SCSD2613 SYSTEM ANALYSIS AND DESIGN

MARKING TEMPLATE: P1 PROBLEM DEFINITION AND PROJECT PLANNING 10%

Team Name/Members: YARW

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Report (10%) + Peers Evaluation (1%) + Instructor Observation (1%)	
Criteria	**Marks**
1. Introduction - Provide organizational background, stakeholder information, scope of report - Summarize the conclusion and lessons learned	**/5.0**
2. Problems Definition a. Problem or Issues in "As-Is" System b. Proposed Requirements for "To-Be" System c. Constraint Identified for the System Development d. Benefits gained from the "To-Be" System	**/20.0**
3. Project Planning - Gantt Chart - Apply suitable process or product-oriented Work-Breakdown-Structures (WBS) - Example for process-WBS : Must have suitable but specific tasks and activities for initial stages (project planning & feasibility studies) and development stages (SDLC phases i.e. requirements, analysis, design, implementation and testing) - Assign suitable length of durations for every specified activities, the person in-charge - Specify AT LEAST 1 milestone or deliverable for EACH development stages (e.g: requirement stage – System Requirements Specifications (SRS)) - Must be drawn using any available software tool	**/10.0**
4. Project Planning - PERT diagram - Must reflect to the specified Gantt Chart - List all the possible paths & its length - Identify the critical path & slack time - Must be drawn using any available software tool	**/10.0**
5. References - Apply APA style guidelines in writing the cited references	**/2.0**
6. Overall report quality - Cover page | Table of content | Page number - Minimum typo errors	**/3.0**
Total	**/50.0**

UTM UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING
Faculty of Engineering

Group Project

SECD2613 SYSTEM ANALYSIS AND DESIGN

SEMESTER I, SESSION 2020/2021

Title: UTM Rubric Grading System

Stage: P1 – Planning

Lecturer: Dr. Noraini binti Ibrahim

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Section: 06

Programme: Bachelor of Computer Science (Software Engineering)

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1.0 Introduction: Background Studies

School of Computing is an organization that handles the student's engagement with courses that related to computing. This organization enroll the students into the program that they want to pursue. In each program, it contains courses that are compulsory for them to join. Each course has a few assessments that will be evaluated by the lectures using the rubrics that they had prepared. The rubric helps to evaluate the students according to Course Learning Outcome (CLO) and Program Learning Outcome (PLO). However, the rubric implementation is not being used by certain lecturer because it is hard to implement a rubric based on the CLO and PLO. Therefore, evaluation of the lectures was done based on their teaching experiences.

Currently, there are no rubrics system being implemented in School of Computing. Hence, they use manual system where the course coordinator must create a rubric manually based on the CLO and PLO. It is quite burden for the course coordinator to implement the rubric and to generate the report of CLO and PLO achievement for each section at the end of semester that will be given to program coordinator. Since it is done manually, the course coordinator has to ask every lecturer that teaches the course to give their CLO and PLO report to be compiled and same goes to program coordinator who need to collect data from the course coordinator. Over this year, doing everything manually was not a big issue, but lately, the number of students keeps increasing and will somehow increase the workload of the organization in the School of Computing. Hence, a new rubrics and grading system needs to be created to ease the workload of the lecturers.

2.0 Problem Definition

2.1 Problem or Issues in "As-Is" System

1. **No existing system for rubric making**

   Currently, the course coordinator needs to do the rubric manually based on Program Learning Outcome (PLO) and Course Learning Outcome (CLO) for every course. There exists no system to help the course coordinator creating a rubric.

2. **Hard for newly appointed course coordinator to create a rubric**

   The course coordinator may change from time to time and there is always the first time for everything; a new course coordinator may not have experience in creating a rubric thus, having a hard time for creating one. They need to take their seniors' time to seek for guidance.

3. **Late rubric distribution**

   The rubric will be given by the course coordinator to the lecturers who teach the course. However, there is no telling when the lecturer will receive the rubric as the course coordinator need some time to create the rubric. Having a continuous assessment will take more time.

4. **Hard to monitor student and course achievement**

   At the end of the semester, the Course Coordinator needs to make a report for student achievement based on CLO and PLO to be submitted to the Program Coordinator. The Program Coordinator then to summarize everything about the achievement of the program manually.

5. **Not able to collect feedback**

   The lecturer does not know the quality of the rubrics if they are using one. Hence, they do not know the efficiency of the rubrics when they are using it because there is no review feedback of the rubric.

2.2 Proposed Requirements for "To-Be" System

Rubric and Grading System is a system that will have a centralized database which contains a bank of rubric. This system will help the lecturers especially course coordinator to see a variety of rubrics uploaded by other lecturers. They either can use a rubric in the system or take the rubric and edit it to make their own version. This system also allows any lecturer who made a rubric to share their rubric with others.

On top of that, the system also will be able to find the rubric based on the CLO and PLO. Respective lecturers need to enter the CLO or PLO into the search engine and the system find the most relevant rubric in the system. This will help the lecturers to have a guideline while doing their own rubric and if the CLO and PLO for the rubric in the system are completely the same as they want, they can simply use it.

In addition, this system lets the user rate and edit existing rubric in the system. As the database will have a lot of rubrics uploaded by lecturers, this feature will help other lecturers to find most useful rubric in the system. After searching for the rubric, the user will be able to predetermine which rubric is the best based on the rating. Then, after choosing it, they will be able to edit the rubric to fulfil their needs.

Apart from that, the system will be able to show a grade report for the student. Since the lecturer will be able to input mark for each assessment, the system will automatically generate a grade report for students. The report will show which CLO and PLO they failed or successfully achieved together with their marks.

Moreover, this system will be able to generate a PLO and CLO achievement report. Similarly, as previously mentioned, at the end of every semester, when all marks have inserted by the lecturers, a report based on PLO and CLO achieved by students will be generated. The Program Coordinator will no need to manually ask for a report from the Course Coordinator from each course of the program.

2.3 Feasibility Studies

Technical

In terms of technical feasibility, it is feasible because there is no system being used by the School of Computing for the rubric. Hence, there should be a new system should be implemented because there is no option for upgrading the system. In the terms of the profession that are required, School of Computing has no problem to provide the manpower to pursue with a new system that somehow will give a lot of benefits to the organization.

Economical

Costs	Year 0	Year 1	Year 2	Year 3
Development cost				
Hardware	15000			
Software	15000			
Total	30000			
Production Cost				
Advertisement		2500	2625	2756
Salary		20000	21000	22050
Total		**22500**	**23625**	**24806**
Annual Production Cost (Present Value)		**20455**	**19525**	**18637**
Accumulated Costs		**50455**	**69980**	**88617**

Benefits	Year 0	Year 1	Year 2	Year 3
Increase sale		17500	19250	21175
Reduced saving		42000	46200	50820
Present value		54091	54091	54091
Accumulated Benefits		54091	108182	162273
Gain or Loss		3636	38202	73656
Profitable Index				**2.4552**

Since thee profitable index = 2.4552, it shows that this project is a good investment because of its index it more than one.

Operational

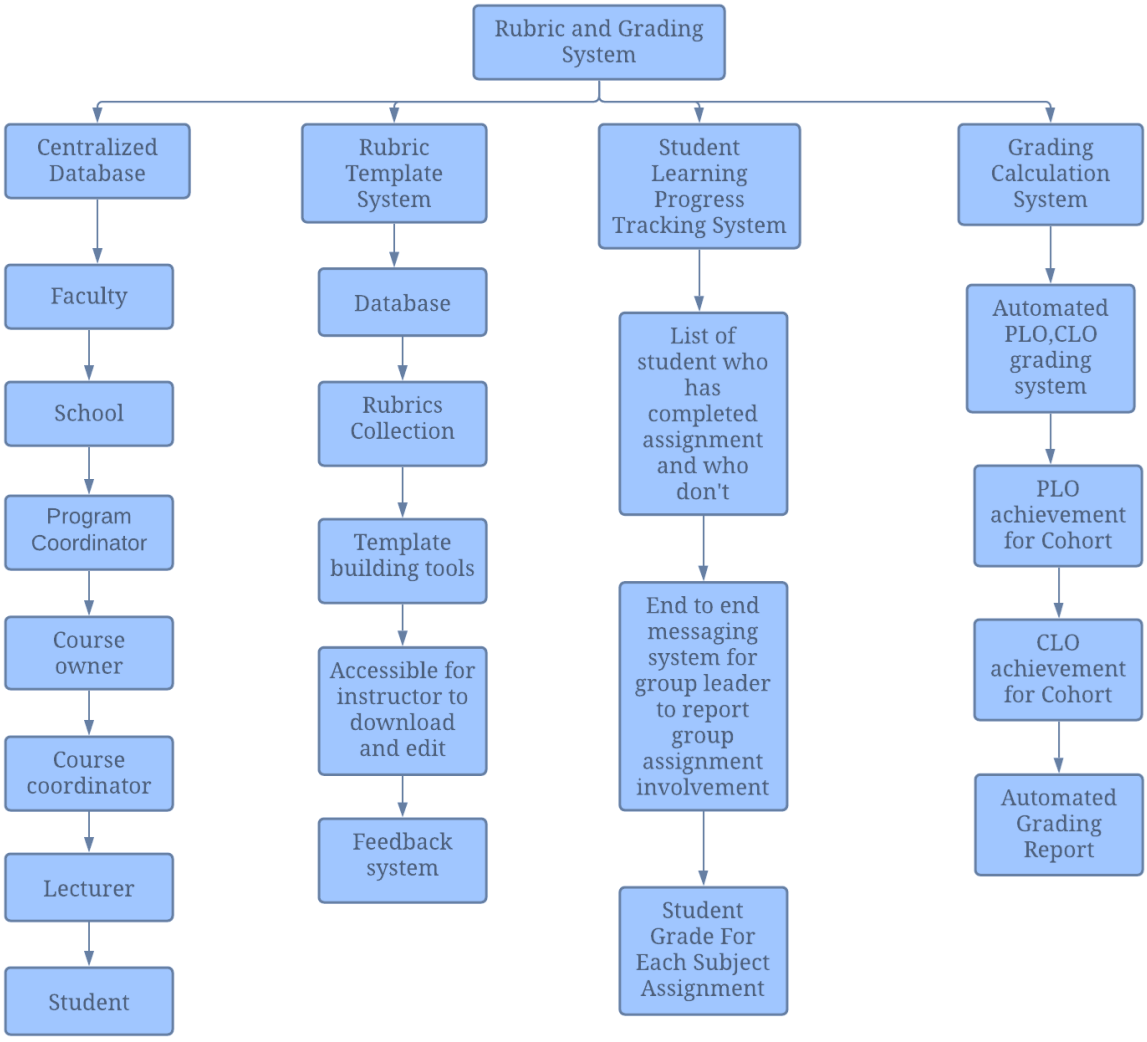
Based on the interview with the stakeholder, they desperately need a rubric system to ease the workload. Since the stakeholder request for the system, this project will be a long-term project as the system will be used by them because there is no rubric system.

2.4 Benefits gained from the "To-Be" System

- The lecturer does not need to make a new rubric as the system have a lot of sample rubric to choose from based on their needs.
- The rate of redundancy also decreases as the changes in the rubrics are updated across other devices too.
- The lecturer can just simply type in the CLO and PLO level and it will automatically show the list of rubrics that can be useable according to their stated PLO and CLO.
- Processes of doing analysis based on the CLO and PLO achievement are being automatically calculated based on the marks that they score on the final examination, test, and quiz.
- The users can know the best rubric to be used as there are also feedback and review option. The system can recommend the most used rubric based on their situation.
- As the database is implemented, the user can share their rubric to other users by simply uploading the rubrics that they have implemented.

