5BIS -Service Oriented Architecture: Concept & Technology

Project Category

IT Directory

[5BIS-18]

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Document History

Date	Version	By	Remarks
15 Mar 2017	1.0	5BIS-18	Version 1
5 April 2017	2.0	5BIS-18	Version 2

Contents at a Glance

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Acknowledgement

Firstly, I wish to express my thanks to my supervisor: Dr. Swe Zin Hlaing. This report is accomplished by teacher's guidance and encouragement.

Also thanks to other teachers who participated in giving suggestions and ideas to complete this report successfully.

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Myo Wai Thant

Abstract

This system aims at giving a suggestion and guideline for the students, teachers and people related with IT field. And here The Decision Making Process is use for searching suitable laptops and address of the IT showrooms. Three criteria should identify to show the suitable laptop and for giving suggestion to the users.

1. Introduction

1.1. Introduction

IT directory is the web-based system which gives suggestions and guidelines for the students, teachers and people related with IT field. Like a Yangon Directory System, this IT Directory System shows the directory of the IT showrooms and sales center within Yangon area. IT directory system has two parts.

First part supports IT showrooms address for users who do not know where to buy computers and accessories things and what shop/showrooms are locate in their townships. Not only address, if the users know the name of sale center, they can also find the address, mail, website for this sales center. So, users can easily find from any aspects (name, address, townships, mail and website) of the IT showrooms.

Second part shows the specifications of the laptops in which users can also find the laptops model with 3 criteria: Brand, RAM, HDD. So, users can know which model is the best for the criteria that they want to buy.

1.2. Problem statement

This system can improve time efficiency for the users. Without using our system,

- Users cannot easily find IT showrooms: although users can use Yangon Directory System, this is not focus on IT field. Our system describe only IT sale center. So, user can easily access the location of IT sale center.
- Users cannot search laptops with criteria easily: searching laptops with criteria may be difficult without using IT. Although customers can ask salesperson in showrooms, it may take too much time for searching laptops that they want to buy. Sometimes salesperson cannot give full customer services and cannot fulfill customer satisfactions.
- Users cannot get specific information at night: if the users want to know the information at night, they cannot get that information easily because the showrooms are closed. Not only address information but also laptops information cannot get coherently.

1.3. Objectives of the system

This system will be an information database and can be used by people from IT field to search address of IT showrooms and types of laptops, and display it on the web.

- Aim for IT students and teachers
- IT guide for juniors
- Can search easily and response within short time.
- Show the specific information of IT showrooms and laptops

- Can find laptops model with 3 criteria
- Can access every time, everywhere

1.4. Functional Requirements

Anyone with an Internet connection and a browser will be able to use the website to the fullest of its capabilities. This IT directory system has 2 subsystem which are Directory subsystem and Laptops Searching subsystem. Directory subsystem consists of Directory Page. Laptops Search system consists of Laptops List Page and Search Page.

Directory Page

Directory page show the following information:

- The logo and title of our system
- Showrooms name, address, township, email and website information
- In search box, users can search by any aspects of showrooms information

Laptops List Page

- At first, the system should show the laptops list such as brand, model, processor, RAM, HDD, price and rating.
- When the users searches the desired laptops by giving criteria (brand, RAM and HDD) with priority

Search Page

- This site shows the suitable laptops sorted by rating. So, users can view which is best solutions for their requested criteria.

1.5. Non-Functional Requirements

Non-functional requirements are also equally important as functional requirements because it will affect the quality of the target system.

1. Performance Requirements

- The search product function will respond to the user no more than 10 seconds.

2. Response time and Turnaround time of the System

This system must have the following turnaround time

- 3 seconds for all transactions
- Less than 10 seconds for searching the required information
- Less than 50 millisecond regardless of the complexity of the scene to render. The ongoing rendering should stop if it exceeds this response time

3. Reliability Requirements

- The system shall generate error messages when the user attempts to enter invalid data.
- If the system is down, it shall be recovered within 15 minutes.
- The system shall be recovered without interference at user terminal if it is down.
- The system shall have 99.9% reliability during operating hours.

4. Maintainability

This system must allow scheduled regular maintenance of the following frequency.

