



KOLEJ PROFESIONAL MARA INDERA MAHKOTA
DIPLOMA IN COMPUTER SCIENCE

COURSE NAME	:	PROJECT DESIGN IMPLEMENTATION AND EVALUATION
COURSE CODE	:	CSC2764
ACADEMIC SESSION	:	SESSION 1/2025
TYPE OF ASSESSMENT	:	PROJECT REPORT
DURATION	:	23 rd APRIL 2025 –9 th MAY 2025

CLO1: Prepare a comprehensive report that relate with the system development project (C3, PLO2)

INSTRUCTION TO CANDIDATES:

1. Late submissions after given due date will not be accepted.
2. Report should be written in using:

Font Type: Arial

Size: 11 pts

Line Spacing: 1.5

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Section / Question No.	Marks
1	
2	
3	
4	
5	
6	
Total	/ 50

SCENARIO:

In today's world, the management of the education sector from early childhood to higher education is crucial for ensuring a smooth, consistent, and high-quality learning journey for every individual. Effective management ensures that each stage—preschool, primary, secondary, and tertiary—is well-organized, well-resourced, and aligned with national educational goals. At the early childhood level, good management helps provide a strong foundation in cognitive, emotional, and social development. In short, strong and continuous management throughout the entire education system is key to building a knowledgeable, skilled, and forward-thinking society.

While organization management is essential for ensuring that a company or institution runs smoothly and efficiently. It involves planning, organizing, leading, and controlling resources—whether people, finances, or time—to achieve specific goals. Effective management helps align the efforts of different departments and individuals towards a common purpose, improving productivity and performance. It also facilitates clear communication, good decision-making, and problem-solving within the organization. In short, organization management provides structure, direction, and leadership, which are all critical for long-term success and sustainability.

You are the new Project Manager at A-Solution Sdn Bhd, a medium-sized company that specialises in healthcare IT solutions such as software development, system integration, and IT consultancy. Over time, the organisation has established a reputation for providing cutting-edge solutions suited to the demands of healthcare professionals. As part of your work, you have been tasked with leading a project to develop any of the organization's computerised systems. Your system must address a specific problem or difficulty encountered by the organisation and offer new ways to improve operations.

To initiate the project, you are required to consider several factors that affect your project selection. Conduct a feasibility study that examines the technical, economic, and operational viability of your proposed system. Based on your findings, you will finalize the project scope and proceed with detailed planning as below. You are required to prepare a report for the following tasks based on the content stated at Attachment A.

TASKS

1. FACTORS THAT AFFECT THE PROJECT SELECTION

- Describe the factors that can affect the project selection.

2. FEASIBILITY STUDY FOR PROJECTS

- Conduct feasibility assessment including economics, technical and operational aspects that contributes to the process of project selection by providing the outcome and related discussion.

3. PROJECT PLAN

- Prepare a Project Plan for the agreed project.

4. QUALITY ASSURANCE PLAN

- Prepare a Quality Assurance Plan for the agreed project.

5. REQUIREMENT GATHERING

- Conduct fact-finding to gain project requirement by using appropriate techniques by presenting evidence(s) and findings.

6. PROJECT SPECIFICATION (SRS)

- Produce system requirements specification (SRS) for the selected system.

ATTACHMENT A

REPORT CONTENT

1. FACTORS THAT AFFECT THE PROJECT SELECTION

- a. Description of the 2 potential projects to be developed.
- b. Assessment the 2 shortlisted projects based on the 3 factors of project selection.

2. FEASIBILITY STUDY FOR PROJECTS

- a. Economic Feasibility for 1 of the shortlisted projects:

- Cost benefit analysis
 - Benefits
 - Tangible Benefits
 - Intangible Benefits
 - Cost
 - One Time Cost
 - Recurring Cost
- NPV

Calculate NPV for the 2 of the shortlisted projects by comparing the results.

- b. Technical Feasibility For 1 Of the Shortlisted Projects:

- Technical specifications for hardware and software used.
- Technical evaluation on hardware and software used.

- c. Operational Feasibility For 1 Of the Shortlisted Projects:

- Operational study by listing the problems of manual/existing system and expected solutions.
- Evaluation of how each of the expected solutions can solve the problems faced.

3. PROJECT PLAN

- a. Purpose of project plan.
- b. Project overview.
- c. Project goals and objectives.
- d. Gantt Chart with Appropriate Stages and Activities, Date, Duration, Predecessors, And Resource.
- e. Project resources:
 - Hardware and Software
 - Budget
- f. Project Organizational Structure
- g. Communication method
 - Communication Among Development Team
 - Communication Among Clients and Among Development Team.

4. QUALITY ASSURANCE PLAN

- a. Quality Assurance Plan Objective.
- b. Selected Quality Policy
- c. Exception Handling
- d. Change Control Procedure Steps
- e. Quality Control Activities

5. REQUIREMENT GATHERING

- a. Two Fact- Finding Techniques Findings.
- b. Fact-Findings Evidence (Put these at Attachment section)

6. PROJECT SPECIFICATION (SRS)

- a. Purpose of Software Requirements Specifications (SRS)
- b. Intended Audience for The Agreed Project.
- c. Project Scope:
 - a. Input
 - b. Output
 - c. Data involved
- d. Restrictions In the Client's Premises That Can Be Applied in The Project.
- e. Functional Requirements for The Project.
- f. Non-Functional Requirements for The Project.

