DEVELOPMENT OF RESEARCH AND THESIS MANAGEMENT SYSTEM: CASE STUDY OF INFORMATION TECHNOLOGY MANAGEMENT PROGRAM

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Thematic Paper
entitled

DEVELOPMENT OF RESEARCH AND THESIS MANAGEMENT SYSTEM: CASE STUDY OF INFORMATION TECHNOLOGY MANAGEMENT PROGRAM

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ABSTRACT

Presently, the major of Information Technology Management is continuously growing which leads to a lot of published research. Therefore, the purpose of this thematic paper was to develop a system to resolve the problems of research paper and thesis collection process that supports searching, managing, and decision making in research and students management for Information Technology Management division, Faculty of Engineering, Mahidol University. The scope of this system consisted of 4 parts; 1) User Management System; 2) Thesis and Research Data Management System; 3) Reporting System; and 4) Research and Thesis Searching System. Using these parts it enabled the working process to be organized, accurate, and fast. This system was developed by using MySQL for relational database, PHP and Java Script was the interface between Apache HTTP server, database, and the user for its client/server application. The system was tested by 3 lecturers, 3 staffs and 10 students. The evaluation results were in satisfied level. Some suggestions were given to improve the system.

KEY WORDS: SEARCH ENGINE / RESEARCH MANAGEMENT SYSTEM / DOCUMENT MANAGEMENT SYSTEM / WEB-BASED APPLICATION

80 pages

การพัฒนาระบบการจัดการงานวิจัยและวิทยานิพนธ์ กรณีศึกษาหลักสูตรการจัดการเทคโนโลยีสารสนเทศ

DEVELOPMENT OF RESEARCH AND THESIS MANAGEMENT SYSTEM: CASE STUDY OF INFORMATION TECHNOLOGY MANAGEMENT PROGRAM

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บทคัดย่อ

ในปัจจุบันกลุ่มสาขาเทคโนโลยีการจัดการระบบสารสนเทศเติมโตขึ้นอย่างต่อเนื่องทำให้มีงานวิจัยถูกตีพิมพ์จำนวนมากขึ้นเรื่อยๆ ดังนั้นวัถตุประสงค์ของสารนิพนธ์เล่มนี้คือการพัฒนาระบบเพื่อแก้ปัญหาในการจัดการข้อมูลงานวิจัย และ วิทยานิพนธ์ และยังสนับสนุนการค้นหาเพื่อการตัดสินใจในการทำวิจัยของนักศึกษาของกลุ่มสาขาเทคโนโลยีการจัดการระบบสารสนเทศ คณะวิศวกรรมศาสตร์มหาวิทยาลัยมหิดล

ระบบนี้ประกอบด้วย 4 ระบบ คือ ระบบจัดการผู้ใช้โปรแกรม, ระบบจัดการข้อมูลพื้นฐาน, ระบบรายงาน และ ระบบการค้นหางานวิจัยและวิทยานิพนธ์ ทำให้ขั้นตอนการทำงานเป็นไปอย่างมีระเบียบ ถูกต้อง และรวดเร็ว

ระบบนี้ให้บริการผ่านอินทราเน็ตด้วยเทคโนโลยี Web-Based ซึ่งประกอบด้วย MySQL เป็นฐานข้อมูล, PHP และ Java Script เป็นโปรแกรมประยุกต์ สำหรับติดต่อระหว่าง Apache HTTP Server, ฐานข้อมูล การทดสอบระบบนั้นให้อาจารย์ 3 คน เจ้าหน้าที่ 3 คน และนักศึกษา 10 คนเป็นผู้ทดสอบระบบ โดยผลจากการประเมินจะเป็นแนวทางในการพัฒนาโปรแกรมต่อไปนี้

80 หน้า

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CHAPTER I
INTRODUCTION

1.1 Background and Problems

In the present every university recruits more postgraduate students. According to, in Department of Information Technology Management, Faculty of Engineering, Mahidol University opens students to study Master Science in Information Technology Management (Special Program), Students and Lecturers write and publish more research in each academic year. In the present, the problem is department is difficult to search students and lecturers is research increase of Thesis and Thematic Paper.

The problems of current system, there are not process of searching information research and thesis. So, creating new Research and Thesis Management System is solution of these problem this objective is reducing officer method and easy to search student research and others people that are interesting.

In the present, Students research is searching in Website of Library University only. So that, It have much problems to search, because It have many research and difficult to search. Department of Information Technology Management Faculty of Engineering Mahidol University have a library, But it keeps thesis books only. If some people want to search the research .People will search by yourself from bookshelves it difficult to search research that people want. Department of Information technology management faculty of engineering Mahidol University have more student graduate and students must do research too. So that, it have more research to difficulty search, some thesis is a document. That may be lost.

It is necessary to design Research and Thesis Searching System to evaluate other work for easily checking research, change data and decrease duplicate in working include inconvenience, decrease lateness of personnel in Department of Information Technology Management Faculty of Engineering Mahidol University and Student in Master of Science in Information Technology Management (Special Program).

1.2 Objective

The objectives of this thematic paper is to develop the Research and Thesis Management System which is expected to reduce time in data collection, research searching, maximizing staff's ability, System is help in eliminating the duplication of data collection, protecting data loss, and to be paper less.

1.3 Scope of work

- Research and Thesis Management System, System is created for Department of Information Technology Management Faculty of Engineering Mahidol University and people that are interesting.
- Research and Thesis Management System, System is created for Department of Information Technology Management Faculty of Engineering Mahidol University only.
- Research and Thesis Management System, System can keep information since 2006 to the present.

1.4 Expected result

This system will increase the speed work of the staff and increase speed the searching for the research of lecturers and students. System is reduce the duplication of staff functions. The system allows save space in data storage and details in the format of the document, because it can reduce bookshelves, and also check the information quickly. The system allows work has certainty and more efficient to prevent loss of data. The system allows protect data in case arising from fire, flood and the omission of the staff. This program will use information stored in the Database and there is a data restoration system. In case of emergency, restored data can be used, so that the system can still work efficiently. System is also displays various reports valid for both printers and monitors.

CHAPTER II
LITERATURE REVIEW

2.1 Web-Based Application

A web-based [1] application is an application package that can be accessed through the web browser. The application and database reside on a central server rather than being installed on the desktop system and is accessed over an intranet.

2.2 MySQL Database

MySQL [5] is a relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases. Free-software projects that require a full-featured database management system often use MySQL. For commercial use, several paid editions are available, and offer additional functionality. Some free software project examples: Joomla, WordPress, MyBB, PHP BB, Drupal and other software built on the LAMP software stack. MySQL is also used in many high-profile, large-scale World Wide Web products, including Wikipedia, Google and Facebook. Each of these components exist in many different forms are varieties. Microsoft Access has these components grouped as one, while MySQL relies on some third-party design tools (such as PHPMyAdmin) to work with the database.

2.3 PHP (Personal Home Page Tools)

PHP [4] is a widely-used general-purpose scripting language that is especially suited for Web development and can be embedded into HTML. In an HTML document, PHP script (similar syntax that of Perl or C) is enclosed within special PHP tags. Because PHP is embedded within tags, the author can jump between

HTML and PHP instead of having to rely on heavy amounts of code to output HTML. And, because PHP is executed on the server, the client cannot view the PHP code.

2.4 Related Researches

Other research searching website "Science Direct"

Science direct is allow by a vendor named Elsevier, Science Direct is, as its name suggests, our best database for researching science topics. However, it's also great for social science (education, psychology) and business topics. All journal articles in Science Direct are scholarly. The books in Science Direct are also scholarly. However, reference works and images cannot be considered scholarly.

The Basic search in Science Direct is shown in Figure 2.1.

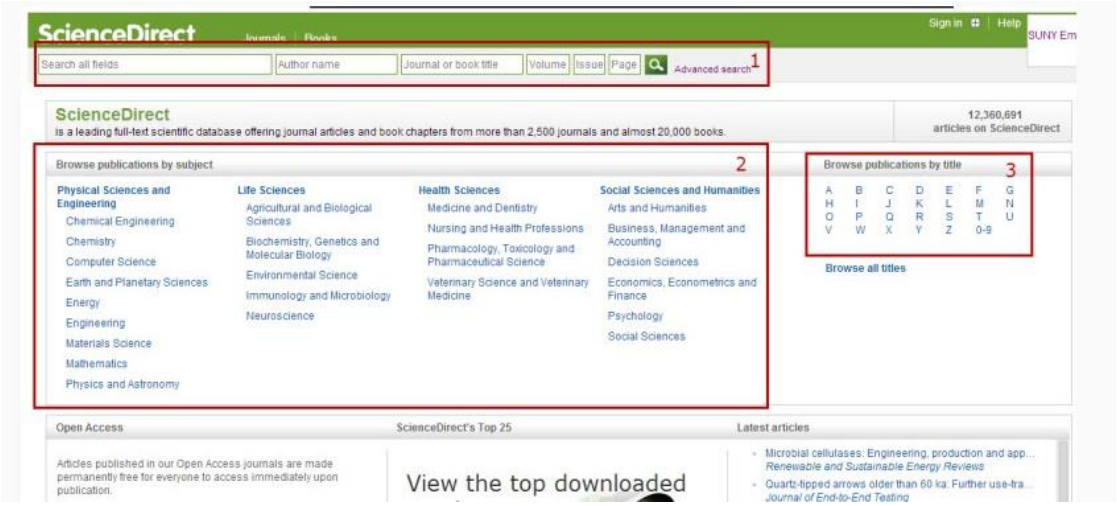


Fig. 2.1. Basic search in Science Direct.

When user first login to Science Direct:

1. User will see the Basic Search boxes in header of the screen. Type your search into the box and click the button.

Tips:

- Put quotation marks about any search phrase or exact combination of keywords.

- Use AND between two keywords or phrases to search for articles containing two terms.

- Use OR between keywords to search for articles containing either term.

- For more information about keyword searching with Boolean Operators, see Using AND, NOT and OR to Combine Keywords.

2. You can also Browse Publications by Subject area using the expandable list right below the text box, on the left side.

3. If you know the title of the journal you want you can use the Browse Publications by header menu, which is below the text boxes, on the right.

Figure 2.2 is how to use the advanced search screen, click the Advanced Search link, which is in small print, way over to the right of the Basic Search.

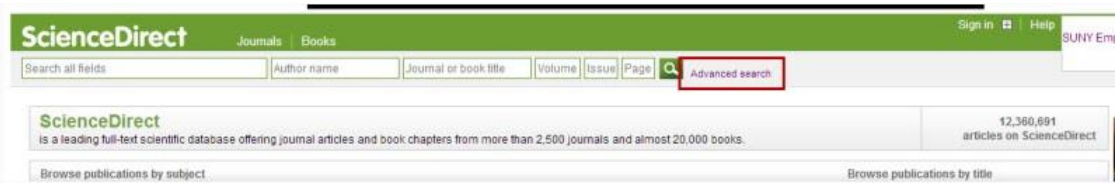


Fig. 2.2 How to use advance search.

Figure 2.3 Display advance search in Science Direct web.

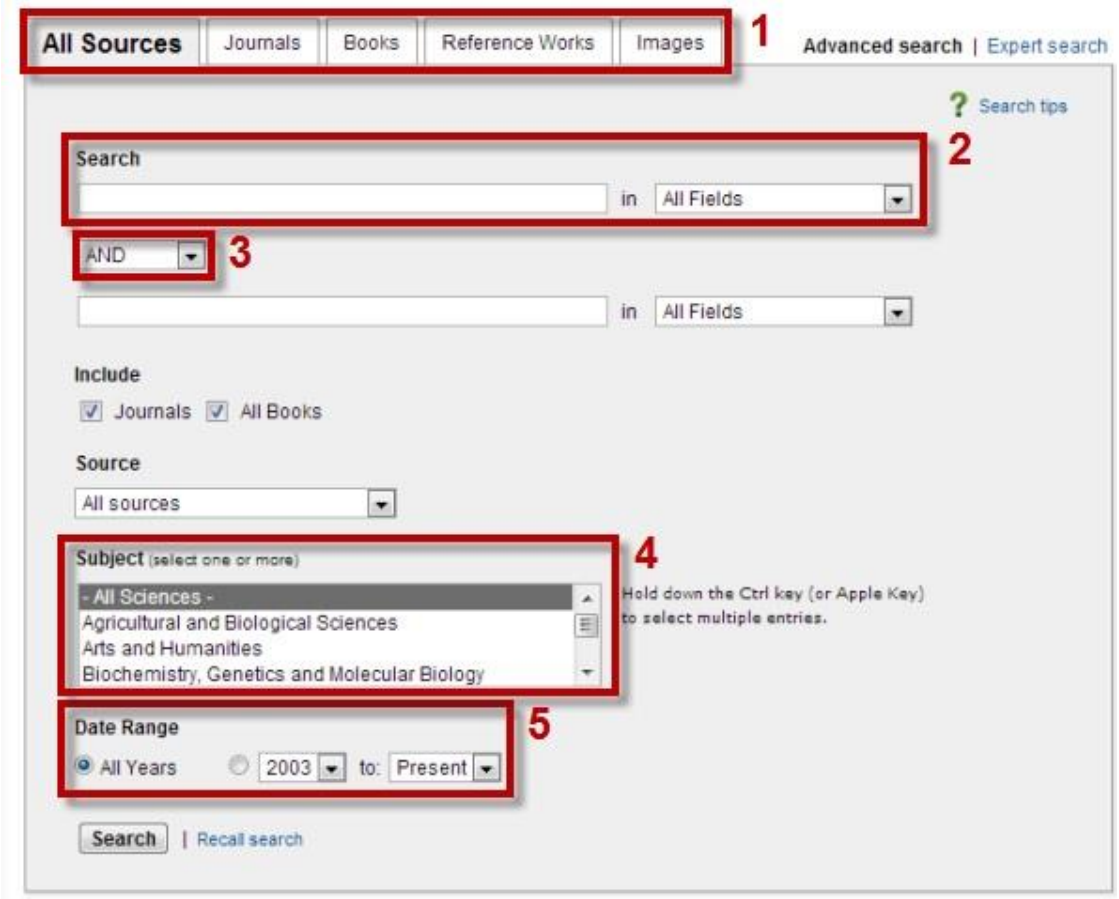


Fig. 2.3 Advance search in Science Direct.

1) First decide whether you want to search All Sources, Journals, Books, Reference Works or Images, using the tabs up at the top of the search box. Unless you specifically want books, Reference Works, or Images, choose the Journals tab.

2) Each of the two search boxes has a pull-down menu to the right of it. Some useful fields to search are:

- All Fields - this is the same as a keyword search in Basic Search.
- Authors - the author(s) of the article.
- Source Title - the title of the journal that the article is in.
- Title - the title of the article.
- Keywords - Science Direct is confusing because they use "Keywords" to mean "Descriptors" or "Subject Headings." These are the official keywords in the article's description.

- Full Text - words found in the text of the article.

3) A pull-down menus between the two search boxes lets join the search boxes with AND, OR or NOT.

- Can still use AND, OR, NOT, quotation marks and parentheses inside the search boxes the same way would in Basic Search.

- By default, Science Direct puts an OR in between the search boxes. Can use the drop-down menus to change it.

- Boolean-savvy users: Science Direct treats each text box like a giant set of parentheses.

4) Can select a particular subject area that you want to search in. This is particularly useful if using keywords that are used differently in different subjects, like technology

5) Can limit your search to articles and book that were published within a certain date range

Figure 2.4 Display Search Results of Science Direct web.

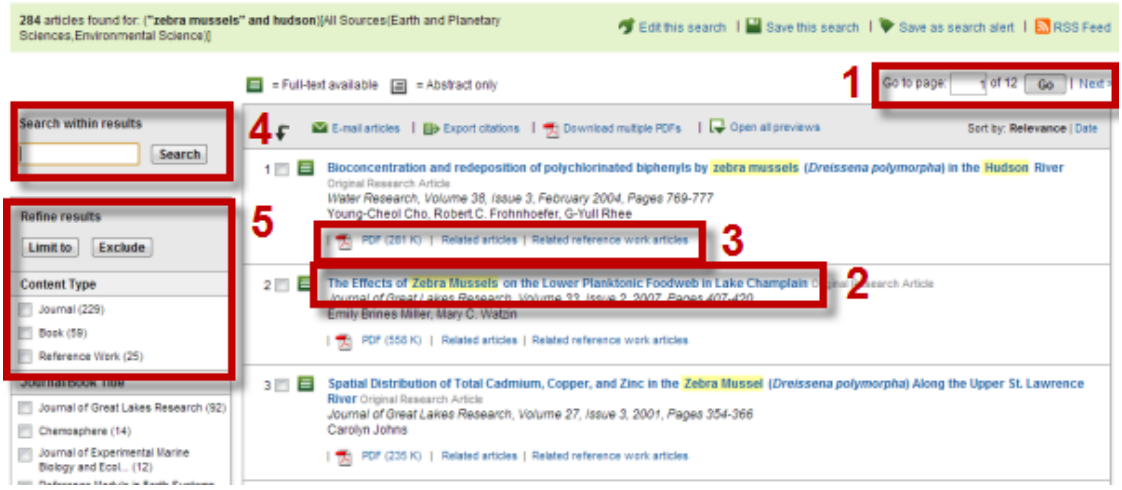


Fig. 2.4 Search Results of Science Direct.

1) Your search results page will display 30 search results per one page, by default. If there is more than one page of search results, you will see page numbers at the bottom and top right so you can look at all of them.

- Search results are displayed in order from relevant to least relevant.

2) The title of the article is a link to the Article Information page.

3) Beneath each search result the File PDF icon (if the full-text is available) and Related Articles.

4) On the left side of the search results page is the Search within Results menu. Use it to strait your search.

5) Below that, on the left side of the search results page is the menu.

Figure 2.5 Display Article Information of Science Direct web.

Fig. 2.5 Article Information of Science Direct web.

Click on the title of the articles to get to the Article Information page, where you will find:

1) Authors, publication, volume, journal name, page numbers, issue date, and the DOI

- The DOI is a unique identifier and permalink for the article, and is needed to refer the article. You can also use it to get back to the article later.

2) Abstract, which is a summary of the article's content. Read this before you expend too much time trying to locate or read the full-text! Also HTML full-text

3) An outline that you can use to click through the PDF full-text.

4) Download PDF

- If you want to print the article, you should first download the PDF, open it in your PDF print, and reader it from there.

5) Related Articles a great way to find articles on the same topic.

Figure 2.6 Display Finding Full-text of Science Direct web.

Fig. 2.6 Finding Full-text of Science Direct web.

Science Direct near always has the full-text. The exceptions are articles that are still in publication status. Because they are not published yet, they will not be available through IEEE or any of the other library databases either. Articles are available in PDF full-text. You can find them by scrolling down below the Abstract in the Article Information page, and you can also navigate from section to section and from image to image using the Outline on the left side of that page. Articles are also available as downloadable PDF files. PDFs are formatted exactly the same as the paper version. If you want to print an article, you should download the PDF first, and then print. (You will need to have software to open PDF files, such as Adobe Reader.) Science Direct lets you download (save) the PDF full-text from two locations. One is right under the article in the search results list. See below.

Figure 2.6 Display point download of file Full-text in Science Direct web.

Fig. 2.7 Point download of file Full-text in Science Direct web.

CHAPTER III
RESEARCH METHODOLOGY

This research was developed using System development Life Cycle (SDLC). [6] The development of the organization as a systems analyst to make contact with the authorities to develop information systems. The SDLC consists the elements that work as size of organization and job description, if a large company analysts will have a clear understanding about the standards. Work processes is shown in Figure 3.1.

