APPLICATION DEVELOPMENT PINJAMIN FOR RENTAL GOODS SECURELY BASED ON DEMAND USING THE GRAPH API FACEBOOK AND GPS SENSOR ANDROID SMARTPHONE

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ABSTRACT

Development of current goods rental businesses growing seen from the large number of applications applications such as goods rental Store Rental, nyewain.com, sewakamera.com and so on. But there are still problems in the current goods rental business.

Results of interview and observation, the problems that exist in the current goods rental business that is almost 70% of the interviewed communities hesitate in doing stuff tenancy because the tenant or owner of the goods is not familiar at all with people who want to borrow the item and the borrower did not know at all with people who rent such items which resulted in the decline of trust in doing renting goods, as for the other issues, namely the borrowers difficulty in looking for rental items needed quickly is especially urgent need. For information, the borrowers difficulty in knowing information goods are hired to determine the appropriate Charter freight and borrowers difficulty in finding the nearest rental location.

Based on these problems then he thought to make android-based goods rental application named pinjamin, an application that is built can be helpful in the assessment of the reputation of users using the methods of the *trust-based cooperative system* whose data is in a can of activities during the bersosial media using the Facebook Graph API. These goods rental application may help in searching lease goods especially nearby and this application can facilitate users in the renting items.

Keywords: Trust based Cooperative System, Facebook Graph API, GPS Sensor Pinjamin Application, Android Application.

1. INTRODUCTION

1.1 Problem Identification

Development of current goods rental businesses growing seen from the large number of applications applications such as goods rental Store Rental, nyewain.com, sewakamera.com and so on. There are several reasons a person to rent than to make a purchase that is can reduce the risk of losses, financial savings, the savings if the goods are used only for a short while, the savings in maintenance of goods [1] so that the goods rental business into a profitable business. But there are still problems in the current goods rental business.

Results of interview and observation, the problems that exist in the current goods rental business that is almost 70% of the interviewed communities hesitate in doing stuff tenancy because the tenant or owner of the goods is not familiar at all with people who want to borrow the item and the borrower did not know at all with people who rent such items which resulted in the decline of trust in doing renting goods, as for the other issues, namely the borrowers difficulty in looking for rental items needed quickly is especially urgent need. For information, the borrowers difficulty in knowing information goods are hired to determine the appropriate Charter freight and borrowers difficulty in finding the nearest rental location.

Based on these problems then he thought to make android-based goods rental application named Pinjamin, an application that was built to provide information during user activity on social media facebook login applications using a facebook account obtained from Facebook Graph API and the assessment of the reputation the user application by using the method of trust based cooperative system that is taken from a journal entitled "*Trust-Based Cooperative Social System Applied to a Carpooling Platform for Smartphones* "are calculated from the data activity on social media facebook and awarding of rating during the use of goods rental applications, so by using these repute assessment methods can be helpful in gain trust in the lease of the goods in the application of these goods rental and can assist in determining the appropriate people when doing lease goods. Applications that are built based On Demand so that it can help borrowers in the booking of rental items needed on demand, with applications based On Demand of these borrowers can request a lease of goods without having to come to the place of rental goods so as to make it easier for consumers who did not had a chance to come up to the required

goods hire primarily for immediate needs and in this goods rental applications can assist consumers in finding a location information especially the closest and information items are hired to assist the consumer in determining the appropriate goods hire. Because almost the entire community using smartphones and social media facebook app that makes it easy to implementation.

1.2 Goal and Purpose

Based on the problems examined then the intent of the research is to build a Pinjamin Application For Rental Goods Securely Based On Demand using the Graph API Facebook and GPS Sensor Android Smartphone.
While the goals to be achieved in this research are :

1. To help borrowers and tenants of the goods in determining reputation are reliable or not in doing the lease of goods.
2. to helping borrowers in the booking of rental items upon request.
3. To assist the borrower in obtaining information goods are hired to assist the borrower in determining the appropriate Charter items.
4. To assist the borrower in search of the nearest item hire.