MARKING RUBRIC

Tasks	Poor	weak	Satisfactory	Good	Excellent	Weightage	Marks Gained
	1	2	3	4	5		
Describe the factors that can affect the project selection	<p>Only one project is listed, or both projects are too vague.</p> <p>One or two factors are mentioned with little explanation or unclear relevance to the projects.</p>	<p>Two projects are mentioned but may lack clarity or relevance.</p> <p>Three factors are listed but the links to the projects are somewhat general or vague.</p>	<p>Two projects are identified and reasonably relevant.</p> <p>Three factors are explained with generally clear connections to the projects.</p>	<p>Two potential projects are clearly and relevantly identified.</p> <p>Three factors are well explained, highly relevant, and clearly linked to the shortlisted projects.</p>		0.5	

Conduct feasibility assessment that contributes to the process of project selection by providing the outcome and related discussion.	Cost-benefit analysis is missing or severely lacking . Benefits and costs are unclear or not included . No attempt at NPV calculation or comparison.	Incomplete or vague explanation of benefits and/or costs. NPV is calculated incorrectly or only partially attempted. Little to no comparison between projects.	Basic cost-benefit analysis provided. Some benefits or costs may lack detail . NPV is calculated for at least one project or both with noticeable errors. Comparison is weak or unclear .	Complete cost-benefit analysis with clear explanation of most benefits and costs . NPV is calculated for both projects with minor errors or limited comparison.	Thorough and well-structured cost-benefit analysis. All tangible and intangible benefits are clearly explained and justified. One-time and recurring costs are fully identified and accurate. NPV is correctly calculated for two shortlisted projects with a clear, insightful comparison .	0.5	
	Technical specifications are missing or very minimal . No meaningful evaluation of hardware or software is provided.	Basic technical specifications provided but may be incomplete or unclear. Evaluation is general with limited analysis.	Technical specifications for hardware and software are mostly complete . Evaluation is clear but may lack some depth or detail in justification.	Complete and detailed list of both hardware and software specifications. Thorough technical evaluation provided with clear, logical justification and relevance to the project.		0.5	

	<p>Few or no problems are clearly identified.</p> <p>Proposed solutions are vague, unrelated, or missing.</p> <p>No meaningful evaluation of the effectiveness of the solutions.</p>	<p>Some problems are identified, but important issues may be missing.</p> <p>Solutions are basic or only partially address the problems.</p> <p>Evaluation is brief or lacks clarity.</p>	<p>Most key problems are identified.</p> <p>Solutions are appropriate and mostly relevant to the problems.</p> <p>Evaluation provides a reasonable explanation of how solutions will help, though some points may lack depth.</p>	<p>Clearly identifies all major problems in the existing/manual system.</p> <p>Proposed solutions are highly relevant, detailed, and directly address each problem.</p> <p>Evaluation shows a strong understanding of how solutions will resolve the issues.</p>		0.5	
Prepare a Project Plan for the agreed project	<p>Vague or brief overview; lacks clarity and essential information.</p>	<p>Overview is somewhat clear but lacks depth or misses key aspects of the project.</p>	<p>Overview is mostly clear and informative, with only minor areas that lack detail.</p>	<p>Project overview is clear, well-structured, and provides a full understanding of the project purpose and scope.</p>		0.5	
	<p>Few goals or objectives identified; lacks understanding of project purpose.</p>	<p>Some goals and objectives identified; may contain vague or incomplete statements.</p>	<p>Most goals and objectives are identified correctly with minor omissions.</p>	<p>All goals and objectives are clearly and correctly identified.</p>		0.5	

	Gantt chart is missing , highly disorganized, or lacks most required components. No clear project stages or logical sequence. Minimal or no use of dates, durations, predecessors, or resources.	Gantt chart is incomplete or lacks key details. Many components such as predecessors, durations, or resources are missing or incorrect. Project stages are unclear or not logically organized.	Gantt chart includes basic project stages and activities, but some key components (e.g., durations or resources) are missing or unclear. Project flow shows some logical sequence, but improvements are needed.	Gantt chart includes most stages and activities . Dates, durations, predecessors, and resources are provided with minor errors or inconsistencies. Overall project flow is mostly clear and logical .	Gantt chart is comprehensive and highly organized. All project stages and activities are clearly defined. Dates, durations, predecessors, and resources are accurately assigned and consistently used. Project flow is logical and realistic .	1	
	Few items mentioned, unclear or missing justification.	List is present but lacks details or contains inaccuracies .	Most items listed correctly with some explanation, minor omissions.	Full and correct list of hardware, software, and budget provided with logical justification.		0.5	
	Structure is vague or only partially complete.	Structure provided but lacks proper explanation or role clarity.	Structure is mostly correct and includes some justification.	Well-drawn organizational structure with logical roles and clear, relevant justification.		0.5	

	Few methods mentioned; vague or not appropriate to context.	Some communication methods listed, but lack depth or proper context.	Most methods are identified and suitable, with minor explanation gaps.	All communication methods are relevant, appropriate, and clearly explained for both client and team.		0.5	
Prepare a Quality Assurance Plan for the agreed project	Policy is unclear or not meaningfully related to the project.	Policy is present but vague or only loosely related to the project.	Quality policy is appropriate and mostly relevant , with minor issues in clarity or alignment.	A clear , concise, and well-related quality policy that aligns directly with the nature and goals of the project.		0.5	
	Few risks mentioned with vague or weak mitigation.	Some risks are identified, but levels may be unclear and mitigation strategies may lack detail.	Risks and levels are mostly accurate , with generally appropriate mitigation steps.	Multiple relevant risks identified with correct risk levels and practical, clear mitigation strategies.		0.5	
	Few correct steps identified; examples unclear or missing.	Some steps explained but not fully correct or detailed; examples may be vague or generic.	Most steps are correct; examples are provided but may lack detail.	Change control process is clearly and correctly explained, demonstrating strong understanding.		0.5	

	Few activities mentioned; missing many phases or activities not well explained.	Quality control is addressed for some phases but lacks detail or completeness .	Most phases include appropriate quality activities with some detail.	Quality control activities are correctly listed for each development phase and are clearly relevant to event identification.		0.5	
Conduct fact-finding to gain project requirement by using appropriate techniques by presenting evidence(s) and findings.	Techniques not properly explained or conducted. No valid evidence or findings results presented.	Only one technique conducted properly or explanations are weak. Evidence and findings are minimal, not well presented, or vague .	Two techniques mentioned but explanations are brief or lack clarity . Evidence and findings are present but somewhat general, unclear, or incomplete.	Two techniques identified with mostly clear explanation. Good evidence is provided for both techniques. Findings are mostly complete but may lack depth in one area.	Two relevant fact-finding techniques are clearly identified and explained . Strong, complete evidence (e.g., responses, snapshots) is provided. Findings are comprehensive (e.g., full interview outline, observation report, questionnaire analysis).	1	
Produce system requirements specification (SRS) for the agreed project	Limited explanation; lacks connection to the project.	Purpose is mentioned but vague or only loosely related to the project.	Purpose is well explained with a minor lack of clarity or relation to the project .	Purpose of SRS is clearly explained and strongly connected to the agreed project.		0.5	