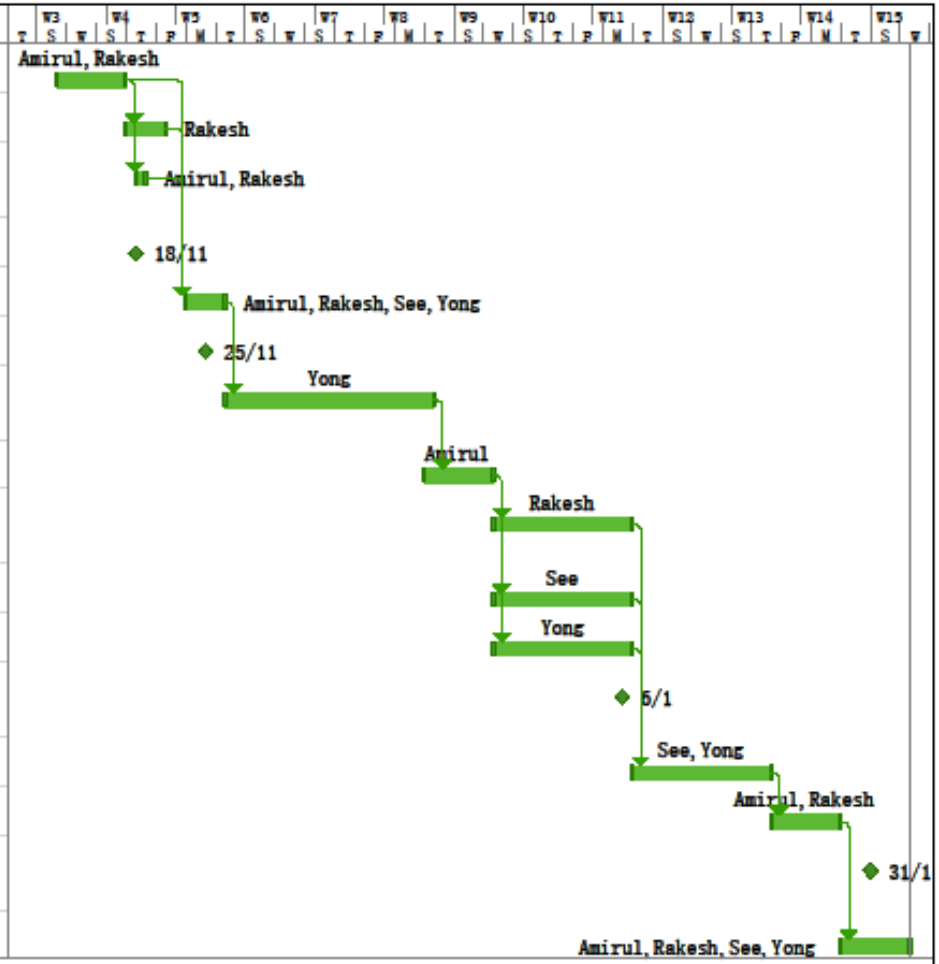
3.0 Project Planning

3.1 Product-Oriented Work-Breakdown-Structures



3.2 Gantt Chart

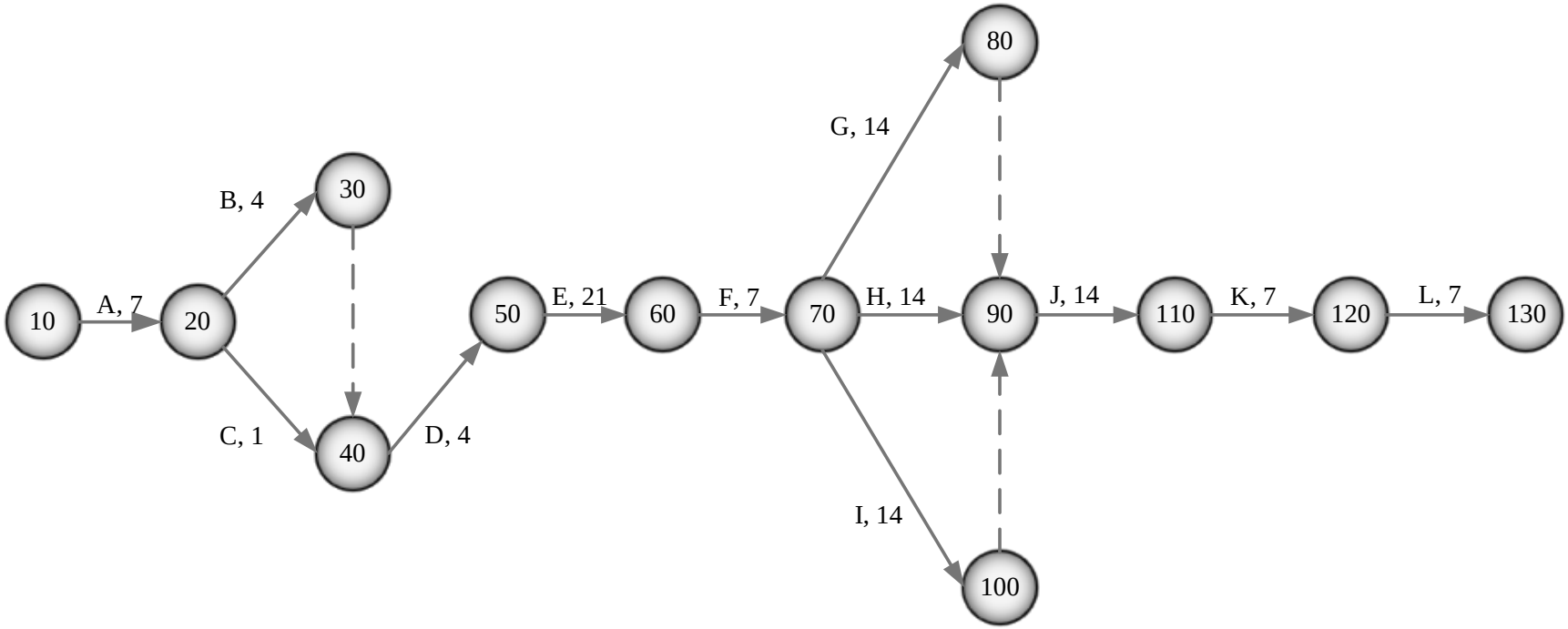
ID	Activity	Task Name	Predecessors	Duration
1	A	Background Studies		1 wk
2	B	Feasibility Studies	1	4 days
3	C	Interview User Mangement	1	1 day
4		Interview Done		0 days
5	D	Proposal Making	1,2,3	4 days
6		Proposal Completed		0 days
7	E	Questionnaires for Infomation Gathering	5	3 wks
8	F	Data Analysis	7	1 wk
9	G	Structure Chart Design and Data Modelling	8	2 wks
10	H	Design DataBase	8	2 wks
11	I	Design Interface	8	2 wks
12		User Interface and DataBase Designed		0 days
13	J	Building Prototype	9,10,11	2 wks
14	K	Prototype Demo Run	13	1 wk
15		High Fidelity Prototype Finished		0 days
16	L	Final Report	14	1 wk



Project SAD – TEAM E YARW (Rubric Grading System)
Session 2020/2021, Semester 1
System Analysis and Design - Section 06

Task Milestone

3.3 Pert Diagram



Note: All durations are in days.

Path 1:	**A-B-D-E-F-G-K-L**	**Length = 7+4+4+21+7+14+14+7+7 = 85 days**
Path 2:	**A-B-D-E-F-H-K-L**	**Length = 7+4+4+21+7+14+14+7+7 = 85 days**
Path 3:	**A-B-D-E-F-I-K-L**	**Length = 7+4+4+21+7+14+14+7+7 = 85 days**
Path 4:	A-C-D-E-F-G-K-L	Length = 7+1+4+21+7+14+14+7+7 = 82 days
Path 5:	A-C-D-E-F-H-K-L	Length = 7+1+4+21+7+14+14+7+7 = 82 days
Path 6:	A-C-D-E-F-I-K-L	Length = 7+1+4+21+7+14+14+7+7 = 82 days

Since the cirtical path is the longest path through the network diagram, Path 1, Path2, Path 3 are the critical path for this Project.

4.0 References

Kendall, K. E., & Kendall, J. E. (2014). *Systems Analysis and Design 9th Edition.* Essex: Pearson Education Limited.

Project-Management.com. (22 October, 2019). *PM*. Retrieved 21 November, 2020, from Tutorial: How to create a Gantt chart in Ms project?: https://project-management.com/tutorial-how-to-create-a-gantt-chart-in-ms-project/

Roseke, B. (10 June, 2016). *Project Engineeer*. Retrieved 21 November, 2020, from How to Draw a PERT Chart: https://www.projectengineer.net/how-to-draw-a-pert-chart/

Valacich, J. S., George, J. F., & Hoffer, J. A. (2012). *Essentials of Systems Analysis and Design 5th Edition.* Essex: Pearson Education Limited.

MARKING TEMPLATE: P2 REQUIREMENTS GATHERING AND DFD (AS-IS) 13%

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Report (11%) + Peers Evaluation (1%) + Instructor Observation (1%)	
Criteria	**Marks**
1. Introduction and Conclusion - Provide brief introduction to this Assignment 2, its scope, etc. - Summarize the conclusion and lessons learned	**/5.0**
2. Interview - Develop suitable and relevant interview questions to elicit requirements from different types of stakeholders based on open-ended, closed, bipolar, probes categories	**/10.0**
3. Survey - Develop suitable and relevant survey questionnaires to elicit requirements from different types of stakeholders based on nominal, interval types of questionnaires	**/10.0**
4. Context Diagram - Contains only one process, representing the entire As-is or current process - No missing external entities - No missing major data flows	**/5.0**
5. Data Flow Diagram (DFD) ~ Parent diagram (level 0) - Consistent with context diagram elements - Include all suitable business activities of the As-Is - May include up to 9 processes | Each process is numbered | Major data stores and all external entities are included - No DFD rules violation	**/10.0**
6. Data Flow Diagram (DFD) ~ Child diagram (level – 1 & 2 at least) - Exploded consistently with parent diagram - Each process on diagram 0 may be exploded to create a child diagram: child process is given the same number as the parent process - Cannot produce output or receive input that the parent process does not also produce or receive - No DFD rules violation	**/10.0**
7. References - Apply APA style guidelines in writing the cited references	**/2.0**
8. Overall report quality - Cover page | Table of content | Page number - Minimum typo errors	**/3.0**
Total	**/55.0**

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Faculty of Engineering

Group Project

SECD2613 SYSTEM ANALYSIS AND DESIGN

SEMESTER I, SESSION 2020/2021

Title: UTM Rubric Grading System

Stage: P2 – Requirements

Lecturer: Dr. Noraini binti Ibrahim

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Section: 06

Programme: Bachelor of Computer Science (Software Engineering)

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1.0 Introduction

In this assignment, the team are going to gather information requirements and then analyse the system needs. Determine the information requirements is very important to learn who, what, when, how and why of the current system.

The team will use interactive methods such as interview and questionnaire survey to elicit user's information requirements. The interview has constructed online. The team can collect information about the system requirements through open and closed questions from the interviewees (lecturer, course coordinator, and program coordinator). Besides the interview, the team will also conduct an online survey by using Google Form with nominal and interval questions to get more detailed information from a different scope of users.

After gathering requirements, the team would have a good understanding of the business functions based on complete information about the people, goals, data, and procedure involved.

Next, the team can start to draw the context diagram to visualize the business flow of the as-is system.

After that, the data flow diagrams such as parent diagram and child diagram are created to depict the entity involved, output, data storage and the business process.

After completing those tasks, the team can learn a complete understanding of the current system with information requirements and data flow diagrams.

2.0 Interview

Open Ended

1. **How the centralized database benefits the lecturer in designing the rubrics?**

Having a centralized database help the lecturers to easily grade the students for each assignment. At the end of each semester, the lecturers will need to calculate the total marks of each students. As for lecturer who was appointed as course coordinator, with the centralized database, they do not need to personally ask the teaching lecturer for student marks instead, they can retrieve the data from the database. Same goes to the program coordinator who will need to retrieve the data from the course coordinator.

2. **Are there any improvements can do on current system besides an entirely new feature?**

It is also good to be able to link the rubric used directly with the assessment. Whenever the assignment is uploaded in the e-learning, it will also have the option to link it with any rubric from the new system as well. Then, when the lecturer grades the students, for assignment, the students will be able to see the marks of each criteria and may reflect themselves.

Closed-ended

1. **What is PLO and CLO achievement?**

PLO is Program Learning Outcomes while CLO is Course Learning Outcomes. Both are used to determine how assessments will be conducted for each course. Each course will have a different PLO and CLO which has been determined by the director and course owner. Each assessment given, need to be aligned with certain CLO and PLO according to the weightage which need to be achieved by the course. At the end of the semester, the PLO and CLO achievement will need to be reported to the school and faculty.

2. **What are the characters involved in the whole grading system?**

- Students- be evaluated
- Lecturer- evaluate the students based on the rubrics
- Course Coordinator- prepare the assessments and rubrics based on the CLO and PLO achievement
- Course Owner- determine the CLO needed in the course and prepare the course outline.
- Program Coordinator – know the PLO achievement

3. **Who will review the PLO and CLO achievement reports?**

Lecturers will do the CLO and PLO achievement report for their teaching section. Then, the course coordinator will see the report of each section and report back to the Program Coordinator. Program Coordinator will prepare PLO and CLO achievement cohort report to the higher levels.

Bipolar

1. **Does the automated grading mean the lecturers do not need to involve themselves at all? Yes or no.**

No

2. **Once the lecturer has designed the rubric, is it necessary to get approval or review first from course coordinator before proceeding? Yes or no**.

No

Probes

1. **As you mentioned the current system has many disadvantages, can you clarify them?**

The current system is a manual system whereas lecturers need to enter each mark manually. Especially when doing group assignment, the marks is given for the group then, the lecturers will need to manually extract the marks to be given individually to the team members as it will contribute to their individual grade. Moreover, since there is no system to store the rubrics created and when there is too much version of rubric created, it will be hard to find the version which the lecturer wishes to use and edit. In addition, previously, lecturer uses their experience to grade assessment. With the experience, they may have the marking criteria in their mind. Subconsciously, they thought other lecturers will think the same way as they are without knowing the other lecturers were actually struggling in the process of marking the assessment.

2. **You have mentioned that the rubrics bank system would help a lot to the lecturers. Please explain more about it**.

Lecturers who have created rubric can share the rubric to other lecturers. Lecturer who has been teaching for a long time may create a rubric easily using their experience compared to a newly appointed lecturer specifically the course coordinator, they may encounter a lot of troubles while designing the rubric. Hence, they will need to consult other experienced lecturers. Having a bank of rubric will help the new lecturers to easily refer to the rubric templates without the need of taking their colleagues' precious time.

3.0 Survey

Information gathering are important to gather as much information about the as if system. These information are collected from the stakeholder such as lecturers and students

3.1 Method Used

Methodology that we used to gather the information about the Rubric Grading System are interviews and questionnaire that are being conducted via online platform such as Google Form and Google Meet/WhatsApp. Questionnaire that was conducted consists two group of stakeholders that are student and lecturer while the interview that was conducted is with lecturer.