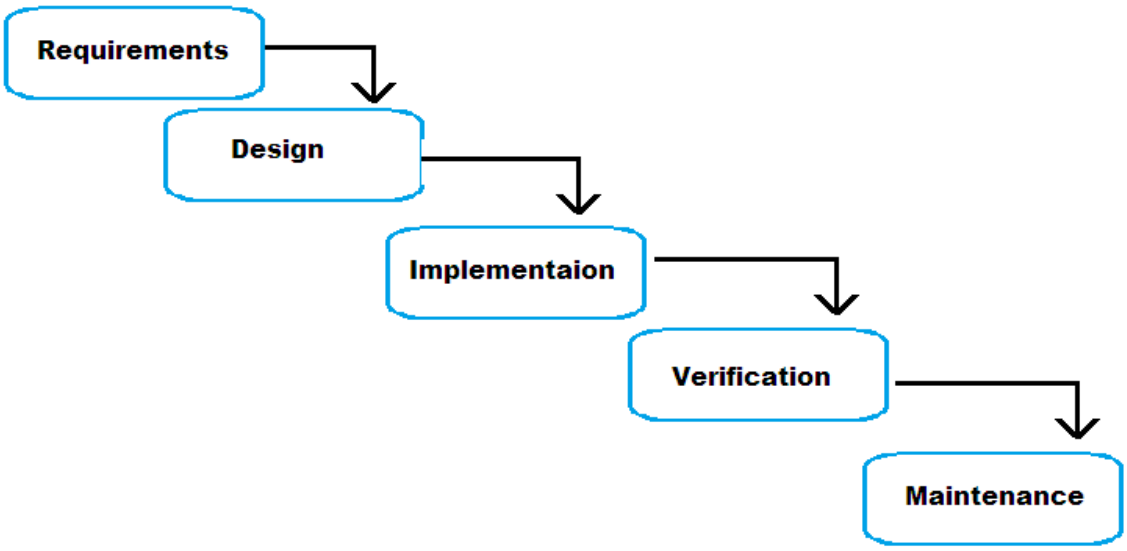


Fig. 3.1 System Development Life Cycle (SDLC).

3.1 Requirement Analysis

3.1.1 Problem of current system

The system was not operating in the Information and Research Thesis, so the idea to design a system for research in order to reduce the work of the staff and easy to find, research, student and all users.

- In search of the student's current research is searched, but in the University Library, the only problem I have searched a lot of research and hard to find.

- Present, in the field of Information Technology Management. Faculty of Engineering University Library of the thesis, but the store only to find that research is required to find their own story from the book, which will be difficult to find the required thesis.

- In the field of Information Technology Management. Faculty of Engineering University. Current students have graduated a lot of research on the subject, which makes a lot, so it's hard to find research.

- The thesis was collected in book form It is stored in the document may be damaged or lost.

From the mistakes of the foregoing. Thus, the need for database design and electronic thesis and dissertation research query. To assist in processing tasks. To help make it easier to check information research. Modifications and reduce duplication of work. The inconvenience of delays personnel. In the field of Information Technology Management Faculty of Engineering University.

3.1.2 Requirement

1) Create research and thesis database and Searching research system , using database for Record data.

- Advisor data in major.
- Advisor external data.
- Student data.
- Research data.
- Thesis data.

- Master data as major data, faculty data, organization data, category research data, conference data and journal data.

2) Create, edit, delete recorded programs, data, research and more research, so officials used administrative databases, electronic thesis and dissertation research and searched.

3) Create, edit, delete recorded programs, student and teacher data to the authorities use administrative data and electronic thesis and dissertation research query.

4) All data contained in Article 2 and Article 3 of the relevant stored in the same database.

5) Establish a program to provide information to students and the public for research and study in the field of Information Technology Management. Faculty of Engineering Mahidol University is quick and easy.

6) Can see the statistics of research.

7) Create program import excel program can have input student data, research data and thesis data.

3.2 System design

Taking the needs of the User Requirement from the store to make the system requirements and a pattern of development. Also known as a blueprint to create a system that actually works is the standard in this thematic use standard UML. [4]

3.2.1 Use case

Figure step system applications. Research and Thesis Management System. Show in figure 3.2

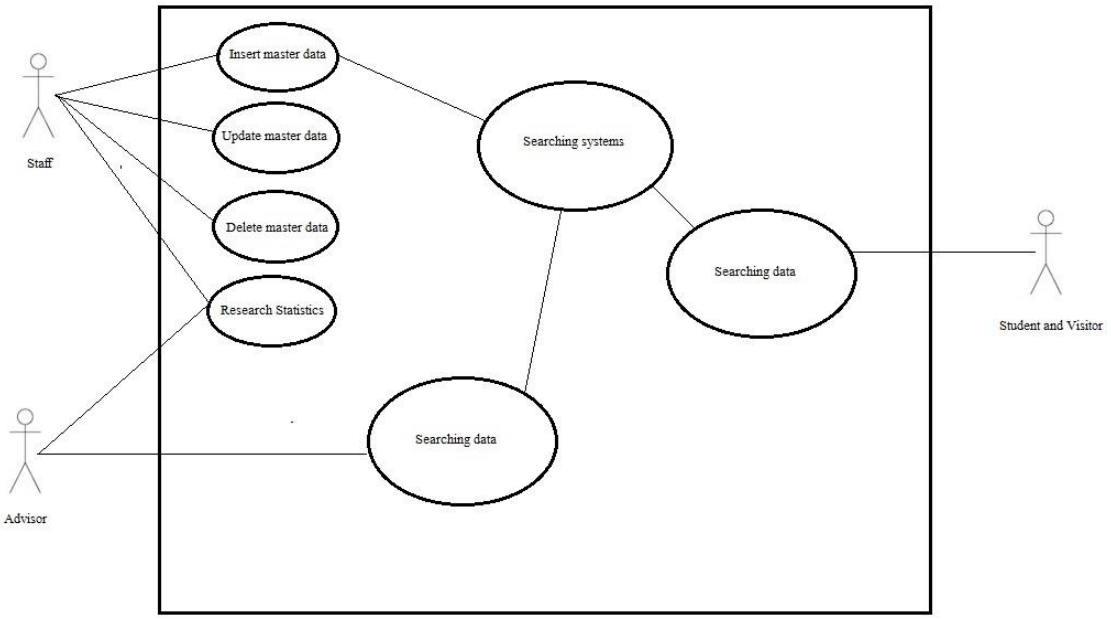


Fig. 3.2 Use Case Diagram Research and Thesis Management System.

3.2.2 Data flow design

Data Flow Diagram [2] a system that allows the analyst to understand the function of each unit. Know where to send / receive data to coordinate between the various operations. This is a model of the system Represents the flow of information both INPUT and OUTPUT between the source and destination of the data. This could be an individual department or other systems based on workflow and coordinated work within that system. It also helps to know the requirements and defects (problems) in legacy systems. Designed for use in the operation of the new system.

1) Input Process Output Model

Title of Table 3.1 Display input process and output data in database.

Input	Process	Output
Information:	Add Information:	Information Output
Student	Add Student information	Student information
Advisor	Add Advisor information	Thesis information
Advisor External	Add Advisor External information	Article information
Major	Add Major information	Number of Thesis report
Faculty	Add Faculty information	Number of Article report
Organization	Add Organization information	Number of Student report
Journal	Add Journal information	
Conference	Add Conference information	
Thesis	Add Thesis information	
Article	Add Article information	

2) Context Diagram

Title of Figure 3.3 Display context diagram of Research and Thesis Management system

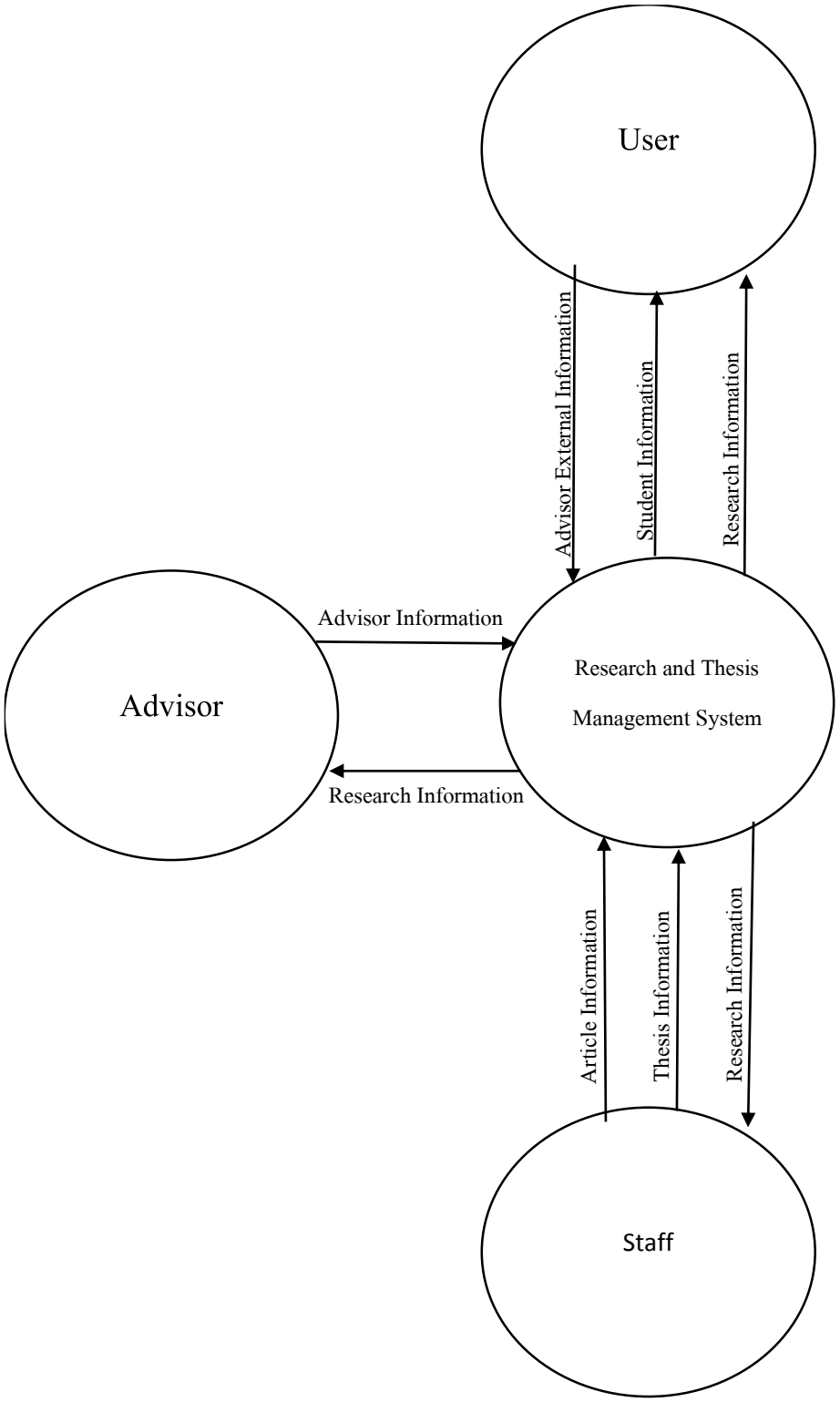


Fig. 3.3 Context Diagram.

Title of Table 3.2 From figure 3.3 shows the work Context Diagram of Research and Thesis Management System.

Process	Operation
Process 1	Users provide student information to the system.
Process 2	Users provide advisor external information to the system.
Process 3	Advisors provide advisor information to the system.
Process 4	Staff provide article information to the system.
Process 5	Staff provide thesis information to the system.
Process 6	System provides research information to user.
Process 7	System provides research information to advisor.
Process 8	System provides research information to staff.

3) Level-1 Data Flow Diagram (Master data)

Title of Figure 3.4 Display context diagram of Research and Thesis Management System Level-1 In the master data system. Research and Thesis Management System.

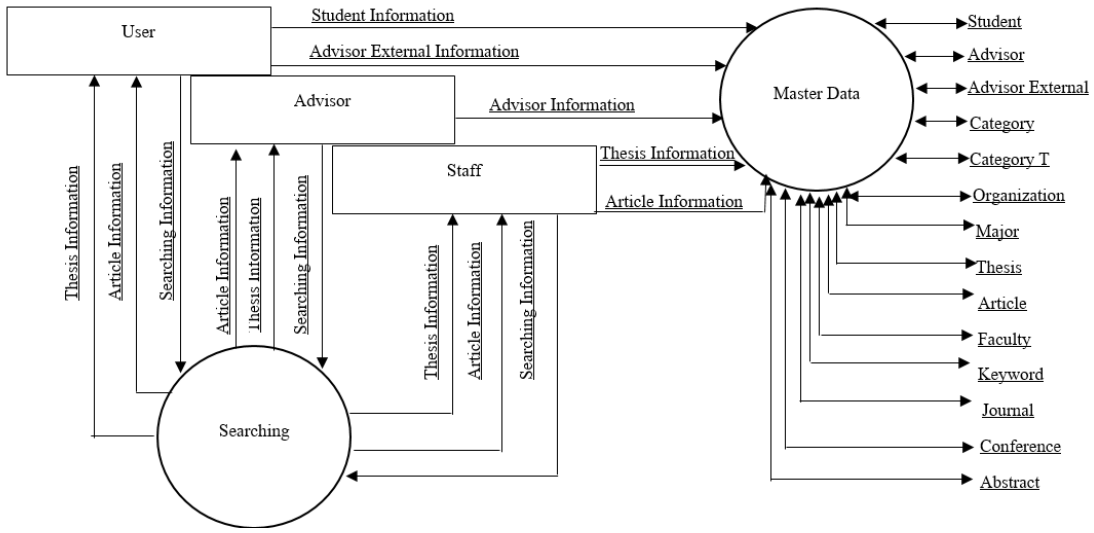


Fig 3.4 Level-1 data flow diagram (Master data)

4) Level-1 Data Flow Diagram (Report)

Title of Figure 3.5 Display context diagram of Research and Thesis Management System Level-1 As part of the reporting system. Research and Thesis Management System.

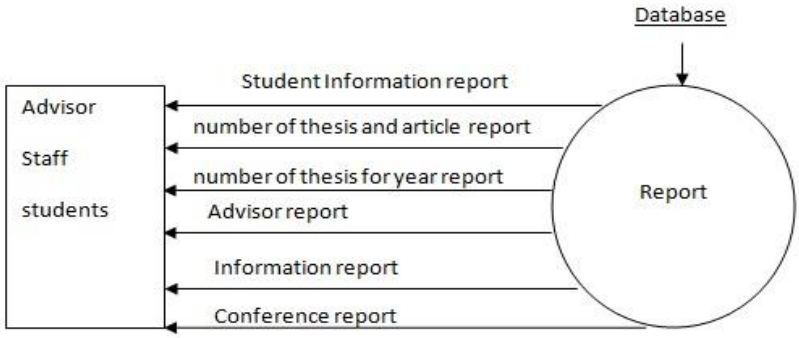


Fig. 3.5 level-1 data flow diagram (Report)

Title of Table 3.3 From figure 3.3 and 3.4 shows the work level-1 data flow diagram of Research and Thesis Management System.

Actor	Process	operation
Users	User provide student information to the system.	Record system
User**s**	User provide advisor external information to the system.	Record system
Advisors	Advisor provide advisor information to the system.	Record system
Staff	Staff provide article information to the system.	Record system
Staff	Staff provide thesis information to the system.	Record system
Users	Staff provide searching information to the system.	System provide thesis information and article information to user.
Advisor**s**	Advisor provide searching information to the system.	System provide thesis information and article information to advisor.
Staff	Staff provide searching information to the system.	System provide thesis information and article information to staff.

5) Level-2 Data Flow Diagram of Research and Thesis Management System (Master data Part 1/5)

Title of Figure 3.6 Displays level-2 context diagram of Research and Thesis Management System in the recording master data system (Part 1/5).

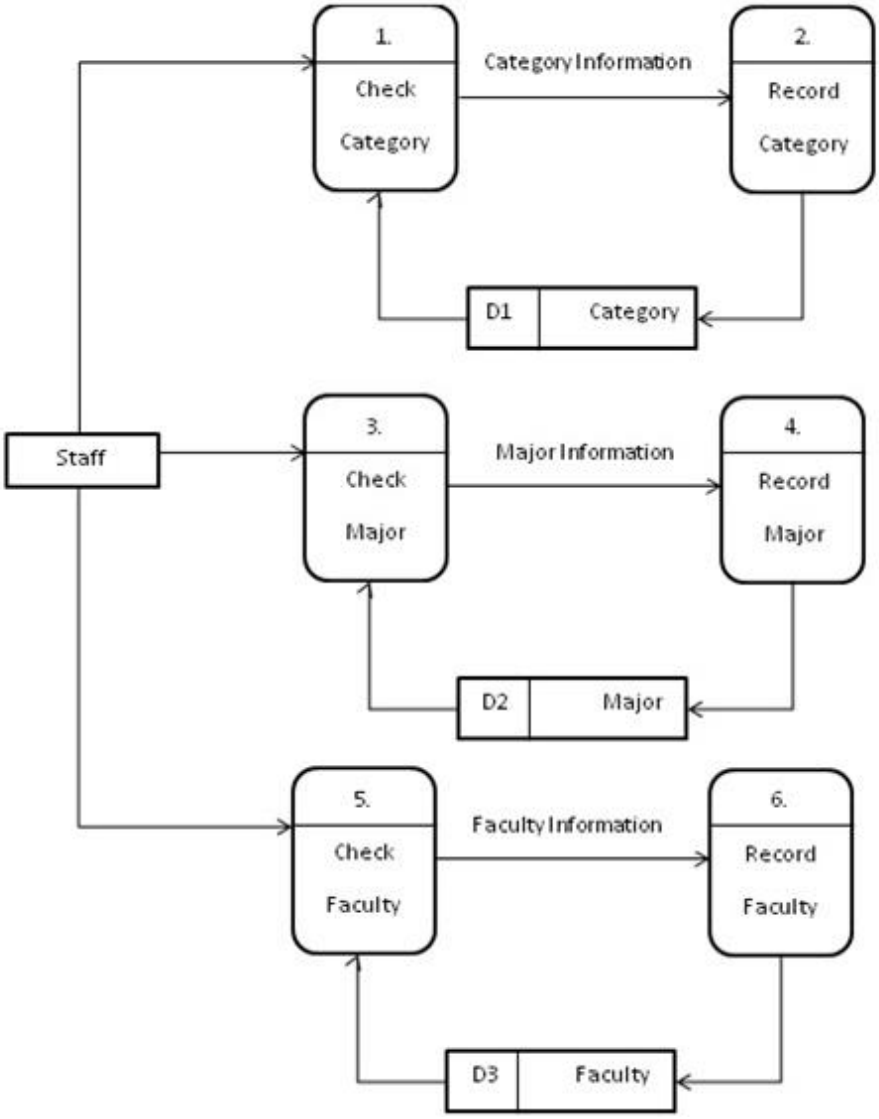


Fig. 3.6 Level-2 Data flow diagram for Master Data. (Part 1/5).

Title of Table 3.4 From figure 3.6 shows the work level-2 data flow diagram of Research and Thesis Management System. (Master data Part 1/5)

Actor	Process	operation
Staff	Staff provide category information to the system.	Record system
Staff	Staff provide major information to the system.	Record system
Staff	Staff provide faculty information to the system.	Record system
Staff	Staff browsing category information to the system.	System provide category information to staff.
Staff	Staff browsing major information to the system.	System provide major information to staff.
Staff	Staff browsing faculty information to the system.	System provide faculty information to staff.

6) Level 2 Data Flow Diagram of Research and Thesis Management System (Master data Part 2/5)

Title of Figure 3.7 Displays level-2 context diagram of Research and Thesis Management System in the recording master data system (Part 2/5).

