

# A WEB-BASED DECISION SUPPORT SYSTEM FOR LEADERSHIP COMPETENCIES

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**Abstract:** Nowadays, technology is more and more developed, leadership competencies for the developing or reform organization it's important. The reason, leadership competencies system, often adopts more multidimensional and comprehensive methods, including capability management, skills gap analysis, succession planning, and capability analysis. These systems will help to look for a leader to comply with an organization's standards. Furthermore, the pandemic Covid-19 has raged across countries, to cause a shift away from work at office toward work from home, ordered to reduce a tide of people during the lockdown. Therefore, the organization faced the problem of quality leadership competencies and lack of skills gap. In addition, the organization has encountered the problem of receiving feedback from managers observation the leader regarding leadership competencies not fulfil the requirement. In the present crisis, the organization is being forced to adapt its strategies and shift toward digital transformation management leadership competency. This study aims to identify the system strength and weakness features of a similar system, and design a web-based system based on the needed. Next, a web decision support for leadership competencies system will be developed. The software development life cycle (SDLC) model implemented in this project is the agile model. The agile model consists of five phases where the project progress will ongoing by stage, which is the planning, requirement analysis, design, implementation, and testing. The leadership competencies system is expected to provide a platform to gather the manager and leader for leadership evaluate data form, make the average analysis to going efficiency, and better quality of leadership competencies and increase the worth.

**Purpose –** The purpose of this project is mainly to solve the quality and acknowledge the self-leadership competencies performance, to help leaders' additional studies the weakness competencies and get training to increase leadership competencies and help to look for a leader to comply with an organization's standards.

**Design/methodology/approach –** An agile model was applied to the whole development life cycle of the project, which is from the starting to the deployment of the project. The agile model consists of 5 phases; each phase had the process of iteration that will continue until

the final system is approved and accept or it. The interview technique was used requirement gathering from the stakeholder. The platform for an interview with the stakeholder was used Gmail.

**Findings** – According to the review, the leadership competencies system has consisted of user login/ register, display personal information, self-assessment module, manage competency module, report module, and admin management module. Identifying the similar leadership competencies system is only provide to superior evaluate leader and self-assessment and does not have to provide access right module. Skills DB Pro and SoftExpert Competence do not have access right module. The leadership competencies system has all of the stated modules.

**Originality/value** – The elicitation is done with the UMT PPBI, there is currently reform level 2 managed which is people management transform to level 3 defined competency management. They have existed a website MYCMS to growing larger. Therefore, it is the focus to develop the leadership competency system and provide an online self-assessment and evaluate the platform, manage competency details and admin panel to censor it.

**Keywords:** competency module, leadership competencies, self-assessment and evaluate, agile model, web-based system.

## **Introduction**

The definition of the leadership competencies in any career field include knowledge, skills, responsibilities, attitude, abilities, behaviours, and thinking to combination it, that also represent effective leadership management in the organization.

Nowadays, the organization realizes that a good leader will lead the company forward, especially COVID 19 pandemic had threatened the safety nation. Many people are not allowed work at the office to avoid workplace infection break out, and it cause many organization reforms and shift away to work from home. Therefore, the organization needs a better leader to use remote ways to lead the team to continue daily work.

However, the organization often the problem of receiving feedback from many employees or managers observation the leader regarding leadership competencies not fulfil the requirement and also not smoothly to continue daily work. Another issue the organization face is succession planning, low quality, and performance management. To prevent this, happen to affect the organization, the organization needs a leadership competencies system to test the leader and to offer some training to ensure the leadership competencies are fulfilled organization standards.

Last but not least, a web decision support for leadership competencies system may help the organization to gather self-assessment and evaluate data the selection and developing a good quality of leadership competencies. To bring the organization higher level and perform good quality management.

## Materials and Methods

### *Methodology: Agile Model*

Agile software development is a group of software development methods based on iterative and incremental development, where requirements and solutions evolve through collaboration between self-organizing, cross-functional teams. 5 phases include an agile model which is: planning, requirement analysis, design, implementation, and testing.

