

# ANALYZE MULTIPLE CHOICE ITEMS USING PHP PROGRAMMING LANGUAGE

(Case Study: SMAN 1 Klari Karawang)

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**ABSTRACT**---High School is one of the High Schools in the Indonesian national education system. Students must be more intense in the learning process in order to get opportunities to the Higher Education level as expected, for that teachers must provide more precise and effective teaching. The purpose of this study is to build applications using the PHP programming language so as to facilitate teachers in analyzing multiple choice items quickly and accurately. This research methodology is based on the results of the analysis of the research model that will be used, the results of the selection of the development of the system is used the Waterfall model. The results of this study are to build applications using the PHP programming language making it easier for teachers to analyze the items quickly and accurately.

**Keywords**---Application, Multiple Choice Problem Items, Waterfall Model.

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## I. PRELIMINARY

High School is one of the High Schools in the Indonesian national education systems. Where students must be more intense in the learning process in order to get opportunities to the Higher Education level as expected, for that the instructor must provide more precise and effective teaching, as well as the provision of multiple choice items during the evaluation in the learning process. So that items can be obtained in accordance with the basic competencies and abilities of students.

SMAN 1 Klari Karawang is a high school that requires every teacher to analyze the items at the end of each midterm or midterm, but the use of the media is still not appropriate because it still uses a paper format that must be filled manually or still using Microsoft Excel. As for the results of this process: the occurrence of errors or errors in the addition or processing of data, so it must be repeated from the beginning. So the process will be long and not accurate.

Therefore in this research the researcher will discuss "Analyzing Multiple Choice Questions Using the PHP Programming Language at SMAN 1 Klari Karawang", which aims to build applications using the PHP programming language making it easier for teachers to analyze items quickly and accurately.

## II. LITERATURE REVIEW

Applications can be interpreted as a software program that runs on a particular system that is useful for helping various activities carried out by humans. In addition to the above understanding, there are many meanings of the word 'Application' expressed by experts. Here are some application definitions according to some quite popular experts:

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1. Ali Zaki and Smitdev Community

According to Ali Zaki and Smitdev Community, the Application is a useful component as a medium for carrying out data processing or various other activities such as making or processing documents and files.

2. Sri Widianti

According to Sri Widianti, the Application is a software (software) that served as a front end on a system that is used to manage various kinds of data so that it becomes a useful information for its users and also related systems.

3. Harip Santoso

According to Harip Santoso, an application is a group of files (classes, forms, reports) intended to execute certain interrelated activities such as for example payroll applications and fixed asset applications.

4. Yuhefizar

According to Yuhefizar, Applications are programs that are deliberately created and developed to meet the needs of users in carrying out a particular job.

5. Hengky W. Pramana

According to Hengky W. Pramana, the understanding of application is a unit of software that is deliberately made to meet the needs of various activities or jobs, such as commercial activities, advertising, community services, games, and various other activities carried out by humans.

#### **Definition of Hypertext Preprocessor (PHP)**

Hypertext Preprocessor (PHP) is a programming language that is widely used for handling the creation and development of a website and can be used in conjunction with HTML. PHP was created by Rasmus Lerdorf for the first time in 1994. According to Tommy (2016: 95), "PHP is a scripting language which integrates with HTML and resides on a server (server side HTML embedded scripting). The commands that we enter will be fully executed and carried out on the server."

Whereas according to Achmad Solichin in his book *Web programming with PHP and MySQL* (2016: 11) argues that: "PHP is a web-based programming language written by and for web development. PHP was developed with the initial purpose only to record visitors on Rasmus Lerdorf's personal site. In the second release, a translator form was added, a tool to translate SQL commands".

#### **Definition of MySQL**

According to Sutanto (2014: 73), states that: MySQL is also called SQL, which stands for structured Query Language. SQL is a structured language that is specifically used to process databases. MySQL is also open source and at relational which means that data managed in a database will be placed in several separate tables so that data manipulation will be faster.

whereas, according to Hendry (2015: 1), stated that: MySQL is an implementation of a relational database management system that is distributed free of charge under the GPL (General Public License) license. Each user can freely use MySQL, but with software limitations it cannot be used as a commercial derivative product.

In Indonesian Journal on Networking and Scurity (IJNS) Vol.2 No.3 (2013: 56), Priyanti et al argue that: MySQL is actually a derivative of one of the main concepts in a database that already exists; SQL (Structured Query Language).

SQL is a database operation concept, especially for the selection or selection and entry of data that allows data operations to be done easily automatically.