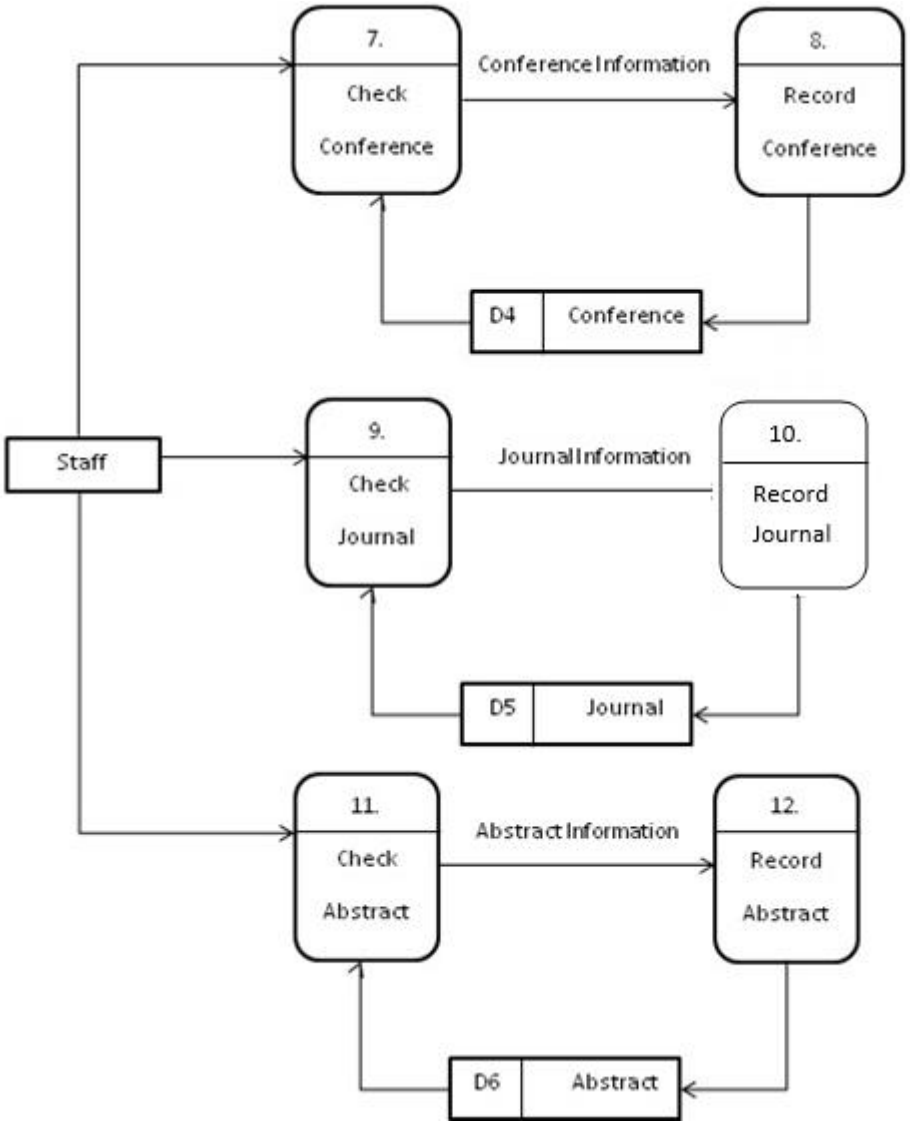


Fig. 3.7 Level-2 Data flow diagram for Master Data (Part 2/5)

Title of Table 3.5 From figure 3.7 shows the work level-2 data flow diagram of Research and Thesis Management System (Master data Part 2/5)

Actor	Process	operation
Staff	Staff provide conference information to the system.	Record system
Staff	Staff provide journal information to the system.	Record system
Staff	Staff provide abstract information to the system.	Record system
Staff	Staff browsing conference information to the system.	System provide conference information to staff.
Staff	Staff browsing journal information to the system.	System provide journal information to staff.
Staff	Staff browsing abstract information to the system.	System provide abstract information to staff.

7) Level-2 Data Flow Diagram of Research and Thesis Management System (Master data Part 3/5)

Title of Figure 3.8 Displays level-2 context diagram of Research and Thesis Management System in the recording master data system. (Part 3/5)

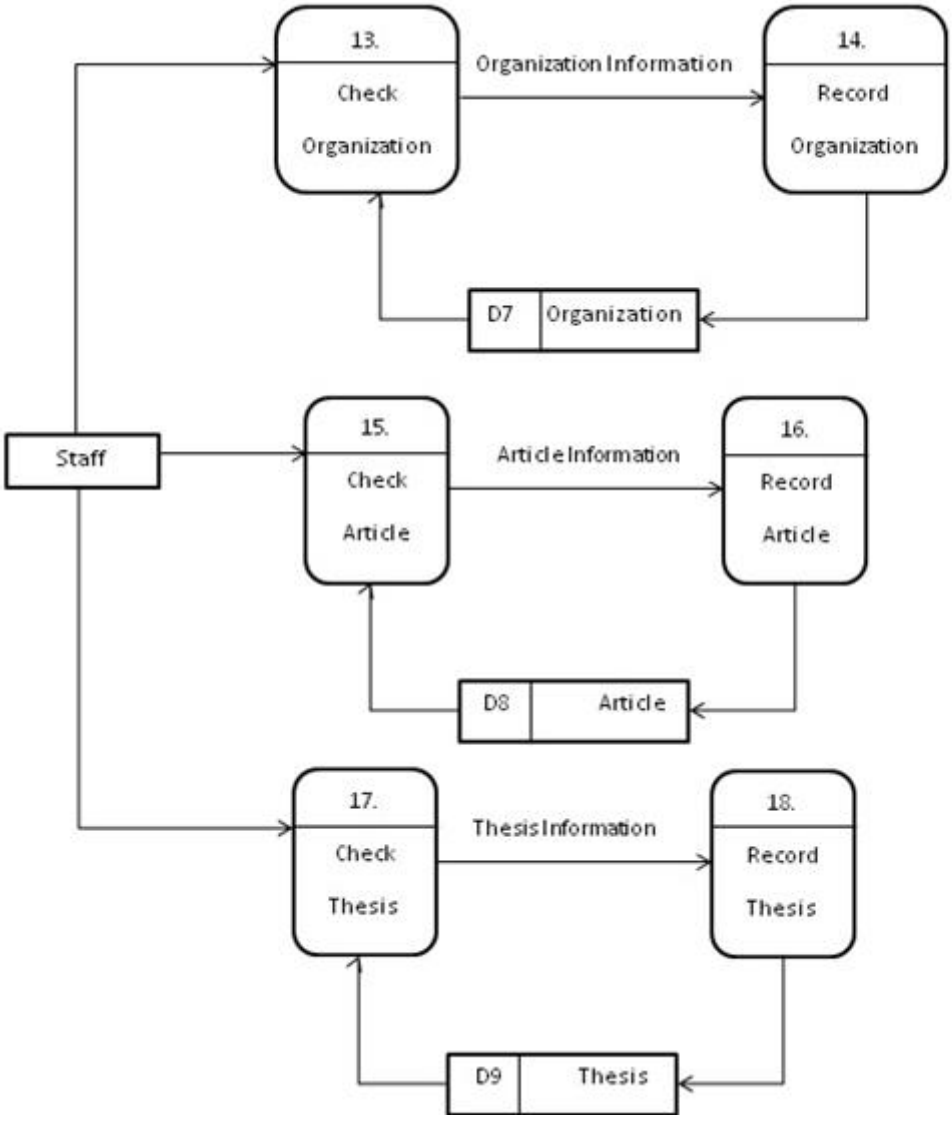


Fig. 3.8 Level-2 Data flow diagram for Master Data (Part 3/5).

Title of Table 3.6 From figure 3.8 shows the work level-2 data flow diagram of Research and Thesis Management System (Master data Part 3/5)

Actor	Process	operation
Staff	Staff provide organization information to the system.	Record system
Staff	Staff provide article information to the system.	Record system
Staff	Staff provide thesis information to the system.	Record system
Staff	Staff browsing organization information to the system.	System provide organization information to staff.
Staff	Staff browsing article information to the system.	System provide article information to staff.
Staff	Staff browsing thesis information to the system.	System provide thesis information to staff.

8) Level-2 Data Flow Diagram of Research and Thesis Management System (Master data Part 4/5)

Title of Figure 3.9 Displays level-2 context diagram of Research and Thesis Management System in the recording master data system. (Part 4/5)

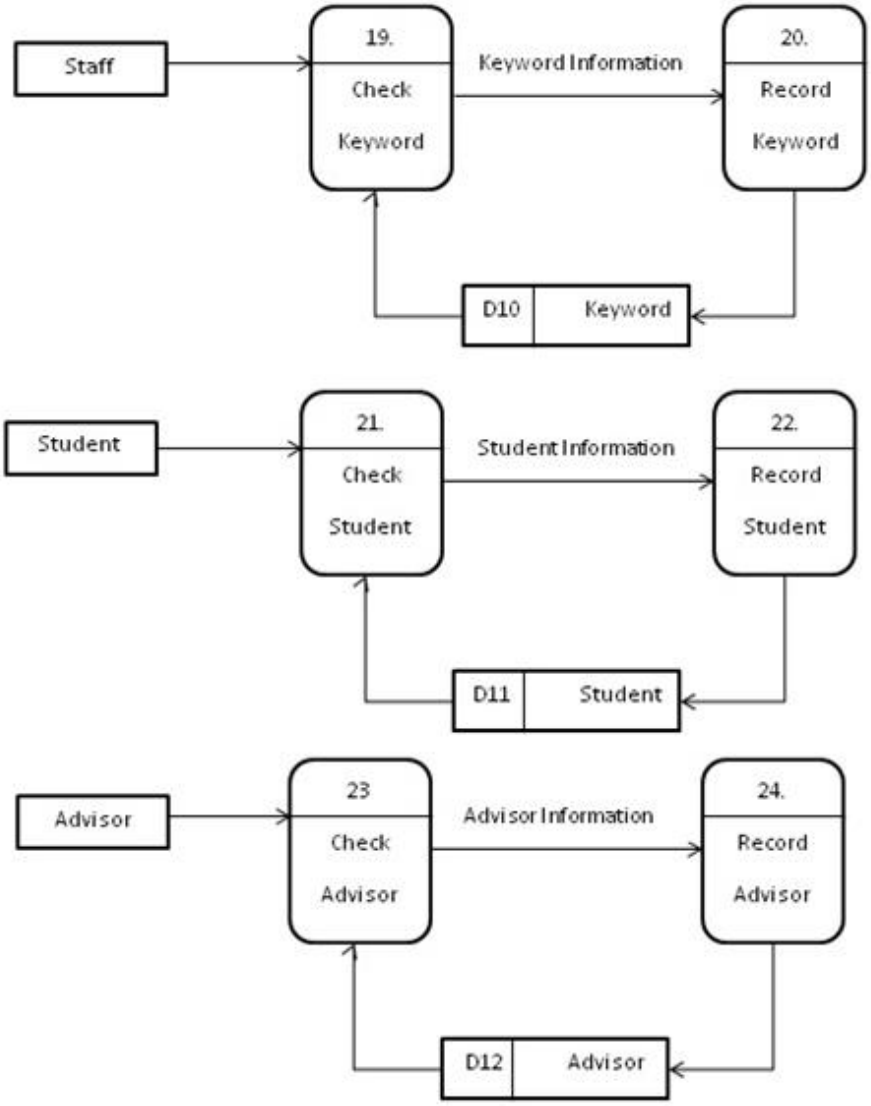


Fig. 3.9 Level-2 data flow diagram for Master Data (Part 4/5)

Title of Table 3.7 From figure 3.9 shows the work level-2 data flow diagram of Research and Thesis Management System (Master data Part 4/5)

Actor	Process	operation
Staff	Staff provide keyword information to the system.	Record system
Student	Staff provide student information to the system.	Record system
Advisor	Staff provide advisor information to the system.	Record system
Staff	Staff browsing keyword information to the system.	System provide keyword information to staff.
Staff	Staff browsing student information to the system.	System provide student information to staff.
Staff	Staff browsing advisor information to the system.	System provide advisor information to staff.

9) Level-2 Data Flow Diagram of Research and Thesis Management System (Master data Part 5/5)

Title of Figure 3.10 Displays level-2 context diagram of Research and Thesis Management System in the recording master data system. (Part 5/5)

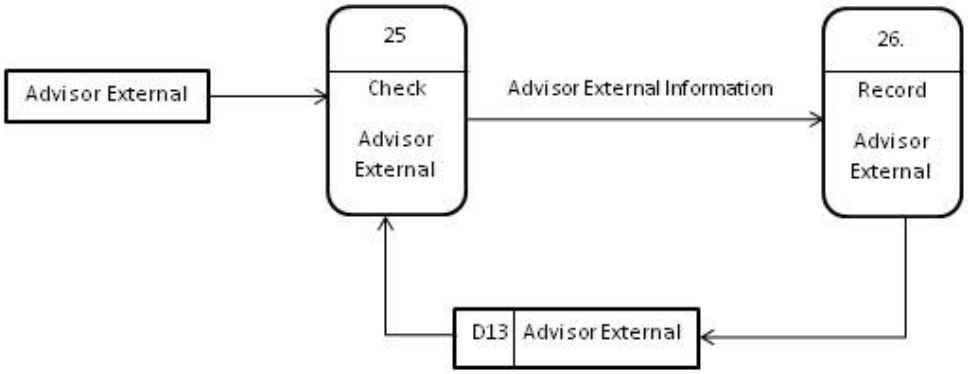


Fig. 3.10 Level2 data flow diagram for Master Data (Part 5/5)

Title of Table 3.8 From figure 3.10 shows the work level-2 data flow diagram of Research and Thesis Management System (Master data Part 5/5)

Actor	Process	operation
Staff	Staff provide advisor external information to the system.	Record system
Staff	Staff browsing advisor external information to the system.	System provide advisor external information to staff.

10) Level-2 Data Flow Diagram of Research and Thesis Management System (Searching)

Title of Figure 3.11 Display context diagram of Research and Thesis Management System Level-2 In the searching system. Research and Thesis Management (Searching)

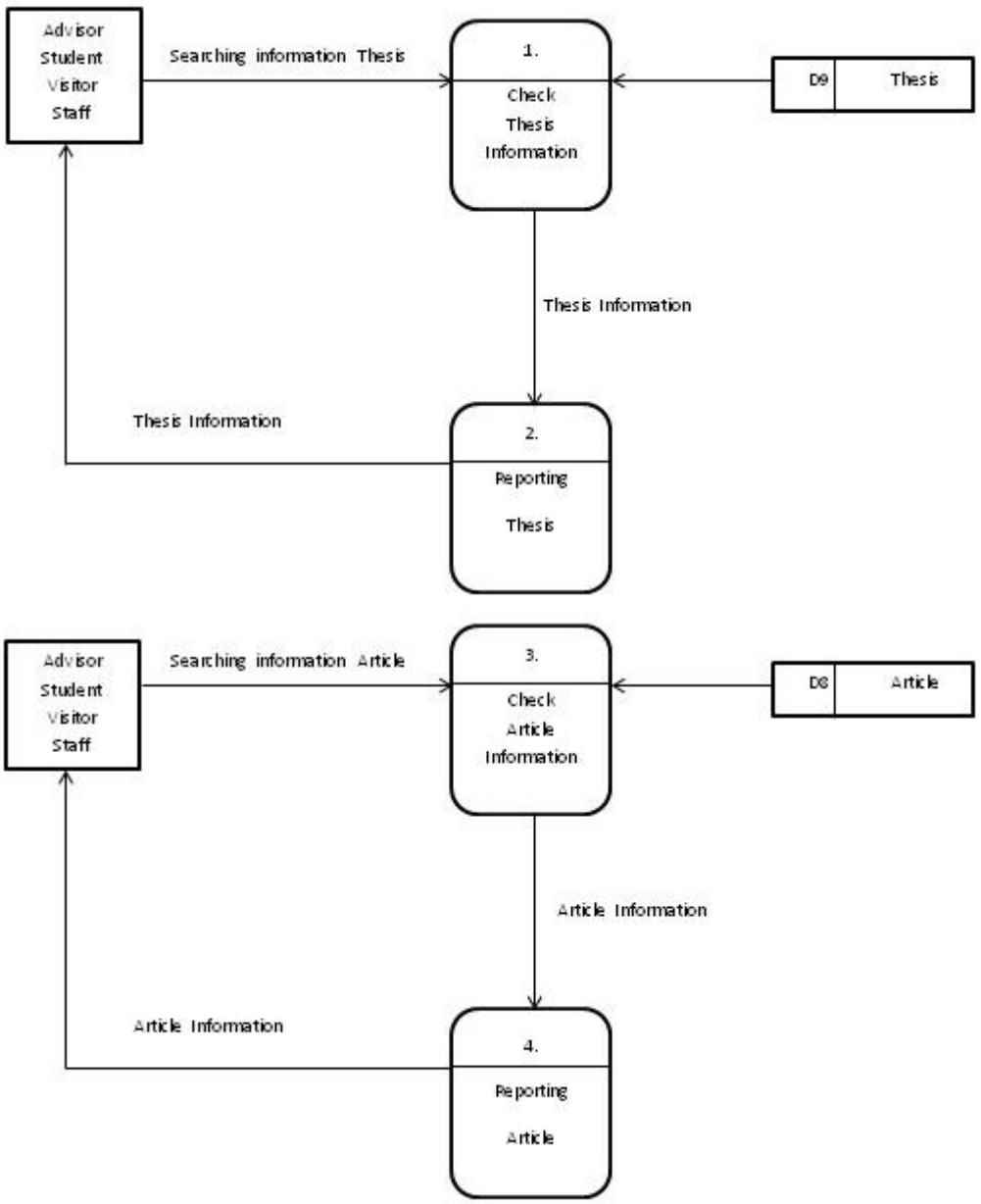


Fig. 3.11 Level-2 data flow diagram for Searching

Title of Table 3.9 From figure 3.11 shows the work level-2 data flow diagram of Research and Thesis Management System (Searching)

Actor	Process	operation
Student	Student searching thesis information to the system.	System provide thesis information to student.
Advisor	Advisor searching thesis information to the system.	System provide thesis information to advisor.
Staff	Staff searching thesis information to the system.	System provide thesis information to staff.
Visitor	Visitor searching thesis information to the system.	System provide thesis information to visitor.
Student	Student searching article information to the system.	System provide article information to student.
Advisor	Advisor searching article information to the system.	System provide article information to advisor.
Staff	Staff searching article information to the system.	System provide article information to staff.
Visitor	Visitor searching article information to the system.	System provide article information to visitor.

11) Level-2 Data Flow Diagram of Research and Thesis Management System (Reporting)

Title of Figure 3.12 Display context diagram of Research and Thesis Management System Level-2 in the Reporting system. Research and Thesis Management (Reporting)

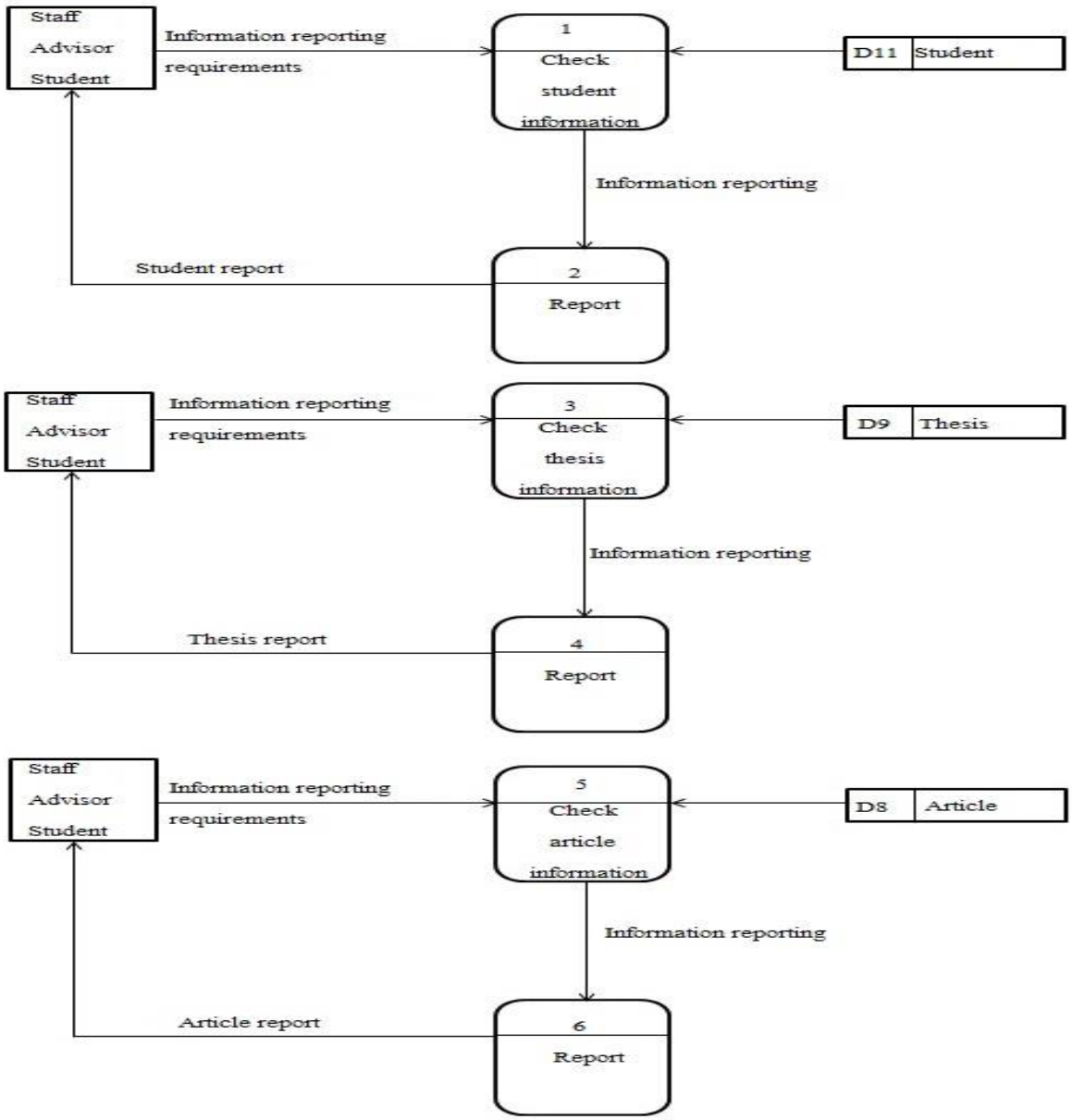


Fig. 3.12 Level-2 data flow diagram for Reporting.