3.2 Questionnaire

3.2.1 Student

1. **How satisfy are you with the e-learning system?**

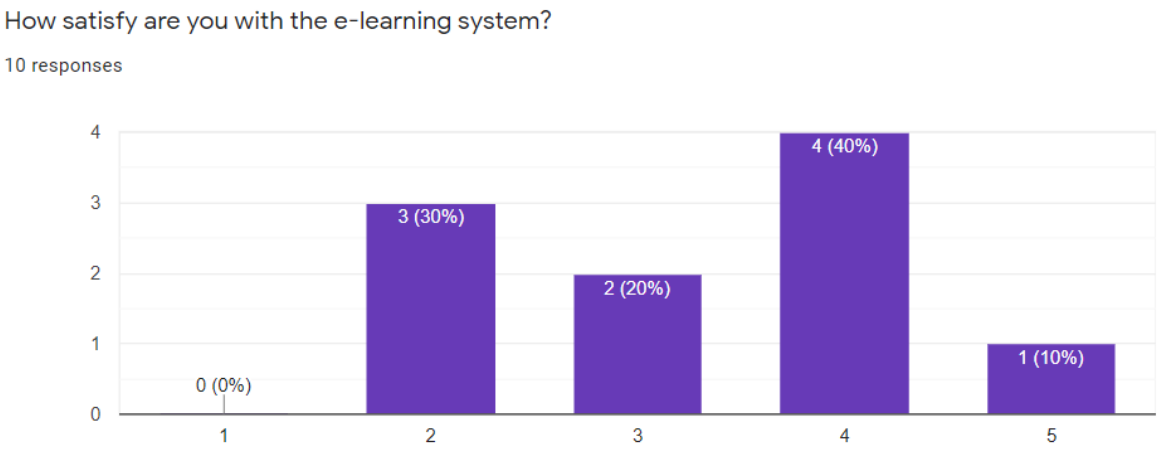

Figure 3.1: Question 1 for Student

Based on the question, the stakeholder was given a scale of 1 to 5 with 1 not satisfied at all and 5 very satisfied. The answer that was provided on the questionnaire stated that most of the student answer the scale of 4 out of 5 which is satisfied with the e-learning system. This is because the e-learning system features are significant enough to provide a good user experience to the students.

2. **How satisfy are you with the grades that had been given by lecturers?**

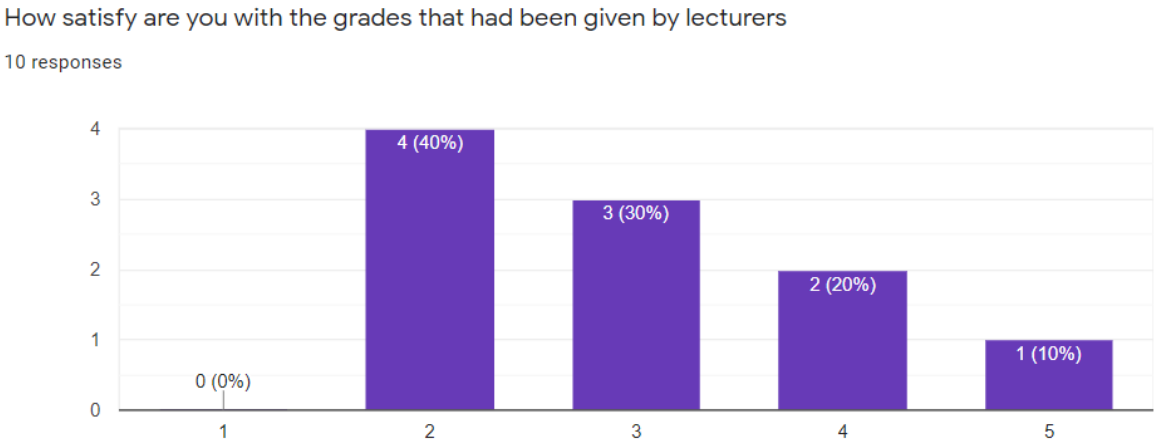

Figure 3.2: Question 2 for Student

Scale were given to the stakeholder that ranged from 1 to 5 that is 1 with being not satisfied at all and 5 very satisfied. The mode for this question is 2 means that most of the students are not satisfied with the grades given by their lecturers. Our assumption is that they are not satisfy with the grading of the lecturer that is not sync according to the rubric.

3. **How much do you need the grading report system?**

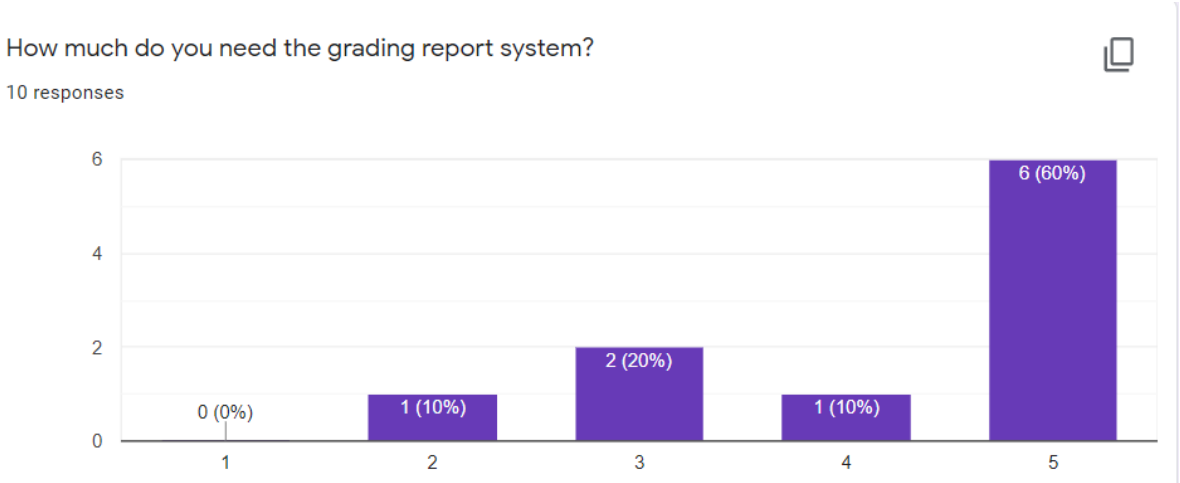

Figure 3.3: Question 3 for Student

For this question, we ask the stakeholder whether they really need the grading report system. Scale were given from 1 to 5 where 1 indicates that they do not really need it and 5 they desperately need it. We can see that most of the respondent answer the scale or 5 which they desperately need it. This is because they really want to know how the grading system works as most of the respondent are not satisfy with their grades.

4. **How likely you want to see the rubric that lecturer use to grade your assessment?**

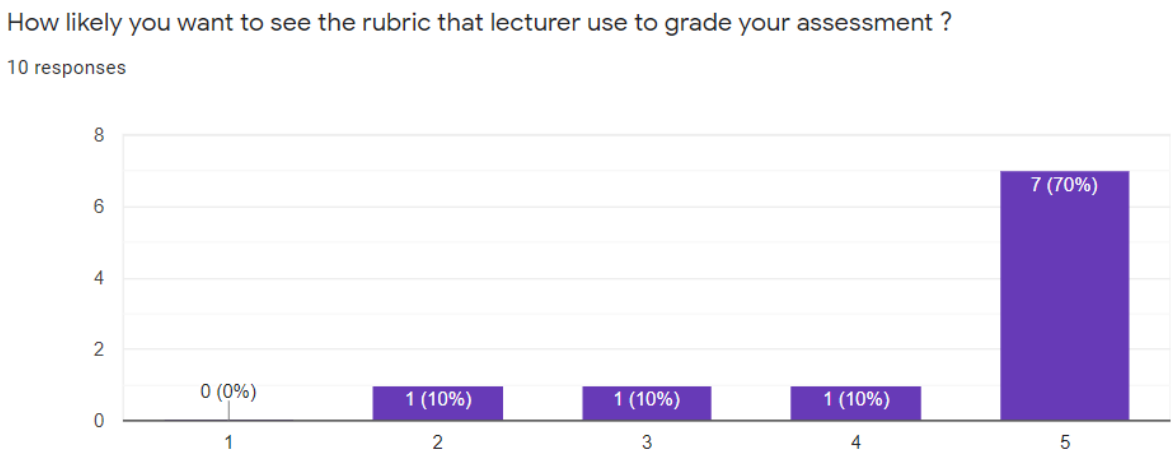

Figure 3.4: Question 4 for Student

A question that is related to see the rubric of the lecturer were ask to the student whether they want to see the rubric that was used to grade their assessment using a scale of 1 to 5 where 1 indicates very unlikely and 5 very likely. Most of the respondent very likely wants to see the rubric because they want to score better in their assessment based on the rubric grading system.

3.2.2 Lecturer

1. **What software are you using to calculate the grading of the student?**

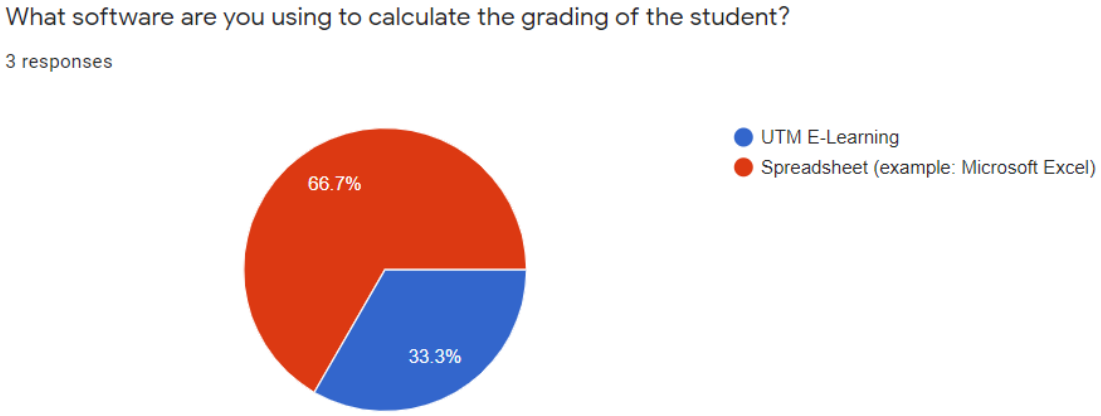

Figure 3.5: Question 1 for Lecturer

A question was set for the respondent on what software are they using to calculate the grading of the student. Based on the responses, we can see that most of them use spreadsheet such as Microsoft excel to calculate the grade. This is because most of the lecturer are still using manual grading system.

2. **How satisfy are you with e-learning system?**

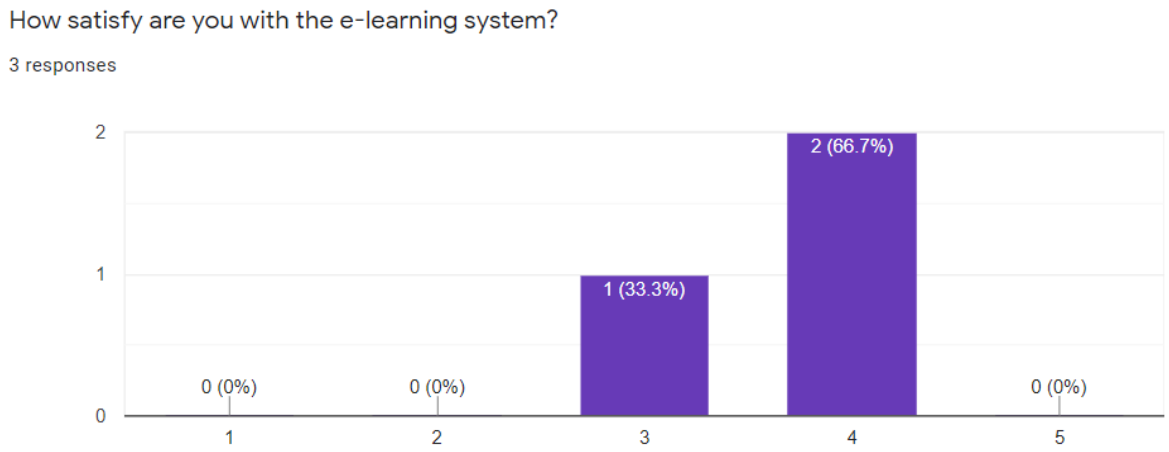

Figure 3.5 Question 2 for Lecturer

The first question that were ask for the lecturer is that whether they satisfy with the e-learning system. Scales that were provided is from 1 to 5 where 1 indicates not satisfy at all and 5 very satisfied. We can see that the lecturers are quite satisfy with e-learning system as the features are enough for them.

3. **How satisfy are you with the current grading system?**

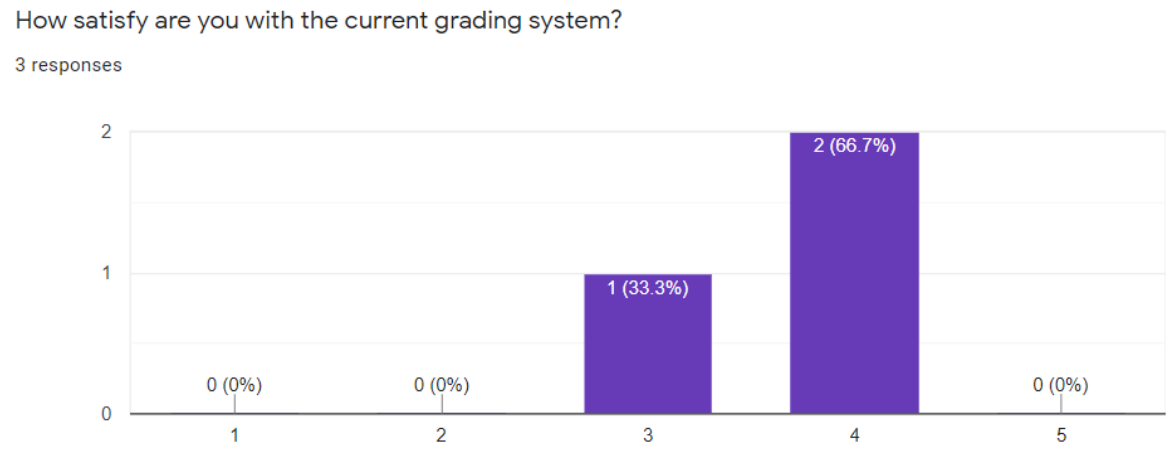

Figure 3.6: Question 3 for Lecturer

Based on the scale of 1 to 5, where 1 indicates not satisfy at all and 5 very satisfied. It turns out that the lecturers are quite satisfy with the current grading system as the current grading system are not complex for them to handle it. Although it is manually graded, the lecturer is quite comfortable with current grading system.