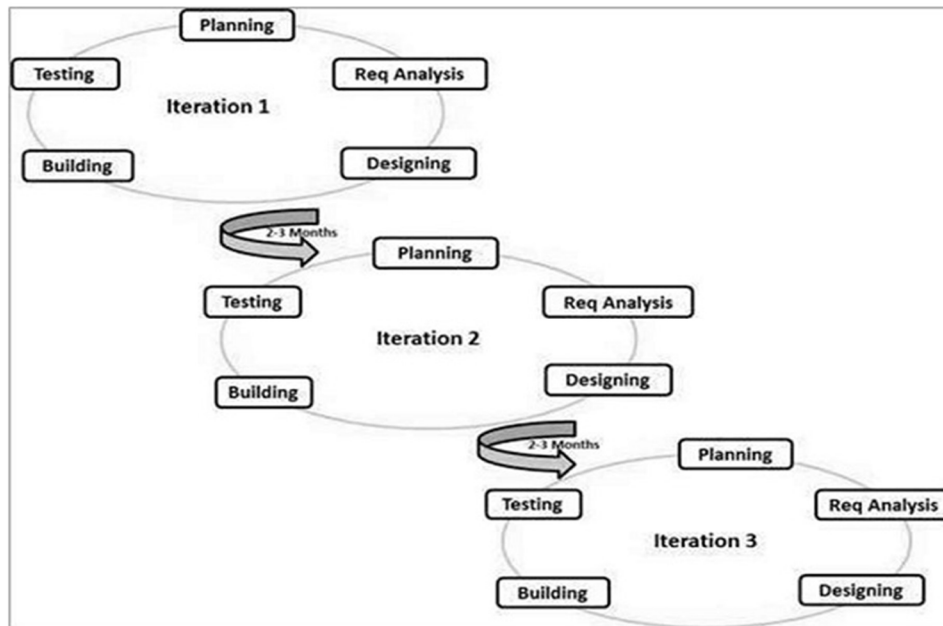


Figure 1: Agile Model source from ([https://www.tutorialspoint.com/sdlc/sdlc\\_agile\\_model.htm](https://www.tutorialspoint.com/sdlc/sdlc_agile_model.htm))

### **Phase 1: Planning**

In the planning phase, to define the objective and scope and find out the problem. The existing system has been reviewed to identify the advantages and disadvantages of the existing systems.

### **Phase 2: Requirement Analysis**

In the second step requirement analysis phase, the requirements have been collected from the stakeholders. The stakeholders are responsible to elicit their ideas or features that they would like to see in the system. Any ideas will be documented as the requirement in this system. All the requirements will be translated into the developer's language which is Unified Modelling Language (UML). These are consisting of a use case diagram, activity diagram, and sequence diagram. The software requirement analysis (SRS) will be bringing at this stage

### **Phase 3: Design**

In the next step, the design phase is translating the requirements in the SRS document into the developer's language. The system database will be designed where all the data to be store will be listed down. The data will be normalized until the third normal form (3NF) to eliminate data repetition and partial dependency. The Entity-Relationship Diagram (ERD) will be constructed to show the relationship between tables in the database. All the requirements will sketch to the user interface design. The software design description (SDD) will be bringing at this stage.

### **Phase 4: Build**

After that, in the build phase, The SRS and SDD documentation will be served as input. The developer will start to code based on the modules.

### **Phase 5: Testing**

The last is the testing phase, several testing like system test, unit test, integration test and, etc., performed to validate whether it meets the requirements. if the testing is passed, then the final system is completed, else repeat iteration.

## **Results and Discussion**

A web decision support for leadership competencies system developed, it includes a total of seven modules in the system which are: Manage Account, Manages Roles, Manage Self-Assessment Leadership Competencies, Manage Leadership Competencies, Manage Evaluate Leadership Competencies, Generate Report and Manage search users. It involved four actors: user, superior, admin, and Super admin. User and superior can have created an account, manage account information, user can self-assessment and view report while superior and admin can do evaluate, manage leadership competency such as create new leadership competency, view competency, edit and update competency and delete leadership competency. Superior and admin also can assign the user to take a self-assessment and so on. The super admin can censor and manage all the functions above. Table 1 shows the operation that can be made by different actors.

Table 1: Operation can be made by User, Superior, Admin and Super admin

	User	Superior	Admin	Super admin
<b>Manage Account</b>	Create, Update, View	Create, Update, View	Create, Update, View	Create, Update, View
<b>Manage Roles</b>	-	Create, Update, View, Delete	Create, Update, View, Delete	Create, Update, View, Delete
<b>Manage Assign Assessment/ Evaluate Leadership Competencies</b>	-	Create, View, Delete	Create, View, Delete	Create, View, Delete
<b>Manage Leadership Competencies Question</b>	-	-	Create, View, Update, Delete	Create, View, Update, Delete
<b>Manage Leadership Competencies</b>	-	-	Create, View, Update, Delete	Create, View, Update, Delete
<b>Generate Report</b>	View (retrieve)	View (retrieve)	View (retrieve)	View (retrieve)
<b>Manage Answer Assessment</b>	View (retrieve), Update	View (retrieve), Update	View (retrieve), Update	View (retrieve), Update
<b>Manage Answer Evaluate</b>	-	View (retrieve), Update	View (retrieve), Update	View (retrieve), Update

# Prototype System

## User View

Home Login

Register

EmployeeID

Password

Confirm password

Name

Email

Register

Activate Windows  
Go to Settings to activate Windows.