Very few or irrelevant audience types listed.	Some audience types listed, but may be incomplete or general.	Audience is listed correctly , with only minor omissions .	Intended audience is clearly listed, complete, and relevant to the project.		0.5	
Scope is unclear , incorrect, or missing.	One or two scope elements mentioned; poorly explained .	Basic scope covered but lacks depth or clarity .	Scope items are mostly clear ; minor details may be missing.	All scope items (input, output, data involved) are clearly described with relevant details and directly related to the project.	0.5	
No restrictions listed or not relevant.	Very few or unclear restrictions.	Some restrictions are mentioned, but may lack clarity or depth.	Most restrictions are identified correctly, with good explanation.		0.5	
Functional requirements are missing or incorrect .	Only a few are listed and poorly described.	Some functional requirements are mentioned, but may be general or unclear.	Most functional requirements are correct with minor omissions.	All functional requirements are correctly listed and clearly described.	0.5	
Non-Functional requirements are missing or incorrect .	Only a few are listed and poorly described.	Some non-functional requirements are mentioned, but may be general or unclear.	Most non-functional requirements are correct with minor omissions.	All non-functional requirements are correctly listed and clearly described.	0.5	
Overall Marks (50 Marks)						

Marks in 30%

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1. FACTORS THAT AFFECT THE PROJECT SELECTION

i. Potential project

a. Human Resources Management System (HRMS) for KOOP-KPMIM

The HRMS for KOOP-KPMIM digitizes HR operations, replacing manual reporting with an efficient online platform. The users that will use the system are the employees, managers and HR. Employees can view and update personal information, access pay slips, submit time-off requests and submit complaints. Managers approve time-off requests, set team goals and request new hires. HR staff process payroll, update policies, oversee recruitment, register the employee and handle complaints. System administrators configure settings and manage permissions. This system will significantly reduce administrative workload, minimize errors, improve data accuracy, enhance interdepartmental communication, and provide transparent access to HR information thus creating a more efficient and responsive organization.

b. Financial Management System (FMS) for KOOP-KPMIM

The FMS for KOOP-KPMIM will transform financial operations by digitizing accounting processes and financial reporting. The system serves two user types, staff and administrators. Staff can track the total sales, total spending, data analysis, balance sheet and recurring spending of the business. Meanwhile system administrators configure security settings and maintain system integrity. This system will smooth financial workflows, enhance financial transparency and reduce processing errors ultimately strengthening the KOOP-KPMIM's financial governance and operational efficiency.

ii. Project Selection Factor

Selection Factors	Human Resources Management System (HRMS) for KOOP-KPMIM	Financial Management System (FMS) for KOOP-KPMIM
Alignment with Organizational Goals Analysis	<p>HRMS support the objective of KOOP-KPMIM to become transparent in management practices and have a professional work culture by smoothing the HR workflow thus making the staff have easier access to their wage details and leave applications thus making the working environment more satisfying. It also align with the motto of KOOP-KPMIM to be progressive and professional. This practice aligns with the KOOP-KPMIM goals of establishment. HRMS meet the requirements of this analysis since there is more than one KOOP-KPMIM goals that is achieved by HRMS.</p>	<p>FMS supports the objective of KOOP-KPMIM in becoming trustworthiness since every transaction will become transparent since it will automatically reflect in the system. However, even though both of the system aligned with the organizational goals, HRMS seems to meet more of the KOOP-KPMIM goals rather than FMS that only meet one of the goals in other word, met this analysis but not as good as HRMS.</p>
Production/Technical Analysis	<p>HRMS project is not so complicated in terms of the system flow in return make it feasible to be done.</p>	<p>FMS system is related to financial field so times take to finish the system might be longer than HRMS which might take around 3 months since the developer need to know the workflow of an accountant first before</p>

	<p>It also does not require specialized hardware and can be done by using open-sourced software.</p> <p>Implementation of the system will cost much lower since it does not need special hardware or software estimating the cost less than RM20,000. Since the system is not very complicated, the maintenance of it should be around 10% of the initial investment per year.</p> <p>Estimating the timeline of the project, It can be done around a month with low risk if the system not producing expected result since the investment size relatively low for such revolutionize system.</p> <p>No special training staff required to operate the system, staff can earn to use the system quite easily since there's supposed to be no special features included which makes the system user-friendly even to those with no HR expertise background.</p>	<p>developing the system. The system may not need additional hardware but definitely need additional software due to system complexity.</p> <p>The potential risk might be higher than HRMS because such complicated system will also resulting in higher initial investment estimating of around RM50,000 thus making the risk of the project relatively high.</p> <p>Specially trained staff in the world of finance like accounting background is needed to use the system since it field-based system. FMS is also web-based system which makes it accessible to almost every devices as long as they are able to connect to the internet.</p> <p>FMS system does not meet the requirements of this analysis</p>
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	<p>HRMS is web-based system so almost every device supports it as long as the devices can access to the internet which almost every device does nowadays.</p> <p>HRMS system meet the requirement of this analysis splendidly.</p>	
Financial Analysis	<p>HRMS have a total estimated initial investment of less than RM20,000. Since the system is productivity system, it does not generate any profit to the organization. Nevertheless, HRMS provide a lot of intangible benefit to the organization.</p> <p>With the use of HRMS, KOOP-KPMIM can reduce at least 1 HR personnel since the work of HR can be lowered with HRMS which saves the organization in terms of payroll.</p> <p>HRMS also can make the KOOP-KPMIM save in material cost like papers, pen, filing and also storage cost since everything will be digitized.</p>	<p>FMS have a total estimated initial investment of around RM50,000. The system also productivity system which means there will be no profit generate from the system.</p> <p>The benefit of the system is the financial report can be done faster. The KOOP-KPMIM can also reduce accounting personnel since the system can make the accounting process much faster and efficient.</p> <p>The system have higher initial investment so it is advised for KOOP-KPMIM to take out the financing option either from investors or from the banks.</p>

	<p>The initial investment is quite low for such system and KOOP-KPMIM can fund it with just their own cash reserve or known as self-funded since this system does not require the KOOP-KPMIM to take out a financing option like sukuk.</p> <p>Since the targeted at least one HR personnel can be reduced to, the break-even point of the system can be as low as less than a year and low investment size resulting in low financial risk and burden to the KOOP-KPMIM.</p> <p>There is also no financing option so the organization financial health can be protected even though the system went south. Maintaining the system also does not require huge amount of money so in the long run still HRMS have significantly low risk.</p>	<p>The break-even point of the system also can be less than a year since the most consuming cost is payroll of employee. By reducing the number of employee, it'll significantly drop the overhead cost to the KOOP-KPMIM.</p> <p>The financial risk is low but higher than the HRMS since the initial investment is higher but it still will not be a financial threat to the organization if it went south.</p> <p>The cost of maintaining this project can be significantly higher since it is one of the most complicated system to be developed. FMS barely pass this analysis.</p>
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	HRMS passed this analysis splendidly by showing the financial capabilities to have such low risk but relatively high gains to the KOOP-KPMIM.	
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Based on the 3 selection factors analysis, it is concluded that HRMS is more appealing since it met all of the 3 selection factors rather than FMS which only met 1 of the factors.

