FACULTY OF COMPUTING

SEMESTER 2 2024/2025

SECP2613 SYSTEM ANALYSIS AND DESIGN

SECTION: 02

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Part A: Feasibility Study

1.0 Problem Definition

MyClient+ is a company that has experienced rapid growth over the past year. Currently, the company only relies on basic tools such as spreadsheets, forms, emails and Excel to operate the MyClient+ system and it brings an abundance of drawbacks. For instance, the company is getting more client complaints, the tickets go missing and the reports are delayed, which results in customer dissatisfaction as well as the need to advance the current system. At the same time, the team also finds out that compiling reports is too time-consuming, the support tickets never get followed up and duplication of work has happened with the current system they have. Plus, the competitors of the company already have proper platforms to handle these issues. In this case, a CRM system or platform is introduced to resolve the issues and maintain the service quality since automation, real-time updates and proper client tracking can be carried out. However, MyClient+ team lacks expertise to support development of the CRM system.

2.0 Objectives, Requirements & Constraints

2.1 Objectives

The primary objective for developing a new Customer Relationship Management (CRM) system for MyClient+ is to manage clients more effectively, automate business processes internally, and enable scalable growth. The system is designed to eliminate current inefficiencies caused by the utilization of manual tools such as spreadsheets and email, and to establish a competitive edge in digital client service.

Specific objectives include:

- **Enhance Client Support Efficiency**

  The process now is based on emails and spreadsheets, which are easy to lose. A CRM system will automatically distribute and organize support requests so that every issue is recorded and followed up.

- **Increase Client Satisfaction**

  Delays and missed responses irritate clients. The new system will provide faster service with real-time feedback, so clients feel heard and cared for, building trust and loyalty.

- **Improve Operational Productivity**

  Employees currently waste time copying data between tools or searching for old emails. Automating processes reduces repeated tasks and allows staff to focus on higher-value work.

- **Facilitate Strategic Decision-Making**

  Currently, reports take hours to compile manually. A CRM will provide instant performance metrics (such as sales patterns or support times), enabling management to make better, quicker decisions.

- **Project a Modern Corporate Image**

  Using outdated tools makes the company appear less professional. A modern CRM system helps MyClient+ keep up with competitors and present a tech-savvy, trustworthy image.

2.2 Requirements

2.2.1 Functional Requirements (What the system should do):

- **Automated Ticketing and Issue Tracking**

The system should allow clients to report issues and automatically assign these tickets to personnel, with updates on progress.

- **Real-Time Client Database**

All clients contact details and history (calls, emails, support tickets) should be stored and easily accessible by personnel.

- **Performance Reporting Dashboard**

Managers need a dashboard to monitor team performance, track key metrics, and generate reports in real-time.

- **Integration with Email and Marketing Tools**

The system must be integrated with existing email platforms (like Gmail) and marketing software for sending newsletters or campaigns.

- **Access Control and User Roles**

Different employees should have different access levels (like admin, sales, support), based on their roles.

- **Client Feedback and Surveys**

The system will need to capture client feedback (after support has been provided) and analyze the results for improvement.

2.2.2 Non-Functional Requirements (How the system should behave):

- **Usability**

The system must be easy to use, with a clear interface, so staff can learn quickly with minimal training.

- **Scalability**

It should support future growth, such as adding more clients, data, or new features, without slowing down.

- **Security**

Since sensitive client data will be stored, the system must use encryption and login protection to keep it safe from cyber threats.

- **Availability**

The CRM should work reliably with minimal downtime (aiming for at least 99.5% uptime), so it's always available when staff need it.

- **Support & Maintenance**

Regular updates and technical support must be provided to fix bugs and improve the system over time.

2.3 Constraints

- **Budgetary Constraint**

The total project cost should not exceed RM150,000. This includes hardware, software, training, and support — so every spending decision must be carefully considered.

- **Time Constraint**

The implementation should be carried out within a short duration in order not to cause further complaints and inefficient work. Delayed implementations may have implications on client satisfaction and business performance.

- **Technical Skills**

The current internal IT team is not skilled enough to create the CRM system from scratch, so external vendors or consultants will be needed, which may add to costs and coordination effort.