Based on the above opinion the researchers concluded that MySQL is the main concept in a structured database specifically used to process databases.

### **Definition of XAMPP**

According to Sutanto (2014: 72) states that: XAMPP stands for X (any four operations), Apache, MySQL, PHP, and Perl. XAMPP is a tool that provides software packages into one package. In the package there are already Apache (Web Server), MySQL (database), PHP (server side scriping), Perl, FTP server, PhpMyAdmin and various other supporting libraries.

According to Yudhanto et al. (2014: 11), XAMPP is an open source PHP and MySQL package that is currently the mainstay of PHP programmers in programming and testing the results of their programs ".

According to Imam D. S. and Sismoro in the scientific journal DASIS Vol.16 No.1 March (2015: 30) states XAMPP is a software in which MySQL database server is available. XAMPP is software that is easy to use, free and supports installation on Linux and Windows.

Based on some of the opinions above, researchers can draw the conclusion that, XAMPP is a web-based triad package program that is Apache, PHP and MySQL databases that by installing XAMPP then we no longer need to install and configure Apache, PHP and MySQL web servers manually, XAMPP will install and configure it automatically.

### **Database Definition**

A database is a collection of data elements that are intended to meet the information needs of an organization and are designed to be shared by several users.

According to Sujatmiko (2012: 76), argues that the database is a database or representation of a collection of interconnected facts that are stored together in such a way and without unnecessary redundancy, to meet various needs.

According to Haerudin et al in the CCIT journal (2013: 18), states that "the database is one important component in the information system, because it serves as a line of information providers for its users. Application of a Database in an information system is called a Database System.

According to Pratama (2014: 17), states that "The database element in an information system functions as a medium for storing data and information owned by the relevant information system. Every application and system that has data in it (accompanied by data manipulation processes in the form of insert, delete, edit / update), must have a database ".

Based on some of the opinions above it can be concluded that the database is a collection of information system data that has ease to be accessed in the system or in the application quickly and efficiently

## **III. RESEARCH METHODOLOGI**

The research methodology was compiled based on the results of the analysis of the research model to be used, the results of the selection of the development of the system used the Waterfall model, the following is a flow chart of this research methodology:

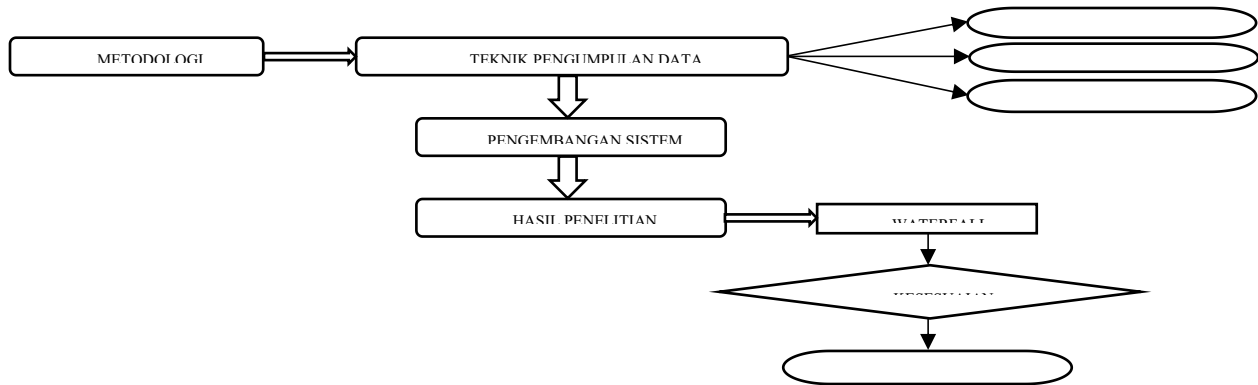


Figure 3.1 Research Flowchart

### Data Collection Techniques

In collecting data researchers used several methods including:

#### a. Observation method.

The method of observation is systematic observation and recording of symptoms that appear on the object of research. This method is used to systematically observe and record the symptoms that appear on the object of research. This method is used to obtain information by making careful observations and records about the implementation of the multiple choice item analysis process conducted by the teacher of Klari Karawang High School.

#### b. Interview Method

Interview is a method of collecting data through observation by conducting question and answer that is done verbally to teachers at SMAN 1 Klari Karawang. In conducting interviews the author uses the type of free guided interviews, meaning that in conducting interviews the interviewed people are given the freedom to provide answers. But it also can not be separated from the main guidelines that have been prepared.