4. **How can you describe your need for the bank rubric system?**

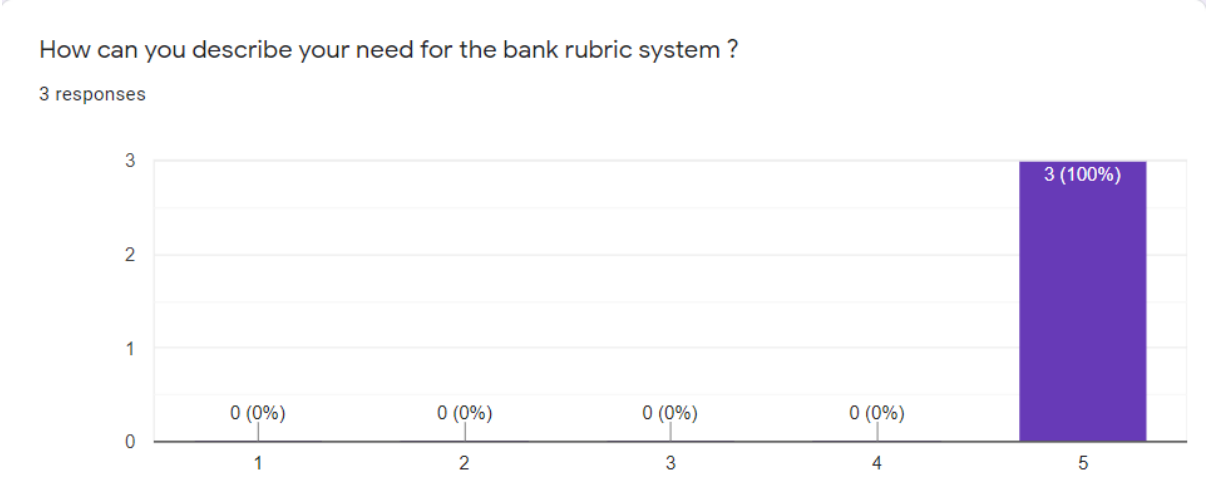

Figure 3.7 Question 4 for Lecturer

On a scale of 1 to 5 with 1 being not needed at all and 5 desperately needed. From the respondent, we can see that all the respondent desperately needs the bank rubric system. This is because it provides a better choice for the lecturer to choose the best rubric to use based on the assessment that were given to the students.

5. **How can you describe your need for the automatic grading system?**

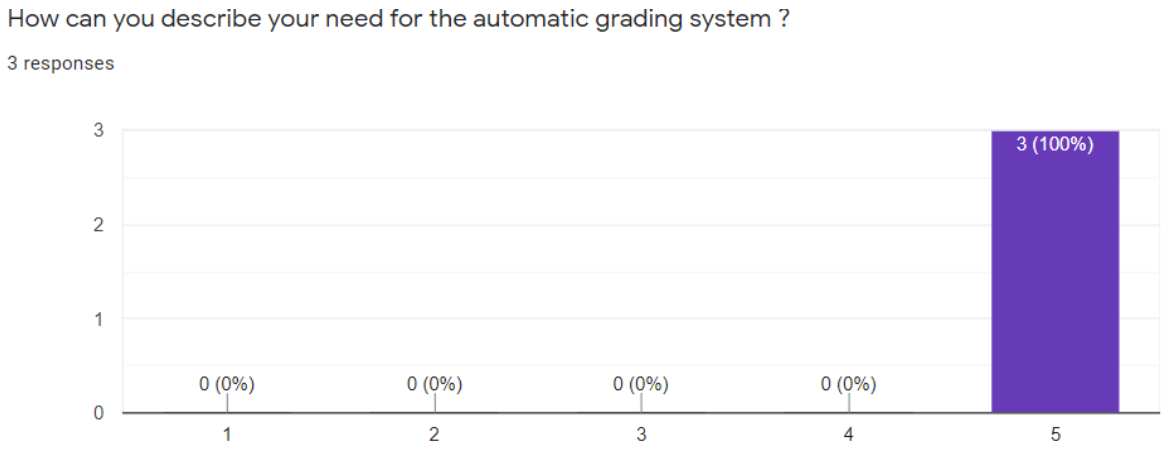

Figure 3.8 Question 5 for Lecturer

Scale were given for the respondent from 1 to 5 where 1 indicates not needed at all and 5 desperately needed. We can see that all of the lecturer desperately needs the automatic grading system because it really eases the burden of the lecturer to manually calculate the grading to be able to produce a cohort report for their own section.

6. **If we have a bank of rubric, how much do you agree to let user rate on rubric uploaded in the system?**

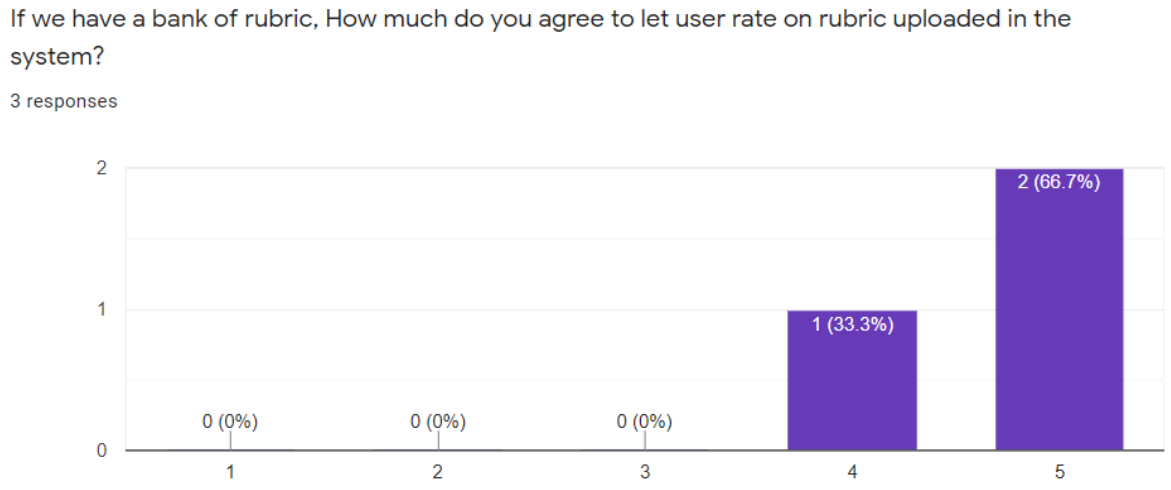

Figure 3.9: Question 6 for Lecturer

Based on the question, scale of 1 to 5 is provided for the respondent where 1 indicate that not agree at all and 5 very agree. Responses indicates that most of the lecturer agree to let the user to rate the rubric uploaded in the system. This is because a review features let the lecturer to choose the best rubric for their own assessment based on the rating given.

7. **Do you agree to let the students to see the rubric that lecturer choose for current assessment?**

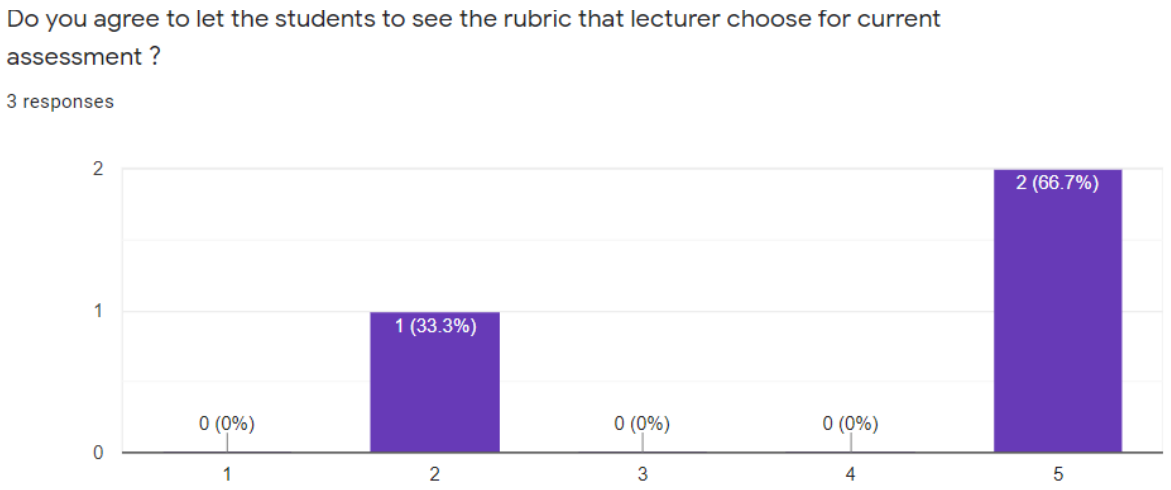

Figure 3.10: Question 7 for Lecturer

The last question that was ask for the lecturer is provided with scale to aid them answering the question. Scales were provided is from 1 to 5 where 1 indicate not agree at all while 5 is very agree. We can see that majority of the lecturer wants to let the students to be able to see the rubric that they are using because it will ease them to mark the assessment of student as the student do their assignment using the rubric marking system.

4.0 Context Diagram

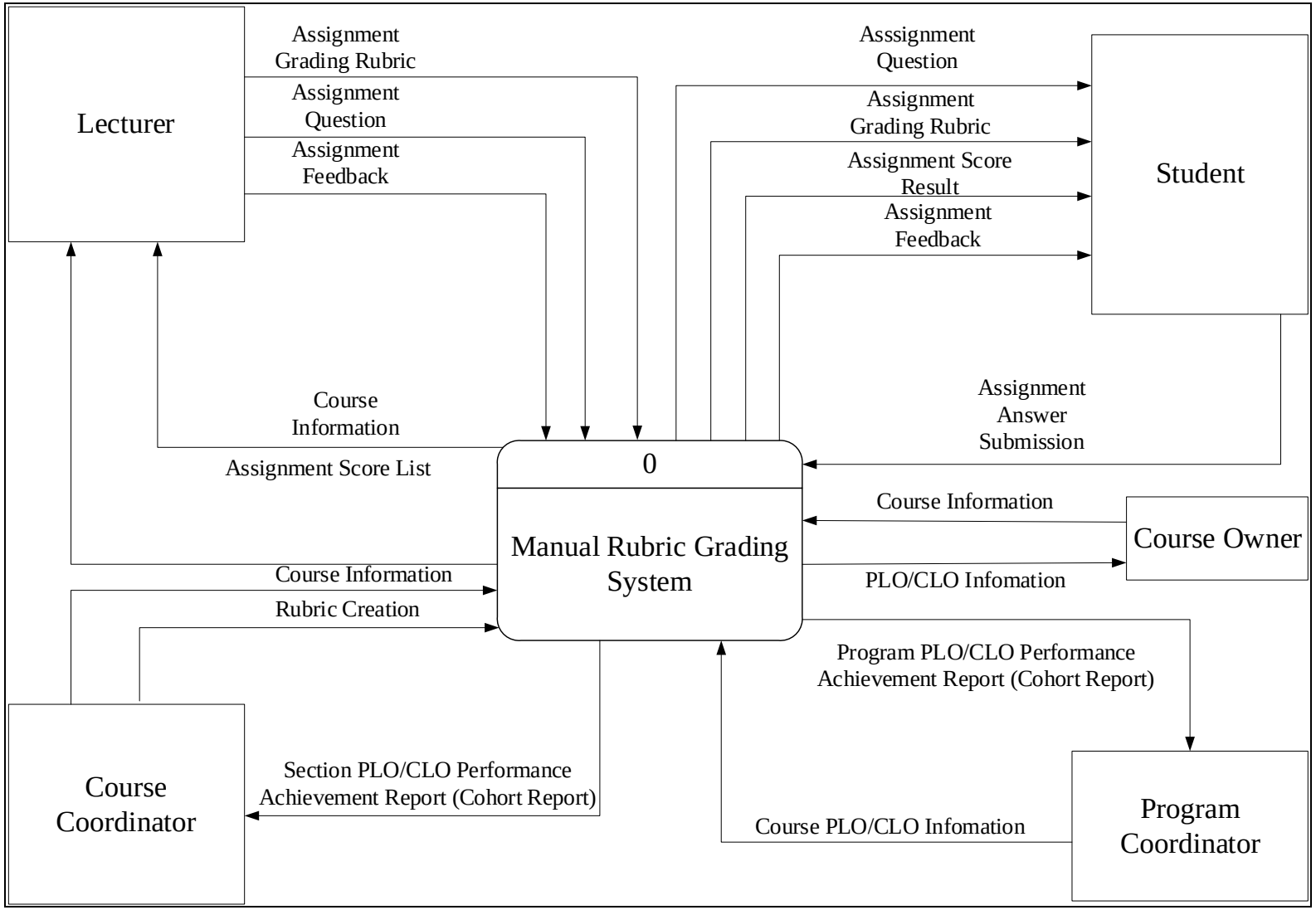

Figure 4.1: Context Diagram (As-Is)