- **Change Management**

Some employees may object to learning a new system. Proper training and management support will be necessary to ensure smooth adaptation and usage.

- **Integration Constraint**

All existing client data (from spreadsheets and emails) must be migrated into the new CRM accurately and securely. This is technically challenging and must be handled with care to avoid data loss or errors.

3.0 Feasibility Study

Technical Feasibility

Although the current system of MyClient+ already operates digitally, the current tools used by the team like spreadsheets, forms, emails and Excel don't support automation, real-time updates and proper client tracking. To fulfill the operating requirements and needs, the CRM system is needed. In this case, CRM platforms can be set up and obtained easily from Software-as-a-Service (SaaS) models. Although the team lacks expertise in full development of the CRM system, commercial CRM solutions such as Zoho are available with third-party support and hence the team no need worry about the operation of CRM. In addition, MyClient+ team can develop the CRM system that can achieve the requirements and needs and at the same time, use the advanced technology to ensure the MyClient+ system works more efficiently and effectively.

Operational Feasibility

The CRM system can be developed easily. Since the current system of MyClient+ is time-consuming, not effective and has less functionality, the CRM can help manage the client data faster with the automated system. In this case, it can ensure less duplication of tasks, enable real-time updates to and from the clients and have client tracking as well as improve the communication between the client and team. Although training is required for the team to ensure the effective operation of the new system, the modern CRM system is user-friendly and supported with learning materials. Plus, through the operation of the CRM system, reports will take less time to compile, the support tickets can get followed up better and there will be less cases of missing tickets as well as complaints from the clients. Hence, a CRM system can be implemented and operated by the team effortlessly with the support of learning materials from the CRM system.

Economic Feasibility

The budget provided by the team is around RM150,000 and it will need to pay for development costs like hardware, software, consultants, and training as well as yearly production costs like supplies, IS support and maintenance of the system. The benefits are estimated to be gained mainly from the weekly cost savings. By using the CRM system, automation and real-time updates are provided, it is believed that the complaints will be mitigated which then result in increased productivity of MyClient+ system and client satisfaction. If the system is implemented well, it will result in a positive return on investment and ensure the economic growth of the company. This can be determined by performing the Cost-Benefit Analysis (CBA).

Cost-Benefit Analysis (CBA)

COST	YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
DEVELOPMENT COST						
Hardware	49500.00					
Software	11000.00					
Consultant	27500.00					
Training	22000.00					
TOTAL COST	110000.00					
PRODUCTION COST						
Supplies		3300.00	3498.00	3707.88	3930.35	4166.17
IS Support		16500.00	17490.00	18539.40	19651.76	20830.87
Maintenance		3300.00	3498.00	3707.88	3930.35	4166.17
ANNUAL PRODUCTION COST		23100.00	24486.00	25955.16	27512.46	29163.21
(PRESENT VALUE)		21388.89	20992.80	20604.04	20222.48	19847.99
ACCUMULATED COST		131388.89	152381.69	172985.73	193208.21	213056.20
BENEFIT						
Weekly Cost Savings		93600.00	98280.00	103194.00	108353.70	113771.39
(PRESENT VALUE)		86666.67	84259.26	81918.72	79643.20	77430.90
ACCUMULATED BENEFIT		86666.67	170925.93	252844.65	332487.85	409918.75
GAIN OR (LOSS)		(44722.22)	18544.24	79858.92	139279.64	196862.55
PROFITABILITY	1.79					

The profitability index=1.79, which is more than 1.00, shows that it is a good investment, and it brings a return on investment. Hence, the CRM system is practical and beneficial.

