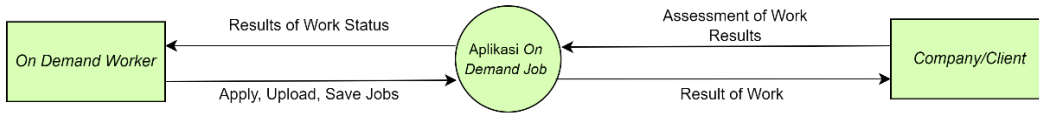

Figure 4. Data Flow Diagram Level 0

DFD level 0 or it could also be a context diagram is the lowest level diagram that describes how the system interacts with external entities. In the context diagram, a number will be given for each running process, generally starting from 0 for the initial start.
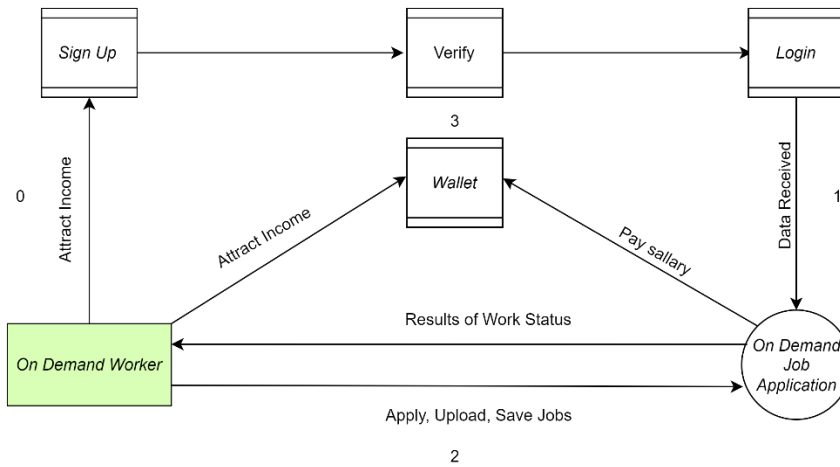

Figure 5. Data Flow Diagram Level 1

DFD level 1 is a further stage of DFD level 0, where all processes in DFD level 0 will be fully detailed so that they are completer and more detailed. Existing main processes will be split into sub-processes.
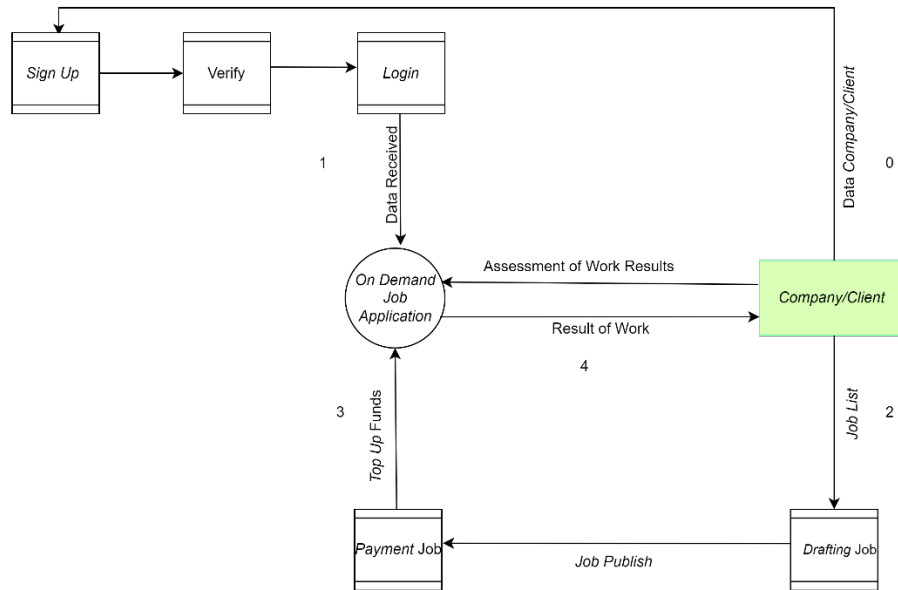
Figure 6. Data Flow Diagram Level 1.1

DFD level 1.1 describes the application process from the company/client side. Starting from application signup to the company/client, you can publish a job and continue with the payment process.
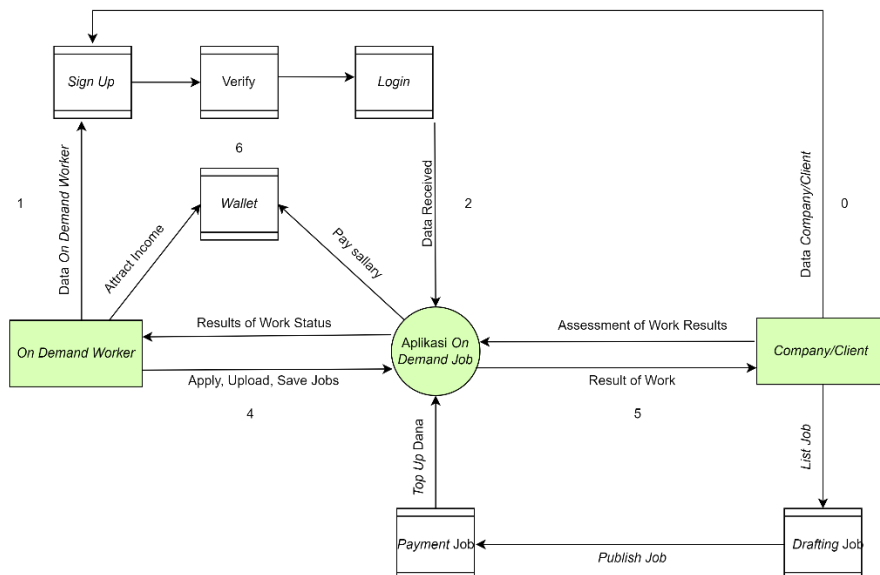

Figure 7. Data Flow Diagram Level 2

DFD level 2 will more fully review the existing processes within the scope of an On Demand Job application. DFD level 2 will explain the process that occurs in the On Demand Job application between the On Demand Worker and the Company/client in full and detail.