2. Content Of The Study

2.1 Android

Android is an operating system for linux-based mobile devices that includes an operating system, middleware, and applications. Android is an operating system for cell phones are Linux-based. Android provides an open platform for developers to create their own applications. It was initially developed by Android Inc., a company that makes newcomers software for mobile phones that was later bought by Google Inc. for its development, an Open Handset Alliance (OHA), a consortium of 34 companies hardware, software, and telecommunications including Google, HTC, Intel, Motorola, Qualcomm, T-Mobile, and Nvidia [2].

2.2 Trust-Based Cooperative System Method

Method of trust based cooperative system is the method that utilizes the reputation assessment activities of the public use of social media to be calculated using the Reputation Algorithm contained in this method [3].

2.2.1 Reputation Algorithm

The main feature is the reputation of the algorithms in this method, the algorithm is Algorthm Reputation used to calculate user activity disosial and activities for using the application that later counted and used as assessment a reputation for trust in using the application. And for the maximum and minimum assessment this reputation is 0 and 1. Here is how to calculate a reputation assessment using the method of trust-based cooperative system [2].

$$df_{ij} = \begin{cases} \frac{\sum(FA_{ij} \cdot wA_{ij})}{MFC_i}, & e_{ij} \in E, \\ 0, & otherwise, \end{cases} \quad (1)$$

Where :

1. FA_{ij} called the Act of friendship, and possibly comments, such as, or other action of the user i in j users on social networks.
2. is the weight of wAij FAij actions and represent the interests of over other actions. The value is between 0 and 1. For example, Facebook, comments are considered more important than as in the proposal. In particular, in the proposal, the weight of comments is 0727, while heavy like like 0273, according to values that are Retrieved from the data shown in the survey. The system can detect comments positive, negative and neutral that uses machine learning algorithms.
3. the maximum coefficient of friendship called MFCi, and represents the maximum amount of weighted action performed by the user Value is: i. Maxj (∑ (FAij. wAij)).

The following are procedures for calculating a person's reputation, whose data was obtained from using social media activities and activities for using applications such as granting charts [2].

$$TR_{ij} = \begin{cases} DT_{ij}, & \text{if users } i \text{ and } j \text{ are direct friends}, \\ IT_{ij}, & \text{if some friendship chain exists from user } i \text{ to user } j, \\ NT_{ij}, & \text{if no friendship chain exists from user } i \text{ to user } j, \end{cases} \quad (2)$$

Where :

1. If users i and j are direct friends, instantly believed (DT) is obtained using the equation.

$$Dtij = dfij \cdot wF + ari \cdot wR. \quad (3)$$

2. If there is no network of friendship from user to user i j, the equation is applied.

$$NT_{ij} = ar_i \cdot wR, \quad (4)$$

Description :

1. wF is called the weight of friendship, and its value (0625) obtained with the happiness

of the average person with their friends in social network Facebook;
2. wR is the weight Rating, whose value is retrieved by using the 1 − wF, so 0375;
3. F (i → j) provide the level of friendship from users i for j users obtained through the network of friendship.

2.3 Discussion

Goods rental application named pinjamin aims to facilitate the community in making transactions lease of goods, including goods from search search site leasing and rental goods. This item can hire application helps in determining the reputation of someone who wants to make transactions lease of goods. Analysis of the existing problems include such things as follows :

1. Borrowers and tenants of the difficulty in determining whether the reputation of trustworthy or not in doing the lease of goods.
2. Borrowers difficulty in looking for rental items needed quickly especially for urgent needs.
3. Borrower's Difficulty in knowing information goods in rent.
4. the borrower has difficulty in finding items especially items rental hire.

2.4 The use of methods of the Trust-Based Cooperative System

In this study using the method of Trust based Cooperative System which that method is used as the assessment of reputation on the lease application stuff.