Figure 1: User Register

Figure 1 shows the interface of user registration page. User has to provide some information to create an account. If customer has an existing account, just click on the “log in” link that will redirect to the login page.

Leadership Competencies

General Info

EmployeeID : U00001

Name : Ali

IC : 960729085551

Contact Number : 0165385047

Gender : male

Date Of Birth : 1996-07-29

Address : Taman Emas

Email : U00001@ocean.unt.edu.my

Department : FTKKI

Position :

Educational Background:

Education 1 : Bachelor of Computer Science (Artificial Intelligence)

School 1 : Universiti Malaya

Education 2 : STPM

School 2 : SMK Seri Nibong

Education 3 : SPM

School 3 : SMK Seri Nibong

Specialized Field : Artificial Intelligence, Machine Learning

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Go to Settings to activate Windows.

Figure 2: User Profile

User details can be found in Figure 2. User can edit and update profile, educational background, change password and upload profile picture.

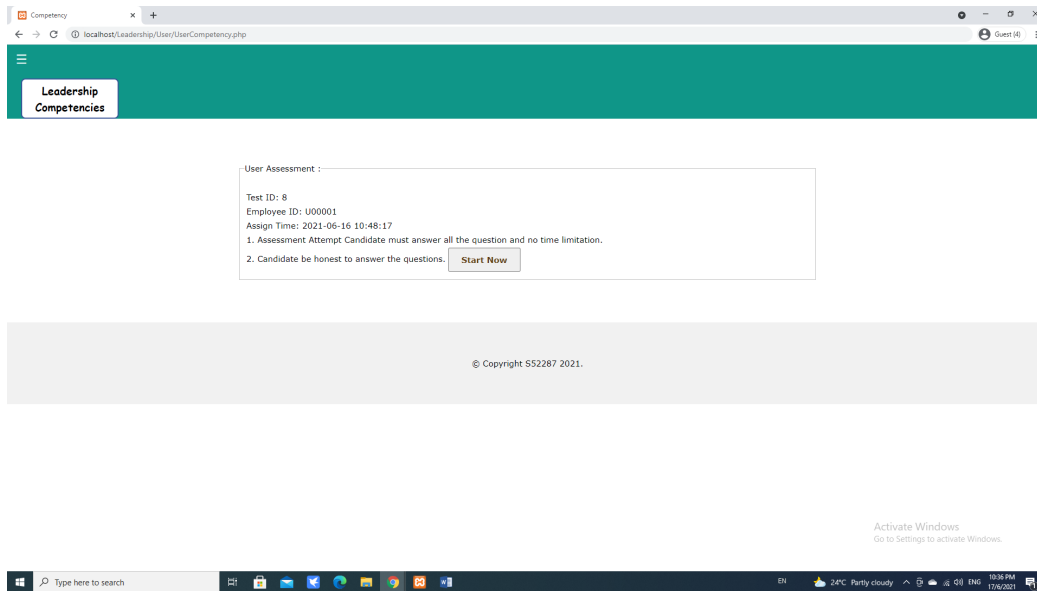


Figure 3: Self-assessment pending message

Figure 3 shows the user receive the self-assessment pending message and click on the “Start Now” to doing it.