- Once in a month, with 3 hours of downtime for maintenance (from 0:00AM to 3:00AM)

2. Background Theory

IT Directory System use Decision Making Process for getting suggestion to buy a new laptop. Decision making is an eight-step process that begins with identifying a problem and ends with evaluating the outcome of the decision. After problem identification, user must determine the decision criteria that are relevant to solving the problem. For a user looking for new laptops, the decision criteria may include brand, RAM and HDD. User must assign priority to the criteria if they aren't equally important.

Step 1: Identifying a Problem

For teachers, students and people related with IT can get a suggestion to buy a laptops by using laptops searching subsystem. In here, the problem is to buy a new laptops by giving 3 criteria that user wanted to buy.

Step 2: Identifying Decision Criteria

In step 2, user need to identify 3 criteria: Brand, RAM and HDD for searching suitable laptop. If users want to buy Sony, 4GB and 500GB laptop, but they don't know which model is best for them. In here, they need to choose 3 criteria to get a suggestion.

Step 3: Allocating Weights to the Criteria

In step 3, user should define weights (priority) to criteria. In here, we set first priority to RAM, second priority to brand and third priority to HDD. So, the result will come out depending on this priority.

Step 4: Developing Alternatives

In step 4, 5 models are come out with user criteria and calculated with priority. They are:

- Sony-15-AF006AX (ERYJGF7)
- Sony-15-AF006AX (M457TYR)
- Sony-15-AF006AX (456TRYA)
- Sony-15-AF006AX (RTU6W6E)
- Sony-15-AF006AX (M9V38PA)
-

Step 5: Analyzing Alternatives

There are 5 alternative to analyze. And this system support rating and the result are sorted by rating. So, the user can see which product model have best rating.

Step 6: Selecting an Alternatives

In this step, this system recommend Sony-15-AF006AX (ERYJGF7) for user. And it was show on top of the search list. Because this product is suitable with the user criteria and have high rating. So that model is the best for user.

Step 7: Implementing the Alternatives

In this step, the system give the best suitable suggestion and user can buy this laptop for their criteria.

Step 8: Evaluating Decision Effectiveness

The last step in the decision-making process involves evaluating the outcome or result of the decision to see whether the problem was resolved.

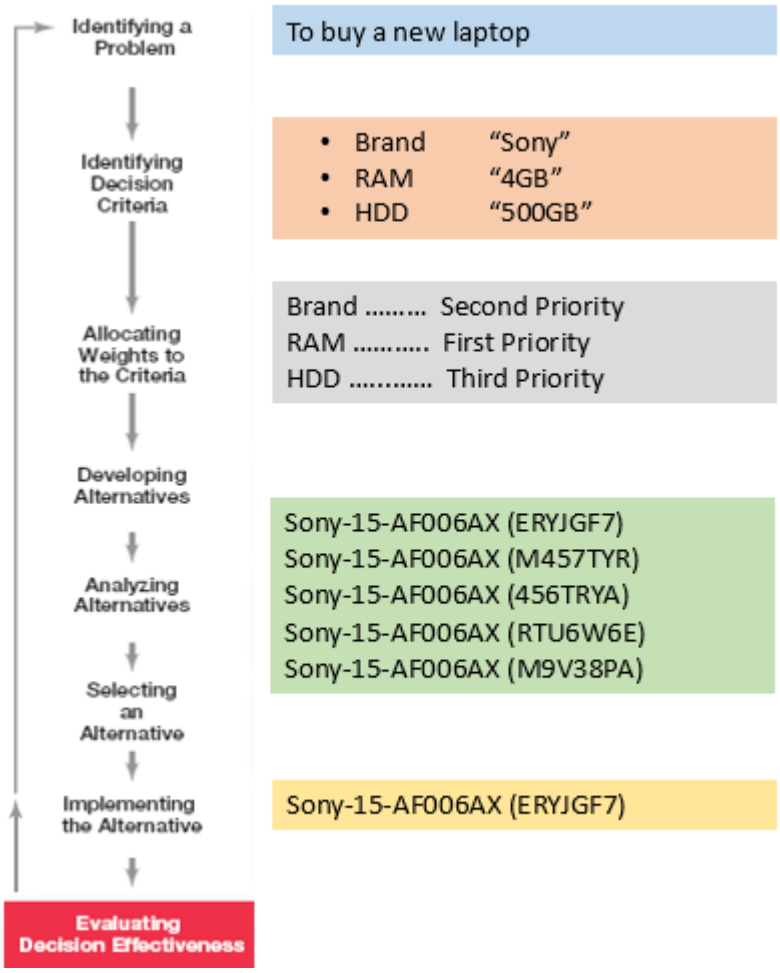


Figure 1 – Decision Making Process

3. Proposed System Design

3.1. Control Flow Diagram for IT Directory System

This diagram is quite convenient to determine what a system does, its scope and the rolls of the stakeholders. All the use cases are compulsory to be implemented. There is one actor defined in this system.