Table 1 The Value Of Reputation

Trust Level	The value of the
[0 – 0.15]	E
[0.15 – 0.25]	D
[0.25 – 0.5]	C
[0.5 – 0.75]	B
[0.75 - 1]	A

Table 2 The Terms Value Rating On The Application

Start Rating	Borrower	Tenants
1 Star	0.00 Poin	0.15 Poin
2 Star	0.15 Poin	0.25 Poin
3 Star	0.25 Poin	0.50 Poin
4 Star	0.50 Poin	0.75 Poin
5 Star	0.75 Poin	1.00 Poin

2.4.1 Calculation Of The Reputation Of Friends Instantly.

The assessment of the reputation is to compute the confidence level of a user named Ricky Azis as the owner of goods or a lease of goods obtained from a user named Ricky Afridery as borrowers who disosial his friendship is friends directly.

2.4.2 Maksimal Friendship Coefficient (MFC)

MFC used to calculate maximum friendship, and represents the maximum number of actions taken to Ricky Afridery Ricky Azis for friends in social media.

$$Max(\sum(fa.wa) = (28\ x\ 0.273) + (10\ x\ 0.727) = 7.644 + 7.27 = 14.914 \quad (5)$$

Description :

1. Max = maximum of friendship acquired Ricky Azis for friends with Ricky Afridery
2. FA = Friendship Action, i.e. actions which are done to Ricky Afridery Ricky Azis in social media.
3. WA = Weight Of The Action, namely weights for calculating the activity during media disosial has the value weights weights and value 0727 comments like 0273.

2.4.3 Calculates The Confidence Level (TR)

This calculation is used to compute the confidence level of Ricky Afridery as a borrower to Ricky Azis as the owner of the goods which are used for the assessment of reputation on the application of leasing goods. This calculation is used to compute the confidence level of Ricky and Ricky Azis Afridery be friends disosial direct media.

Table 3 The Number Of Social Media Data Of The Owner Of The Goods

User	Social Media Data	The total number of
Ricky Azis	Like In Facebook	28
	The Number Of Positive Comments	4
	Trust Rate (TR)	0,77 (A)

Table 4 Number Of Ratings Obtained In Using The Application

User	Borrower	Tenants
Ricky Azis	0.75 Poin	1 Poin

$$DT = \frac{df}{MFC}\ x\ wF + \frac{ar}{Jumlah\ Rating}\ x\ wR \quad (6)$$

$$DT = \frac{(28\ x\ 0.273) + (4\ x\ 0.727)}{14.914}\ x\ 0.625 + \frac{0.75}{2}\ x\ 0.375 = 0.442 + 0.328 = 0.77$$

Description :

1. DT = Direct Trust, namely to calculate the level of trust in a friend's status directly on the social media.

2. DF = Degree Of Friendship, namely the level of friendship disosial media.
3. WF = Weight Of Friendship, to calculate the level of friendship disosial media. Its worth 0625.
4. WR = Weight Of Rating, to count the number of rating obtained. Value 1 = wF-0375.
5. AR = Average Rating, that is, to calculate the amount of rating obtained in the application.

2.4.4 Calculation of Reputation there is no Friendship Network (NT)

This calculation is used to compute the confidence level of the dawn Setiana as the owner of the goods obtained from Ricky Afridery as a borrower and its status there is no friendship at all network between Dawn Setiana and Ricky Afridery.

Table 5 Rating To Count If The Status There Is No Friendship

User	Borrower	Tenants
Fajar Setiana	0.50	0.50
	0.75	1
	Trust Rate (TR)	0.258 (C)

$$NT = \frac{0.50 + 0.75 + 0.50 + 1}{4} x\ 0.375 = \frac{2.75}{4} x\ 0.375 = 0.258 \quad (7)$$

Description :
NT = Not Trust, that is, to calculate the degree of confidence if not direct friends.

2.5 Artisektur Get Data Comment and the Like.

In this research to get positive comments, this research uses the Uclassify API data obtained from the Facebook Graph API. Here is a comment get the data architecture and the like goods rental application named Pinjamin.