2. FEASIBILITY STUDY FOR PROJECT

The feasibility study will be conducted on the HRMS for KOOP-KPMIM due to its broader and immediate effect right after the usage of the system.

i. Cost Benefit Analysis

❖ Tangible Benefits

TANGIBLE BENEFITS WORKSHEET	
Human Resources Management System Project	
Year 1 through 3	
A. Cost of material reduction	RM3,600.00
B. Storage cost reduction	RM1,800.00
C. HR manpower cost reduction	RM64,800.00
D. Other _____	RM0.00
TOTAL tangible benefits	RM70,200.00

Figure 1: Tangible Benefits Worksheet

Cost of material reduction (RM3,600.00)

This represents the savings from reduced papers and office supplies needed for HR processes. KOOP-KPMIM currently spends approximately RM100.00 monthly on papers, pens, staplers, folders, printing ink and other stationery items for HR documentation. With the HRMS implementation, most forms and documents will be digitized and will eliminate the need for physical materials. Over 3 years, this accumulates to RM3,600.00 ($\text{RM}100.00 \times 36 \text{ months}$).

Storage cost reduction (RM1,800.00)

This reflects the savings from reduced physical storage needs. Currently, KOOP-KPMIM spends around RM50.00 monthly on storage solutions including filing cabinets, shelving and dedicated space that could otherwise be used for business operations. The HRMS will digitize employee records, payroll information, attendance records and other HR documents, eliminating these storage costs. Over 3 years, this accumulates to RM1,800.00 ($\text{RM}50.00 \times 36 \text{ months}$).

HR manpower cost reduction (RM64,800.00)

This substantial saving comes from reducing HR personnel requirements. The current manual processes require dedicated HR staff handling paperwork, filing and manual calculations. By implementing HRMS, KOOP-KPMIM can reduce staff by one HR personnel position that currently costs RM1,800 monthly. Over 3 years, this accumulates to RM64,800.00 (RM1,800.00 × 36 months).

The combined financial benefits over a 3-year period represent significant savings total of RM70,200.00 that can be redirected to improve member services or increase returns to cooperative members.

❖ Intangible Benefit

Higher HR working efficiency

The HRMS will ease the HR processes by automating routine tasks like leave management, payroll processing and employee record maintenance. This allows the remaining HR staff to focus on strategic initiatives rather than administrative work. For KOOP-KPMIM, this means faster response times to HR-related inquiries and more efficient management of human resources.

Higher employee satisfaction

By providing self-service capabilities, the HRMS empowers employees and reduces frustration from delays in getting information or approvals. For KOOP-KPMIM staff working across various service points, this means less time spent on administrative matters and more focus on serving KPMIM residents. Employees will appreciate the transparency and accessibility of information, leading to higher job satisfaction.

Increase in working productivity

The HRMS will reduce time spent on manual HR tasks across departments. Managers will spend less time processing paperwork and more time leading their teams whilst employees will have smooth processes for HR interactions. This productivity increase will be particularly valuable in KOOP-KPMIM's service-oriented operations thus allowing staff to dedicate more time to customer service in the convenience store, cafeteria and other service areas.

Increase KOOP-KPMIM competitiveness

Modern HR systems signal organizational sophistication and forward thinking, enhancing KOOP-KPMIM's reputation as a progressive cooperative. This improved image helps attract better talent and positions the cooperative favorably against competitors. For a cooperative striving to be "excellent, committed, and competitive," the HRMS represents an important step toward achieving its vision of excellence in serving KPMIM residents.

Improved decision-making quality

With access to real-time HR data and analytics, KOOP-KPMIM's leadership can make better-informed decisions about staff, scheduling, and resource allocation. This is particularly valuable for managing the cooperative's diverse service operations that have different staff needs and peak periods.

Increase in information efficiency

The HRMS centralizes information storage and retrieval, eliminating redundant data entry and reducing information silos between departments. For KOOP-KPMIM, this means consistent information across all service units and faster access to critical data when needed, supporting the mission of providing "efficient and effective services."

Strengthened working culture

A standardized HRMS helps reinforce organizational values and practice consistently. This supports KOOP-KPMIM's objective of "professional work culture" and reinforces the motto of being "Trustworthy, Progressive, and Professional" through transparent and standardized HR processes across all service units.

Reduce human-error

Manual HR processes are prone to errors in data entry, calculations and record keeping. The HRMS's automated processes will minimize these errors while ensuring accuracy in payroll, benefits administration and compliance reporting. For KOOP-KPMIM, this reduces financial risks associated with payment errors and improves overall operational reliability across all business units.

❖ **One time cost**

ONE TIME COSTS WORKSHEET		
Human Resources Management System Project		
Year 0		
A. Development Cost	RM15,000.00	
B. Software cost	RM1,000.00	
C. Hardware cost	RM2,000.00	
D. Domain name cost (1 year)	RM540.00	
E. Documentation cost	RM50.00	
F. Hosting cost (1 year)	RM660.00	
G. Other	RM0.00	
TOTAL	one-time cost	RM19,250.00

Figure 2: One Time Costs Worksheet

Development Cost (RM15,000.00)

This represents the labor cost for developing the system. The development will take place from May 10 to June 20 and the amount covers all manpower expenses required to complete the project development.

Software Cost (RM1,000.00)

This represents the cost of purchasing the license to obtain the Windows 11 Home 64-Bit operating system for RM1,000.00. Since Windows is not an open-source operating system, purchasing the license is a must so that the HRMS can work perfectly on the hardware.