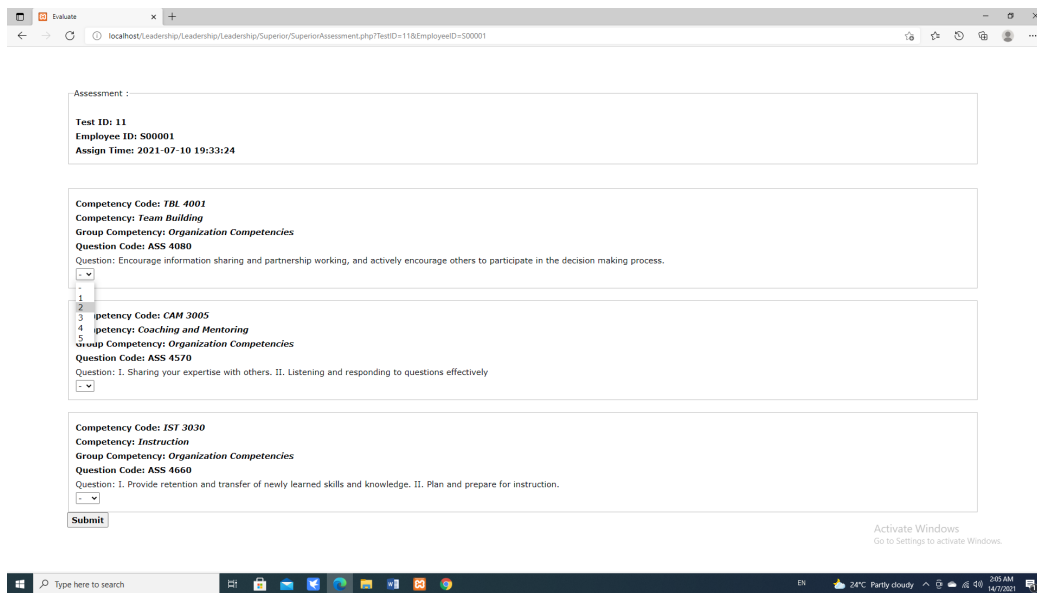


Figure 4: Self-assessment Page

Figure 4 shows the interface of self-assessment question. User can based on the question and selecting the answer here.

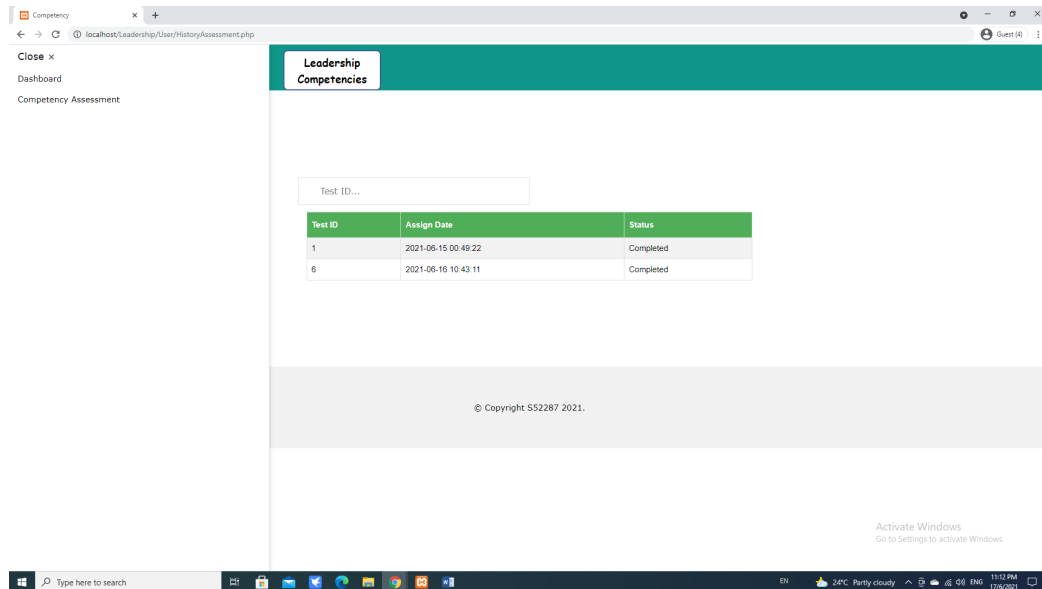


Figure 5: History page

Next, figure 5 shows history page that the user had already complete self-assessment.