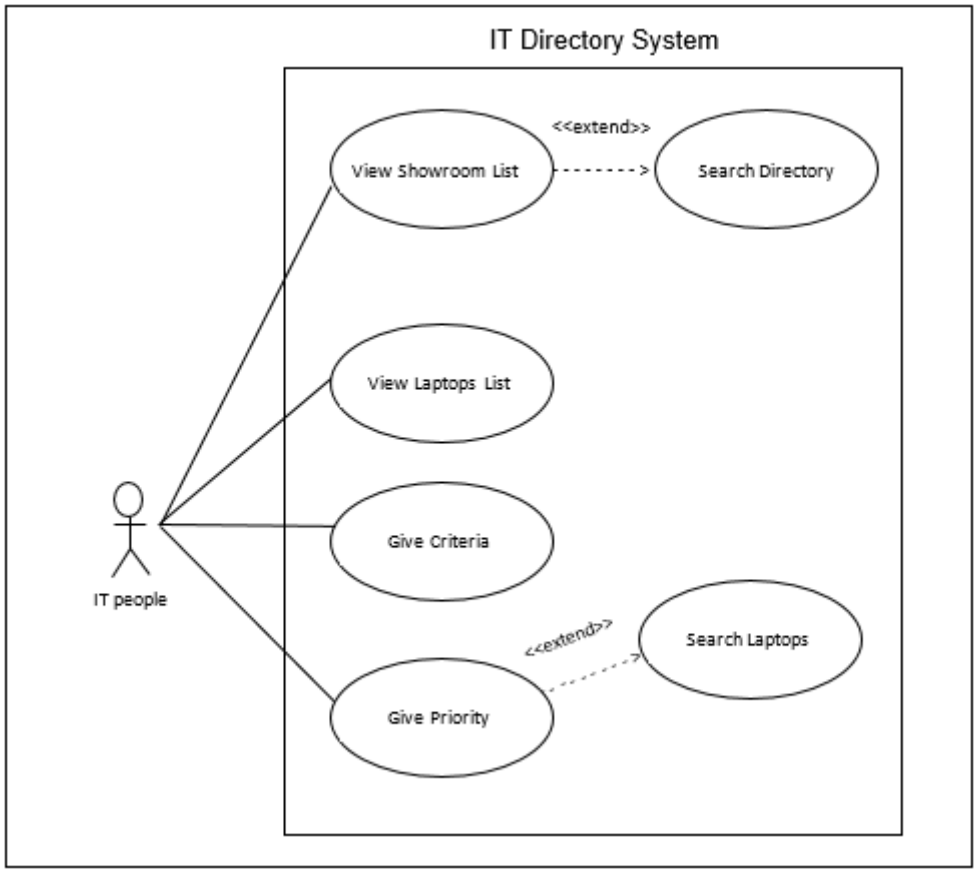


Figure 2 – Use Case Diagram

3.2. Database Design

For Laptops Searching Subsystem, 732 records of laptops specifications are stored in Laptops database. There have laptops table with specifications such as id, brand, model, processor, RAM, HDD, price and rating. 10 kinds of brand: Dell, Acer, Apple, ASUS, HP, Lenovo, Toshiba, HCL, Sony and Samsung can access with detail specification in this table.