5.4 Use Case Diagram (UCD)
The Use Case diagram is a model for the behavior of the information system to be created. Use case describes an interaction between one or more actors with the information system to be created. Use case modeling is a leading technique for determining activity between actors of an application/system (El-Attar, 2019) Use case is a technical approach by

listing all users and the types of task requirements. There are 5 actors in the On Demand Job application: On Demand Worker, Client/Company, Operations, Third Party, Super Admin which can be seen in figure 7.
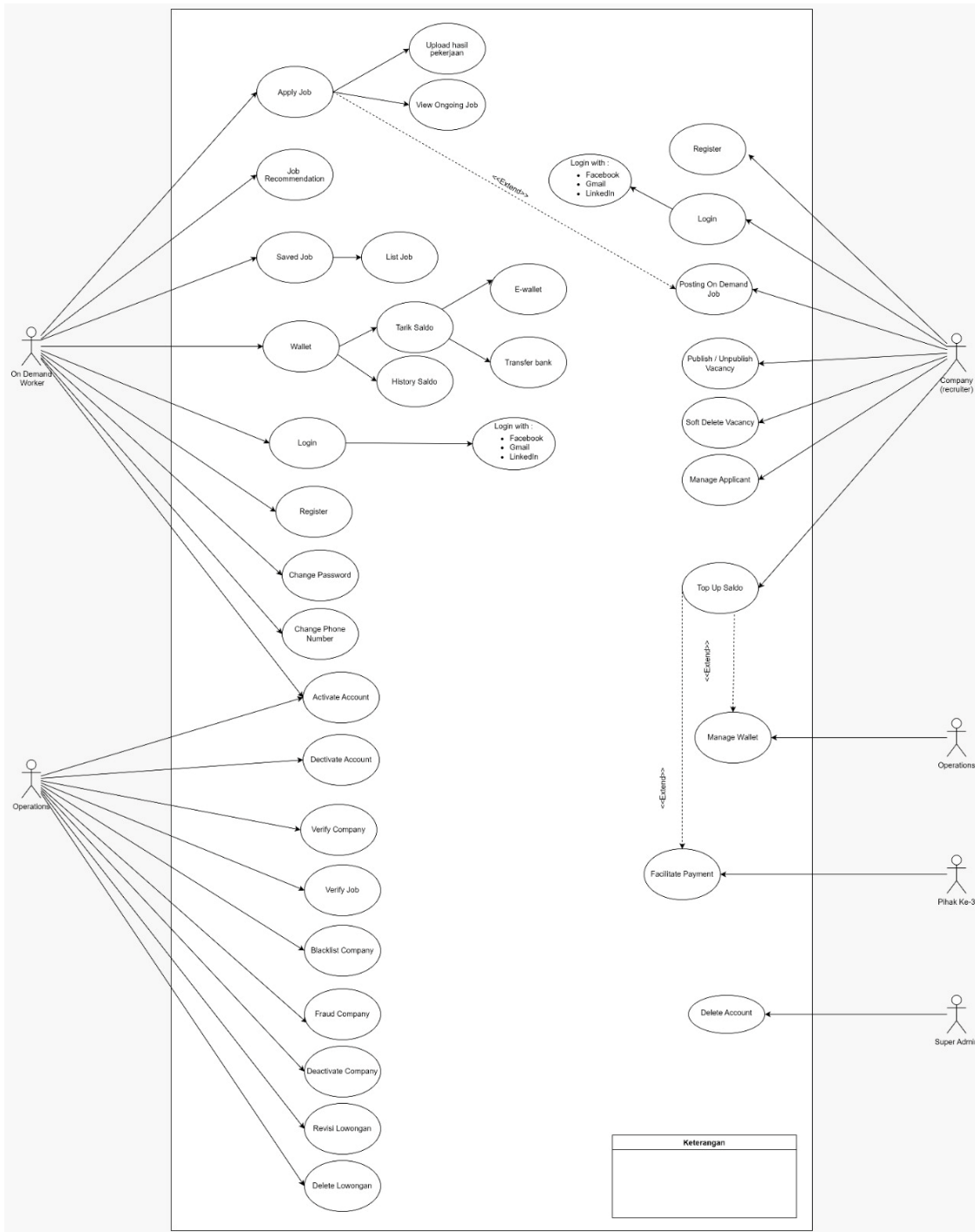

Figure 8. Use Case Diagram on Demand Job Application

6. Conclusion

This study aims to design an On Demand Job application that is easy to use by On Demand Workers The result is that using the SDLC method used in this study can provide solutions from Online Employment Company by understanding the needs of On Demand Job application users from the On Demand Worker side and also the Company/Client side. This

research succeeded in finding solutions related to designing features that will be implemented in On Demand Jobs application. Thus, the On Demand Job application is expected to have a user experience good for users.

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