### Superior, Admin and Super admin view

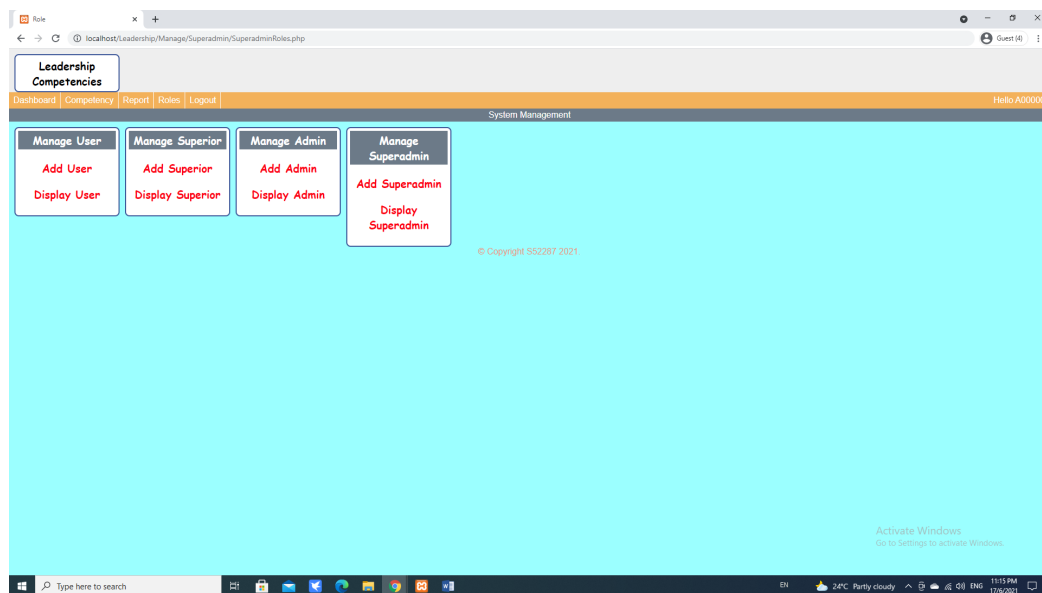


Figure 6: Superior, admin and super admin manage roles

Figure 6 shows the interface of manage roles. Roles can be separated into 4 categories, which is user, superior, admin, super admin. The superior, admin, super admin can add, delete view, update roles here.



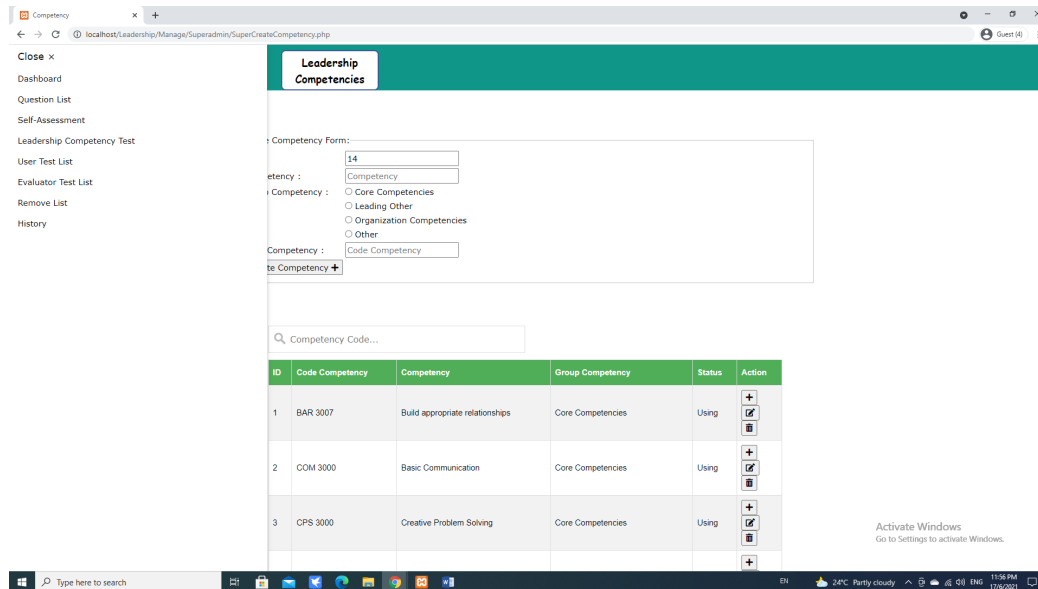


Figure 7: Manage leadership competencies page

Figure 7 shows the manage leadership competencies. Superior, admin, super admin can create, receive, edit update, and delete here. This page also provides create competencies question here.