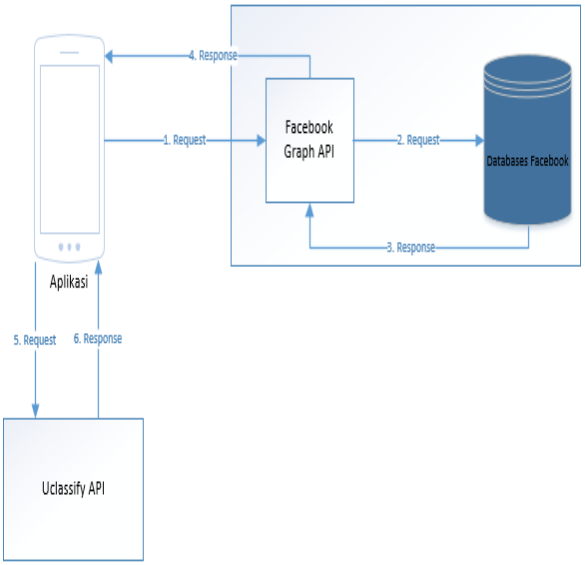


Figure 1 Architecture and get comments Like

The following is a description of the image Data Architecture 2.1 Get the comment and Like:

1. Applications do request data comments and like to graph api.
2. Graph api do request comments and data to a database like facebook.
3. The Database sends a response requested data to the graph api.
4. Graph api sends the requested data response to the application.
5. Applications transmit data comments and applications do request to Uclassify API to get positive comments.
6. submitting API response data Uclassify positive comments to the application.

2.6 The Architecture Of The Facebook Graph API

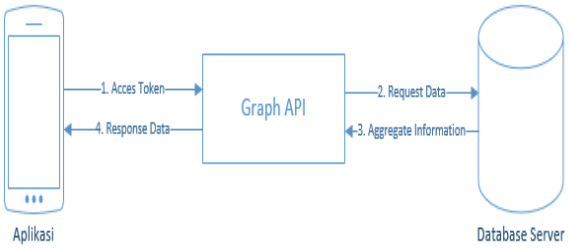


Figure 2 The Architecture Of The Facebook Graph API

The workings of the Facebook Graph API on Rentals Application stuff.

1. Application requesting the data public facebook to Facebook Graph API.
2. Facebook Graph API requests data in a public database to facebook facebook.
3. The Database of facebook data public facebook sends a request to the Facebook Graph API.
4. Facebook Graph API sends a request to the application of the public data to be displayed.

2.7 Design Interface

1. Form Login

The design of the interface of the login form is to login.

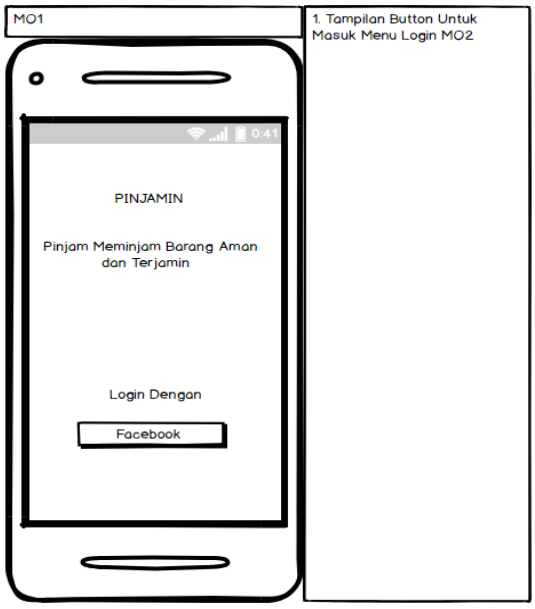


Figure 4 Form *Login*

2. Form Input Login

The design of the interface is to do the login input input login application.