#### c. Documentation Method

Documentation is looking for data about things or variables in the form of notes and so on. This method is used to collect data on matters relating to research such as question sheets and answer keys, student answer sheets, and other supporting data

### Research Steps

The main steps taken in this study are:

- Make a formulation of the objectives to be achieved. What is used as the object of research is possible to be processed by researchers.
- Make a plan for the approach. How will the object be selected? Which data sources are available. Which data collection method will be used?
- Collecting data that has been collected by researchers.
- Prepare a report at the same time applying to the system to be made by researchers.

### Data Sources

To create and test an application a data source is needed, that is data taken from the village officials and local residents as the executor of the object directly involved in the car loan licensing process. Data source used in designing CMS applications. by type, including:

**a. Primary / Primary Data**

Namely the data obtained from village officials and local residents used to make the process of licensing the village car loan, as well as the data needed to make this CMS application.

**b. Backup / Secondary Data**

Namely information data obtained in the form of research journals, articles and books from any agency as supporting data in making this CMS application.

**3.1. Development Methods**

Development method is a systematic or orderly method which aims to analyze the development of an old system so that the new system can meet the needs. SDLC (System Development Life Cycle) method with the waterfall model that will be used in the CMS application development method for E-commerce based sales, because the method is an idea for developers and users to know the function of an application to be developed. 5 Stages of the Waterfall Model in the SDLC (System Development Life Cycle) development method for developing software such as the following model illustrations:

The reason researchers use the waterfall method is because applying it using this model is easy, the advantage of this model is also when all system requirements can be defined as a whole, explicitly and correctly at the beginning of the project, then the waterfall can run well and without problems. Although step by step through must wait for the completion of the previous stage and run sequentially.

Some stages of the waterfall method, namely: as shown below.

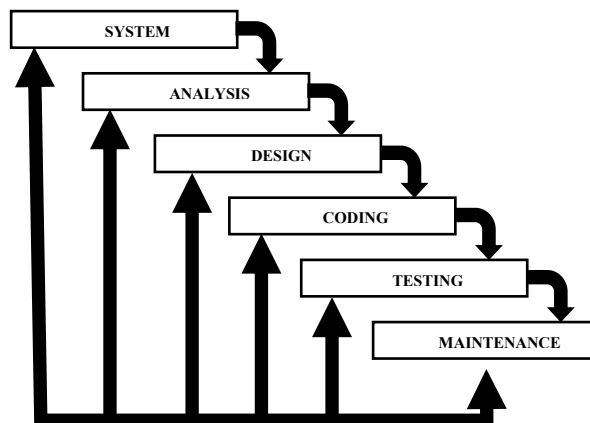


Figure 3.2 Waterfall Method

In detail the explanation in Figure 3.2 is:

- a. System Engineering, is the initial part of working on a software project. It starts with preparing everything needed for the project.
- b. Analysis, is the stage where System Engineering analyzes everything that exists in making projects or developing software that aims to understand the existing system, identify problems and find solutions.
- c. Design, is the translating stage of the needs or data that has been analyzed in a form that is easily understood by the user (user).
- d. Coding, is a data translator stage that is designed into a predetermined programming language.
- e. Testing, is the stage of testing the system or program after it has been created.
- f. Maintenance, is the stage of overall system implementation accompanied by maintenance in case of structural changes, both in terms of software and hardware.

#### IV. RESULTS AND DISCUSSION

Analysis can be defined as the decomposition of a complete information system into its component parts with a view to identifying and evaluating problems, opportunities and obstacles that occur as well as the expected needs so that improvements can be proposed.

System analysis will provide an overview of the system currently running and aims to find out more clearly how to work or design the system and to define and evaluate problems occur and the needs that are expected to be proposed an improvement.

##### a. Observation Results

Observation material to obtain data on the completeness of office equipment that supports teacher performance at SMAN 1 Klari, Karawang Regency.