Title of Table 3.10 From figure 3.12 shows the work level-2 data flow diagram of Research and Thesis Management System (Reporting)

Actor	Process	operation
Student	Students need report student data.	System provide student report information to student.
Student	Students need report thesis data.	System provide thesis report information to student.
Student	Students need report article data.	System provide article report information to student.
Advisor	Advisor need report student data.	System provide student report information to student.
Advisor	Advisor need report thesis data.	System provide thesis report information to student.
Advisor	Advisor need report article data.	System provide article report information to student.
Staff	Staff need report student data.	System provide student report information to student.
Staff	Staff need report thesis data.	System provide thesis report information to student.
Staff	Staff need report article data.	System provide article report information to student.

3.2.3 Sequence Diagram of Research and Thesis Management System

Title of Figure 3.13 Displays Sequence diagram of Research and Thesis Management System.

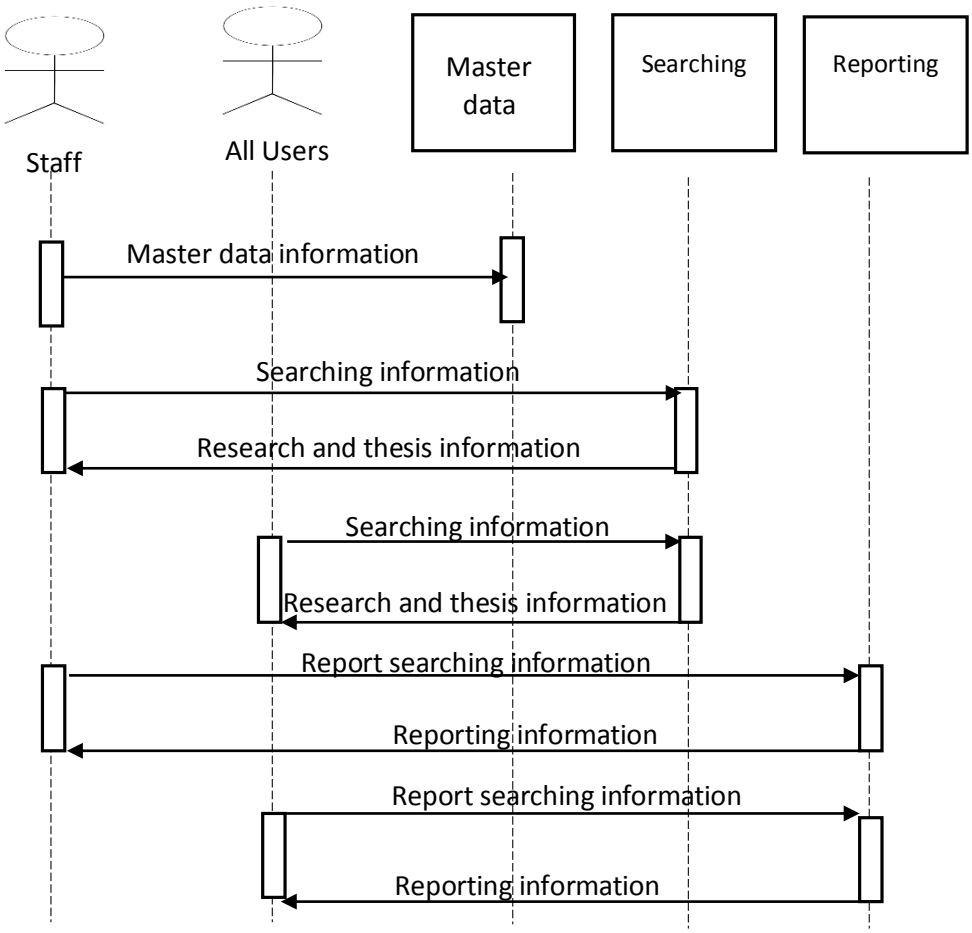


Fig. 3.13 Sequence diagram

3.2.4 Database design

Database design is an important step in the creation of the database. It will be designed to meet the storage needs of actual use. Database design principles used several methods together. But on a fundamental level it describes the design database easily.

The process of designing a database.

1) Write Attribute all storage needs. Based on information from documents Active in the system, such as a receipt. Phone bills etc.

2) Attribute of the group that are related to the same group. With the named group this will cause Relation or square up.

3) In Relation to happen if you are broken out into Relation other than separated as small as possible. And the key to a specific row or Tuple Attribute which is the primary key to be underlined. To say that this is the primary key.

4) Monitoring data relationships Information that cannot meet the demand.

5) On the Relation of the details shown in the data tables.

1) Database design of Research and Thesis Management System

Title of Figure 3.14 Displays Database Design of Research and Thesis Management System.

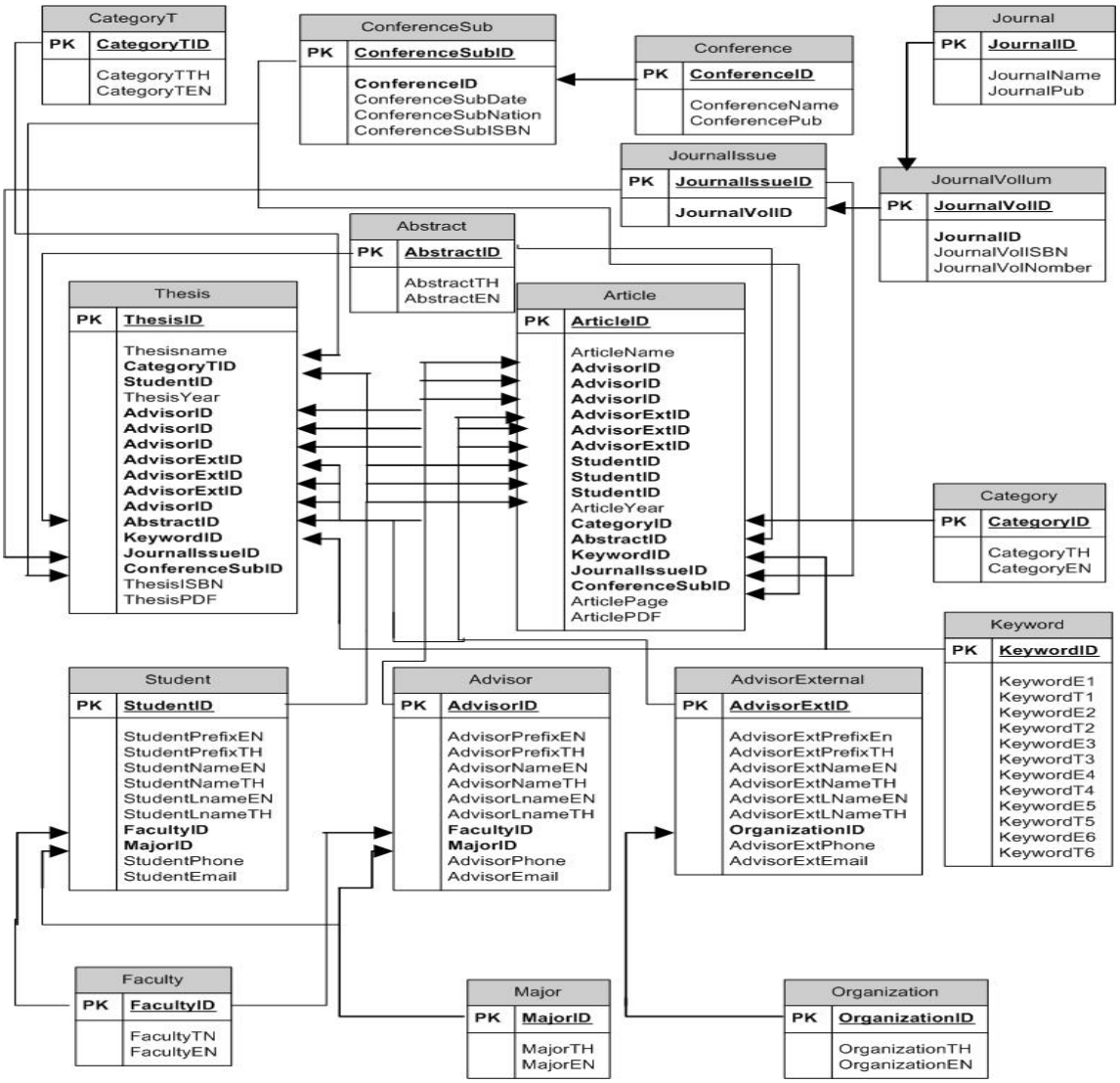


Fig. 3.14 Data Base Design

Title of Table 3.11 A description of each attribute of student table in data dictionary.

Field	Type/Length	Key	Explanation
StudentID	int(7)	PK	Primary key of a table.
StudentPrefixEN	varchar(20)		Prefix of student English
StudentPrefixTH	varchar(20)		Prefix of student Thai
StudentNameEN	varchar(20)		Name of Student English
StudentNameTH	varchar(20)		Name of Student Thai
StudentLnameEN	varchar(20)		Last name of Student English
StudentLnameTH	varchar(20)		Last name of Student Thai
FacultyID	int(7)	FK	Faculty of Student
MajorID	int(7)	FK	Major of student
StudentPhone	int(10)		Phone of Student
StudentEmail	varchar(40)		Email of Student

Title of Table 3.12 A description of each attribute of advisor table in data dictionary.

Field	Type/Length	Key	Explanation
AdvisorID	int(7)	PK	Primary key of a table.
AdvisorPrefixEN	varchar(20)		Prefix of advisor English
AdvisorPrefixTH	varchar(20)		Prefix of advisor Thai
AdvisorNameEN	varchar(20)		Name of advisor English
AdvisorNameTH	varchar(20)		Name of advisor Thai
AdvisorLnameEN	varchar(20)		Last name of advisor English
AdvisorLnameTH	int(7)		Last name of advisor Thai
FacultyID	int(7)	FK	Faculty of Advisor
MajorID	int(7)	FK	Major of Advisor
AdvisorPhone	int(10)		Phone of Advisor
AdvisorEmail	varchar(40)		Email of Advisor

Title of Table 3.13 A description of each attribute of advisor external table in data dictionary.

Field	Type/Length	Key	Explanation
AdvisorextID	int(7)	PK	Primary key of a table.
AdvisorextPrefixEN	varchar(20)		Prefix of advisor English
AdvisorextPrefixTH	varchar(20)		Prefix of advisor Thai
AdvisorextNameEN	varchar(20)		Name of advisor English
AdvisorextNameTH	varchar(20)		Name of advisor Thai
AdvisorextLnameEN	varchar(20)		Last name of advisor English
AdvisorextLnameTH	varchar(20)		Last name of advisor Thai
OrganizationID	int(7)	FK	Organization of advisor
AdvisorextPhone	int(10)		Phone of Advisor
AdvisorextEmail	varchar(40)		Email of Advisor

Title of Table 3.14 A description of each attribute of organization table in data dictionary.

Field	Type/Length	Key	Explanation
OrganizationID	int(7)	PK	Primary key of a table.
OrganizationEN	varchar(20)		Name of organization English
OrganizationTH	varchar(20)		Name of organization Thai

Title of Table 3.15 A description of each attribute of category table in data dictionary.

Field	Type/Length	Key	Explanation
CategoryID	int(7)	PK	Primary key of a table.
CategoryEN	varchar(20)		Name of category English
CategoryTH	varchar(20)		Name of category Thai

Title of Table 3.16 A description of each attribute of category thesis table in data dictionary.

Field	Type/Length	Key	Explanation
CategoryTID	int(7)	PK	Primary key of a table.
CategoryTEN	varchar(20)		Name of category thesis English
CategoryTTH	varchar(20)		Name of category thesis Thai

Title of Table 3.17 A description of each attribute of faculty table in data dictionary.

Field	Type/Length	Key	Explanation
FacultyID	int(7)	PK	Primary key of a table.
FacultyEN	varchar(20)		Name of faculty English
FacultyTH	varchar(20)		Name of faculty Thai

Title of Table 3.18 A description of each attribute of major table in data dictionary.

Field	Type/Length	Key	Explanation
MajorID	int(7)	PK	Primary key of a table.
MajorEN	varchar(20)		Name of major English
MajorTH	varchar(20)		Name of major Thai

Title of Table 3.19 A description of each attribute of abstract table in data dictionary.

Field	Type/Length	Key	Explanation
AbstractID	int(7)	PK	Primary key of a table.
AbstractEN	varchar(1024)		Name of abstract English
AbstractTH	varchar(1024)		Name of abstract Thai

Title of Table 3.20 A description of each attribute of journal table in data dictionary.

Field	Type/Length	Key	Explanation
JournalID	int(7)	PK	Primary key of a table.
JournalEN	varchar(20)		Name of journal English
JournalTH	varchar(20)		Name of journal Thai

Title of Table 3.21 A description of each attribute of journal volume table in data dictionary.

Field	Type/Length	Key	Explanation
JournalVolID	int(7)	PK	Primary key of a table.
JournalID	int(7)		ID of Journal table
JournalVolISBN	varchar(100)		Number of ISBN
JournalVolNumber	varchar(100)		Page of journal

Title of Table 3.22 A description of each attribute of journal issue table in data dictionary.

Field	Type/Length	Key	Explanation
JournalIssue	int(7)	PK	Number of issue
JournalVolID	int(7)		ID of JournalVol

Title of Table 3.23 A description of each attribute of conference table in data dictionary.

Field	Type/Length	Key	Explanation
ConferenceID	int(7)	PK	Primary key of a table.
ConferenceEN	varchar(20)		Name of conference English
ConferenceTH	varchar(20)		Name of conference Thai

Title of Table 3.24 A description of each attribute of conference sub table in data dictionary.

Field	Type/Length	Key	Explanation
ConferenceSubID	int(7)	PK	Primary key of a table.
ConferenceID	int(7)		ID of Conference
ConferenceSubDate	date		Conference Date
ConferenceSubNation	varchar(100)		Nation as fair
ConferenceSubISBN	varchar(100)		Number of ISBN

Title of Table 3.25 A description of each attribute of keyword table in data dictionary.

Field	Type/Length	Key	Explanation
KeywordID	int(7)	PK	Primary key of a table.
KeywordT1	varchar(100)		Name of 1st Thai keyword
KeywordE1	varchar(100)		Name of 1st English keyword
KeywordT2	varchar(100)		Name of 2nd Thai keyword
KeywordE2	varchar(100)		Name of 2nd English keyword
KeywordT3	varchar(100)		Name of 3rd Thai keyword
KeywordE3	varchar(100)		Name of 3rd English keyword
KeywordT4	varchar(100)		Name of 4th Thai keyword
KeywordE4	varchar(100)		Name of 4th English keyword
KeywordT5	varchar(100)		Name of 5th Thai keyword
KeywordE5	varchar(100)		Name of 4th English keyword
KeywordT6	varchar(100)		Name of 6th Thai keyword
KeywordE6	varchar(100)		Name of 6th English keyword

Title of Table 3.26 A description of each attribute of thesis table in data dictionary.

Field	Type/Length	Key	Explanation
ThesisID	int(7)	PK	Primary key of a table.
Thesisname	varchar(100)		Name of Thesis
CategoryTID	int(7)		Category of Thesis
StudentID	int(7)		Name of Student
AdvisorID1	int(7)		Name of 1st Advisor
AdvisorID2	int(7)		Name of 2nd Advisor
AdvisorID3	int(7)		Name of 3rd Advisor
AdvisorExtID1	int(7)		Name of 1st Advisor External
AdvisorExtID2	int(7)		Name of 2nd Advisor External
AdvisorExtID3	int(7)		Name of 3rd Advisor External
AdvisorID4	int(7)		Name of President Exams
AbstractID	int(7)		Abstract in the thesis
KeywordID	int(7)		Keyword in the thesis
JournalIssue	int(7)		Journal at publication
ConferenceSub	int(7)		Conference at presentation
ThesisISBN	varchar(100)		Number of ISBN in thesis
ThesisPDF	varchar(100)		File PDF

Title of Table 3.27 A description of each attribute of article table in data dictionary.

Field	Type/Length	Key	Explanation
ArticleID	int(7)	PK	Primary key of a table.
Articlename	varchar(100)		Name of Article
AdvisorID1	int(7)		Name of 1st Advisor
AdvisorID2	int(7)		Name of 2nd Advisor
AdvisorID3	int(7)		Name of 3rd Advisor
AdvisorExtID1	int(7)		Name of 1st Advisor External
AdvisorExtID2	int(7)		Name of 2nd Advisor External
AdvisorExtID3	int(7)		Name of 3rd Advisor External
StudentID1	int(7)		Name of 1st Student
StudentID2	int(7)		Name of 2nd Student
StudentID3	int(7)		Name of 3rd Student
Articleyear	date		Year of article
CategoryID	int(7)		Category of article

3.3 User Interface design

Designed user interface. Between the user and the computer the process began by compiling relevant information as well as knowledge of psychologists, educators, graphic designers, technicians, professionals Anthropology. Design, information architecture and social scientists to jointly develop process design interface to work effectively.

Part of the program

1) Master data management include.

- Login page
- Student data management page
- Advisor data management page
- Advisor external data management page
- Thesis data management page
- Article data management page
- Journal data management page
- Conference data management page
- Major data management page
- Faculty data management page
- Organization data management page
- Keyword data management page
- Users data management page
- Category research data management page

2) Statistics

- Student statistics
- Thesis statistics
- Article statistics

3) Searching

- Basic search page Include.
- Search by name of thesis and research
- Search by author
- Advance search page include.
- Search by name of thesis and research but can add author or keyword other by input and in the program
- Result page include
- Name of article or thesis
- Author
- Year of article
- Conference

- Journal publication
- File PDF

3.4 System Implementing

The development and installation of the system is to create a system to change from the old system to the new system consists.