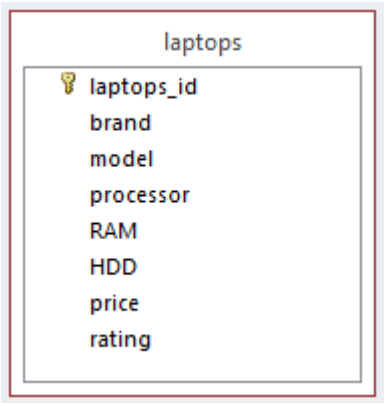
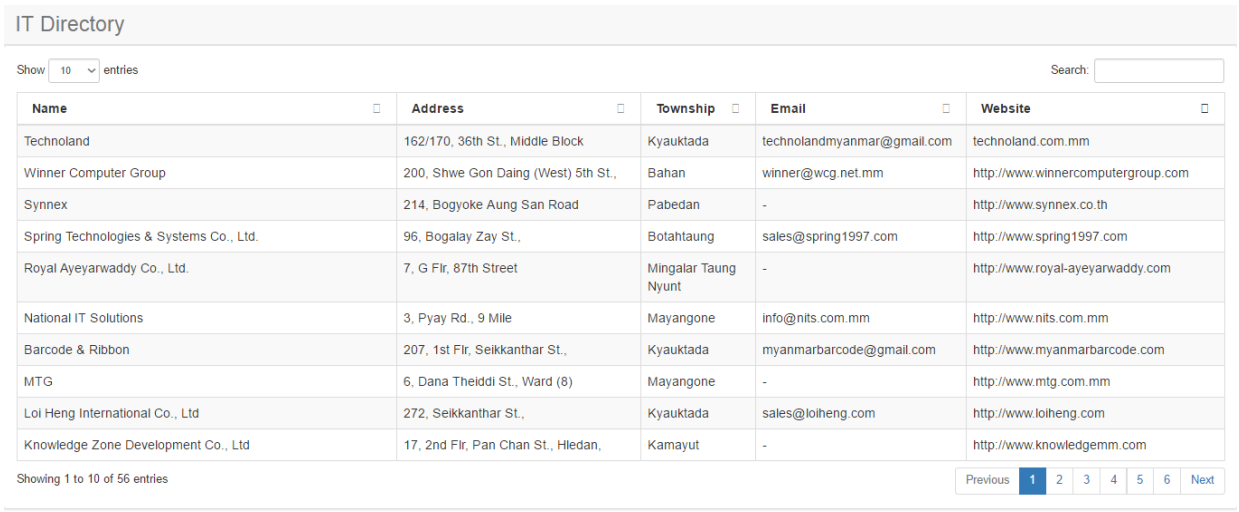


Figure 3 – Laptops table design

3.3. Screen Design

This web application is an online IT directory system which users choose one domain for that system. It consists of two sub-systems. One is the **Directory subsystem** where users can search showrooms and its address. One is **Laptops Searching subsystem** that they can search laptops with criteria and this system give solutions with criteria sorted by rating.



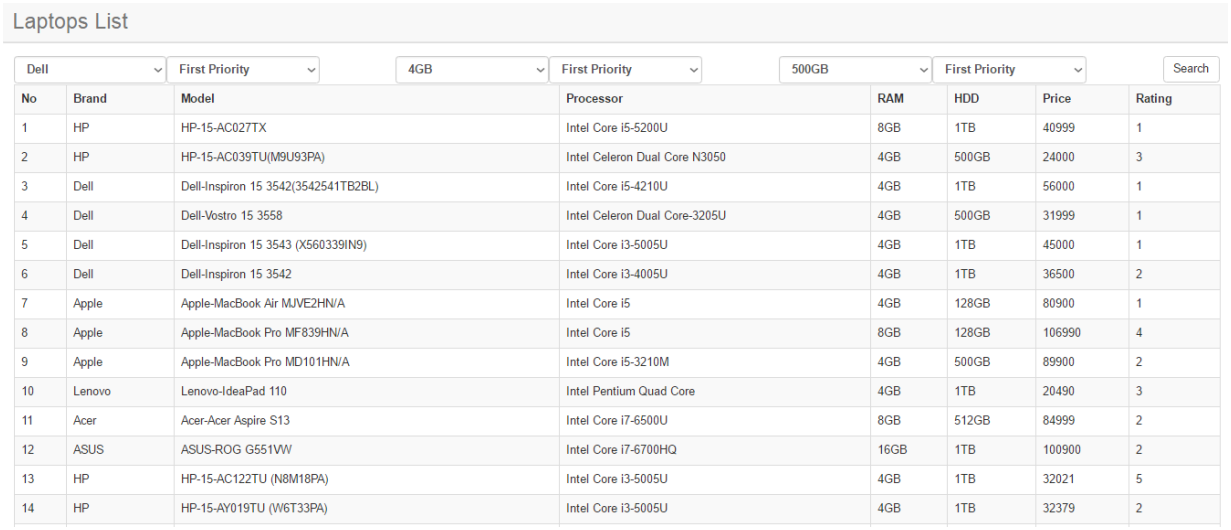
IT Directory

Show 10 entries Search:

Name	Address	Township	Email	Website
Technoland	162/170, 36th St., Middle Block	Kyauktada	technolandmyanmar@gmail.com	technoland.com.mm
Winner Computer Group	200, Shwe Gon Daing (West) 5th St.,	Bahan	winner@wcg.net.mm	http://www.winnercomputergroup.com
Synnex	214, Bogyoke Aung San Road	Pabedan	-	http://www.synnex.co.th
Spring Technologies & Systems Co., Ltd.	96, Bogalay Zay St.,	Botahtaung	sales@spring1997.com	http://www.spring1997.com
Royal Ayeyarwaddy Co., Ltd.	7, G Flr, 87th Street	Mingalar Taung Nyunt	-	http://www.royal-ayeyarwaddy.com
National IT Solutions	3, Pyay Rd., 9 Mile	Mayangone	info@nits.com.mm	http://www.nits.com.mm
Barcode & Ribbon	207, 1st Flr, Seikkanthar St.,	Kyauktada	myanmarbarcode@gmail.com	http://www.myanmarbarcode.com
MTG	6, Dana Theiddi St., Ward (8)	Mayangone	-	http://www.mtg.com.mm
Loi Heng International Co., Ltd	272, Seikkanthar St.,	Kyauktada	sales@loiheng.com	http://www.loiheng.com
Knowledge Zone Development Co., Ltd	17, 2nd Flr, Pan Chan St., Hledan,	Kamayut	-	http://www.knowledgemm.com

Showing 1 to 10 of 56 entries Previous 1 2 3 4 5 6 Next

Figure 4 – Directory Searching Subsystem

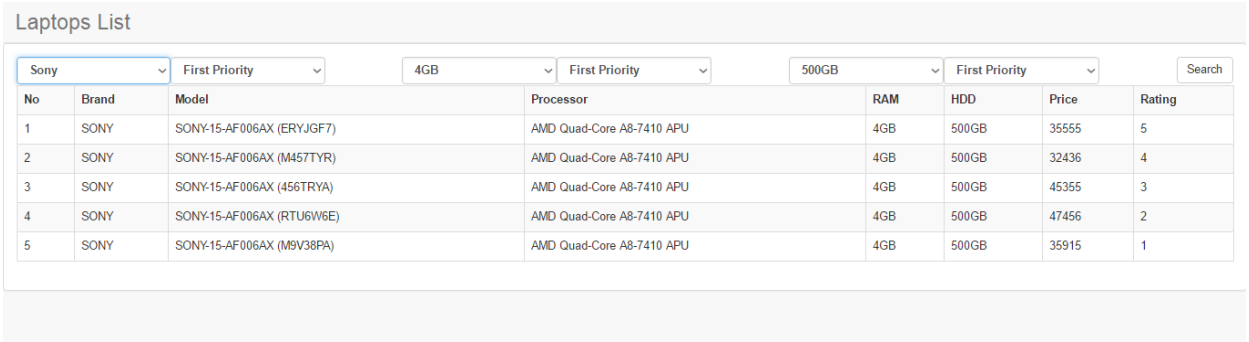


Laptops List

Dell | First Priority | 4GB | First Priority | 500GB | First Priority | Search

No	Brand	Model	Processor	RAM	HDD	Price	Rating
1	HP	HP-15-AC027TX	Intel Core i5-5200U	8GB	1TB	40999	1
2	HP	HP-15-AC039TU(M9U93PA)	Intel Celeron Dual Core N3050	4GB	500GB	24000	3
3	Dell	Dell-Inspiron 15 3542(3542541TB2BL)	Intel Core i5-4210U	4GB	1TB	56000	1
4	Dell	Dell-Vostro 15 3558	Intel Celeron Dual Core-3205U	4GB	500GB	31999	1
5	Dell	Dell-Inspiron 15 3543 (X560339IN9)	Intel Core i3-5005U	4GB	1TB	45000	1
6	Dell	Dell-Inspiron 15 3542	Intel Core i3-4005U	4GB	1TB	36500	2
7	Apple	Apple-MacBook Air MJVE2HN/A	Intel Core i5	4GB	128GB	80900	1
8	Apple	Apple-MacBook Pro MF839HN/A	Intel Core i5	8GB	128GB	106990	4
9	Apple	Apple-MacBook Pro MD101HN/A	Intel Core i5-3210M	4GB	500GB	89900	2
10	Lenovo	Lenovo-IdeaPad 110	Intel Pentium Quad Core	4GB	1TB	20490	3
11	Acer	Acer-Acer Aspire S13	Intel Core i7-6500U	8GB	512GB	84999	2
12	ASUS	ASUS-ROG G551VW	Intel Core i7-6700HQ	16GB	1TB	100900	2
13	HP	HP-15-AC122TU (N8M18PA)	Intel Core i3-5005U	4GB	1TB	32021	5
14	HP	HP-15-AY019TU (W6T33PA)	Intel Core i3-5005U	4GB	1TB	32379	2