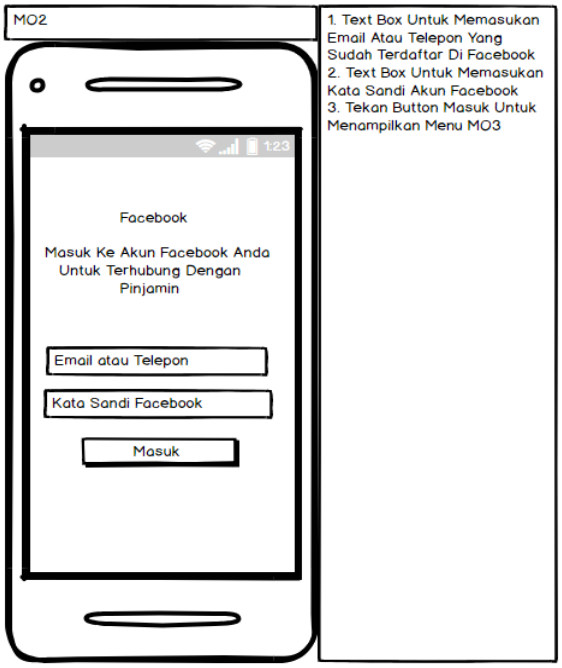


Figure 5 Form *Input Login*

3. The main Menu Form.

The design of the interface is the main menu to display the main menu.

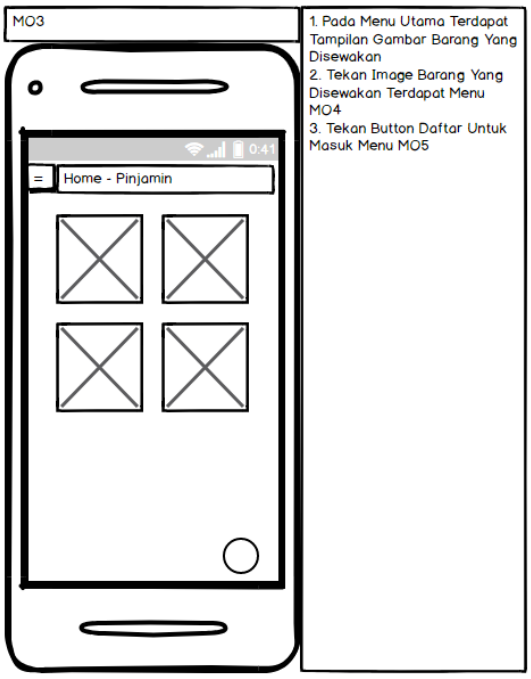


Figure 6 The Main Menu Form

4. Form Detal Ads

The design of the interface detail ad is to see the details of the ad.

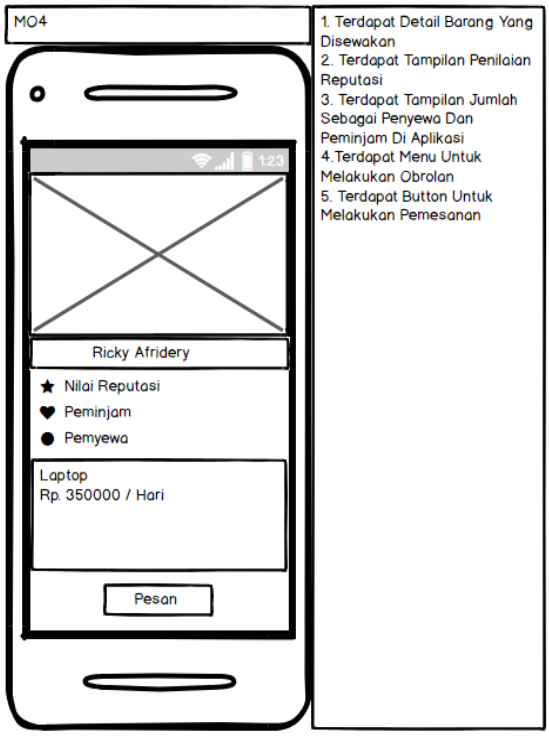


Figure 7 Form Detail Ads

5. Form The List Ads

The design of the interface list ad is lease advertising to do list items.