3.4.1 The language used to develop the system.

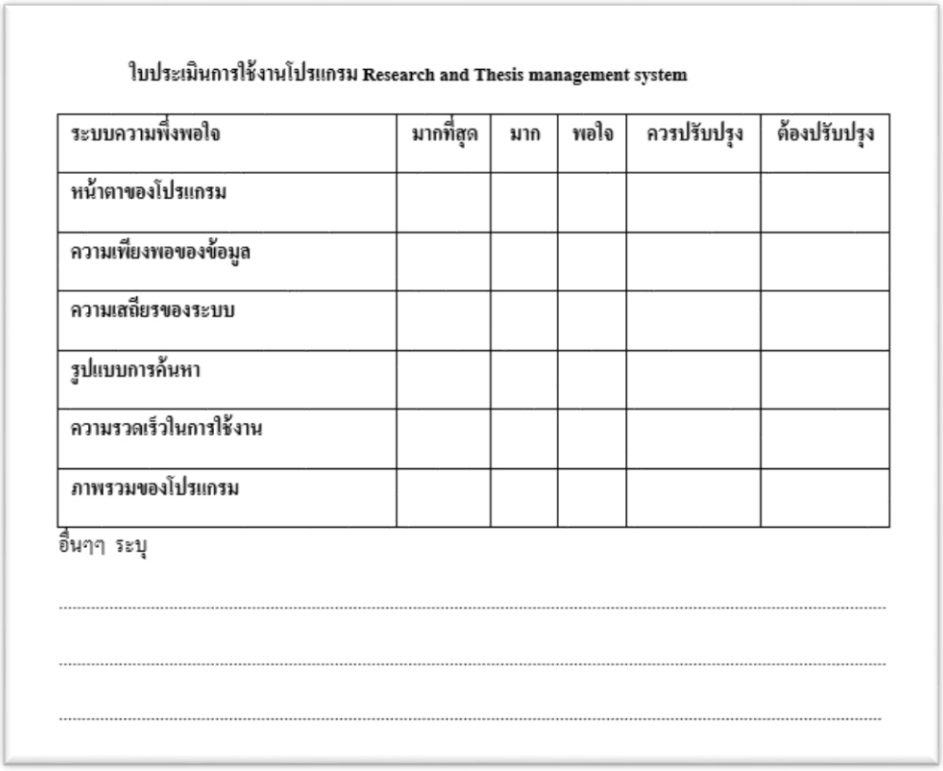
The development of this system will be used for PHP (Personal Home Page Tools) [3] System development

3.4.2 Database application

This research use MySQL (Relational Database Management System SQL) [5]

3.5 System testing

20 Students, advisors and staff test the program before the program has to complete. Figure 3.15 displays evaluation form of Research and Thesis Management System.



ใบประเมินการใช้งานโปรแกรม Research and Thesis management system

ระบบความพึงพอใจ	มากที่สุด	มาก	พอใจ	ควรปรับปรุง	ต้องปรับปรุง
หน้าตาของโปรแกรม					
ความเพียงพอของข้อมูล					
ความเสถียรของระบบ					
รูปแบบการค้นหา					
ความรวดเร็วในการใช้งาน					
ภาพรวมของโปรแกรม					

อื่นๆๆ ระบุ

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Fig. 3.15 Evaluation form**.**

3.6 System deployment

Adoption applies to the fields of technology, management information systems, university only.

3.7 Research schedule

	JAN - FEB	**MAR - ARP**	**MAY - JUN**	**JUL - AUG**	**SEP - OCT**	**NOV - DEC**
Preliminary Study	→					
System Requirements Gathering		→				
System Analysis and Design			→			
Database Design				→		
Application Design and Development					→	
Evaluation						→

Fig. 3.15 Schedule Plan**.**

CHAPTER IV
RESULTS

This chapter explains result of development management information system for this case study is divided into 2 major sections; Home page searching system, Thesis information, Research Information and Report Statistics and Admin page Moreover, it was defined the right of access to information.

4.1 Home Section: User page

Title of Figure this show first step use applications of Research and Thesis Management System. Show in figure 4.1

Fig. 4.1 First page application of Research and Thesis Management System.

From figure 4.1, First page is composed of 3 sections as the follows;

A) Searching: This part is used to search for the Thesis Information and Research Information. Choose Enter only one channel.

a. By keyword: User search keyword from Tesearch Databases and Thesis Databases. Keyword method search the data will be shown in figure 4.2

Fig. 4.2 How to use display to search keyword from research databases and thesis databases.

b. By author: User search author from Research Databases and Thesis Databases. Author method search the data will be shown in figure 4.3

Fig. 4.3 How to use display to search author from Research Databases and Thesis Databases.

c. By conference and journal: User search Conference and Journal from Research and Thesis Management System. Conference and Journal method search the data will be shown in figure 4.4

Fig. 4.4 How to use display to search Conference and Journal from Research Databases and Thesis Databases.

d. By research category: User search research category from research databases and thesis databases. Research category method search the data will be shown in figure 4.5

Fig. 4.5 How to use display to search research category from Research Databases and Thesis Databases.

e. Advanced search: User can use advanced search to narrow your search to specific data. How to use to entry advanced search page shown in figure 4.6

Fig. 4.6 How to use display to entry advanced search page.

Title of Figure How to use advanced search page of Research and Thesis Management System. Show in figure 4.7

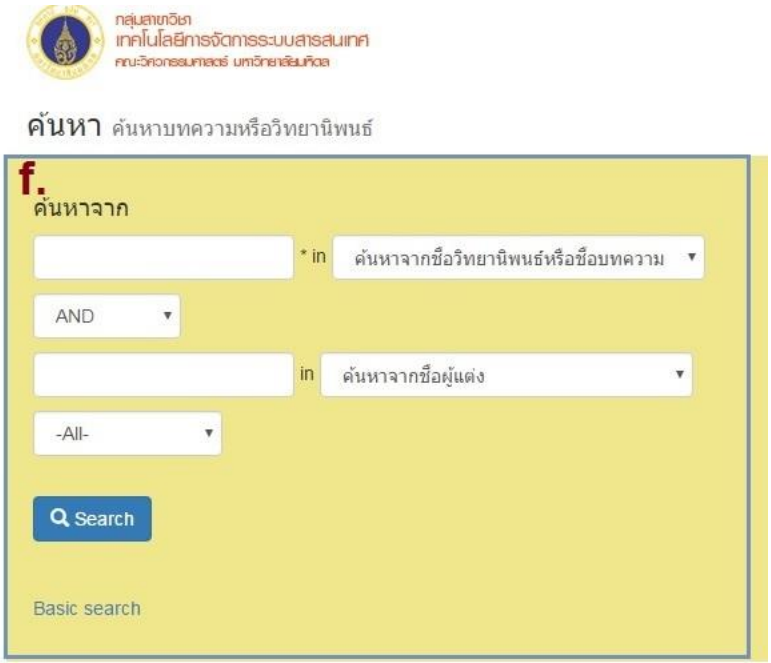


Fig. 4.7 How to use display to advanced search page of Research and Thesis Management System.

f. Advanced Search: Uses a form based on metadata (information about the documents) to construct a search query. The Advanced Search page allows you to

- Specify a year range.
- Select a collection,
- Add up to two fields (e.g., author, thesis name and keyword) and field values to narrow your search.

Title of Figure this show result searching page of Research and Thesis Management System. Show in figure 4.8

Fig. 4.8 How to use display to result searching page of Research and Thesis Management System.

Title of Figure this display result details of searching. Show in figure 4.9

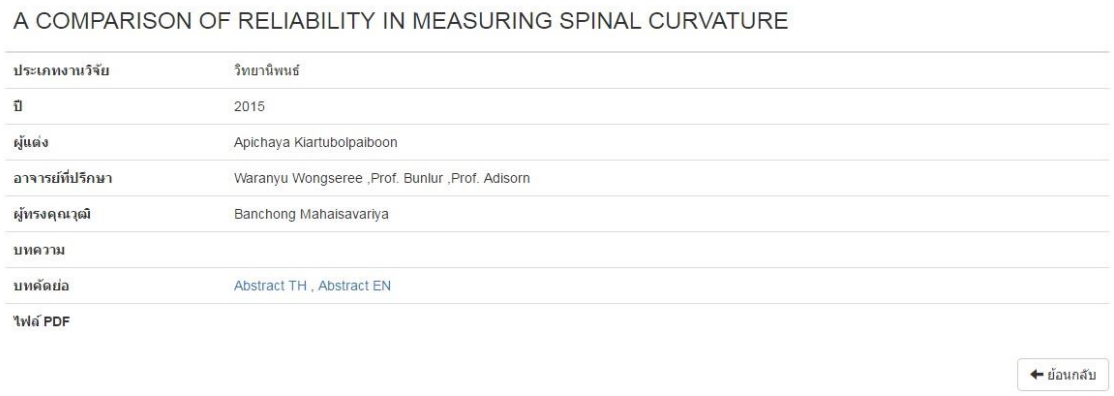
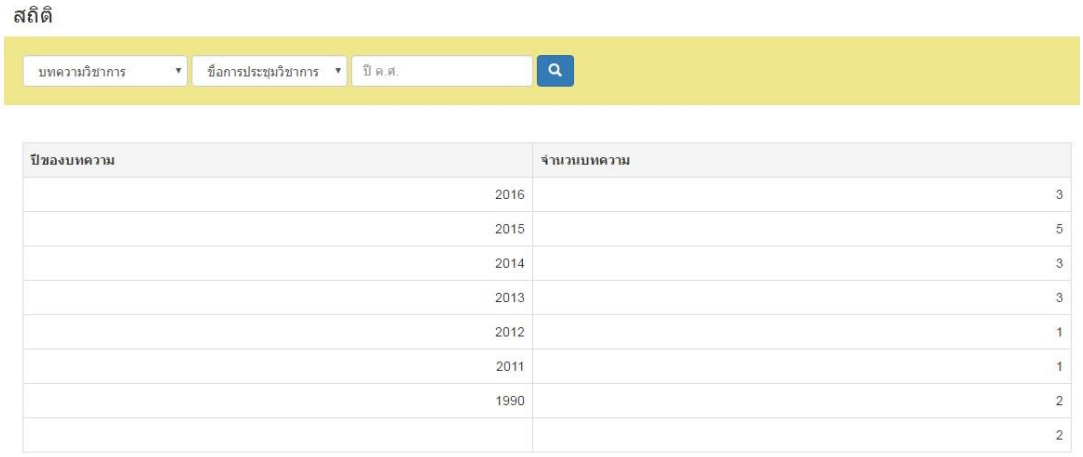


Fig. 4.9. Display result details of Searching.

B) Reporting: This part is to view the volume of research information and thesis information by choosing in menu. Show in figure 4.10



ปีของบทความ	จำนวนบทความ
2016	3
2015	5
2014	3
2013	3
2012	1
2011	1
1990	2
	2

Fig. 4.10. Display reporting of data statistics

C) Login User: This part is to use download from PDF, because system need to be verified before downloading file PDF.

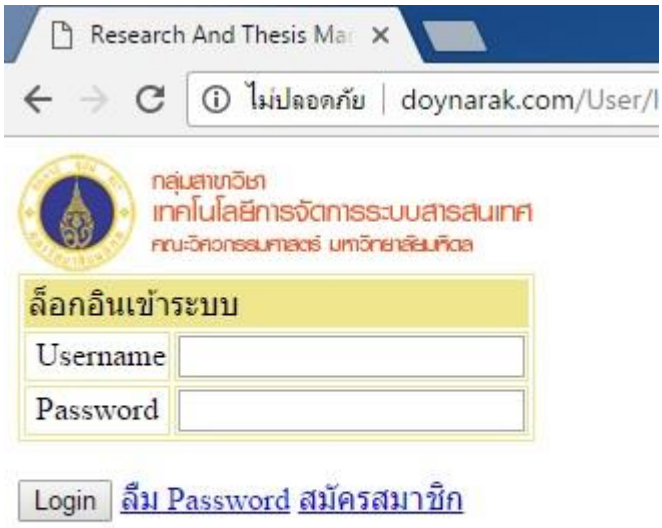


Fig. 4.11. How to use display to login user in the system.

A. (Login form)

From Fig.4.11. User Users must enter the Username and Password for verification Member.

If user are not a member user must register on the figure 4.12 for use system,

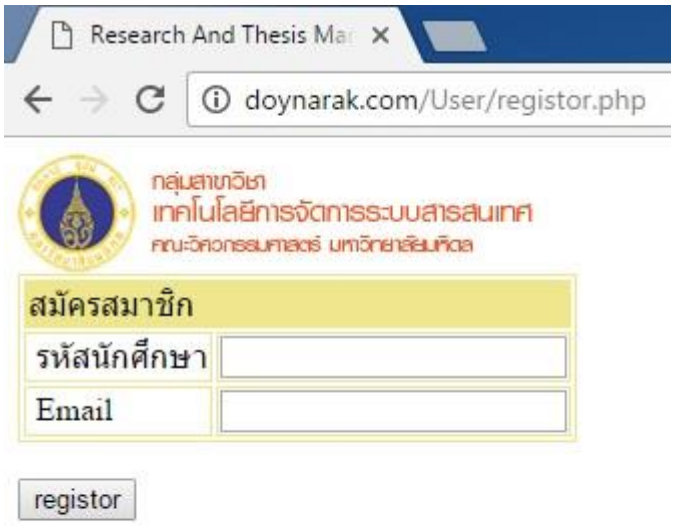


Fig. 4.12. How to use display to login user in the system.

B. (Register form step one)

From Fig.4.12. User Users must enter the Student ID and Email for verification of student status

After user completes the first step. Next enter the password Show in figure 4.13.

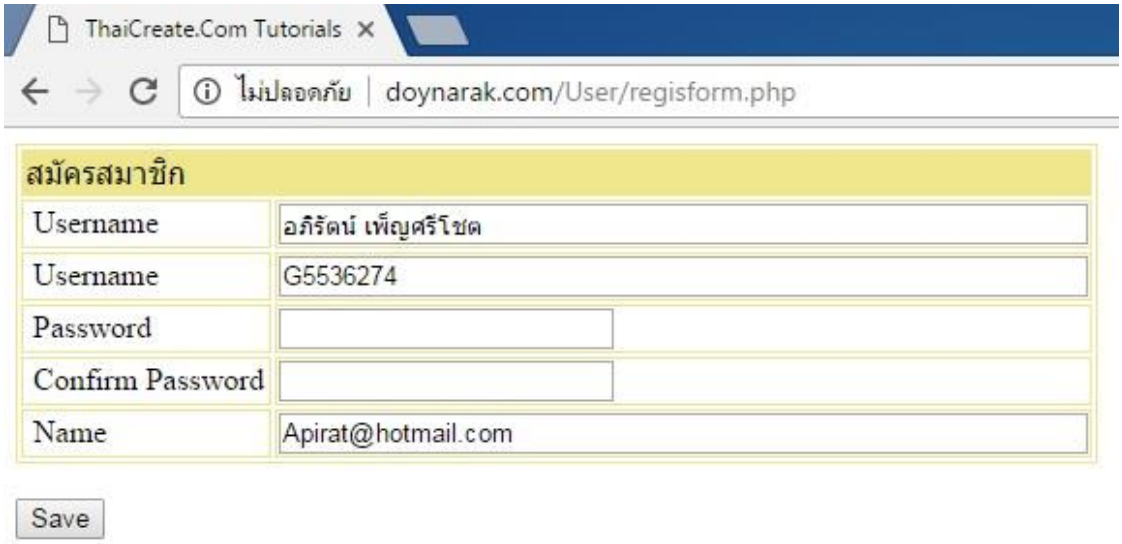


Fig. 4.13. How to use display to login user in the system.

B. (Register form step two)

If user forget your password. Please input your student id and email for obtain password in use system Show in figure and figure 4.15.

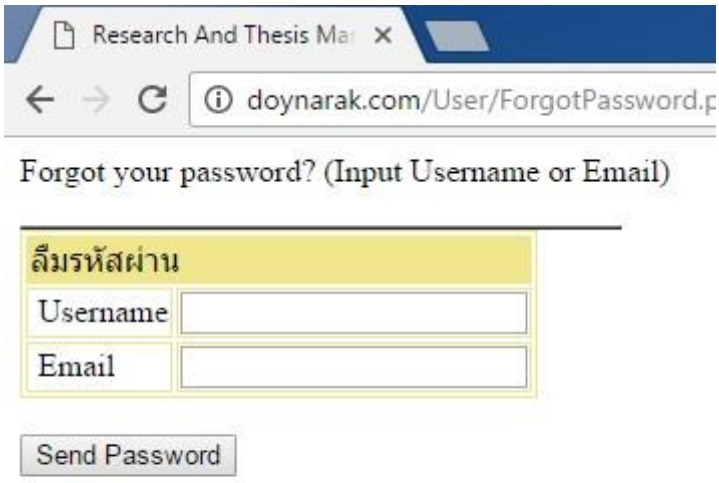


Fig. 4.14. Display forgot your password page.

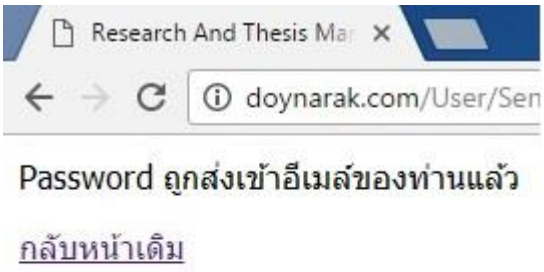


Fig. 4.15. Display Get password page.

D) Edit user data: After login there will be links to edit information. Show in figure 4.15.

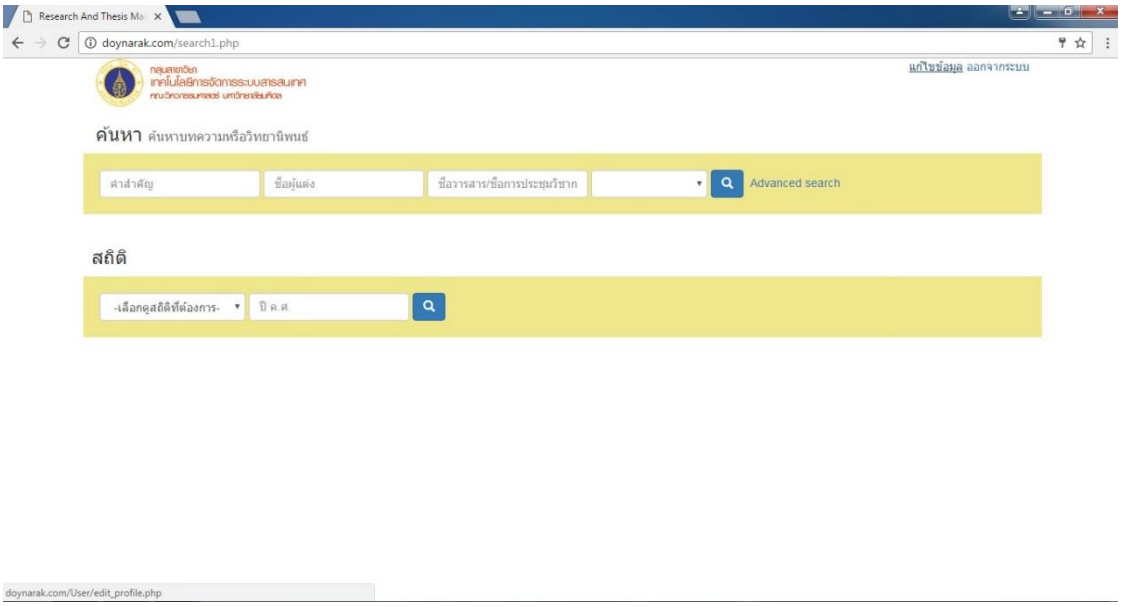


Fig. 4.16. How to reach to edit user information.

After to reach to edit user information. The system takes into edit user page Show in figure 4.16.

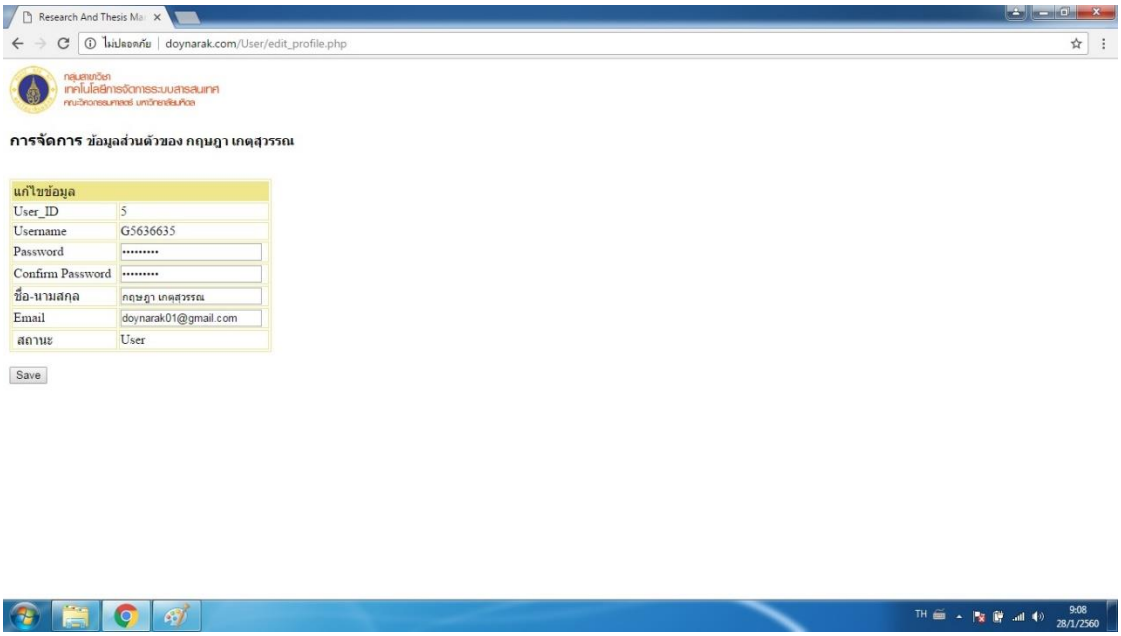


Fig. 4.17. Display Edit User Page.