5.0 Data Flow Diagram (DFD) - Parent diagram

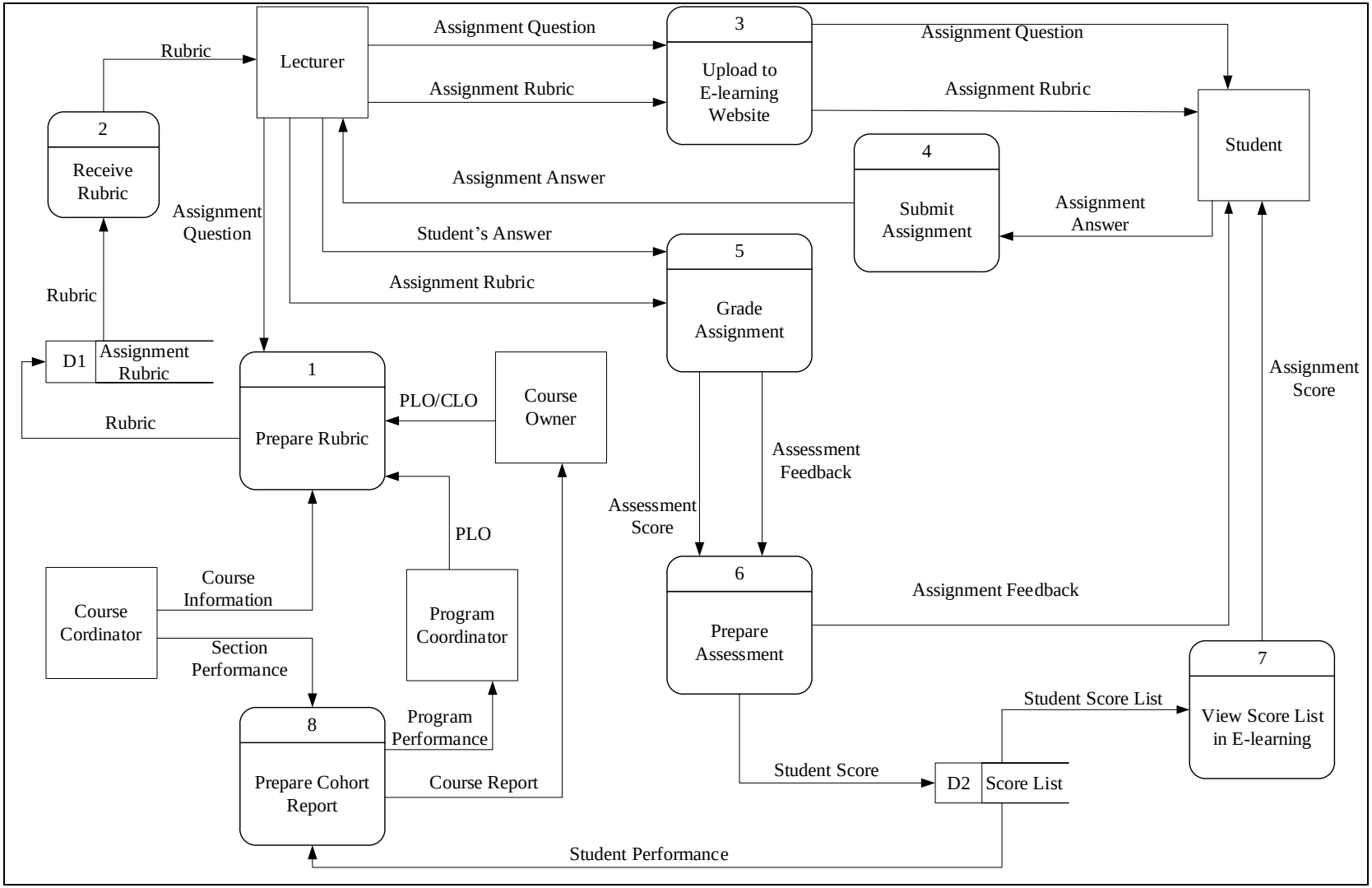

Figure 5.1: Parent Diagram (As-Is)

6.0 Data Flow Diagram (DFD) - Child diagram

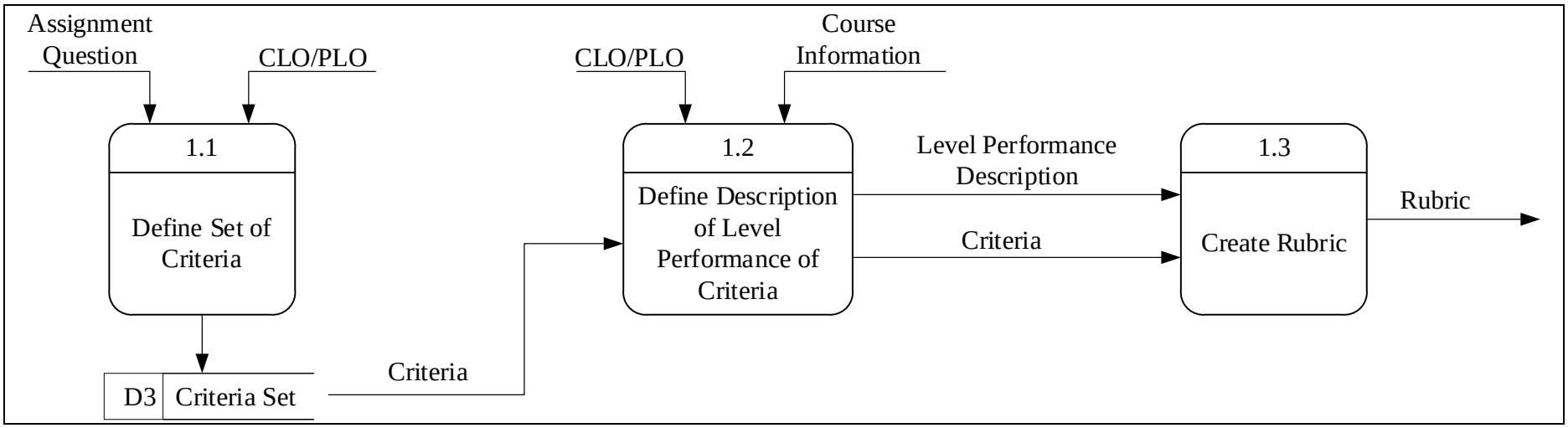

Figure 6.1: Child Diagram of Process 1

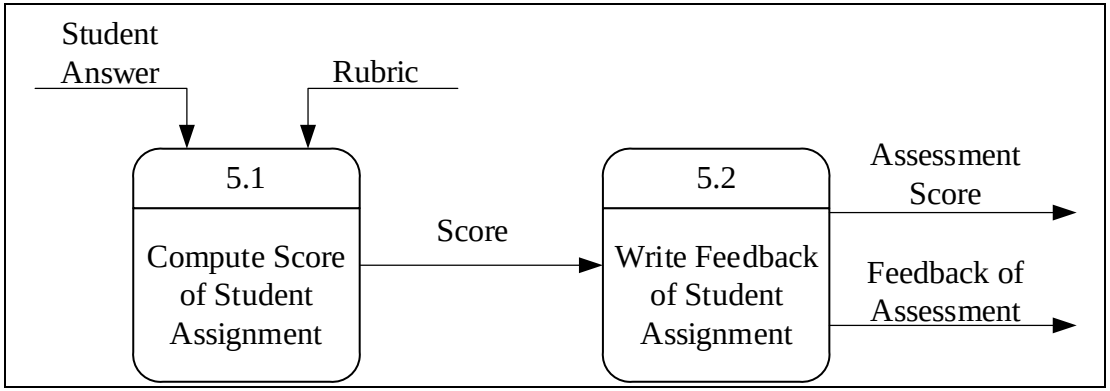

Figure 6.2: Child Diagram of Process 5

7.0 Conclusion

In conclusion, we have successfully achieved the goals and objectives of the assignment. We have learned a lot in determining the information requirements. To elicit the information requirements from users, we have used interactive methods such as interview and survey.

We have constructed several interview questions in different types which are open, closed, bipolar and probe questions. Different types of interview questions have their own characteristics in extracting the outcomes from the interviewee. Besides that, we also conducted an online survey with nominal and interval questions to get more detailed information. After determining information requirements, we begin to know how to make the new system more useful and usable and also the business functions based on complete information on the people, goals, data, and procedure involved.

Last but not least, we also learned how to create a context diagram, parent data flow diagram, and child data flow diagram (level 1). It is an important technique to depict the system inputs, outputs, process, entity, and data store involved.

The ability to create a perfect and complete data flow diagram is depended very much on the efforts in the previous step which is determining information requirements.

The assignment can be done perfectly due to the cooperation between the team members. We have conducted a meeting to separate the task and give our own opinions on every step such as designing the interview questions and creating the data flow diagrams.

References

Eid, M. (14 November, 2015). *University of Missouri–St. Louis*. Retrieved 21 December, 2020, from Requirement Gathering Methods: https://www.umsl.edu/~sauterv/analysis/F2015/Requirement%20Gathering%20Methods.html.htm

Lynch, W. (27 March, 2019). *Warren Lynch*. Retrieved 21 December, 2020, from Data Flow Diagram Comprehensive Guide with Examples: https://warren2lynch.medium.com/data-flow-diagram-comprehensive-guide-with-examples-d9858387f25e

SECD2613 SYSTEM ANALYSIS AND DESIGN

MARKING TEMPLATE: P3 DFD (TO-BE) 20%

Team Name/Members: _YARW_

1. AMIRUL SYAFIQ BIN MOHD QISTI	A19EC0020	4. SEE WEN XIANG	A19EC0206
2. RAKESH A/L KANNAPATHY	A19EC0153		
3. YONG JING XUAN	A19EC0177		

Report (17%) + Peers Evaluation (2%) + Instructor Observation (1%)

Criteria	Marks
1. Introduction and Conclusion - Provide brief introduction to this Assignment 3, its scope, etc. - Summarize the conclusion and lessons learned	/5.0
2. Context Diagram - Contains only one process, representing the entire To-Be or proposed "automated" process - No missing external entities - No missing major data flows	/5.0
3. Data Flow Diagram (DFD) ~ Parent diagram (level 0) - Consistent with context diagram elements - Include all suitable business activities of the To-Be - May include up to 9 processes | Each process is numbered | Major data stores and all external entities are included - No DFD rules violation	/10.0
4. Data Flow Diagram (DFD) ~ Child diagram (level – 1 & 2 at least) - Exploded consistently with parent diagram - Each process on diagram 0 may be exploded to create a child diagram: child process is given the same number as the parent process - Cannot produce output or receive input that the parent process does not also produce or receive - No DFD rules violation	/20.0
5. Structure Chart - Functional decomposition is balanced - Conversion from Level-0 and Level-1 DFD - Define appropriate modules, data couples, control couples and flags - Apply High cohesion and Low coupling principles	/20.0
6. References - Apply APA style guidelines in writing the cited references, - Relevant resources of references	/2.0
7. Overall report quality - Cover page | Table of content | Page number - Minimum typo errors	/3.0
Total Marks **Carry Marks**	/65.0 /17%

SECD 2613 System Analysis & Design

Sem.1 2020/2021

PROJECT 3: ANALYSIS & DESIGN DOCUMENT

RUBRIC DEVELOPMENT AND MANAGEMENT SYSTEM
(DATA FLOW DIAGRAM & STRUCTURE CHART)

YARW

Team Members:

1. AMIRUL SYAFIQ BIN MOHD QISTI	A19EC0020
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Table of Contents

1. Introduction

System Development Life Cycle (SDLC) is a phased approach to solve business problems and is applied in this project. This report focused on the phase three of the project which is analyzing system needs. Based on the requirements gathered in phase two, a proposed system is visualized in the form of data flow diagram (DFD). DFD is a top-down approach of diagramming data movement, from general to specific. DFD contains a context diagram which then will be exploded further. Using the DFD, a structure chart will be generated to show the program modules as well as the relationships.