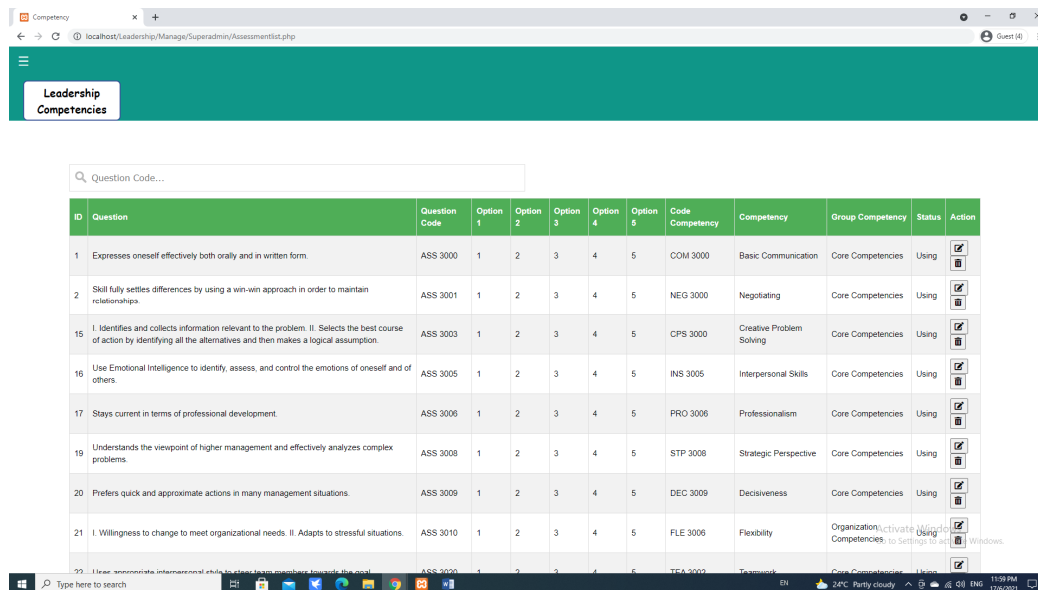


Figure 8: Competencies Question Page

Figure 8 shows the manage competencies question page. Superior, admin, super admin can receive, edit update, and delete here.

Update Competency

localhost/Leadership/Manager/Supersadmin/AssignASS.php

Question

Select (✓)	ID	Question	Question Code	Option 1	Option 2	Option 3	Option 4	Option 5	Code Competency	Competency	Group Competency	Status
<input type="checkbox"/>	1	Expresses oneself effectively both orally and in written form.	ASS 3000	1	2	3	4	5	COM 3000	Basic Communication	Core Competencies	Using
<input type="checkbox"/>	2	Skill fully settles differences by using a win-win approach in order to maintain relationships.	ASS 3001	1	2	3	4	5	NEG 3000	Negotiating	Core Competencies	Using
<input type="checkbox"/>	15	I. Identifies and collects information relevant to the problem. II. Selects the best course of action by identifying all the alternatives and then makes a logical assumption.	ASS 3003	1	2	3	4	5	CPS 3000	Creative Problem Solving	Core Competencies	Using
<input type="checkbox"/>	16	Use Emotional Intelligence to identify, assess, and control the emotions of oneself and of others.	ASS 3005	1	2	3	4	5	INS 3005	Interpersonal Skills	Core Competencies	Using
<input type="checkbox"/>	17	Stays current in terms of professional development.	ASS 3006	1	2	3	4	5	PRO 3006	Professionalism	Core Competencies	Using
<input type="checkbox"/>	19	Understands the viewpoint of higher management and effectively analyzes complex problems.	ASS 3008	1	2	3	4	5	STP 3008	Strategic Perspective	Core Competencies	Using
<input type="checkbox"/>	20	Prefers quick and approximate actions in many management situations.	ASS 3009	1	2	3	4	5	DCO 3009	Decisiveness	Core Competencies	Using
<input type="checkbox"/>	21	I. Willingness to change to meet organizational needs. II. Adapts to stressful situations.	ASS 3010	1	2	3	4	5	FLE 3006	Flexibility	Organization Competencies	Using
<input type="checkbox"/>	22	Uses appropriate interpersonal style to steer team members towards the goal.	ASS 3020	1	2	3	4	5	TEA 3002	Teamwork	Core Competencies	Using
<input type="checkbox"/>	23	Uses effective strategies to facilitate organizational change initiatives and overcome resistance to change.	ASS 3115	1	2	3	4	5	CMG 3010	Change Management	Core Competencies	Using
<input type="checkbox"/>	25	Attracts, motivates, and develops employees.	ASS 3400	1	2	3	4	5	LDE 3000	Leading Employees	Leading Other	Using
<input type="checkbox"/>	28	Networks with peers and associates to build a support base.	ASS 4405	1	2	3	4	5	BAR 3007	Build appropriate relationships	Core Competencies	Using

User Table

Select (✓)	Employee ID	Name	Contact Number	Email	Department	Position

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Go to Settings to activate Windows.

Type here to search

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Figure 9: Assign self-assessment page



Figure 9 shows the assign self-assessment page. Superior, admin, super admin can assign to user doing the self-assessment.

View Over Test List

localhost/Leadership/Manager/Supersadmin/CheckAssTest.php

Leadership Competencies

Q Name...

Test ID	Name	Employee ID	Status	Assign Date	Action
8	Ali	U00001	Pending	2021-06-16 10:48:17	 

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Activate Windows  
Go to Settings to activate Windows.