Tabel 4.1 Observation Material

No.	The observed aspect	Observation Result		Remarks
		Yes	No	
1	Computer	✓		
2	Printer	✓		
3	Table	✓		
4	Laptop	✓		
5	Typewriter		✓	
6	Office	✓		
7	Form item point analysis	✓		

##### b. Interview Results

After conducting interviews with teachers who can provide information on the object of research, researchers pour the results of the study as outlined in the description of the results of the study, the following results of the interview are:

Teacher Interview

Tabel 4.2 Teacher Interview Questions

No.	Question	Answer
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1	When do the item analysis? How many items are commonly analyzed?	After UTS and UAS 20 to 25 multiple choice item
2	How long will the results of the analysis of this item be obtained?	One to two days because they have to be careful in entering their data
3	What are the obstacles in analyzing the items?	One by one the data in the input then complicated and the calculation of the formula that makes dizzy
4		

Based on the interview data above, it can be concluded that the identification of problems found at SMAN 1 Klari includes:

1. In terms of input and data processing students are still very manual
2. The time taken is long
3. When calculating using a formula, it requires accuracy and focus

**c. Documentation Results**

INPUT DATA DI BAWAH INI (Pastikan dengan Benar)									
Nama Sekolah	SMA NEGERI 1 KLARI								
Mata Pelajaran									
Kelas/Program	UTS								
Nama Tes	URAIAN PRAKTIK								
Bentuk Tes									
KKM									
Nama Pengajar	NIP.								
Kepala Sekolah	Drs. Yunus Anis, M.Ag								
Tanggal Ujian	NIP. 1995 1030 199002 1 001								
	12 Oktober 2015								
PEDOMAN PENSKORAN									
SKOR	Nomor Soal					Jumlah Skor	Skala Nilai		
Skor Maksimum	1	2	3	4	5	0	0		
Skor Minimum						0	0		
NO	NAMA SISWA	L/P	Nomor Soal					Jumlah Skort	Nilai
			1	2	3	4	5		
			Skor Yang Dicapai Siswa						
1								0	
2								0	
3								0	
4								0	
5								0	
6								0	
7								0	
8								0	
9								0	
10								0	
11								0	
12								0	
13								0	
14								0	
15								0	
16								0	
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29								0	
30								0	
31								0	
32								0	
33								0	
34								0	
35								0	
36								0	
37								0	
38								0	
39								0	
40								0	
41								0	
42								0	
43								0	
44								0	

**DAFTAR NILAI SISWA**

Nama Sekolah : SMA NEGERI 1 KLARI  
 Mata Pelajaran : 0  
 Kelas/Program : 0  
 Nama Tes : UTS  
 Bentuk Tes : URAIAN PRAKTIK  
 KKM : 0  
 Nama Pengajar : 0

NO	NAMA SISWA	Jumlah Siswa	Nilai	Keterangan Ketuntasan Belajar
1	0	44	0	Belum Tuntas
2	0	44	0	Belum Tuntas
3	0	44	0	Belum Tuntas
4	0	44	0	Belum Tuntas
5	0	44	0	Belum Tuntas
6	0	44	0	Belum Tuntas
7	0	44	0	Belum Tuntas
8	0	44	0	Belum Tuntas
9	0	44	0	Belum Tuntas
10	0	44	0	Belum Tuntas
11	0	44	0	Belum Tuntas
12	0	44	0	Belum Tuntas
13	0	44	0	Belum Tuntas
14	0	44	0	Belum Tuntas
15	0	44	0	Belum Tuntas
16	0	44	0	Belum Tuntas
17	0	44	0	Belum Tuntas
18	0	44	0	Belum Tuntas
19	0	44	0	Belum Tuntas
20	0	44	0	Belum Tuntas
21	0	44	0	Belum Tuntas
22	0	44	0	Belum Tuntas
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28	0	44	0	Belum Tuntas
29	0	44	0	Belum Tuntas
30	0	44	0	Belum Tuntas
31	0	44	0	Belum Tuntas
32	0	44	0	Belum Tuntas
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35	0	44	0	Belum Tuntas
36	0	44	0	Belum Tuntas
37	0	44	0	Belum Tuntas
38	0	44	0	Belum Tuntas
39	0	44	0	Belum Tuntas
40	0	44	0	Belum Tuntas
41	0	44	0	Belum Tuntas
42	0	44	0	Belum Tuntas
43	0	44	0	Belum Tuntas
44	0	44	0	Belum Tuntas
Nilai Tertinggi			0	
Nilai Terendah			0	
Nilai Rata-rata			0	
Jumlah Peserta Ujian		44		Orang
Jumlah Yang Tuntas				Orang
Jumlah Yang Belum Tuntas		44		Orang
Di Atas Rata-rata				Orang

Figure 4.1 Data Entry

**ANALISIS BUTIR SOAL URAIAN**

SKOR	PEDOMAN PENSKORAN					Jumlah Skor	Skala Nilai
	Nomor Soal						
	1	2	3	4	5		
Skor Maksimum	0	0	0	0	0	0	0
Skor Minimum	0	0	0	0	0	0	0

**KELOMPOK ATAS**

NO	NAMA SISWA	Nomor Soal				
		1	2	3	4	5
Skor Yang Dicapai Siswa						
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
Jumlah Skort		0	0	0	0	0

**KELOMPOK BAWAH**

NO	NAMA SISWA	Nomor Soal				
		1	2	3	4	5
Skor Yang Dicapai Siswa						
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
Jumlah Skort		0	0	0	0	0

Figure 4.2 Analysis of the item description





**KETUNTASAN BELAJAR**

**KETUNTASAN BELAJAR.**

a. Perorangan.