Figure 5 – Laptops Searching Subsystem



Laptops List

Sony | First Priority | 4GB | First Priority | 500GB | First Priority | Search

No	Brand	Model	Processor	RAM	HDD	Price	Rating
1	SONY	SONY-15-AF006AX (ERYJGF7)	AMD Quad-Core A8-7410 APU	4GB	500GB	35555	5
2	SONY	SONY-15-AF006AX (M457TYR)	AMD Quad-Core A8-7410 APU	4GB	500GB	32436	4
3	SONY	SONY-15-AF006AX (456TRYA)	AMD Quad-Core A8-7410 APU	4GB	500GB	45355	3
4	SONY	SONY-15-AF006AX (RTU6W6E)	AMD Quad-Core A8-7410 APU	4GB	500GB	47456	2
5	SONY	SONY-15-AF006AX (M9V38PA)	AMD Quad-Core A8-7410 APU	4GB	500GB	35915	1

Figure 6 – Search Results

4. Testing

4.1. Testing Method

This IT directory system use black-box testing. Black-box testing is the technique of testing without having any knowledge of the interior workings of the application. Typically, while performing a black-box test, a tester will interact with the system's user interface by providing inputs and examining outputs without knowing how and where the inputs are worked upon.

4.2. Test Result

Test Case	
Test Case ID : ITDirectory_1	Test Designed by : Myo Wai Thant
Test Priority(Low/Medium/High) : Med	Test Designed date : 4.4.2017
Module Name : Laptops Searching Subsystem	Test Executed by : Myo Wai Thant
Test Title : Verify searching result	Test Execution date : 4.4.2017
Description : Test laptops searching system	

Pre-condition : user should give criteria

Step	Test steps	Test Data	Expected Result	Actual Result	Status	Notes
1	Define criteria	Brand, RAM, HDD	Should able to select these 3 criteria	User can choose this.	Pass	
2	Click search	Save criteria	Show result page	Show result page	Pass	
3	Show result	Laptops specification	Laptops specification will show equal with 3 criteria	Laptops specification are show equal with 3 criteria	Pass	

Table 1 – Test Case

5. Application Configuration

1. Supported web client

This system must fully functional on the following combination of the Web clients.

- Client OS: Windows (7 or later), Macintosh (MacOS 9 or later)
- Web browser: Internet Explorer (5.0 or later), Netscape (4.0 or later), Firefox (all versions), Opera (6.0 or later), Mozilla (32.0 or later)

2. System configuration

The system must use the combination of (Linux, Apache, MySQL) for the server. The target server is located at a Web hosting service with the following configuration.

- Compaq server (CPU: Pentium Xeon 3.2GHz, RAM: 1GB, HDD: 300GB)
- Window 7 or later
- Apache: 2.2 (XAMPP)
- MySQL: 5.1

6. Conclusion

IT directory system is a guideline for students who is stared to learn IT field and does not know where to buy IT accessories and what kind of laptops should they choose to buy. IT directory system can help that kind of situation and can be a guide for juniors. I hope this system can help people from IT field and be a useful system for them.

6.1. Limitations

In this system, directory for IT showrooms can be search within Yangon Area. So, this system will not be useful for the students from other city. And our system support only laptops brand. So, for searching other devices such as desktop, keyboard, monitor will not be support from our system.

6.2. Future work

For Directory Subsystem, IT showrooms from other city such as Mandalay, Nay Pyi Taw will be add to our system in future when upgrading our system. And for Laptops Searching Subsystem, our system will be support for not only laptops but also other devices related with IT in future work.

Tables and Figures

Figures

Tables

Indexes

Keywords

No index entries found.