4.2 Section Two: Admin page

The first step must log on before entering the program.(admin only) then after login into next administrator. By add, edit and delete data in page menu various include.

1) Journal Page: This page is use for record, edit, and delete Journal Data.

Fig. 4.18 Display Journal Page.

2) Conference Page: This page is use for record, edit, and delete Conference Data.

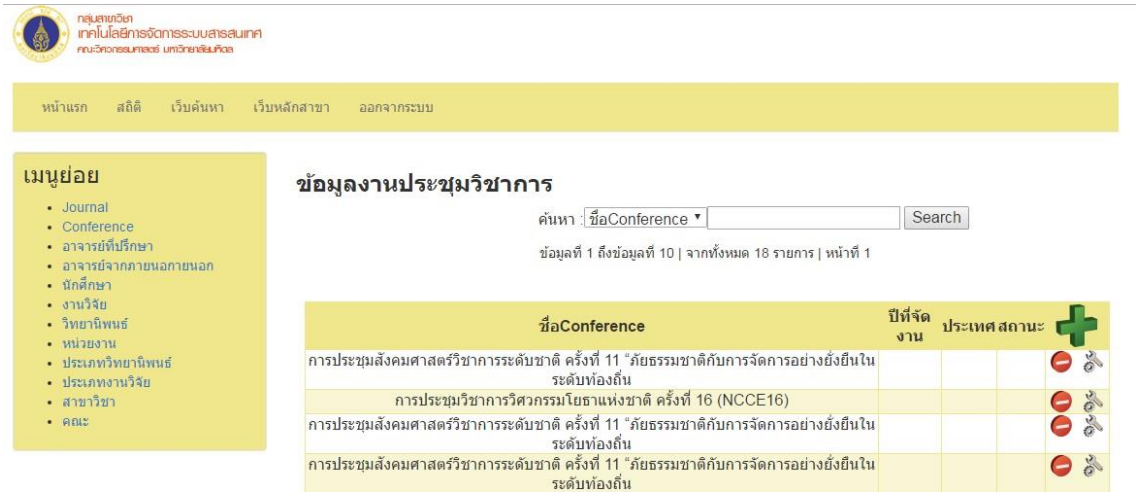


Fig. 4.19 Display Conference Page.

3) Advisor Page: This page is use for record, edit, and delete Advisor Data.

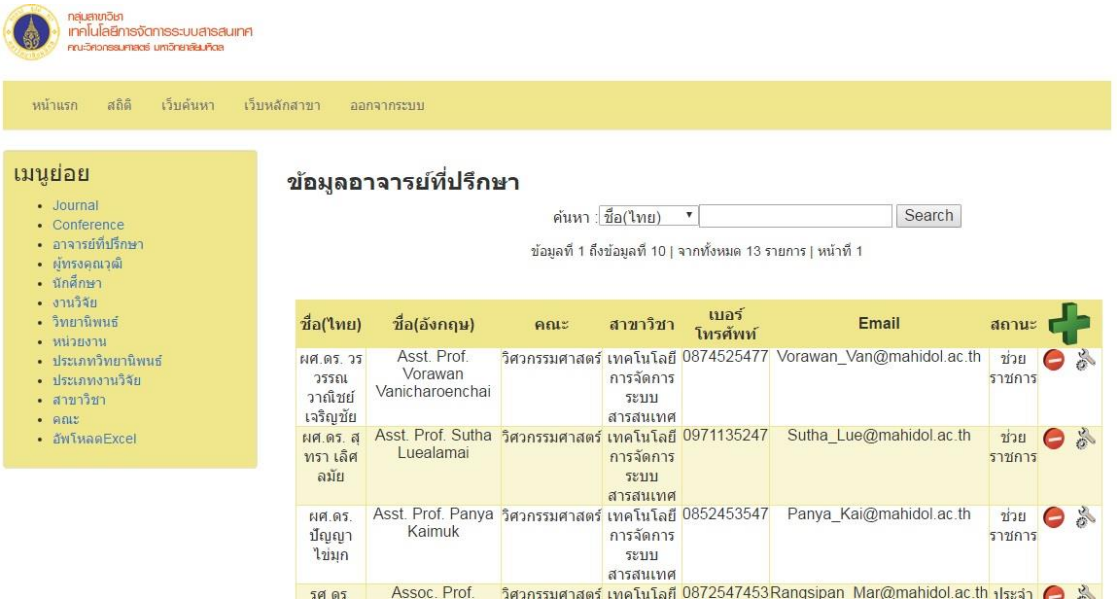


Fig. 4.20 Display Advisor Page.

4) Advisor External Page: This page is use for record, edit, and delete Advisor External Data.

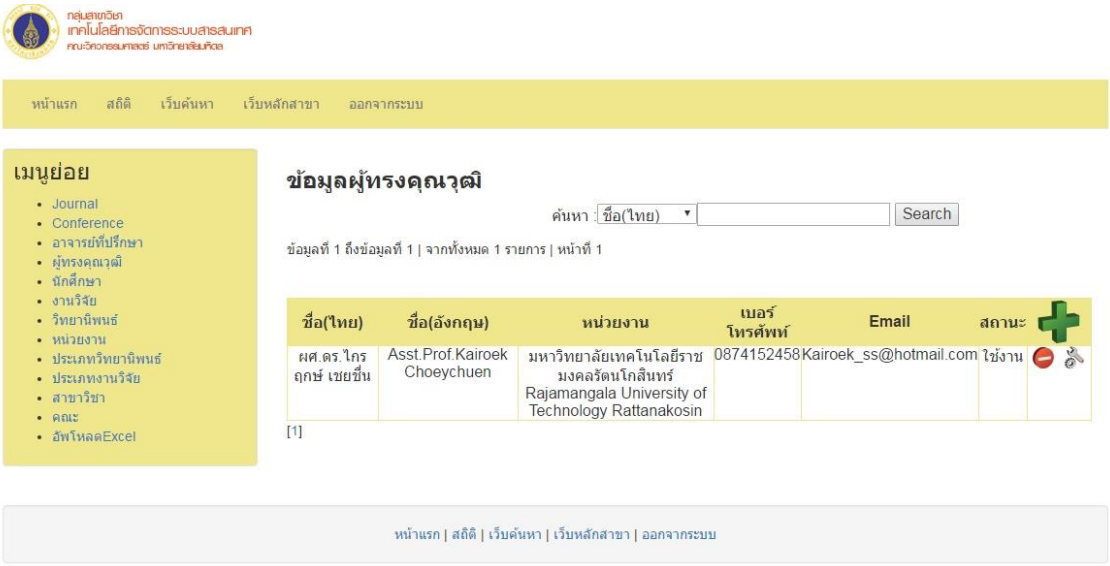


Fig. 4.21 Display Advisor External Page.

5) Student Page: This page is use for record, edit, and delete Student Data.

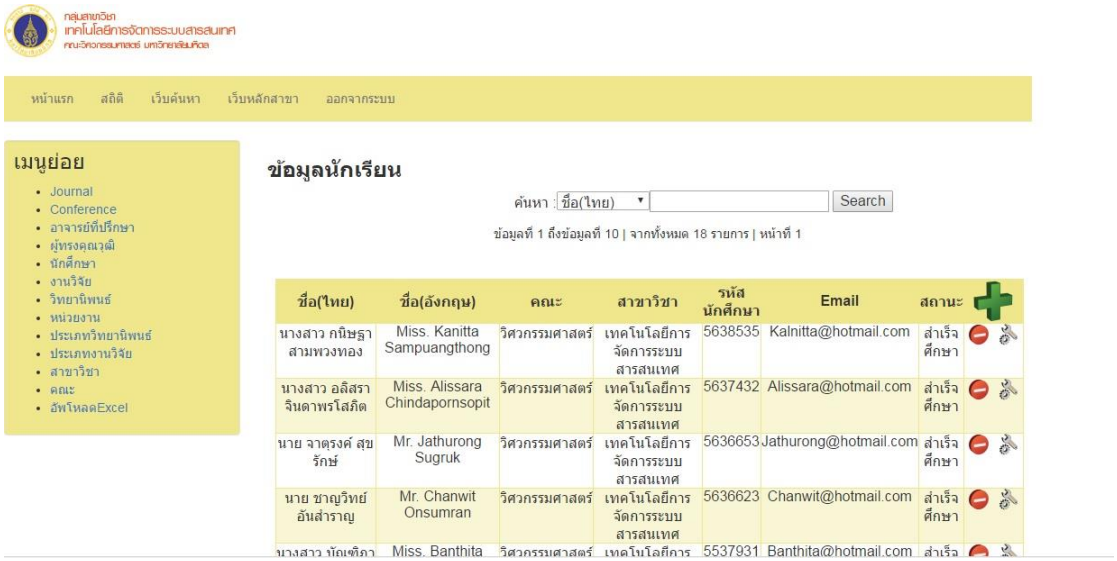


Fig. 4.22 Display Student page.

6) Article Page: This page is use for record, edit, and delete Article Data.

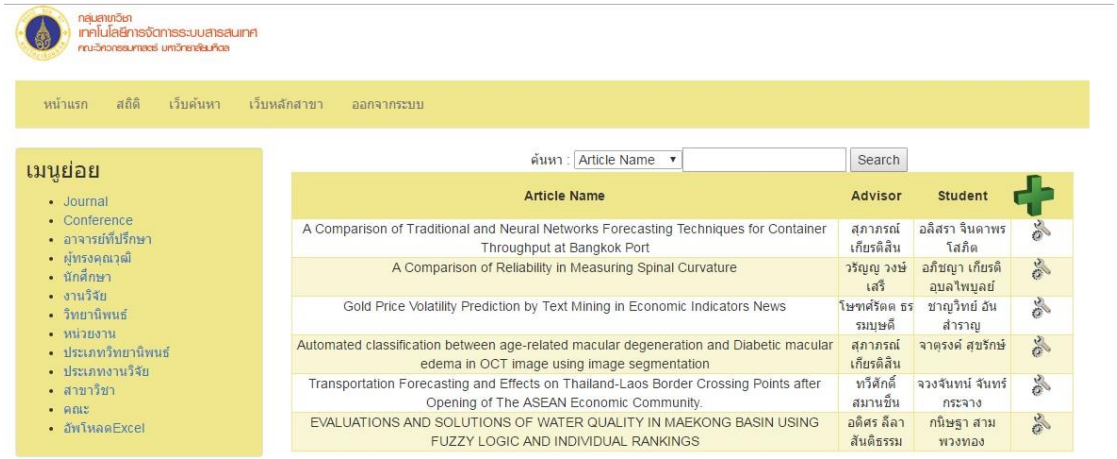


Fig. 4.23 Display Article page.

7) Thesis Page: This page is use for record, edit, and delete Thesis Data.

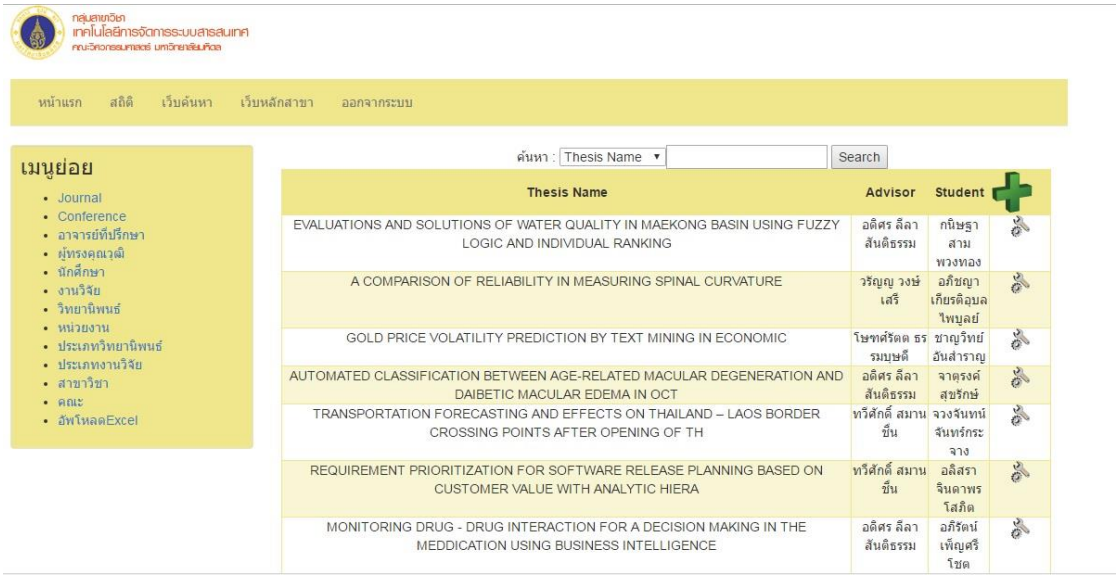


Fig. 4.24 Display Thesis Page.

8) Organization Page: This page is use for record, edit, and delete Organization Data.

Fig. 4.25 Display Organization Page.

9) Category Thesis Page: This page is use for record, edit, and delete Category Thesis Data.

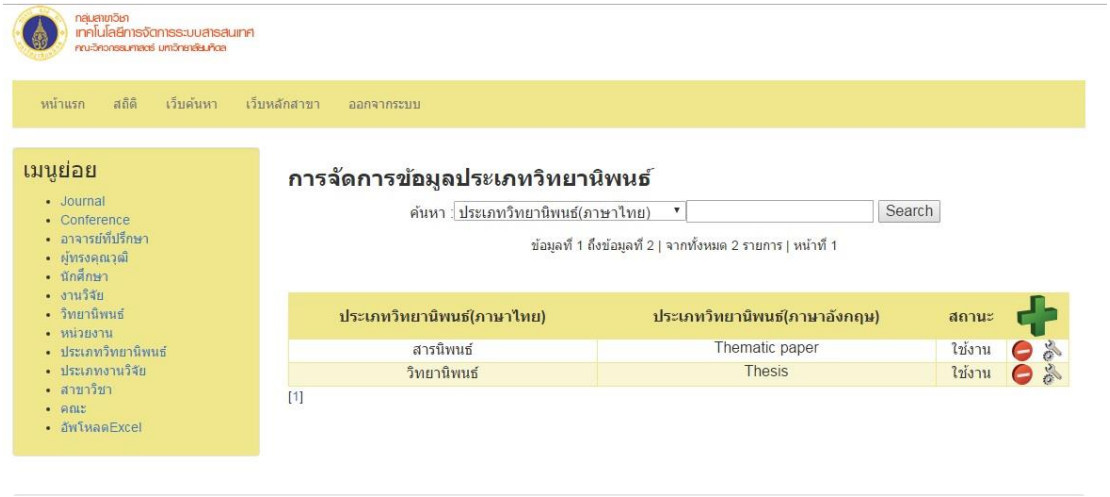


Fig. 4.26 Display Category Thesis Page.

10) Category Article Page: This page is use for record, edit, and delete Category Article Data.

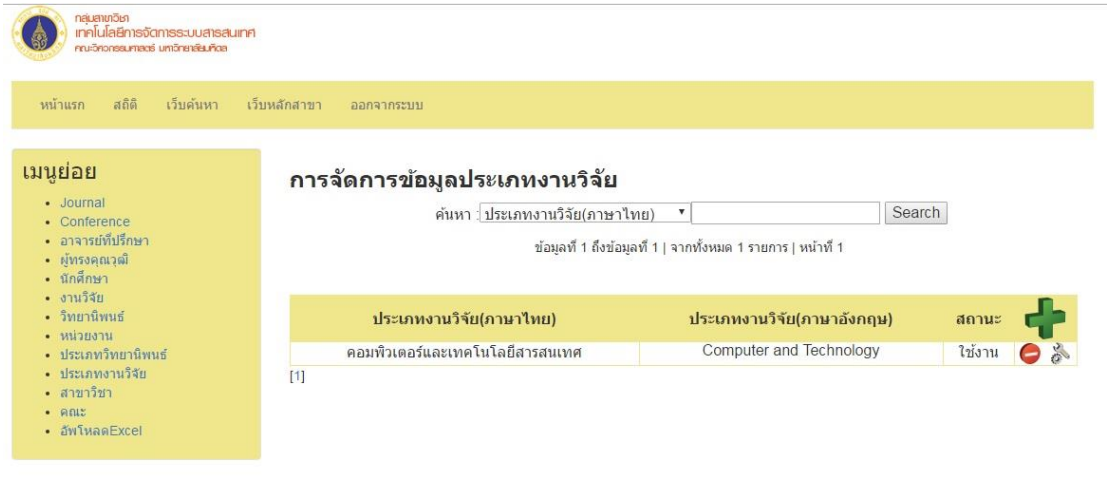


Fig. 4.27 Display Category Article Page.

11) Major Page: This page is use for record, edit, and delete Major Data.

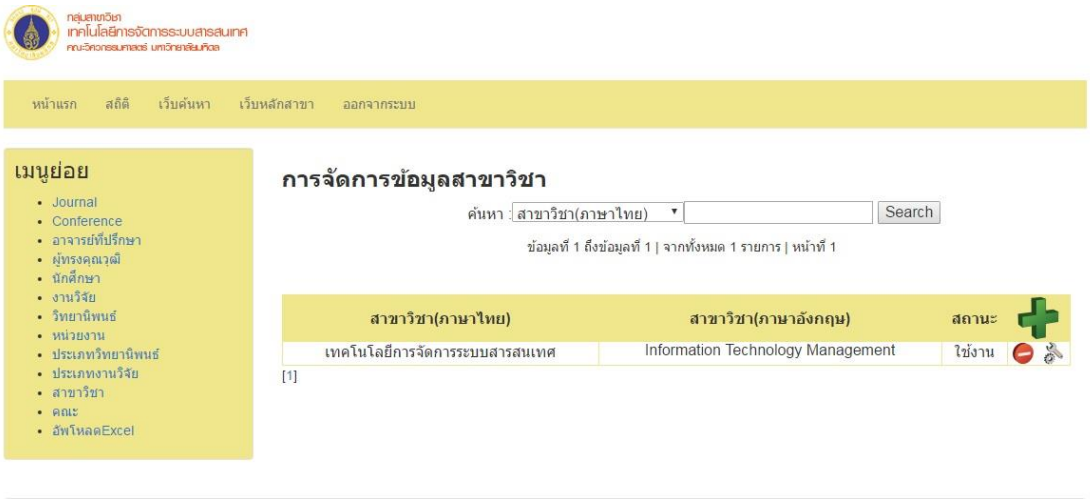


Fig. 4.28 Display Major Page.

12) Faculty Page: This page is use for record, edit, and delete Faculty Data.

Fig. 4.29 Display Faculty Page.

13) User Page: This page is use for record, edit, and delete User Data.