2. Context Diagram for To-Be UTM Rubric Grading System

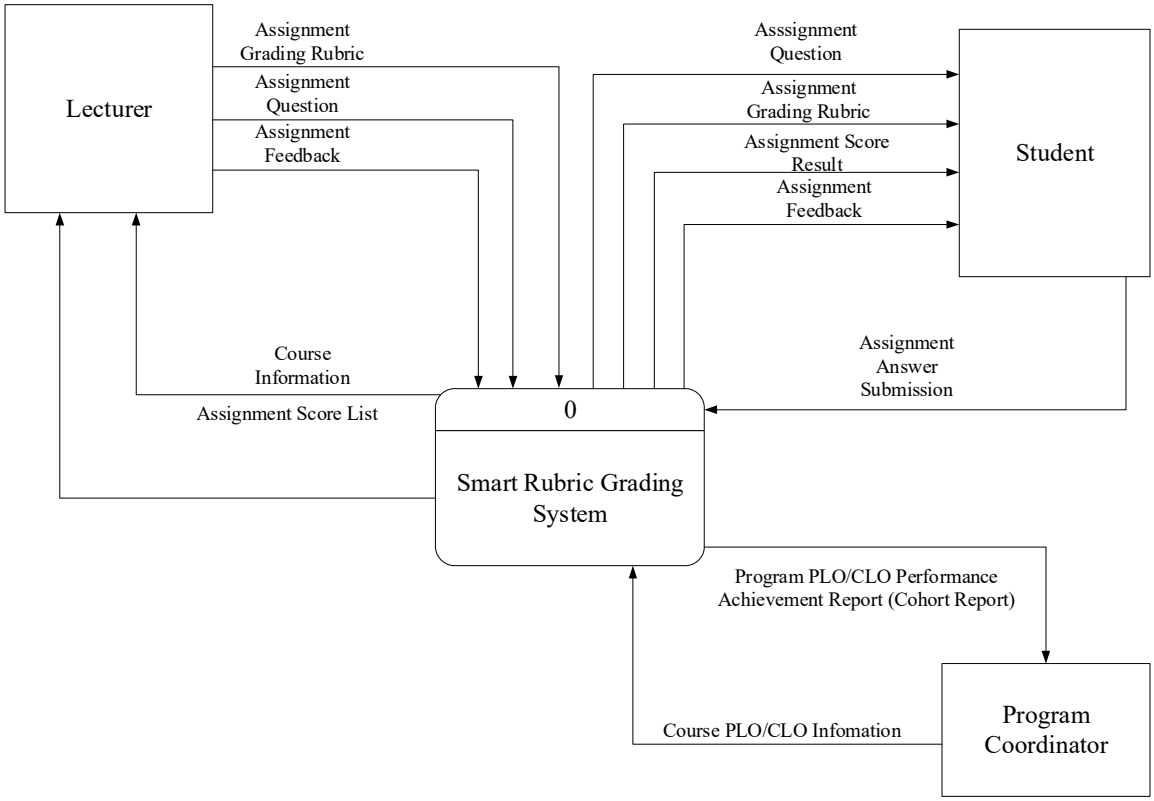

Figure 2.1.: Context Diagram for UTM Rubric Grading System

Table 2.1: Description of Entity of Context Diagam

Entity	Description
Student	Student receives assignment questions and rubric from system. Student submits assignment answer. Student views assignment score and assignment feedback..
Lecturer	Lecturer search rubric template, create rubric and prepare assignment for student.
Program Coordinator	Program coordinator view program achievement report

3. Data Flow Diagram (Parent Level-0)

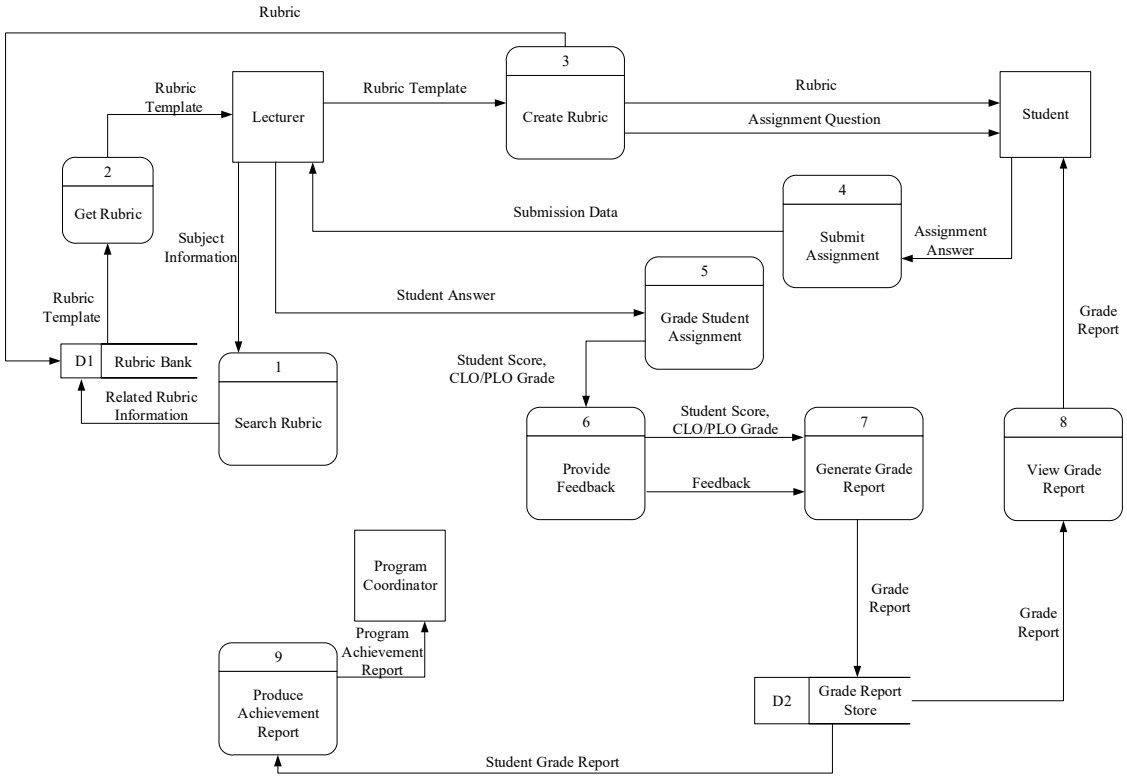

Figure 3.1: Parent (Level-0) DFD for UTM Rubric Grading System

Table 3.1: Description of Parent Diagram

Process No	Parent Process	Description
1	Search Rubric	Search rubric template from rubric bank
2	Get Rubric	Get rubric template from rubric bank
3	Create Rubric	Create rubric from rubric template and send to student along with assignment questions
4	Submit Assignment	Submit assignment answer for grading
5	Grade Student Assignment	Grade the student assignment and send result to lecturer and generate grade report
6	Provide Feedback	Lecturer write feedback base on result of student
7	Generate Grade Report	Make grade report with feedback and grade result
8	View Grade Report	Student view their grade report
9	Produce Achievement Report	Collect student grade reports and calculate CLO and PLO KPI and then generate achievement report (CLO/PLO Achievement report and section grade report).