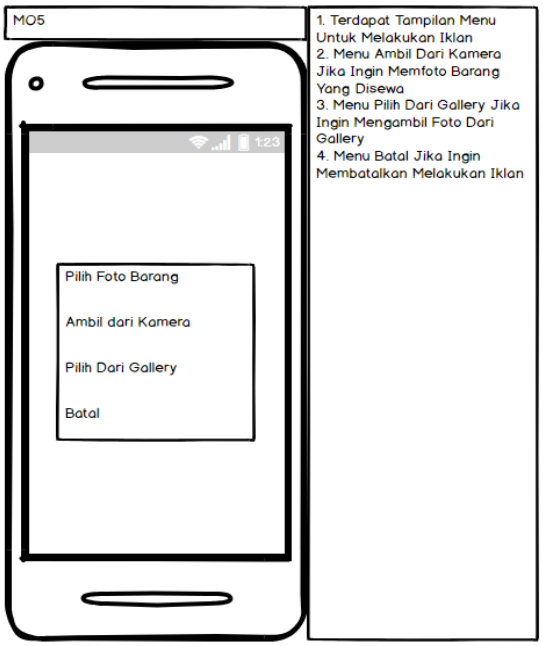


Figure 8 Form The List Ads

6. Form Input Goods Rental Information

Input interface design of rental information goods is to menginputkan what information to use in advertisements of rental items.

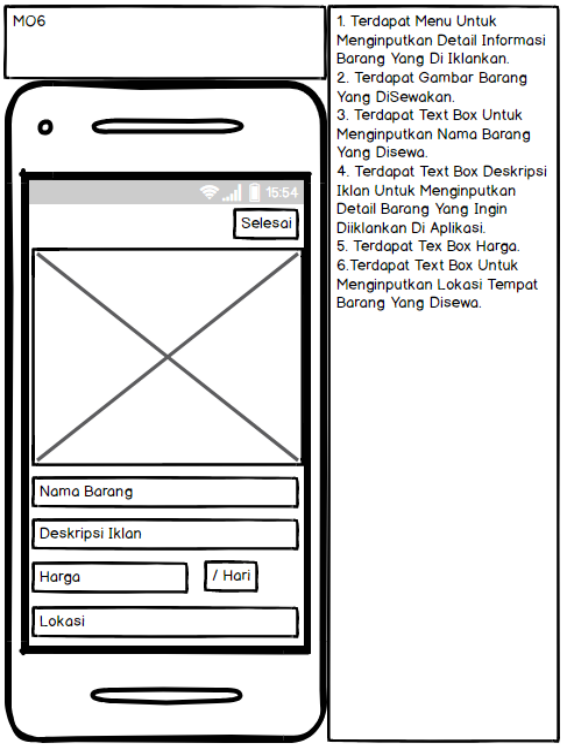


Figure 9 Form Input Goods Rental Information

7. The Form Of Lease Notice Menu Items

The design of the interface of a lease of goods is to provide notification of apabaila there are the hired goods.

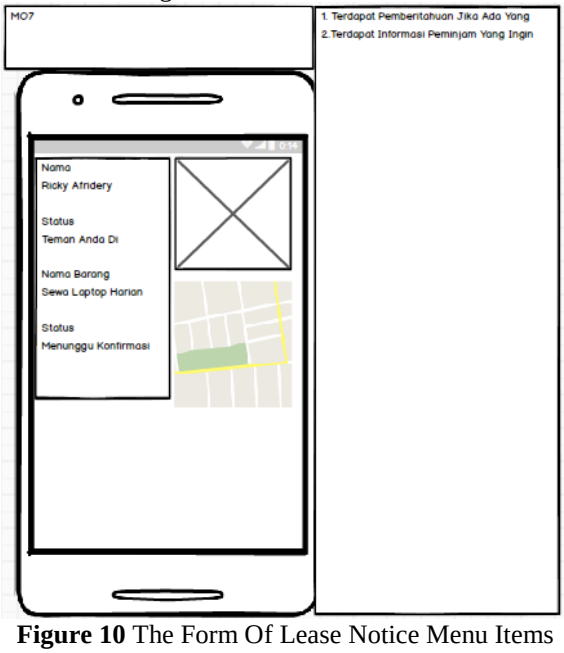


Figure 10 The Form Of Lease Notice Menu Items

8. The Form Location Information Transactions Lease Of Goods

The design of the interface location information transactions lease of goods is to display the location to conduct transactions lease goods