Jumlah siswa seluruhnya	: .....	Orang
Jumlah siswa yang sudah tuntas belajar	: .....	Orang
Prosentase banyak siswa yang sudah tuntas	: .....	%

b. Klasikal

	: Tuntas
--	----------

Siswa yang sudah Tuntas berhak mengikuti Pengayaan setelah KBM, sehingga siswa mendapat pengetahuan yang lebih luas lagi.

Sedangkan siswa yang Belum Tuntas diantaranya;

1. ....
2. ....
3. ....
4. ....
5. ....
6. ....
7. ....

Yang akan mengikuti Remedial. Adapun alasan ke-..... siswa yang Belum Tuntas ini dikemukakan;

1. Kondisi badan yang kurang sehat
2. Ada masalah pribadi siswa
3. Kurang Persiapan
4. Tidak Belajar

Remedial berupa PRAKTIK yaitu dengan 1 soal kasus yang harus dipraktikan, mengenai isi soal yang akan diberikan kepada siswa yang Remedial masih sama, akan tetapi format yang sedikit berbeda, dengan tujuan lebih dipahami lagi oleh siswa yang mengikuti Remedial tersebut.

Remedial ini diikuti oleh siswa yang memperoleh nilai dibawah KKM dengan nilai yang akan diperoleh paling tinggi nilai KKM. Apabila ke-..... siswa tersebut ada yang belum mencapai nilai KKM maka harus mengikuti Remedial yang berikutnya untuk mencapai nilai KKM dan begitu seterusnya.

**Keterangan**

1. Daya serap perorangan / individual  
Seorang siswa telah tuntas belajar bila ia telah mencapai skor 75% atau nilai 75
2. Daya serap klasikal  
Suatu kelas telah tuntas belajar bila di kelas tersebut telah mencapai 80% siswa yang telah mencapai dengan daya serap 75%

Kepala Sekolah  
SMA Negeri 1 Klari,

Klari, .....  
Guru Pengajar.

Drs. Yunus Anis M.Ag.  
NIP.196510301998021001

Figure 4.5 Mastery Learning

Program Remedial dan Penguayaan						
No	Kesulitan Belajar		Indikator	Langkah-langkah Perbaikan / Penguayaan	Alat / Sumber	Keterangan
	KD	Materi				
1				1. Materi pelajaran diterangkan kembali 2. Siswa disuruh mempelajari kembali materi tersebut yang akan diujikan 3. Diberikan Tes Tertulis 4. Berikan soal PG dan Uraian 5. Berikan soal kasus Praktikum	Buku paket dengan pennebrbit dari Erlangga, penyusun Sadiman, SPd	Tuntas 75

Mengetahui  
 Kepala Sekolah  
 SMA Negeri Klari  
 Drs. Yonis Anis, M.Ag.  
 NIP. 196510301998021001

Klari, .....  
 Guru Mata Pelajaran

Figure 4.6 Remedial and Enrichment Program

### System Design Analysis

To develop Web applications, some software is needed.

### Preparing for Application Development

#### a. Instalasi Software Xampp

- 1 Click the Xampp installer file that you downloaded.
- 2 When the xampp installation window appears, click Next to start the installation process.
- 3 A window will display the location of the destination destination (destination folder), specify the location (folder) where XAMPP will be installed by pressing the Browse button. then click the Next> button to continue the installation process.
- 4 Then a selection window will appear for easy access to XAMPP later. Press the Install button to continue the installation process.

Wait until the installation process is complete then click Finish

### System Planning

#### Actor identification

In a multiple choice question information system to be designed, the identified actors are:

1. Admin (Primary System Actor).

## 2. Teacher (Primary Business Actor / Primary Business Actor)

From the actors mentioned above, identified activities that support the running of the system designed, along with the intended activity table.