4. Data Flow Diagrams (Child Level 1-N)

4.1 Child diagram (Level 1) for Process 1.0 < Search Rubric >

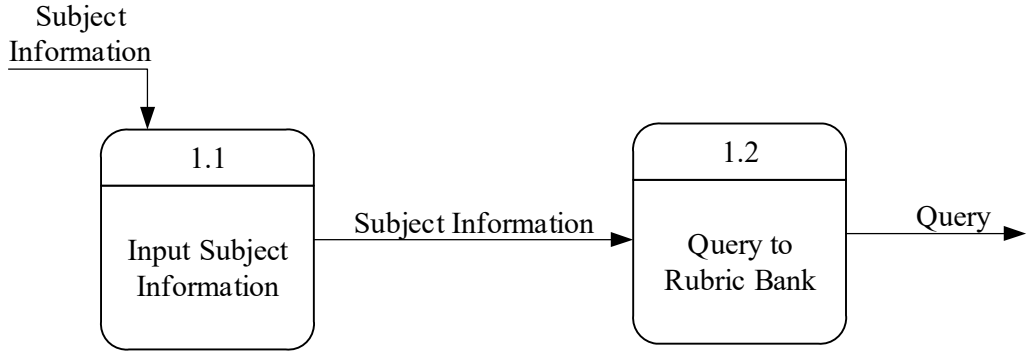

Figure 4.1: Child (Level-1) DFD for Process 1.0 < Search Rubric >

4.2 Child diagram (Level 1) for Process 2.0 < Get Rubric >

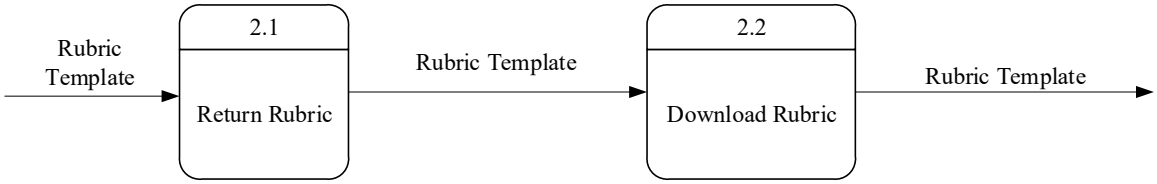

Figure 4.2: Child (Level-1) DFD for Process 2.0 < Get Rubric >

4.3 Child diagram (Level 1) for Process 3.0 < Create Rubric >

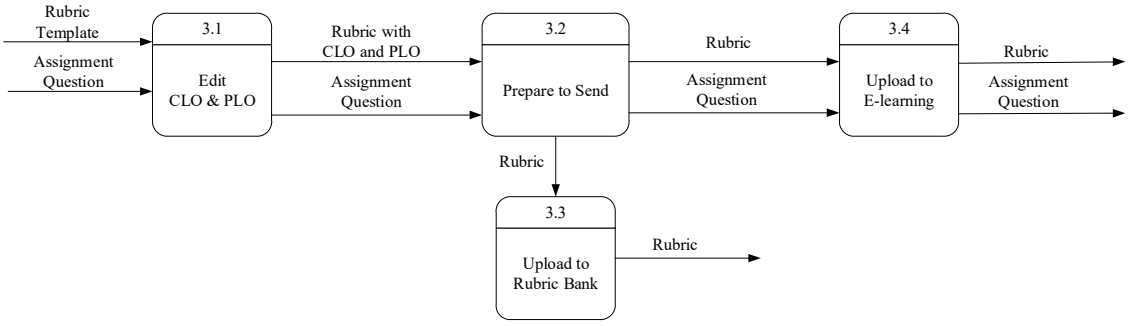

Figure 4.3: Child (Level-1) DFD for Process 3.0 < Create Rubric >

4.4 Child diagram (Level 1) for Process 4.0 < Submit Assignment >

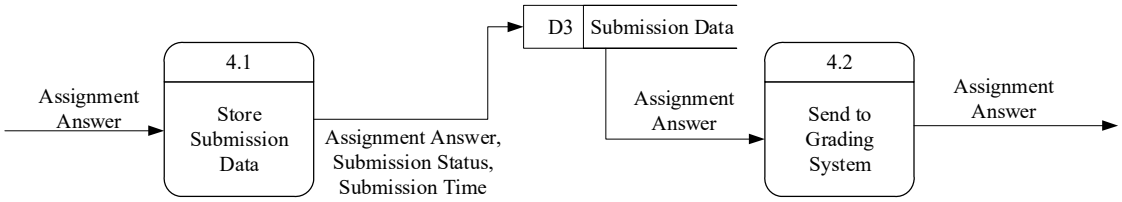

Figure 4.4: Child (Level-1) DFD for Process 4.0 < Submit Assignment >

4.5 Child diagram (Level 1) for Process 5.0 < Automated Grading >

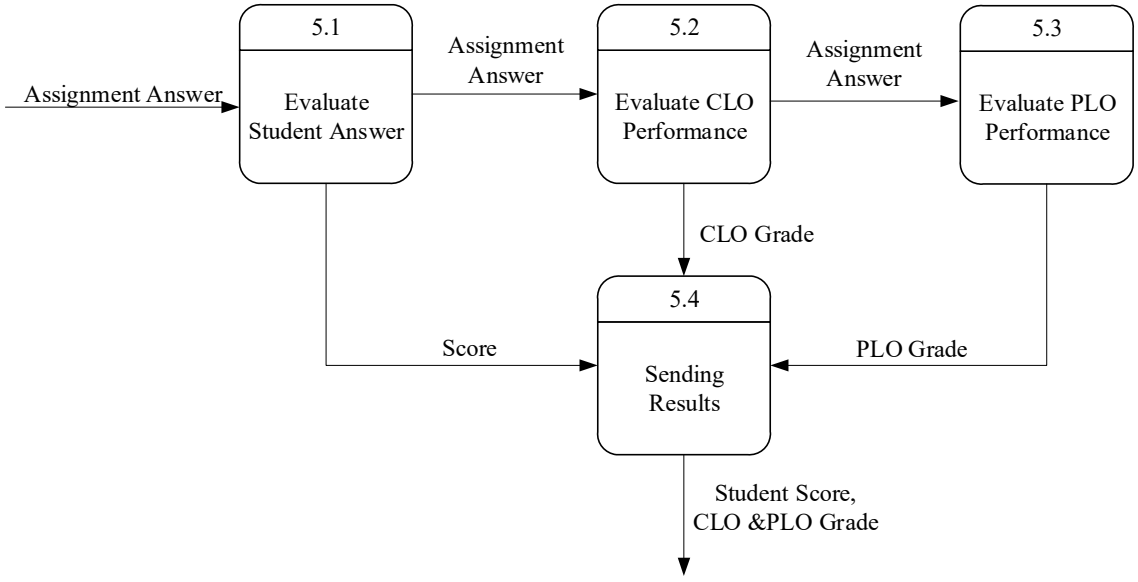

Figure 4.5: Child (Level-1) DFD for Process 5.0 < Automated Grading >

4.6 Child diagram (Level 1) for Process 6.0 < Provide Feedback >

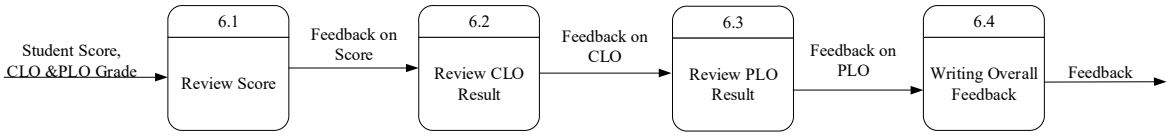

Figure 4.6: Child (Level-1) DFD for Process 6.0 < Provide Feedback >

4.7 Child diagram (Level 1) for Process 7.0 < Generate Grade Report >

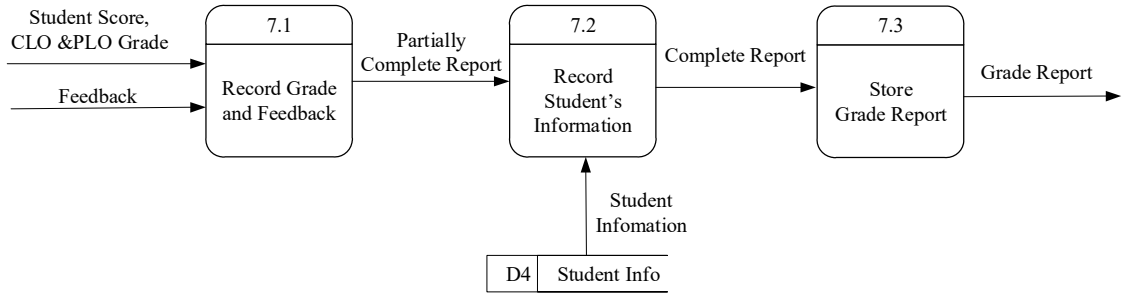

Figure 4.7: Child (Level-1) DFD for Process 7.0 < Generate Grade Report >

4.8 Child diagram (Level 1) for Process 8.0 < View Grade Report >

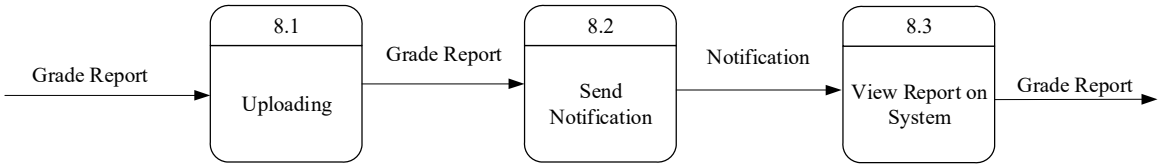

Figure 4.8: Child (Level-1) DFD for Process 8.0 < View Grade Report >

4.9 Child diagram (Level 1) for Process 9.0 < Produce Achievement Report >

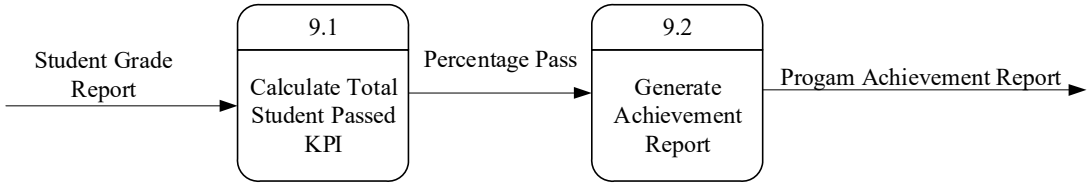

Figure 4.9: Child (Level-1) DFD for Process 9.0 < Produce Achievement Report >

4.10 Description of Data Flow Diagram

Table 4.1 Description of Each Child Process

Process No.	Child Process	Description
1.1	Input Subject Information	Enter subject information.
1.2	Query to Rubric Bank	Access rubric bank after get subject information
2.1	Return rubric	Return rubric searched to system
2.2	Download Rubric	Lecturer download from system
3.1	Edit CLO and PLO	Edit latest CLO and PLO on current template
3.2	Prepare to send	Integrate rubric and assignment questions
3.3	Upload to Rubric Bank	Upload the rubric to Rubric Bank for further reference
3.4	Upload to E-learning	Upload to e-learning system
4.1	Store submission data	Store student assignment submission data
4.2	Send to Grading System	Send student assignment answer to grading system
5.1	Evaluate Student Answer	Automated evaluation answer
5.2	Evaluate CLO Performance	Evaluate assignment CLO
5.3	Evaluate PLO Performance	Evaluate assignment PLO
5.4	Sending Results	Send result to lecturer and generate grade report
6.1	Review Score	Lecturer review student score
6.2	Review CLO Result	Lecturer review student CLO result
6.3	Review PLO Result	Lecturer review student CLO result
6.4	Write Overall Feedback	Lecturer write feedback based on CLO and PLO and score
7.1	Record Grade and Feedback	Feedback and student grade are integrated in report
7.2	Record Student Information	Student Information is recorded in report
7.3	Store Grade Report	Report is stored in data storage.
8.1	Uploading	Grade Report is uploading to student interface
8.2	Send notification	Send notification to student via system
8.3	View Grade Report	Student can download and view their result
9.1	Calculate total student passed KPI	Calculate section CLO and PLO KPI .
9.2	Generate achievement report	Record the KPI in report and send to course coordinator and program coordinator.

Table 4.2 Description of Each Data Store

Data No.	Data Store	Description
D1	Rubric Bank	A data store of rubric and rubric template
D2	Grade Report	A data store of student grade report
D3	Submission Data	A data store of assignment submission information
D4	Student Info	A data store of student information

5. Structure Chart

Structure chart is drawn based on the DFD we have generated previously. In the structure chart, we can see that there exists a control module with 9 subordinate modules. Each of the modules then also have their own subordinate modules. Control modules is the higher-level module that is used in the structure chart while subordinate module is a lower-level module in the chart. Further explanation of the elements used in the structure chart is summarized as in the table below.

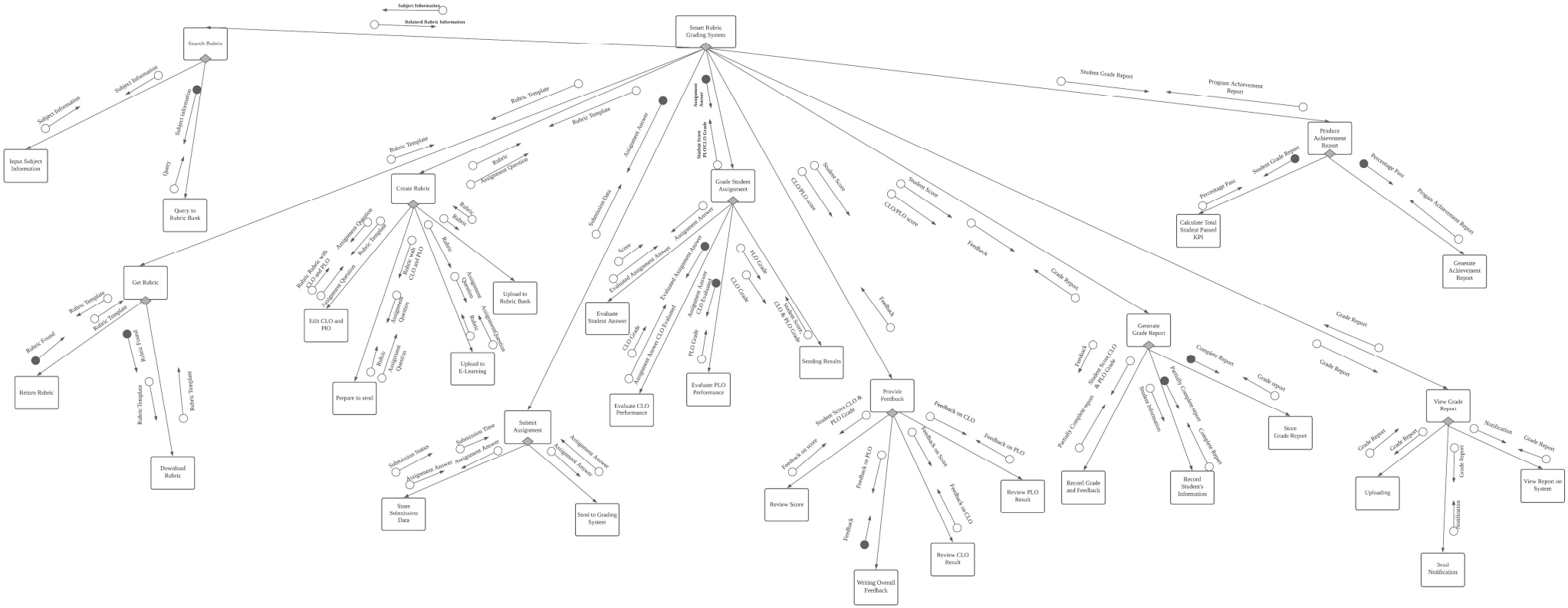

Figure 5.1: Structure Chart for UTM Rubric Grading System

Table 5.1: Element of Structure Chart Explanation

Elements	Explanation
	**Modules:** **Control Module-** A higher-level module which points to lower-levels module. **Subordinate Module-** A lower-level module
	**Module Call** – Call a module
	**Data Couple-** shows data that a module passes
	**Flag-** Message sent from a module to signal a specific condition to another module. **Control Couple-** shows a message (flag) send by a module to another.
	**Condition**- A specified action that will determine which subordinate module will be invoked.

6. Conclusion

In conclusion, our team have learned more about Data flow Diagram (DFD) and Structure Chart. Although, exploding the parent diagram to child diagram level 1 is quite a tough decision for us as a team, we still managed to come up with a proper child diagram. The structure chart that we implemented are based on parent diagram and child diagram that we work together as a team, discussing about the Data Flow Diagram (DFD) in our meeting.

7. References

Agarwal, A. (2 April, 2019). *GeeksforGeeks*. Retrieved from Software Engineering | Structure Charts: https://www.geeksforgeeks.org/software-engineering-structure-charts/

Kendall, K. E., & Kendall, J. E. (2014). *Systems Analysis and Design 9th Edition.* Essex: Pearson Education Limited.

Lynch, W. (27 March, 2019). *Warren Lynch*. Retrieved 22 January, 2021, from Data Flow Diagram Comprehensive Guide with Examples: https://warren2lynch.medium.com/data-flow-diagram-comprehensive-guide-with-examples-d9858387f25e

Page-Jones. (1988). *System Design Overview*. Retrieved 23 January, 2021, from Strategies for converting the DFD into Structure Chart: http://120.105.184.250/lwcheng/SSADM/%E5%9C%96%E8%A1%A8/DFD_%E7%B5%90%E6%A7%8B%E5%9C%96/Strategies%20for%20converting%20the%20DFD%20into%20Structure%20Chart.htm

TEAM NAME : YARW

TEAM MEMBERS :

AMIRUL SYAFIQ BIN MOHD QISTI	A19EC0020,
RAKESH A/L KANNAPATHY	A19EC0153
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SEE WEN XIANG	A19EC0206

PART A - REPORT DOCUMENTATION					
Criteria	**Excellent (4)**	**Good (3)**	**Fair (2)**	**Unsatisfied (1)**	**Marks**
To-Be DFD realization [30marks]	**All relevant** high fidelity mock-up prototype are shown and **conform to To-Be DFD realization**. All GUIs **traceable** to chosen **processes** in **To-Be DFD Parent/Level-1 (at least)** for **appropriate external entities** (targeted end-users). **All** individual team members are assigned appropriately to mock-up the chosen processes.	**Most relevant** high fidelity mock-up prototype are shown and **conform to To-Be DFDrealization**. **Most** GUIs **traceable** to to chosen processes in **To-Be DFD Parent/Level-1 (at least) for appropriate external entities** (targeted end-users). **Most** individual team members are assigned appropriately to mock-up the chosen processes.	**Some relevant** high fidelity mock-up prototype are shown and **conform to To-Be DFD realization**. **Some** GUIs are **not traceable** to chosen processes in **To-Be DFD Parent/Level-1 (at least) for appropriate external entities** (targeted endusers). **Some** individual team members are assigned appropriately to mock-up the chosen processes.	**Relevant** high fidelity mock-up prototype are **missing** and not **conform to To-Be DFD realization**. **Most** GUIs **not traceable** to chosen processes in **To-Be DFD Parent/Level-1 (at least)** for **appropriate external entities** (targeted end-users). **Not all** individual team members are assigned appropriately to mock-up the chosen processes**.**	
Mock-up Prototype Design [20marks]	Graphics (Output, Input & User Interfaces) in the mock-up prototype are **attractive** and **usable** (easy to use)	Graphics (Output, Input & User Interfaces) in the mock-up prototype are **moderately attractive** and **usable** (easy to use)	Graphics (Output, Input & User Interfaces) in the mock-up prototype are **quite attractive** and **not so usable** (diificult to use)	Graphics (Output, Input & User Interfaces) in the mock-up prototype are **inappropriate** and **not so usable** (diificult to use)	
Overall Presentation Quality [20marks]	**Include** project overview/background/introduction, verbalclear voice, caption/subtitles, good technical coverage, creativity are applied in presentation. **All** individual team members are assigned appropriately to present the developed mock-up prototype.	**Most** aspect of project overview/background/introduction, verbalclear voice, caption/subtitles, moderate technical coverage, moderate creativity are applied in presentation. **Most** individual team members are assigned appropriately to present the developed mock-up prototype.	**Some** aspect of project overview/background/introduction, verbalunclear voice, caption/subtitles, some technical coverage, some creativity are applied in presentation. **Some** individual team members are assigned appropriately to present the developed mock-up prototype.	**Poor** organization of project overview/background/introduction, verbal**unclear** voice, caption/subtitles, **no** technical coverage, **no** creativity are applied in presentation**. Not all** individual team members are assigned appropriately to present the developed mock-up prototype.	
				Total marks [70marks]	**0**
				12%	**0.0**

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SECD 2613 System Analysis & Design