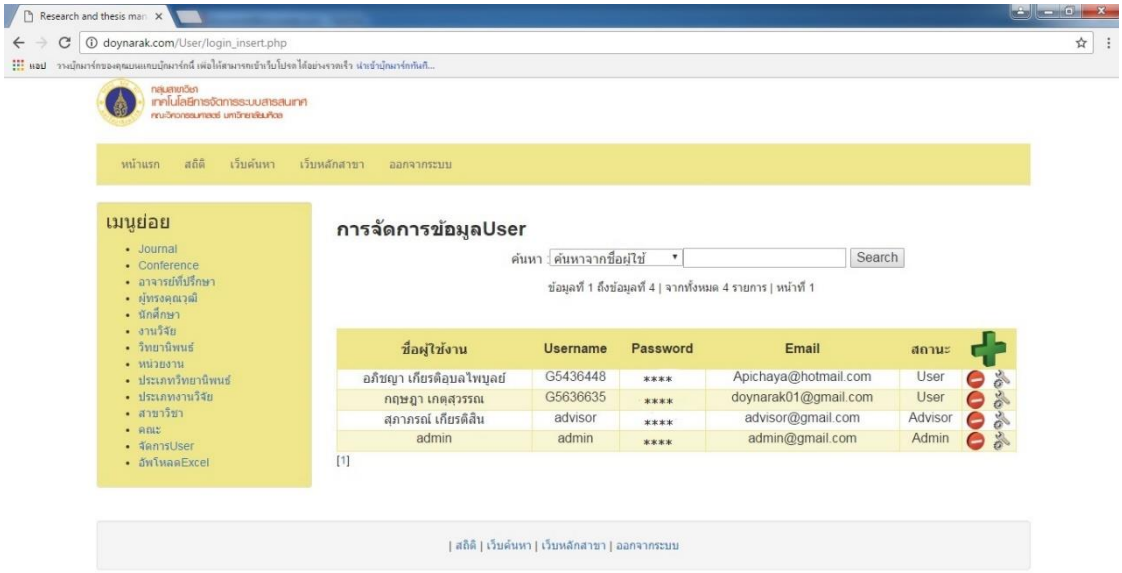


Fig. 4.30 Display User Page.

14) Import Excel Page: This page is use for import file excel record to Database.

Fig. 4.31 Display Upload File Excel Page.

4.3 System Assessment

From evaluated by lecturers, staffs and students. The results are evaluated. The result is excellent show in picture 4.31.

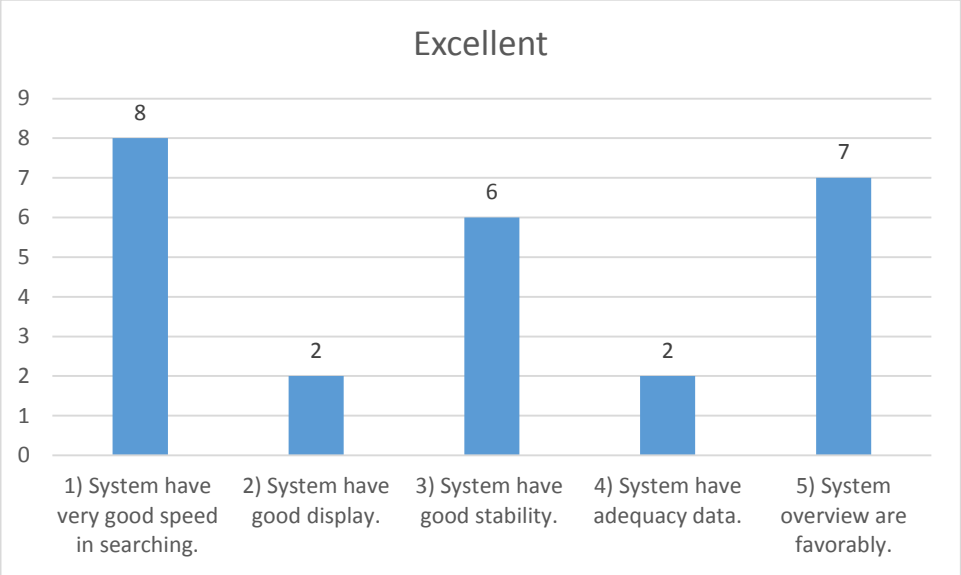


Fig. 4.32.The Assessment of result excellent.

The result is fair show in picture 4.32.

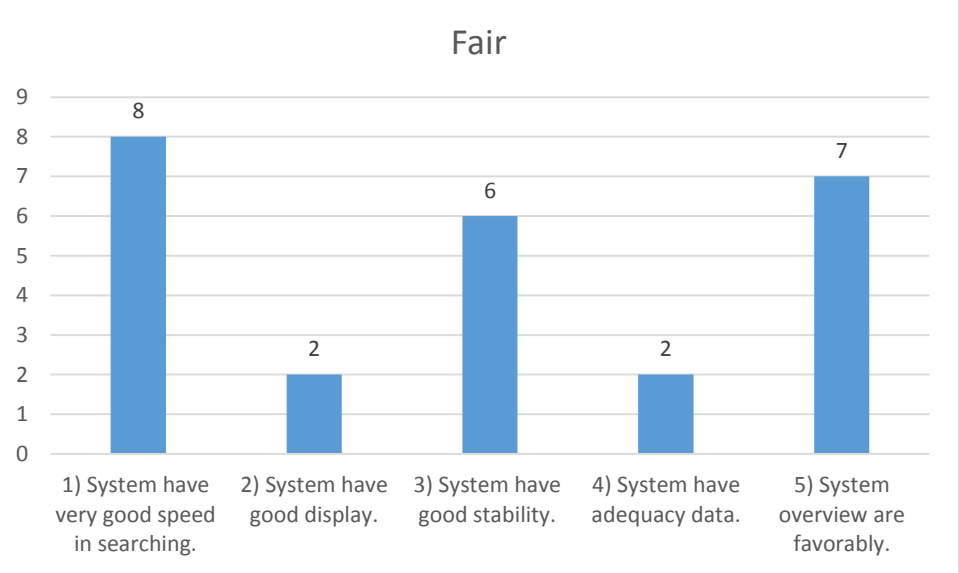


Fig. 4.33.The Assessment of result fair.

The result is should improve show in picture 4.33.

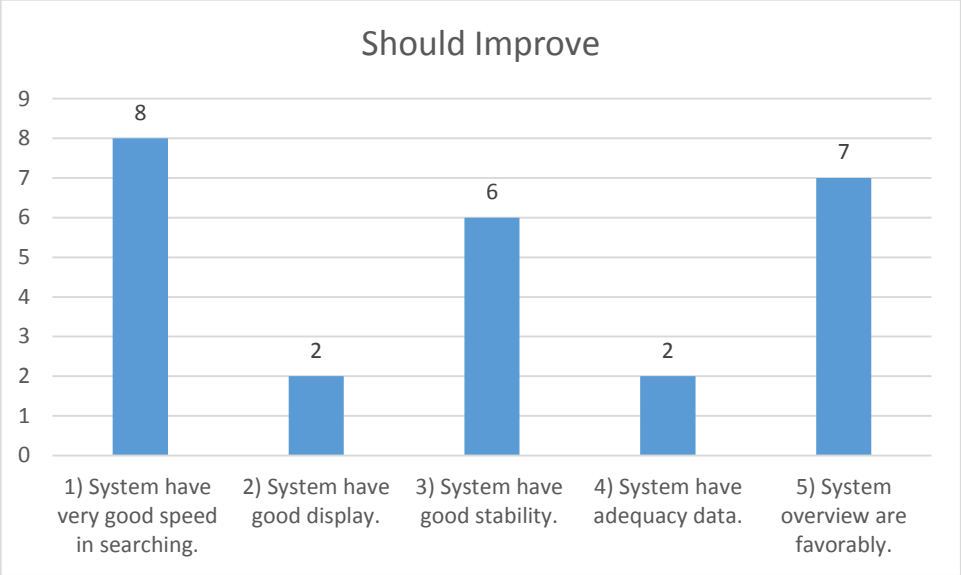


Fig. 4.34.The Assessment of result should improve.

Divide evaluation lecturers only show in picture 4.34.

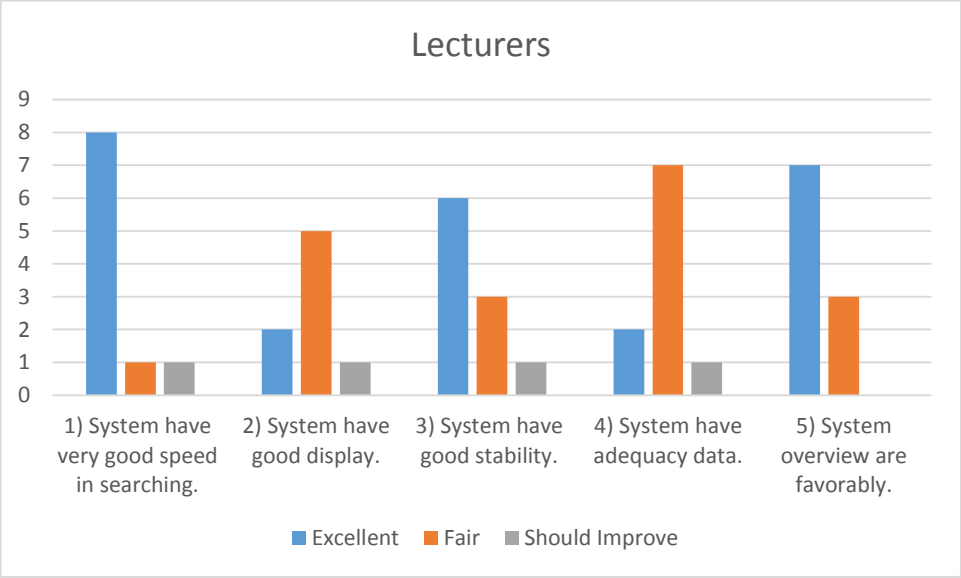


Fig. 4.35.The Assessment of result lecturers only.

Divide evaluation staffs only show in picture 4.35.

Fig. 4.36.The Assessment of result staffs only.

Divide evaluation students only show in picture 4.36.

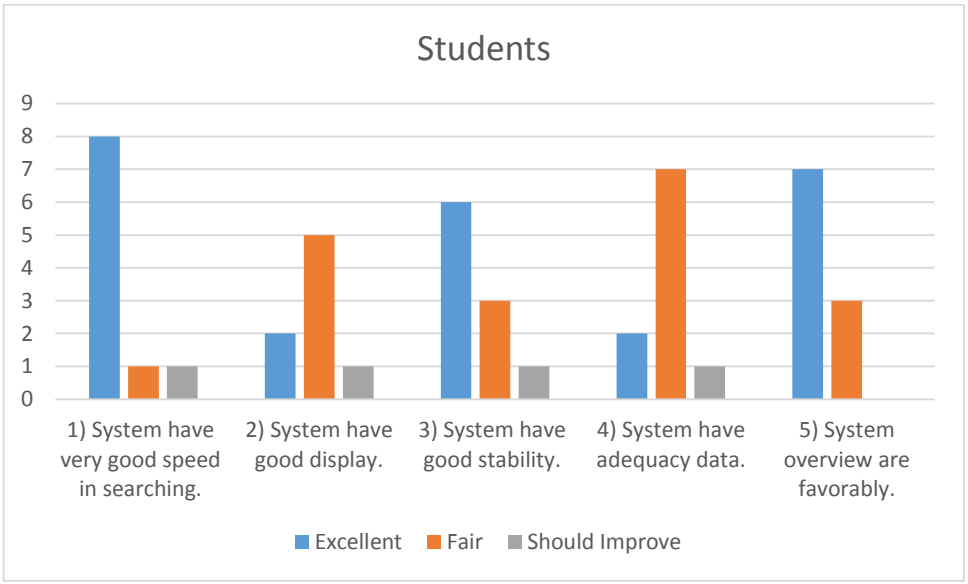


Fig. 4.37.The Assessment of result students only.

CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

According to the results as shown in chapter IV, using web-based application for Development of Research and Thesis Management System: Case study of Information technology management program by topic as follows:

5.1 Comparing with the old working system

The new system is developed to increase efficiency in Searching for Research and Thesis. In the old system record by paper and memory which occur the damage to Organization. The new system is advantage and disadvantage this follows:

5.1.1 The advantage of the new system

1) User can provide information to support a decision faster with Statistics Research for evaluating number of Article and Thesis in year.

2) User can provide information to support a decision faster with Statistics Thesis for evaluating number of Article and Thesis in year.

3) User can provide information to support a decision faster with Statistics Student for evaluating number of Article and Thesis in year.

4) User easier to search Article and Thesis from new working system because keeping information at center. The old system uses the experience and expertise of staff. If the staff does not know the Article and Thesis, it takes longer to find them.

5) The new system is less than the old system to track the Article and Thesis

6) User can find the same Article and Thesis, although it is different models. Because it is linked with a journal and conference compared which make it in the old system.

7) It has a protection system of access information which is confidence more than the old system.

5.1.2 Comparing with the other software (Sciencedirect, IEEE

1) User System

The other software enables you to set the scope of access to each process in system, while this system of project is assigned to fixed scope by position of work so that if you change the process of work in future, user cannot change it by yourself. However, it meets the requirement of user in this case study.

2) Foundation Information System

This system of other software is different from this project software. The other system can edit and add organization is name, set the number and format of show result, import information such as Journal Name Conference Name, from excel format in the database before record Thesis information and Article information from excel format.

3) Report System

The other software is not able to adjust the report format and create reports with boundary conditions that are different for each system in software. While the project software, the programmer need to be created them.

4) Search System

This system is the most remarkable feature of the project software which is rarely found in the other software. Because other system often used keyword search alone in Searching.

5) The limitation of the new system

It takes time to input all information into the new system.

User and Staff must have the Research Information and Thesis Information before the product can be identified in the new system

5.1.3 The problems in the new system

1) Discrepancy of data between the system and reality

This case may occur from human error; for example, input data wrong to the system so must checking the data at least every month.

2) Development in the future

The project software is the branch Information Technology Management System in Mahidol University. So there must be an administrator in the future. To make the system work properly.

5.2 Additional function in to the new system

1) Import/Export Data in digital format

To facilitate the use of information in other sources such as word format or excel format

2) Automated notification system.

Notification when data point to be defined; for example, alarm when the record wrong data. It helps to control the working and reduce errors for expansion in the future.

3) The development of display to report

The report shows in graphic form to view data more easily comparable.

4) Searching system

Add function to find a more diverse in the future. To make it even easier to find Article Information and Thesis Information.

5.3 Summary of estimate

Users want insert edit and delete information a faster system and Increase space server.

Solution

1) The system must be moved to a new server at faster.

2) The system must be moved to a new server at space more.

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4. Porruthai Puthapanya. *Development and Design of Management Information System for Mini-Mart Shop: a Case Study in Tip Mini-Mart* [M.S.Thsis in Technology of Information System Management] Bangkok: Faculty of Graduate Studies, Mahidol University; 2006
5. Chris Newman. *Sams Teach Yourself MySQL in 10 Minutes*: 1st ed. Sams Publishing, 2006
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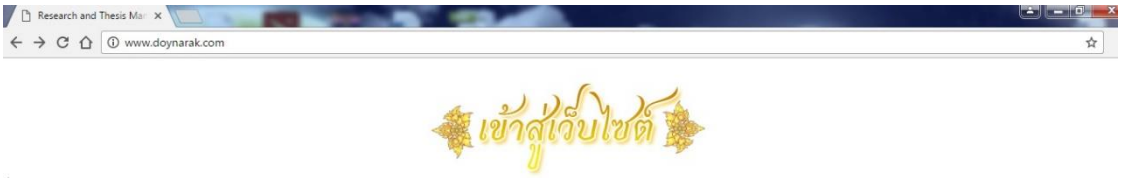
APPENDIX

HOW TO USE PROGRAM

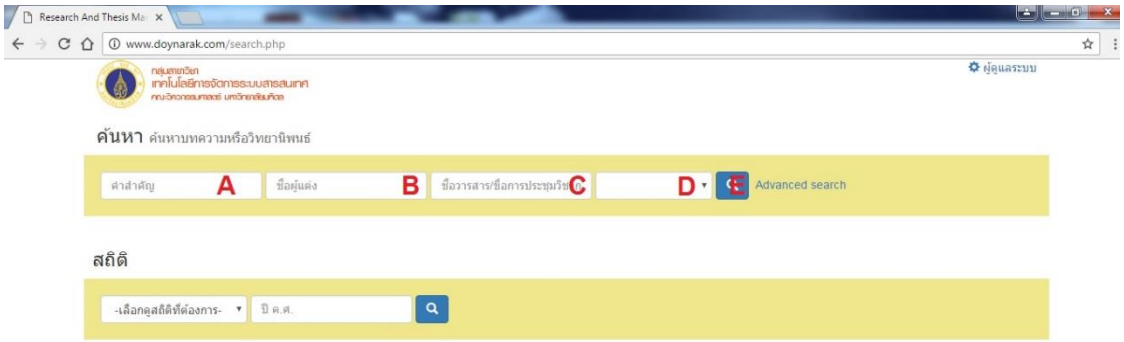
คู่มือการใช้งานโปรแกรม

1. **หน้าแรก**



รูปภาพที่ 1 หน้าแรกของโปรแกรม

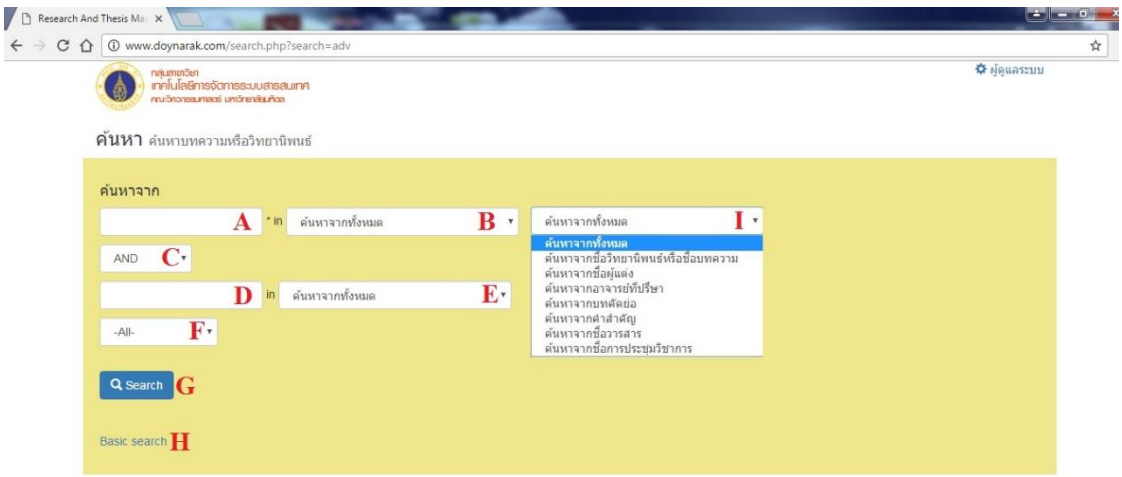
2. **Basic Search**



รูปภาพที่ 2 Basic Search

ขั้นตอนการทำงานในหน้า Basic Search

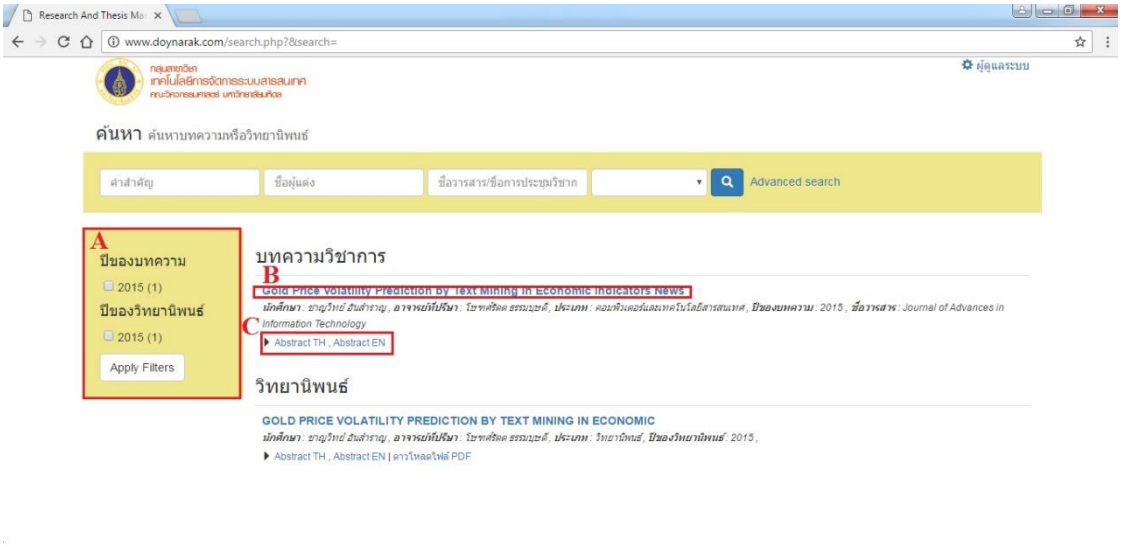
สัญลักษณ์	การดำเนินการ
A	ในช่องนี้เป็นหาใช้คำสำคัญในการค้นหาโดยจะไปค้นหาจากชื่อวิทยานิพนธ์ และชื่องานวิจัย และค้นหาจากใน Abstract ของทั้งวิทยานิพนธ์ และชื่องานวิจัย
B	ในช่องนี้จะค้นหาจากชื่อผู้แต่งของทั้งในวิทยานิพนธ์ และในงานวิจัย
C	ในช่องนี้จะค้นหาจากชื่อชื่อวารสารทางวิชาการและการประชุมวิชาการของทั้งในวิทยานิพนธ์ และในงานวิจัย
D	ในช่องนี้จะเป็นการเลือกให้ค้นหาเฉพาะวิทยานิพนธ์ หรืองานวิจัย
E	เมื่อใส่ข้อความในช่อง A – D ให้กดปุ่มนี้เพื่อรับผลลัพธ์การค้นหา