Part B: Work Breakdown Structure (WBS) and Gantt Chart

4.0 Work Breakdown Structure (WBS)

Project Name: CRM System for MyClient+

1. Requirement Gathering
    - 1.1 Define project objectives
    - 1.2 Define problem statement
    - 1.3 Conduct feasibility study
    - 1.4 Conduct interview with stakeholder and client
    - 1.5 Define system requirements (functional & non-functional requirements)
    - 1.6 Budget estimation and planning
    - 1.7 Prepare finalized requirements report

2. Design
    - 2.1 Design system architecture (CRM platform used)
    - 2.2 Design user interface (UI) and user experience (UX)
    - 2.3 Prepare system models and documentation (context diagram, DFD)
    - 2.4 Design the security framework
    - 2.5 Review and finalize design with stakeholder

3. Development
    - 3.1 Setup development environment (version control)
    - 3.2 Frontend development
    - 3.3 Develop portal for client feedback
    - 3.4 Backend development
    - 3.5 Create and build database
    - 3.6 Integrate frontend with backend API
    - 3.7 Sync with existing system

4. Testing

   4.1 Perform unit testing

   4.2 Perform system testing

   4.3 Perform user acceptance testing (UAT)

   4.4 Ensure data security and access control

   4.5 Debug and optimize the code

5. Deployment

   5.1 Migrate data from existing system to the new system

   5.2 Conduct training within the team

   5.3 Launch the system

   5.4 Monitor for post-deployment issues and provide immediate support

   5.5 Conduct post-mortem meeting with stakeholder

4.0 Gantt Chart

PHASE	TASK	ACTIVITY	DEPENDENCIES	START DATE	DURATION (days)	END DATE	START POSITION
1	1	Define project objectives	-	23/4/2025	1	23/4/2025	0
	2	Define problem statement	-	23/4/2025	1	23/4/2025	0
	3	Conduct feasbility study	-	23/4/2025	1	23/4/2025	0
	4	Conduct interview with stakeholders and client	Task 1, 2 and 3	24/4/2025	2	25/4/2025	2
	5	Define system requirements (functional & non-functional requirements)	Task 4	26/4/2025	2	27/4/2025	4
	6	Budget estimation and planning	Task 5	28/4/2025	2	29/4/2025	6
	7	Prepare finalized requirements report	Task 6	30/4/2025	3	2/5/2025	9
2	8	Design system architecture (CRM platform used)	Task 7	3/5/2025	4	6/5/2025	13
	9	Design user interface (UI) and user experience (UX)	Task 7	3/5/2025	7	9/5/2025	16
	10	Prepare system models and documentation (context diagram, Data Flow Diagram)	Task 7	3/5/2025	5	7/5/2025	14
	11	Design the security framework	Task 8,9 and 10	10/5/2025	3	12/5/2025	19
	12	Review and finalize design with stakeholder	Task 11	13/5/2025	2	14/5/2025	21
3	13	Setup development environment (version control)	Task 12	15/5/2025	5	19/5/2025	26
	14	Frontend development	Task 13	20/5/2025	6	25/5/2025	32
	15	Develop portal for client feedback	Task 13	20/5/2025	3	22/5/2025	29
	16	Backend development	Task 14 and 15	27/5/2025	6	1/6/2025	39
	17	Create and build database	Task 14 and 15	30/5/2025	3	1/6/2025	39
	18	Integrate frontend with backend API	Task 16 and 17	2/6/2025	3	4/6/2025	42
	19	Sync with existing system	Task 18	5/6/2025	3	7/6/2025	45
4	20	Perform unit testing	Task 19	9/6/2025	4	12/6/2025	50
	21	Perform system testing	Task 19	11/6/2025	4	14/6/2025	52
	22	Perform user acceptance testing (UAT)	Task 20 and 21	15/6/2025	5	19/6/2025	57
	23	Ensure data security and access control	Task 22	20/6/2025	4	23/6/2025	61
	24	Debug and optimize the code	Task 22	20/6/2025	4	23/6/2025	61
5	25	Migrate data from existing system to the new system	Task 23 and 24	24/6/2025	2	25/6/2025	63
	26	Conduct training within the team	Task 25	26/6/2025	4	29/6/2025	67
	27	Launch the system	Task 26	30/6/2025	1	30/6/2025	68
	28	Monitor for post-deployment issues and provide immediate support	Task 26	1/7/2025	10	10/7/2025	78
	29	Conduct post-mortem meeting with stakeholder	Task 27	11/7/2025	4	14/7/2025	82