Type here to search

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Figure 10: Assign self-assessment pending page

Figure 10 shows the assign self-assessment pending page. Superior, admin, super admin can view the assign pending status here.

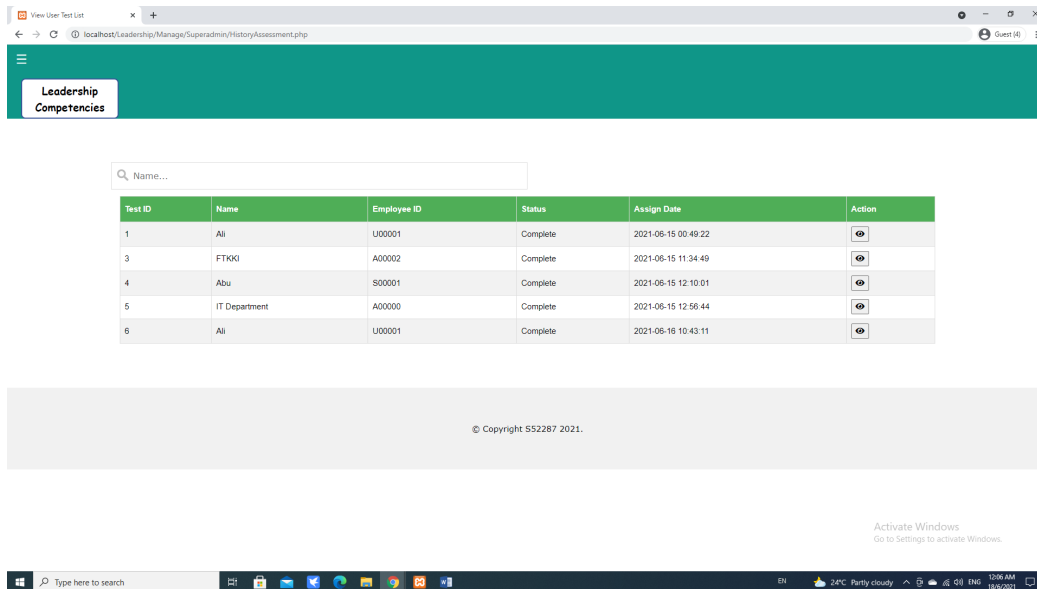


Figure 11: Complete self-assessment history page

Figure 11 shows the user complete self-assessment history page. Superior, admin, super admin can view the complete history here.

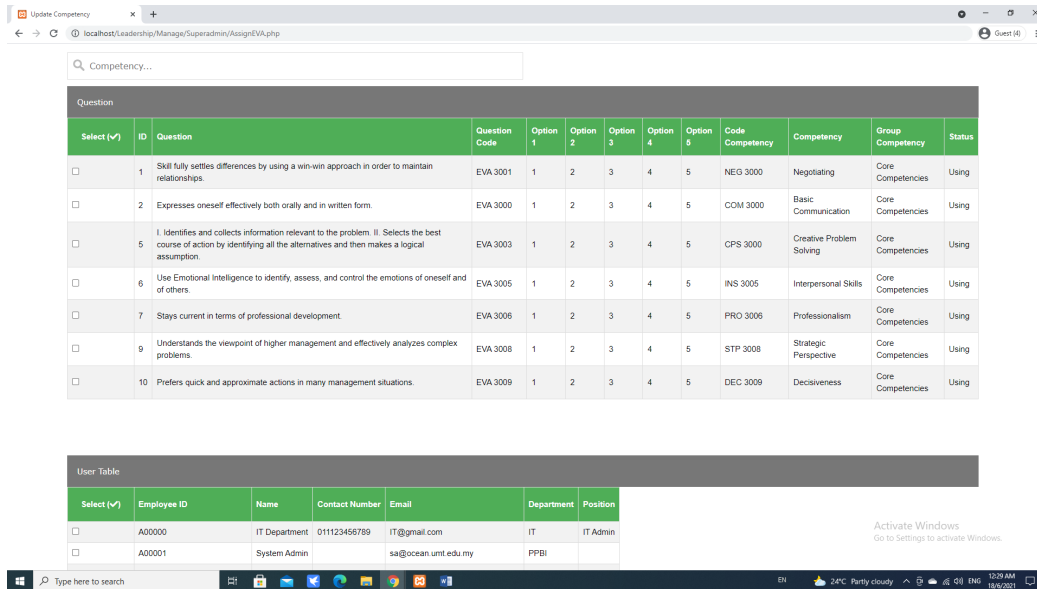


Figure 12: Superior, admin and super admin select evaluate question page

Figure 12 shows the superior, admin and super admin select evaluate question page. Superior, admin, super admin can view question and select evaluate to user here.