Hardware Cost (RM2,000.00)

Hardware cost is the purchase of a laptop for the client to support the system costing around RM2,000.00.

Domain Name Cost (RM540.00)

This covers a one-year subscription for a custom domain name that will allow users to access the system through a web browser using a dedicated URL.

Hosting Cost (RM660.00)

This covers a one-year subscription for web hosting services where the HRMS will be deployed and made accessible to the users. The hosting service provides the server infrastructure needed to run the system online.

Documentation Cost (RM50.00)

This covers the cost of documenting the project for one-time printing around RM50.00.

By combining all of expenses, the total of one-time cost is RM19,250.00. Since every expense is required for the project development, RM19,250.00 will be the initial investment for the HRMS project.

❖ **Recurring cost**

RECURRING COST WORKSHEET		
Human Resources Management System Project		Year 1 through 3
A. Hosting cost	RM1,320.00	
B. Domain host cost	RM1,080.00	
C. Data backup cost	RM239.97	
D. Maintenance cost	RM9,900.00	
E. Other	RM0.00	
TOTAL recurring cost		RM12,539.97

Figure 3: Recurring Cost Worksheet

Hosting Cost (RM1,320.00)

This covers the server space where your HRMS will be housed online. The cost extends the hosting service for year 2-3 as year 1 is already covered in the one-time costs. This ensures continuous system availability and performance throughout the project lifecycle. The cost of hosting is RM660.00/year ($RM660.00 \times 2 \text{ years} = RM1,320.00$).

Domain Host Cost (RM1,080.00)

This maintains ownership of the website address for the HRMS. Like the hosting cost, it covers year 2-3 since year 1 is included in the one-time costs. The domain is essential for users to access the system via a simpler web address. The cost of domain name is RM540.00/year ($RM540.00 \times 2 \text{ years} = RM1,080.00$).

Data Backup Cost (RM239.97)

This is a subscription to dedicated backup storage for 3 years at RM79.99 annually ($RM79.99 \times 3 \text{ years} = RM239.97$). It provides critical security protection against data loss and enables recovery capabilities in case of system failures or data corruption. This cost is spread across the full 3-year period for continuous data protection.

Maintenance Cost (RM9,900.00)

This covers a technical support service subscription for 3 years at RM3,300.00 annually (RM3,300.00 x 3 years = RM9,900.00). The maintenance service is provided to KOOP-KPMIM and covers assistance with minor system changes and troubleshooting as needed. This ensures the system can be adjusted and optimized over time.

By combining all of the recurring expenses, the total of expenses is RM12,539.97 for 3 years of maintaining the system. All of the expenses are necessary to keep the system running and functioning as intended.

ii. NPV

PROJECT HUMAN RESOURCES MANAGEMENT SYSTEM FOR KOOP-KPMIM

Year 1-3

Total Tangible Benefits - Total Recurring Costs

RM70,200 - RM12,539.97 = **RM57,660.03**

Initial Investment = RM19,250

Discount rate = 5% also known as 0.05

Cashflow over 3 years

YEAR	CASH FLOW (CF) Expected Benefits - Expenses	DISCOUNT FACTOR $1/(1+r)^t$	PRESENT VALUE / DISCOUNTED VALUE CF X DF
0	-RM19,250.00	1.00	-RM19,250.00
1	RM26,660.03	0.95	RM25,390.50
2	RM20,000.00	0.91	RM18,140.59
3	RM11,000.00	0.86	RM9,502.21
NET PROFIT	RM38,410.03	NPV	RM33,783.31

INDICATOR FOR PROJECT HUMAN RESOURCES MANAGEMENT SYSTEM FOR KOOP-KPMIM

The NPV is RM33,783.31, which means the future profit of RM38,410.03 is worth RM33,783.31 today.

Since the NPV is positive, the project is worth investing in

PROJECT FINANCIAL MANAGEMENT SYSTEM FOR KOOP-KPMIM

Year 1-3

Total Tangible Benefits - Total Recurring Costs

RM109,800 - RM35,600 = **RM74200.00**

Initial Investment = RM50,000

Discount rate = 5% also known as 0.05

Cashflow over 3 years

YEAR	CASH FLOW (CF) Expected Benefits - Expenses	DISCOUNT FACTOR $1/(1+r)^t$	PRESENT VALUE / DISCOUNTED VALUE CF X DF
0	-RM50,000.00	1.00	-RM50,000.00
1	RM21,000.00	0.95	RM20,000.00
2	RM29,200.00	0.91	RM26,485.26
3	RM24,000.00	0.86	RM20,732.10
NET PROFIT	RM24,200.00	NPV	RM17,217.36

INDICATOR FOR PROJECT FINANCIAL MANAGEMENT SYSTEM FOR KOOP-KPMIM

The NPV is RM17,217.36, which means the future profit of RM24,200 is worth RM17,217.36 today.

Since the NPV is positive, the project is worth investing in

SELECTION DECISION

Based on the calculated NPV, Project Human Resources Management System For KOOP-KPMIM will be selected because

it has higher NPV as compared to Project Financial Management System For KOOP-KPMIM, which has a lower NPV.

iii. Technical Feasibility

Required Hardware for the project:

No	Hardware Name	Specification
1	Processor	At least dual core processor with 1GHz clock speed
2	Memory	At least 4GB
3	Storage	At least 512GB SSD
5	Keyboard	-
6	Mouse	-
7	Monitor	At least 60Hz refresh rate
8	Wi-Fi	At least able to connect to the internet
9	Laptop	Intel i3 power saving

Processor: The dual-core processor with 1GHz clock speed meets the minimum requirements for today's general specification in order to be able to surf the internet and use the computer program inside the device without any crashes.

Memory: 4GB RAM is sufficient for most computer programs inside the device. This memory allocation ensures smooth system operation during development and testing phases without performance bottlenecks.

Storage: 512GB provides enough space for the operating system, development tools, database files and version control repositories. This capacity is commonly used for computers with windows 11 since today's system size is quite enormous, this amount of storage considered sufficient for the project.

Keyboard: Just need it to be available, there's no specific requirement since keyboard will just be used for typing purposes.

Mouse: Same as keyboard, no specific requirement needed. Any mouse works just fine.