Tabel 4.3 Identifikasi Aktor

Aktor	Tipe Aktor	Aktifitas Aktor
Teacher	<i>Primary Business Actor</i>	Primary Business Actor Teacher People who interact directly with the system to input multiple choice questions
Admin	<i>Primary System Actor</i>	Manage applications as new systems that are normally accessed by teachers

### Activity Diagram

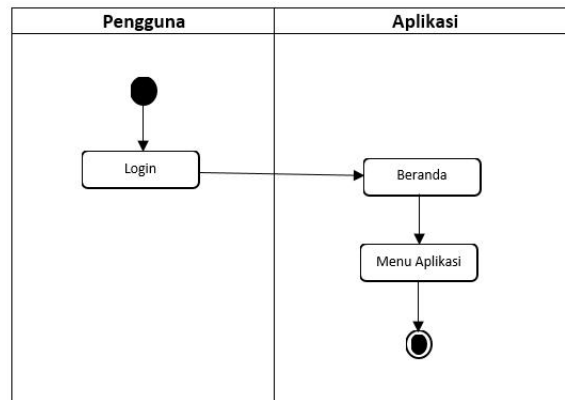


Figure 4.7 Activity Diagram

### Use Case

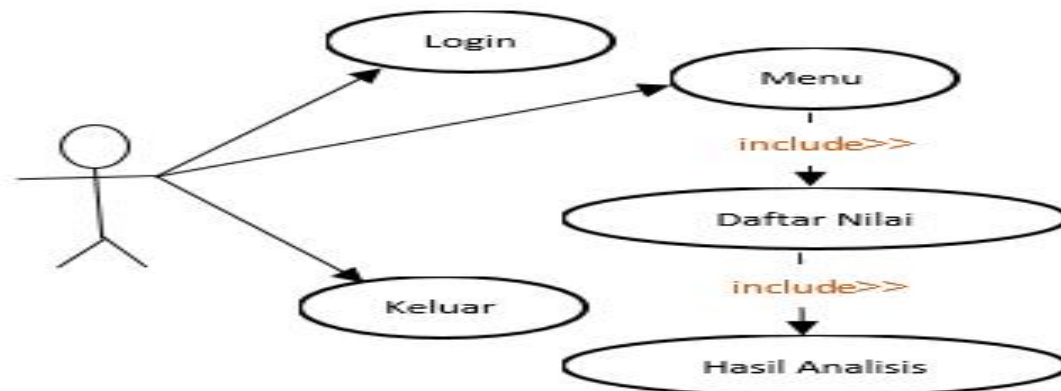


Figure 4.8 Use Case

### Identification of Attributes dan Methods

The attributes and methods that can be identified from messages between objects drawn on the Use Case Diagram are as follows:

Tabel 4.4 Identifikasi Attributs dan Methods

No.	Class	Attributes	Methods
1	Teacher	Item analysis application users	
2	Purpose	Display the order menu regularly	

### User Interface Design



Figure 4.9 App Home View

ISI DATA		ANALISIS SOAL
Mata Pelajaran	:	CETAK HASIL ANALISIS TIAP KD
Kelas	:	CETAK HASIL ANALISIS 1 SMT
Semester	:	CETAK PROGRAM EVALUASI
Tahun Pelajaran	:	CETAK BUKU PELAKSANAAN PERBAYA
KKM	:	ISI DAFTAR NILAI PERBAYA
Nama Sekolah	:	ISI SOAL PERBAYA
Nama Kepala Sekolah	:	CETAK SOAL ULANGAN HARIAN
NIP	:	
Nama Guru Kelas	:	
NIP	:	
Ulangan Harian Ke	:	
Hari Pelaksanaan	:	
Tanggal Pelaksanaan	:	
Desa/Kelurahan	:	
* PETUNJUK PENGGUNAAN APLIKASI *		

Figure 4.10 Display Data Contents

Figure 4.11 Display of Multiple Choice Questions Input

### **Analisi Kebutuhan Sistem**

#### **Hardware Configuration**

- Komputer Prosesor i3
- Monitor
- Mouse Optic
- Ram 8 GB
- Hard disk 500 GB

#### **Software Configuration**

- Windows 10
- Notepad++/Sublime Text 3
- Codeigniter 3.1
- Xampp
- HeidiSQL

## **V. RECOMMENDATION**

The application of the information system is expected to be used properly in analyzing the item at each and of the midterm or final semester examination, making it easier to analyze the items quickly and accurately

## **VI. CONCLUSION**

The conclusions obtained from the results of research conducted indicate that in the process of multiple choice items must use Web-based device technology for the speed and accuracy of data processed, making it easier to process multiple choice questions as expected

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