รูปภาพที่ 3 Advanced Search

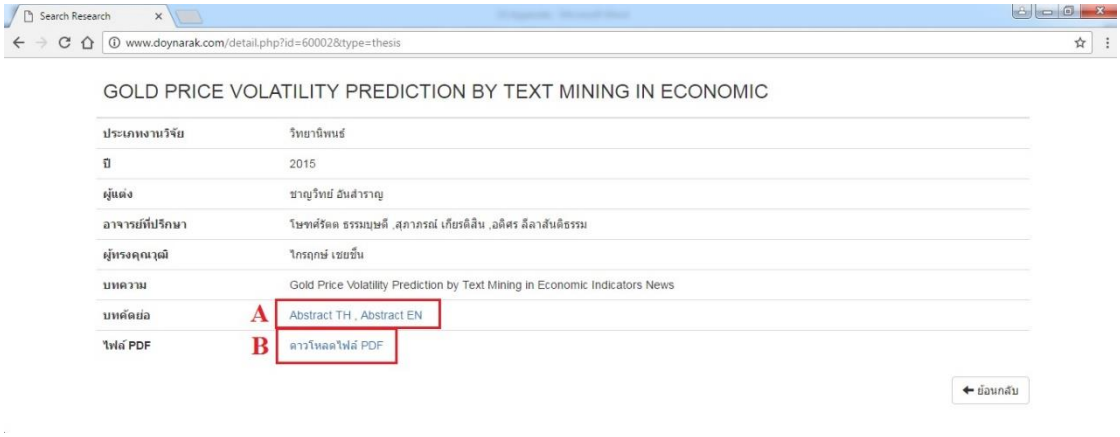
ขั้นตอนการทำงานในหน้า Advanced Search

สัญลักษณ์	การดำเนินการ
A , D	ในช่องนี้จะเป็นช่องที่ไว้พิมพ์คำค้นหา
B , E	ในช่องนี้จะเป็นการเลือกว่าจะให้ค้นหาจากฟิลด์ไหนในฐานข้อมูลโดยมีรายการข้อมูลในสัญลักษณ์ I
C	ในช่องนี้เป็นช่องที่ให้เลือกว่าจะให้มีข้อมูลนี้ทั้ง2ฟิลด์หรือมีฟิลด์ฟิลด์หนึ่งก็ได้
F	ในช่องนี้คือให้หาจากวิทยานิพนธ์หรืองานวิจัยหรือทั้งหมดก็ได้
G	เมื่อใส่คำค้นทั้งหมดแล้วให้กดปุ่มนี้ให้กดปุ่มนี้เพื่อรับผลลัพธ์การค้นหา
H	ปุ่มนี้เป็นปุ่มกลับสู่หน้า Basic Search



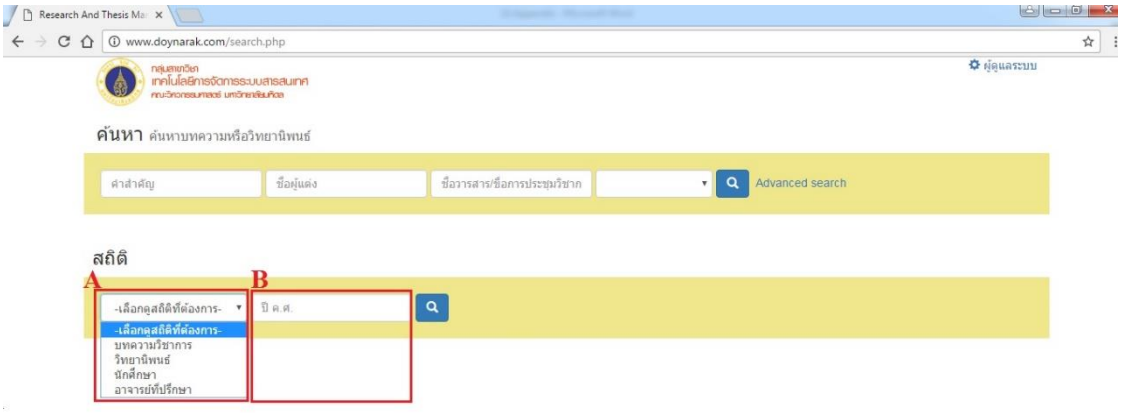
รูปภาพที่ 4 หน้าจอแสดงผลลัพธ์จากการค้นหา

สัญลักษณ์	การดำเนินการ
A	ในช่องนี้เป็นการกรองข้อมูลว่าต้องการงานวิจัยหรือวิทยานิพนธ์ในปีไหน
B	ในชื่องานวิจัยนี้สามารถกดเข้าไปดู Detail ของงานวิจัยชิ้นนั้นๆได้
C	ในชื่อช่องนี้สามารถเรียกดู Abstract ของงานวิจัยชิ้นนั้นๆได้



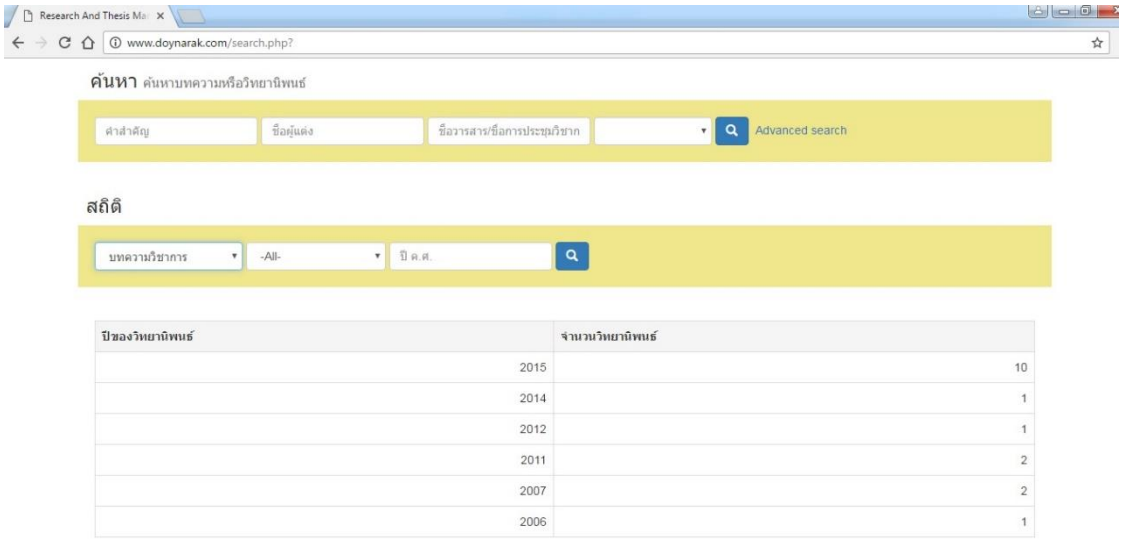
รูปภาพที่ 5 หน้าจอแสดงรายละเอียดของผลจากการค้นหา

สัญลักษณ์	การดำเนินการ
A	ในลิงค์นี้จะเป็นการแสดง Abstract ของงานวิจัยชิ้นนั้นๆ
B	ในลิงค์นี้จะเป็นการดาวโหลดไฟล์ PDF ของงานวิจัยชิ้นนั้นๆ

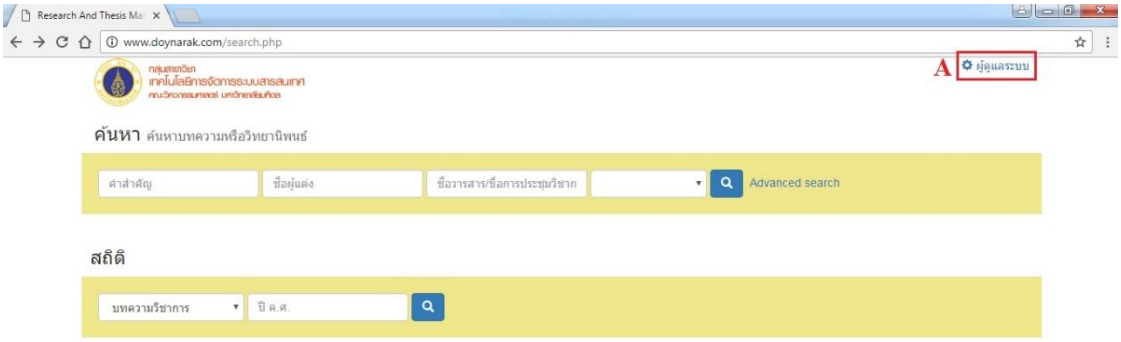


รูปภาพที่ 6 หน้าจอแสดงสถิติของงานวิจัย

สัญลักษณ์	การดำเนินการ
A	ในช่องนี้เป็นช่องที่ให้เลือกว่าต้องการจะค้นหาสถิติไหน
B	ในช่องนี้เป็นช่องที่ให้ใส่ปีว่าต้องการดูสถิติงานวิจัยในปีไหน

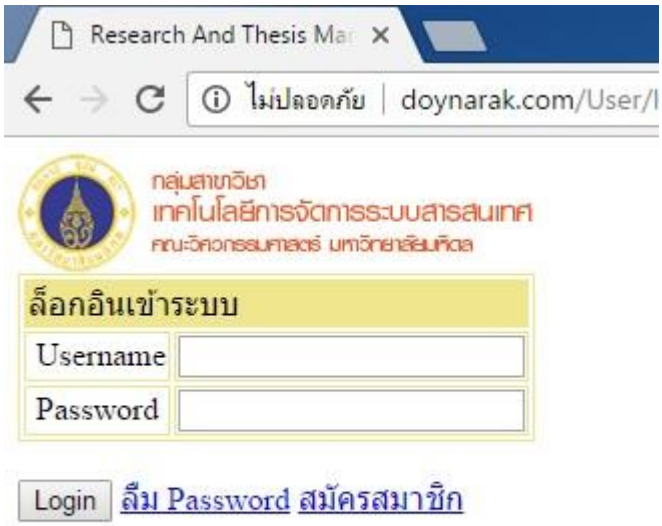


รูปภาพที่ 7 หน้าจอแสดงผลลัพธ์แสดงสถิติงานวิจัยและวิทยานิพนธ์

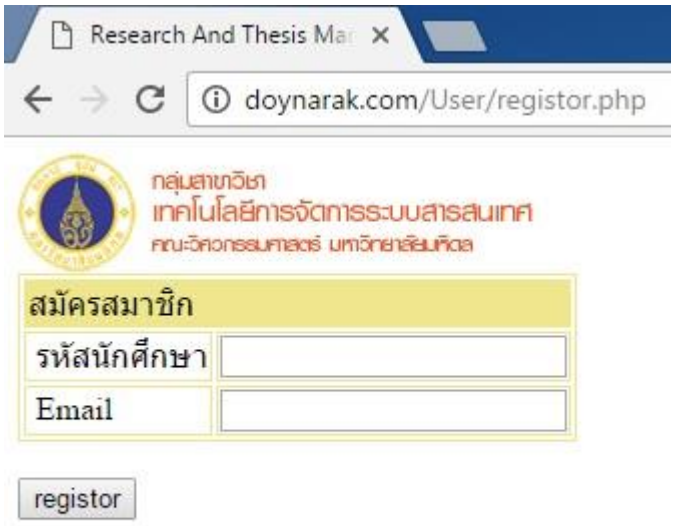


รูปภาพที่ 8 หน้าจอแสดงขั้นตอนการเข้าหน้า Admin

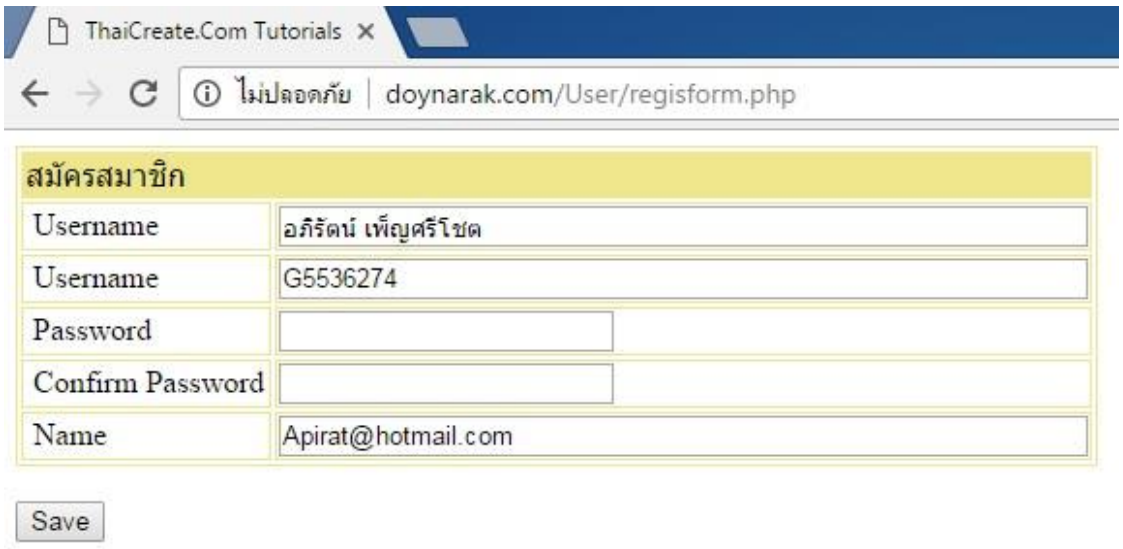
รูป	การดำเนินการ
A	กรอก Username และ Password หายังไม่ได้สมัครสมาชิกให้ไปทำรูป B.
B	กรอกรหัสนักศึกษาและอีเมล์หากไม่ใช่นักศึกษาไม่สามารถสมัครได้
C	ทำการกรอกรหัสผ่าน 2 ครั้งซึ่งทั้ง2ครั้งต้องเหมือนกัน
D	กรณีลืมรหัสผ่านให้กรอกรหัสนักศึกษาและกรอกอีเมล์เพื่อรับรหัสผ่าน
E	ระบบจะทำการส่งรหัสผ่านมาให้แก่ผู้ใช้งาน



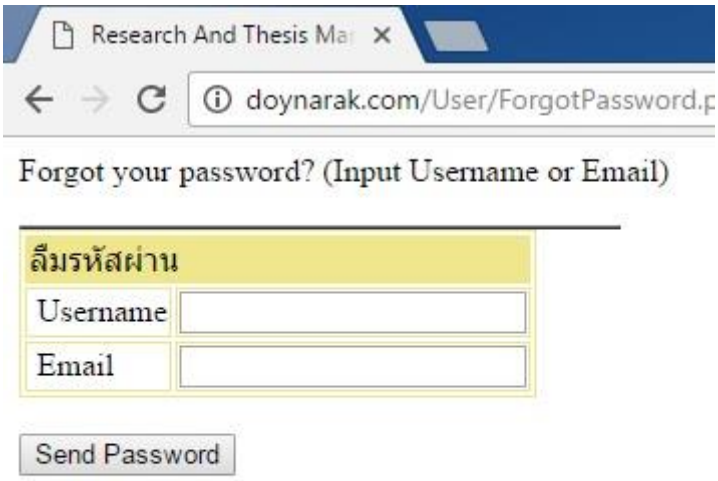
รูปภาพที่ A. หน้าลงทะเบียน



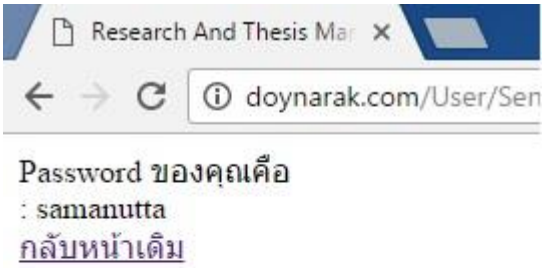
รูปภาพที่ B. หน้าจอสมัครสมาชิกหน้าแรก



รูปภาพที่ C. หน้าจอสมัครสมาชิกหน้าสอง



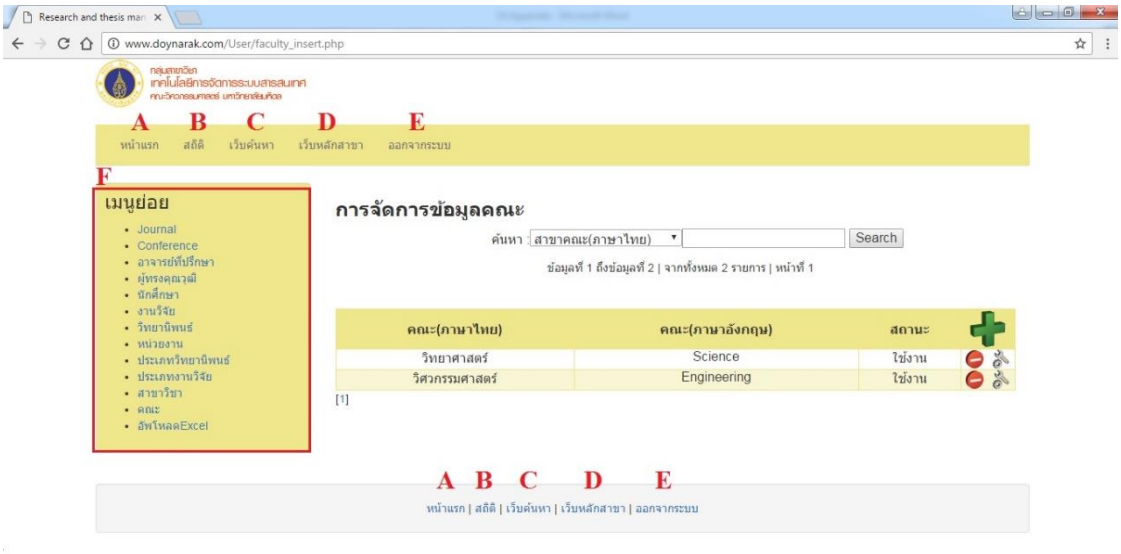
รูปภาพที่ D. หน้าจอลืมรหัสผ่าน



รูปภาพที่ E. หน้าจอรับรหัสผ่าน

รูปภาพที่ 9 หน้าจอแสดงหน้าระบุตัวตนก่อนเข้าใช้หน้า Admin

สัญลักษณ์	การดำเนินการ
A	ในกรอบนี้จะเป็นกรอบจะเป็นฟังค์ชั่นการระบุตัวตนก่อนเข้าใจหน้า **Admin**



รูปภาพที่ 10 หน้าจอแสดงหน้า Admin

สัญลักษณ์	การดำเนินการ
A	ลิ้งค์กลับสู่หน้าหลักในหน้า Admin
B	ลิ้งค์ไปสู่หน้าสถิติ
C	ลิ้งค์ไปสู่หน้าค้นหา
D	ลิ้งค์ไปสู่หน้าเว็บของกลุ่มสาขา
E	ลิ้งค์ออกจากระบบ
F	ลิ้งค์ไปสู่หน้าเพิ่มข้อมูลหลัก

BIOGRAPHY

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