Monitor: Monitor with 60Hz refresh rate is the minimum of today's monitor and as for the project, the minimum use of monitor is already sufficient.

Wi-Fi: The use of Wi-Fi in developers' setup is to make sure the setup able to connect the internet.

Laptop: Laptop is for the client use in order to support the HRMS system with sufficient hardware specification.

Based on the hardware requirement given, it is concluded that developer has met the requirement since the needed specification considered much low in today's advancement of technology and almost every devices today has at least much more better hardware specification than the requirement. The conclusion is that only client will be getting new hardware which is laptop, but the developer can just use existing hardware instead.

Required Software for the project:

No	Software Name	Specification
1	Operating System	Windows 11 Home 64-Bit @ macOS 12.0 @ Ubuntu 22.04 LTS
2	Browser	-
3	Microsoft Visual	Microsoft Visual C++ 2015-2022 Redistributable (x64)
4	Python	Python 3.13.1 (64-Bit)
5	Node.js	v22.15.0 LTS
6	Visual Studio Code	-
7	Git	2.49.0
8	GitHub Desktop	-
9	Figma	-

Operating System: Suggested operating system is the latest operating system released by each company. Since the HRMS is going to be built on Windows 11 Home 64-Bit, it is advised to use the same operating system version as the developer to minimize the error occurring soon. But if that is not possible since using specific brand that does not support to use Microsoft-made operating system, it is advised to use the latest version of the operating system instead like the one suggested above.

Microsoft Visual C++ Redistributable: This component provides necessary runtime libraries for the application, making sure the compatibility with various system configurations and supporting backend processing requirements. Usually this component installed by default if using Windows 11 series. If not need to download it and find component that on par with this.

Python 3.13.1: Python is essential to run and program the system.

Node.js v22.15.0 LTS: Node.js is used in the code so this extension of software is needed in order to run the code.

Git 2.49.0 and GitHub Desktop: This software provide extra precaution to the code and improve efficiency during developing phase since it acts like cloud data backup for the code thus reducing the time on error fixing due to new code error since the developer can just retrieve the backup of the code. This also show the progress of the system.

Visual Studio Code: Visual Studio Code or VS Code is a code editor where the developer can use it to code the system. It has much extension that will soon easier the coding process for the developer thus enhances the coding progress.

Figma: Figma is for user interface (UI) and user experience (UX) designing before developing the system.

Based on the software requirement, almost all of the needed software are open-sources except for Windows 11 Home 64-Bit and macOS. The alternative of it is also given but usually Microsoft offers free upgrade to Windows 11 for existing windows 10 user so no need to spend money on software to support the project.

iv. Operational Feasibility

No	Problems of Manual System	Expected Solutions
1	Time-consuming manual data entry of employee information leading to duplication and errors	Centralized digital employee database with validation controls and unique employee identifiers to prevent duplication
2	Paper-based record resulting in inaccurate records and payroll calculation errors	Integrated payroll processing and employee self-check information
3	Inefficient leave management through paper forms causing delays in approval and tracking	Digital leave application and approval workflow with real-time balance tracking
4	Disorganized document management leading to missing employee records and compliance issues	Secure document repository with role-based access control, document versioning and compliance tracking features

Centralized Digital Employee Database: Eliminates the data duplication by implementing a single-source of truth for all employee records. The database will enforce data validation rules that later will minimize the entry errors and implement unique identifiers to avoid record duplication like primary key on the database. This solution will directly addresses the inefficiency and error-prone nature of manual data entry by providing structured data fields.

Automated Recording: Resolves inaccurate details recording by implementing digital employee information record. This solution will addresses the error-prone manual filing especially for crucial information like payroll information of the employee because this kind of error will lead to the lawsuit from the employee.

Digital Leave Management Workflow: Transforms the inefficient paper-based leave application process into a proper digital workflow with predefined approval paths. Employees gain transparency into their leave balances in real-time, while managers receive the information about pending approvals. The system will maintain a complete audit trail of all leave transactions thus solving the tracking and record-keeping challenges of the manual system.

Secure Document Repository: This will address document management chaos by implementing a centralized repository with controlled access levels. The system will enforce document retention policies, generate compliance reports and provide version history for all sensitive employee documents. This eliminates the risk of lost paperwork while enhancing data security and regulatory compliance.

The execution of the HRMS system will solved the problem faced by manual intervention on HR workflow and making the working environment more flexible for both employee and HR.

3. PROJECT PLAN

i. Purpose of Project Plan

A Human Resource Management System (HRMS) For KOOP-KPMIM serves as a comprehensive digital solution that will smooth the HR operations by centralizing employee data and automating essential processes like employee registration, payroll and employee leave tracking. The system minimizes paperwork and manual tasks while providing valuable data insights for better workforce decision-making. It offers employee self-service options and ensures regulatory compliance ultimately transforming HR from an administrative function into a strategic business partner that effectively manages personnel and contributes to organizational success.

ii. Project Overview

The Human Resource Management System (HRMS) For KOOP-KPMIM project is a web-based system that will solve HR workflow challenges on managing employees. The solution will help making the all of the employees process much more easier through single-source system thus making everything transparent and enhance employee satisfaction.

HR can manage the employees payroll, update organization policies, oversee the recruitment based on the managers need, register the employee and handle the complaints from the employee.

Manager can approve or decline the employee application on leave, set team goals and request new hires from the HR.

Employee can update their own personal information, view their pay slip, submit time-off request and submit complaints to the HR.

iii. Project Goals and Objectives

Goal of the project is to develop and implement a comprehensive Human Resource Management System (HRMS) for KOOP-KPMIM that will digitize HR operations, smooth administrative processes, increase transparency and promote a professional work culture.