Sem.1 2020/2021

PROJECT 4: IMPLEMENTATION DOCUMENT

RUBRIC DEVELOPMENT AND MANAGEMENT SYSTEM
(**SYSTEM PROTOTYPE)**

YARW

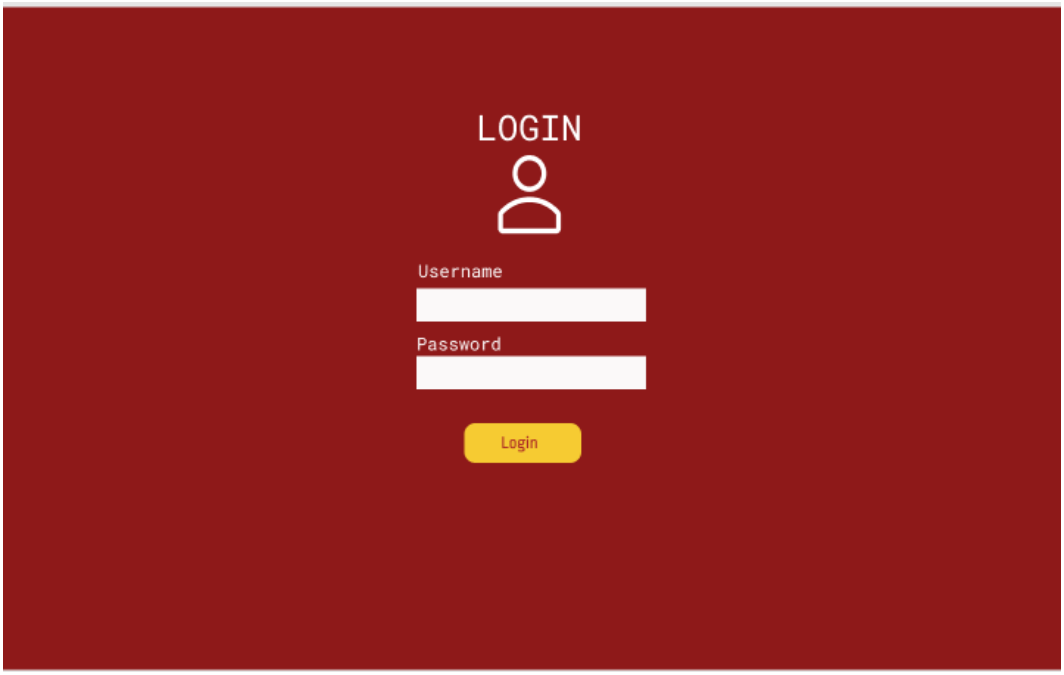
Team Members:

1. AMIRUL SYAFIQ BIN MOHD QISTI	A19EC0020
2. RAKESH A/L KANNAPATHY	A19EC0153
3. YONG JING XUAN	A19EC0177
4. SEE WEN XIANG	A19EC0206

Table of Contents

1.0 User Manual

Lecturer View

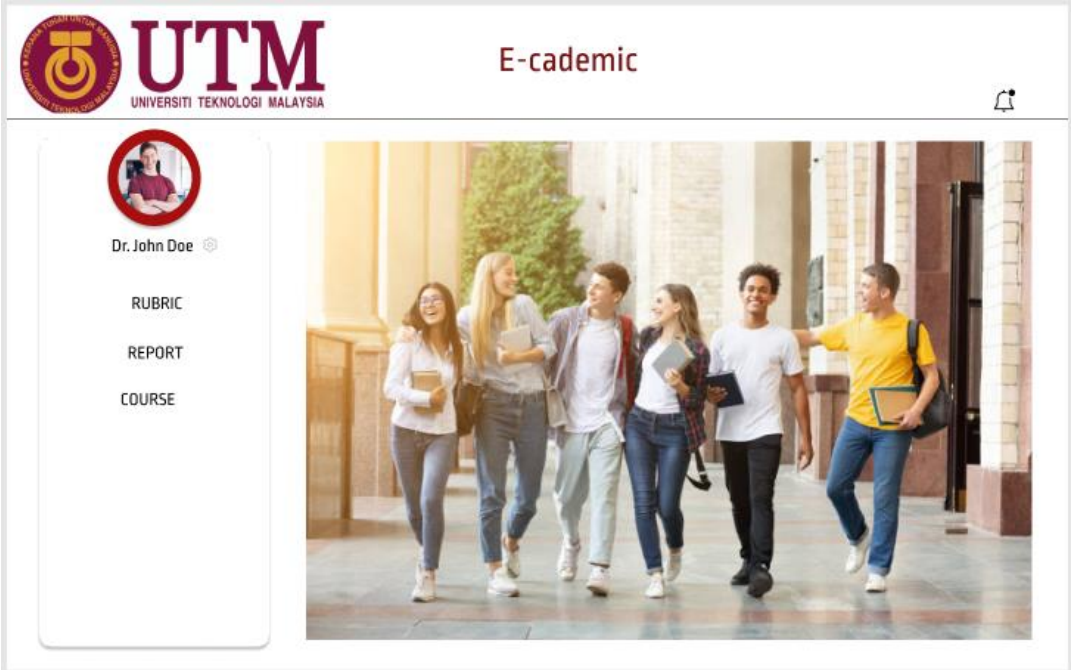


Login Page

STEP 1: User type in username registered and password.

STEP 2: User click login button to login.

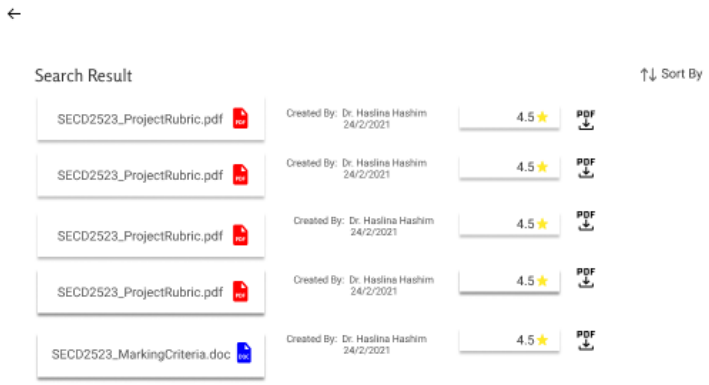
Main Page



Search Rubric , Edit Rubric and Share Rubric.

STEP 1: Click rubric button.

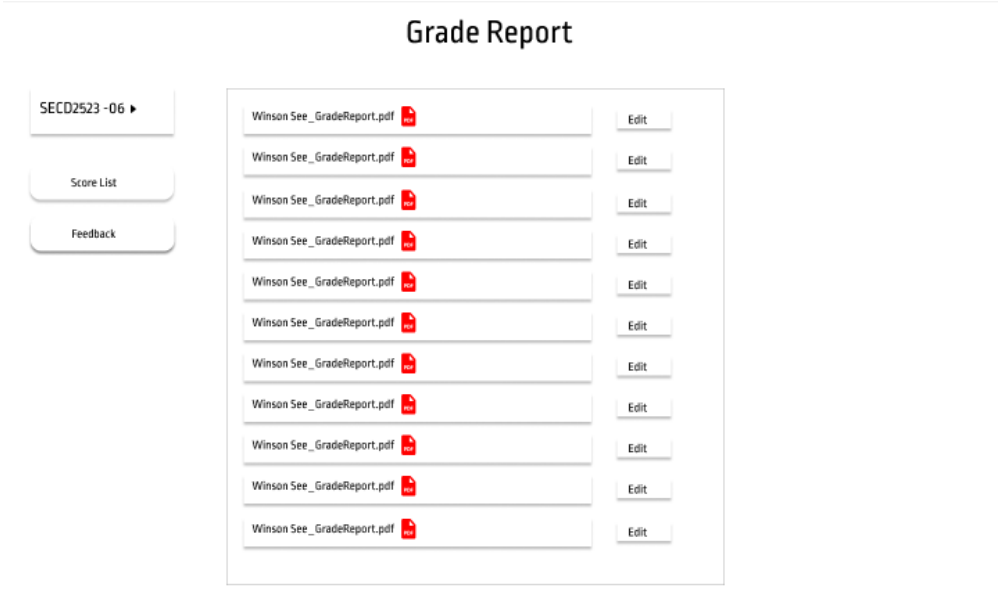
STEP 2: Type in RubricID to search related rubrics.



STEP 3: From the search results, choose one and download.

STEP 4: Download to computer and continue to edit rubric.

STEP 5: Click share if want to upload the rubric made to rubric bank.



View Grade Report

STEP 1. Choose the section.

STEP 2. List of grade report uploaded is displayed.

STEP 3. Click edit if want to edit grade report.

STEP 4. Click feedback if want to add or delete feedback.

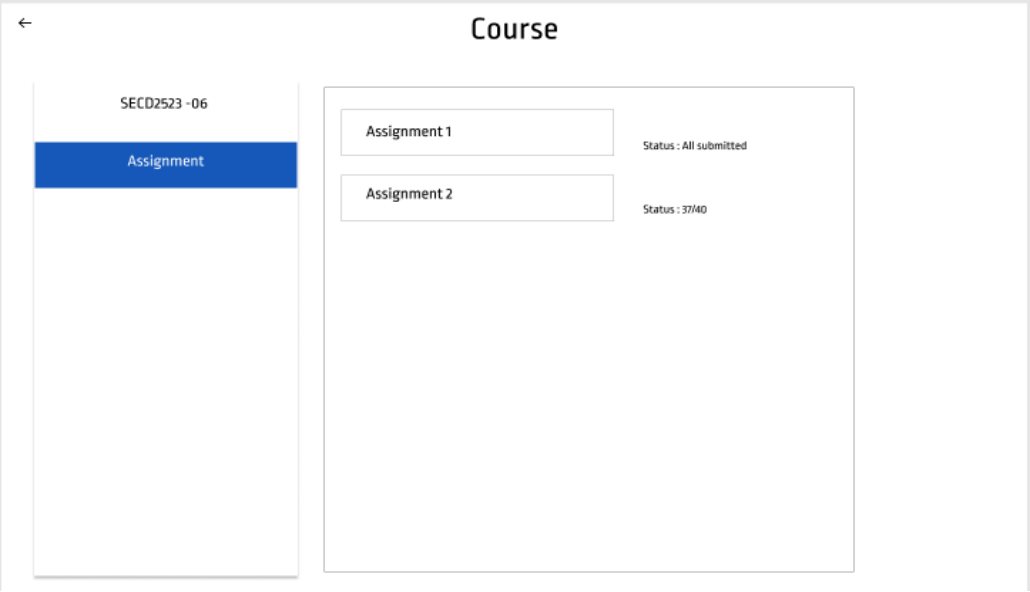
Edit or Delete Feedback

STEP 1. The green tick show submission status is submitted while red tick is not submitted.

STEP 2. Click section to change other section (if teach more than 1 course or section).

STEP 3: Click edit to edit feedback.

STEP 4: Click delete to delete feedback.



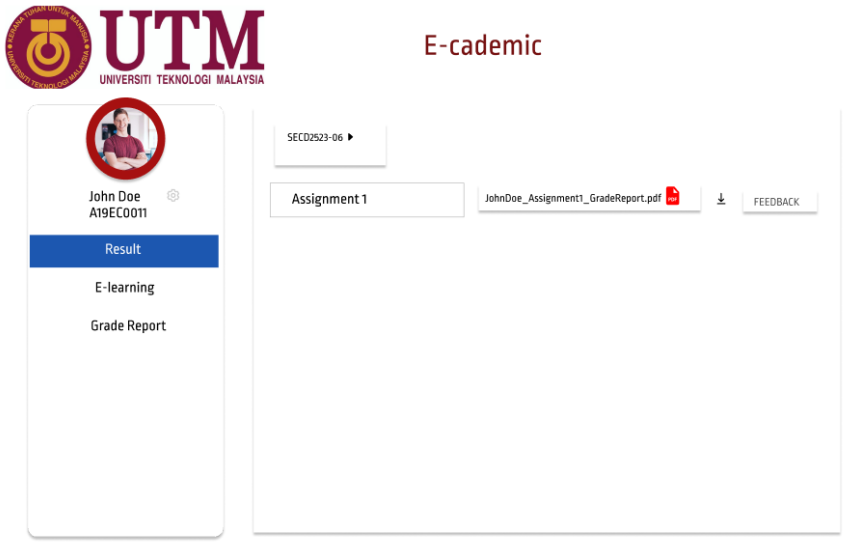
View assignment submission

STEP 1: Click assignment.

STEP 2: View the status of assignment submission.

STEP 3: Click the status to view the student who submitted or not.

Student View



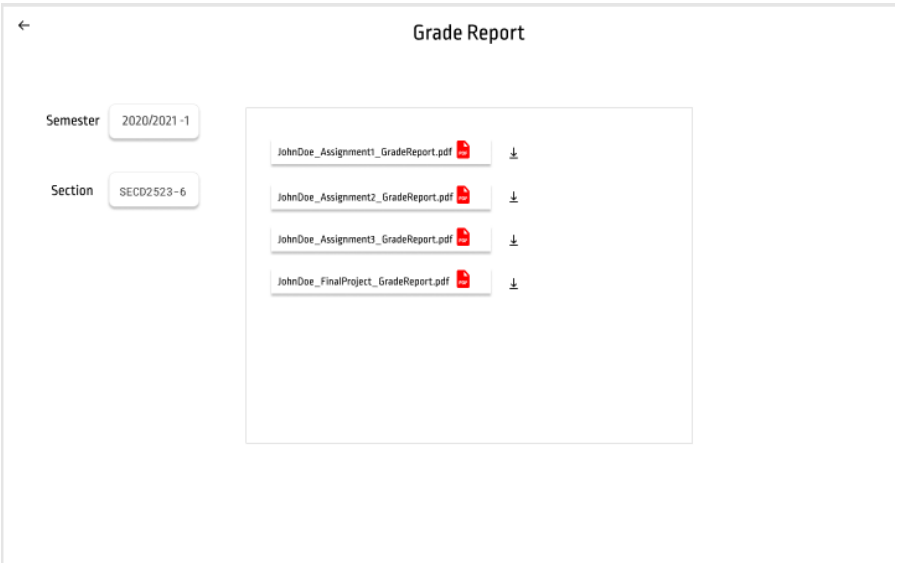
View result

STEP 1: Click result.

STEP 2: Select section.

STEP 3: Click the grade report to download.

STEP 4: View grade report.



Student View Grade Report

STEP 1: Click semester to choose which semester to view.

STEP 2: Click section to choose which section.

STEP 3: Download the grade report to view.