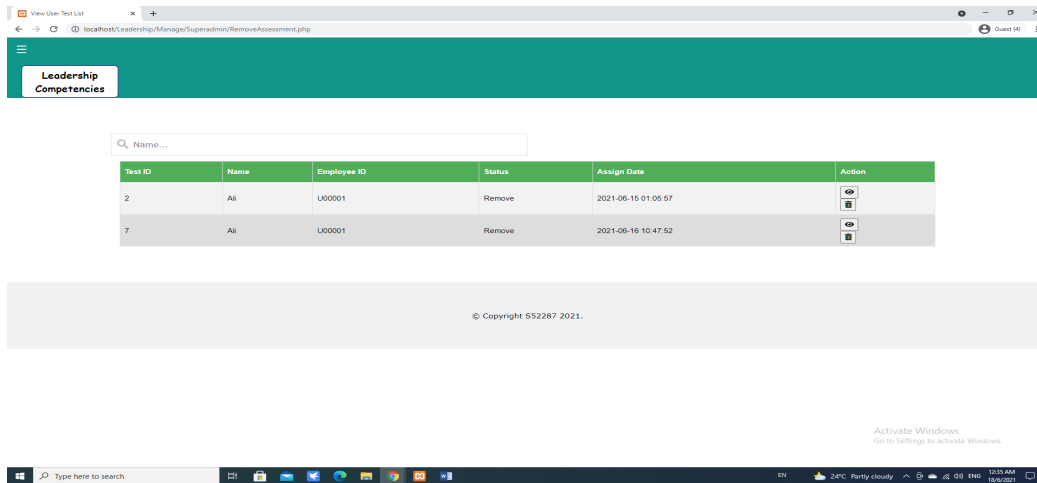


Figure 13: Super admin view remove list page

Figure 13 shows the super admin view remove list page. super admin can view the superior and admin remove assessment and evaluation in here.

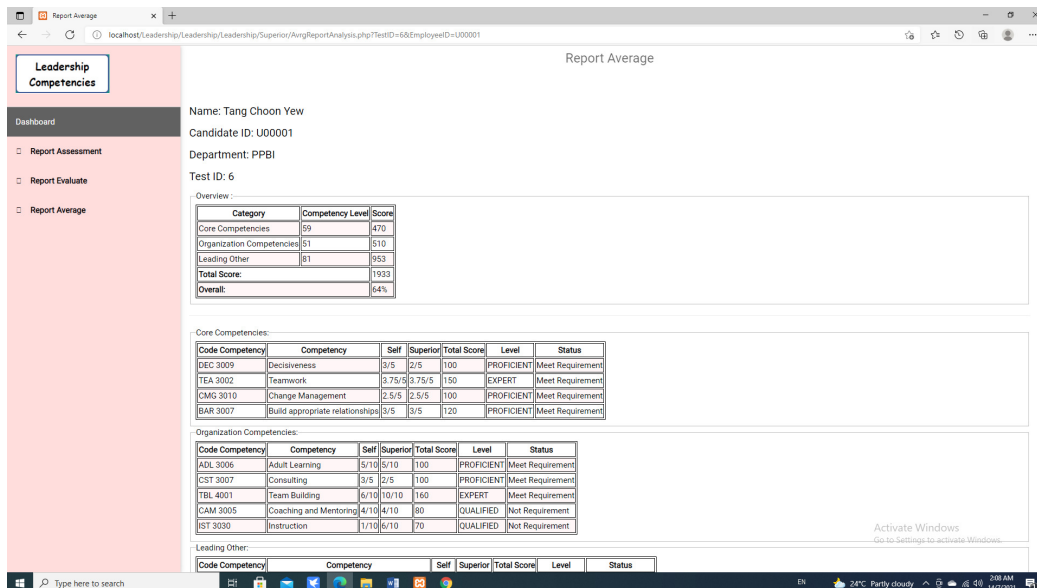


Figure 14: Report Average page

Figure 14 shows the user and the superior after complete the assessment and evaluate, the system will generate the report average to refer the leader skill gap and which part of skill need improve.

## **Conclusion**

This project is a web-based system Web Decision Support for Leadership Competencies System, comprised of seven modules. This system develops mainly for the leader to acknowledge the self-leadership competencies performance. This system is mainly focused on the leader, with an easy and user-friendly interface design. The system will evaluate leadership competencies to get an average result of a leader based on leader self-assessment and superior evaluation, to help leaders' additional studies the weakness competencies and get training to increase leadership competencies.

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