Objectives:

1. **Specific:** Design and implement a centralized Human Resources Management System (HRMS) to manage staff in term of application of leave, view pay slip, view company policies, view goals of company. As for HR, can register employees, set payroll of employees, update company policies, oversee recruitment and handle complaints. As for manager, set goals, approve/deny leave applications and request new hires.
2. **Measurable:** The system must at least able to handle around 50 active user accounts. With functionality of staff management, company policies management, complaint management and company goals management achieving at least 90% uptime.
3. **Achievable:** Develop the system using existing infrastructure and software as well as phase-wise delivery starting with login functionality, all within 2 months timeline.
4. **Relevant:** Enhance operational efficiency by reducing the consumption of papers, printing inks, HR personnel, ease the work of HR and manager.
5. **Time-bound:** Complete full system development, testing and deployment by 22nd June 2025 including quick system function briefing session with client.

iv. Gantt Chart

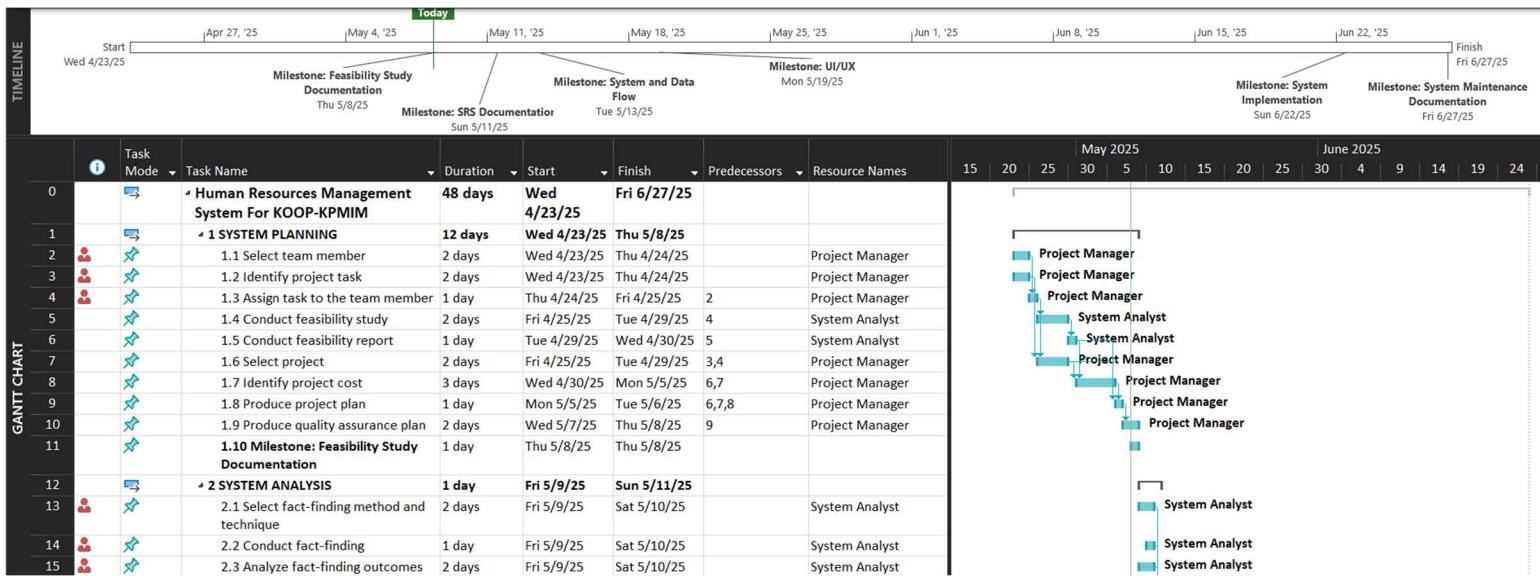


Figure 4: Gantt Chart Part 1

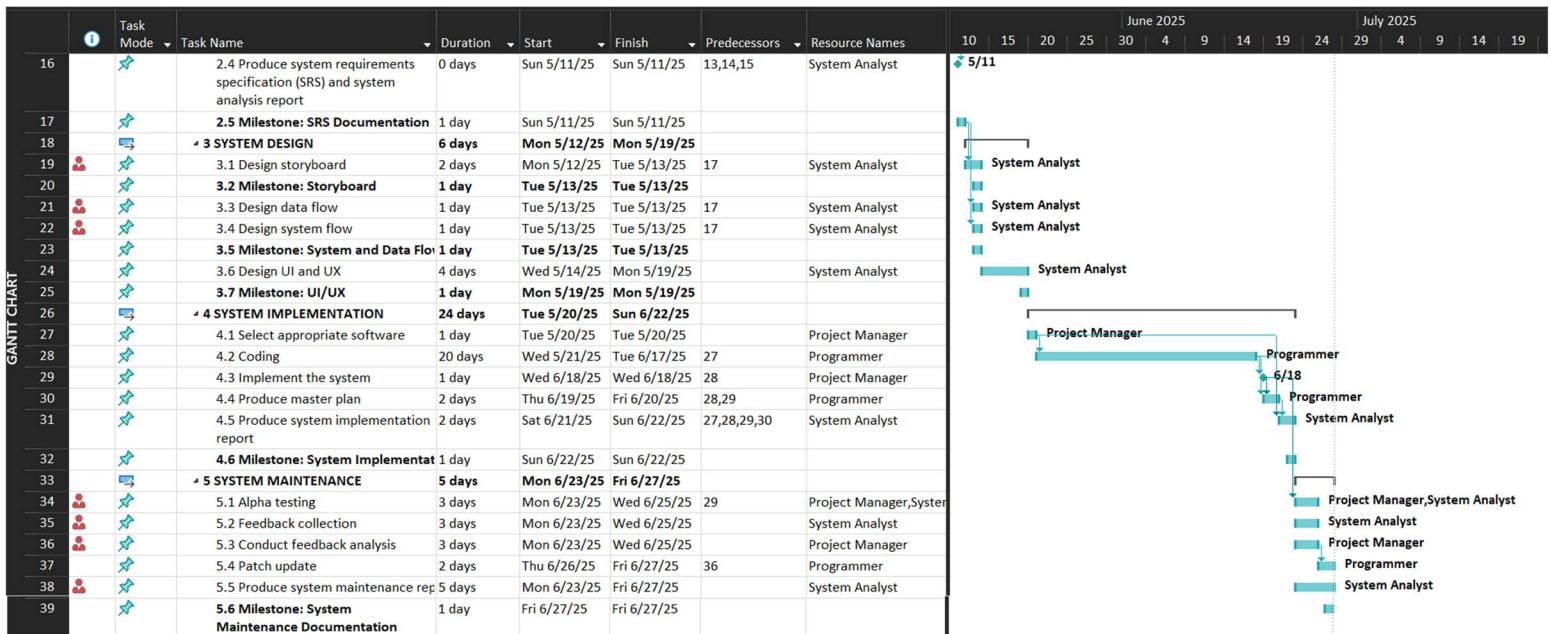


Figure 5: Gantt Chart Part 2

v. Project Resources

a. Hardware and software

Required Hardware for the project:

No	Hardware Name	Specification
1	Processor	At least dual core processor with 1GHz clock speed
2	Memory	At least 4GB
3	Storage	At least 512GB SSD
5	Keyboard	-
6	Mouse	-
7	Monitor	At least 60Hz refresh rate
8	Wi-Fi	At least able to connect to the internet
9	Laptop	Intel i3 power saving

Processor: The dual-core processor with 1GHz clock speed meets the minimum requirements for today's general specification in order to be able to surf the internet and use the computer program inside the device without any crashes.