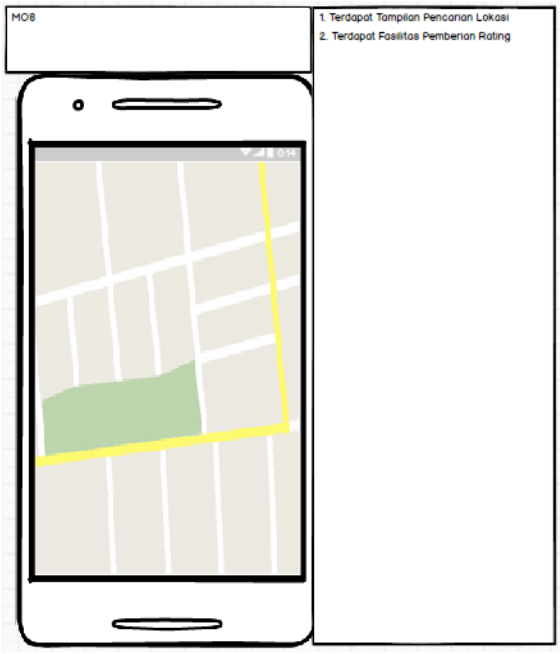


Figure 11 The Form Location Information Transaction Lease Of Goods

2.8 The Design Of The Semantic Network

Semantic network is the description of the graphic that shows knowledge of the relationships between objects (circle) and lines that describe the objects between different formations

.

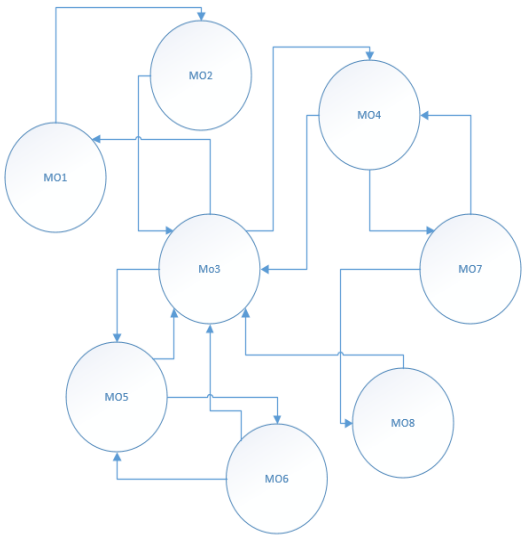


Figure 12 The Semantic Network

Tabel 6 Table Code View

No.	Code View	Description
1	MO1	Form Login
2	MO2	Form Input Login
3	MO3	The Main Menu Form
4	MO4	Form Detail Ads
5	MO5	Form The List Ads
6	MO6	Form Input Goods Rental Information
7	MO7	The Form Of Lease Notice Menu Items
8	MO8	The Form Location Information Transactions Lease Of Goods

2.9 In Conclusion Alpha Testing

Based on the results of software testing that is done then it can be inferred that the Goods Rental application software already running as expected.

2.10 The Conclusion Of The Beta Test

Based on the results obtained by the conclusion that beta test:

1. The community agrees to pinjamin if the application makes it easy to do transaction the lease of goods.
2. The community agree if the application pinjamin ease in finding a rental item is needed.
3. The community agree if the application pinjamin ease in renting goods.
4. The community agree if the application makes it easy for pinjamin in selecting people to do transaction the lease of goods.

3 COVER

3.1 Conclusion

Based on the test results and discussion has been made then it can be concluded that:

1. Pinjamin Application can facilitate in conducting transactions lease of goods.
2. application pinjamin can simplify communities in selecting people to do transaction the lease of goods.
3. application pinjamin can make in finding a lease of goods.
4. application pinjamin can simplify communities in renting goods.

3.2 Advice

Advice that can be given to the development of this pinjamin application is:

1. Can conduct transactions to apply so as to facilitate payment of rent in doing things.
2. Add the chat feature to help in conducting transactions lease the goods in the application pinjamin.

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