Memory: 4GB RAM is sufficient for most computer programs inside the device. This memory allocation ensures smooth system operation during development and testing phases without performance bottlenecks.

Storage: 512GB provides enough space for the operating system, development tools, database files and version control repositories. This capacity is commonly used for computers with windows 11 since today's system size is quite enormous, this amount of storage considered sufficient for the project.

Keyboard: Just need it to be available, there's no specific requirement since keyboard will just be used for typing purposes.

Mouse: Same as keyboard, no specific requirement needed. Any mouse works just fine.

Monitor: Monitor with 60Hz refresh rate is the minimum of today's monitor and as for the project, the minimum use of monitor is already sufficient.

Laptop: Laptop is for the client use in order to support the HRMS system with sufficient hardware specification.

Based on the hardware requirement given, it is concluded that A-Solution Sdn Bhd can just use existing hardware that is the desktop to develop the project since the requirement to build one is relatively low.

Required Software for the project:

No	Software Name	Specification
1	Operating System	Windows 11 Home 64-Bit @ macOS 12.0 @ Ubuntu 22.04 LTS
2	Browser	-
3	Microsoft Visual	Microsoft Visual C++ 2015-2022 Redistributable (x64)
4	Python	Python 3.13.1 (64-Bit)
5	Node.js	v22.15.0 LTS
6	Visual Studio Code	-
7	Git	2.49.0
8	GitHub Desktop	-
9	Figma	-

Operating System: Suggested operating system is the latest operating system released by each company. Since the HRMS is going to be built on Windows 11 Home 64-Bit, it is advised to use the same operating system version as the developer to minimize the error occurring soon. But if that is not possible since using specific brand that does not support to use Microsoft-made operating system, it is advised to use the latest version of the operating system instead like the one suggested above.

Microsoft Visual C++ Redistributable: This component provides necessary runtime libraries for the application, making sure the compatibility with various system configurations and supporting backend processing requirements. Usually this component installed by default if using Windows 11 series. If not need to download it and find component that on par with this.

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Git 2.49.0 and GitHub Desktop: This software provide extra precaution to the code and improve efficiency during developing phase since it acts like cloud data backup for the code thus reducing the time on error fixing due to new code error since the developer can just retrieve the backup of the code. This also show the progress of the system.

Visual Studio Code: Visual Studio Code or VS Code is a code editor where the developer can use it to code the system. It has much extension that will soon easier the coding process for the developer thus enhances the coding progress.

Figma: Figma is for user interface (UI) and user experience (UX) designing before developing the system.

Based on the software requirement, almost all of the needed software are open-sources except for Windows 11 Home 64-Bit and macOS. Nevertheless, developers team from A-Solution Sdn Bhd have already been using these kind of software with Windows 11 Home 64-Bit attached for previous projects which mean there is no need for further upgrade for the software thus making the development cost lower.

b. Budget

❖ One time cost

ONE TIME COSTS WORKSHEET		
Human Resources Management System Project		
Year 0		
A. Development Cost		RM15,000.00
B. Software cost		RM1,000.00
C. Hardware cost		RM2,000.00
D. Domain name cost (1 year)		RM540.00
E. Documentation cost		RM50.00
F. Hosting cost (1 year)		RM660.00
G. Other		RM0.00
TOTAL	one-time cost	RM19,250.00

Figure 2: One Time Costs Worksheet

Development Cost (RM15,000.00)

This represents the labor cost for developing the system. The development will take place from May 10 to June 20 and the amount covers all manpower expenses required to complete the project development.

Software Cost (RM1000.00)

This represents the cost of purchasing the license to obtain the Windows 11 Home 64-Bit operating system for RM1,000.00. Since Windows is not an open-source operating system, purchasing the license is a must so that the HRMS can work perfectly on the hardware.

Hardware Cost (RM2,000.00)

Hardware cost is the purchase of a laptop for the client to support the system costing around RM2,000.00.

Domain Name Cost (RM540.00)

This covers a one-year subscription for a custom domain name that will allow users to access the system through a web browser using a dedicated URL.

Hosting Cost (RM660.00)

This covers a one-year subscription for web hosting services where the HRMS will be deployed and made accessible to the users. The hosting service provides the server infrastructure needed to run the system online.

Documentation Cost (RM50.00)

This covers the cost of documenting the project for one-time printing around RM50.00.

By combining all of expenses, the total of one-time cost is RM19,250.00. Since every expense is required for the project development, RM19,250.00 will be the initial investment for the HRMS project.

❖ **Recurring cost**

RECURRING COST WORKSHEET		
Human Resources Management System Project		Year 1 through 3
A. Hosting cost	RM1,320.00	
B. Domain host cost	RM1,080.00	
C. Data backup cost	RM239.97	
D. Maintenance cost	RM9,900.00	
E. Other	RM0.00	
TOTAL recurring cost		RM12,539.97

Figure 3: Recurring Cost Worksheet

Hosting Cost (RM1,320.00)

This covers the server space where your HRMS will be housed online. The cost extends the hosting service for year 2-3 as year 1 is already covered in the one-time costs. This ensures continuous system availability and performance throughout the project lifecycle. The cost of hosting is RM660.00/year ($RM660.00 \times 2 \text{ years} = RM1,320.00$).

Domain Host Cost (RM1,080.00)

This maintains ownership of the website address for the HRMS. Like the hosting cost, it covers year 2-3 since year 1 is included in the one-time costs. The domain is essential for users to access the system via a simpler web address. The cost of domain name is RM540.00/year ($RM540.00 \times 2 \text{ years} = RM1,080.00$).

Data Backup Cost (RM239.97)

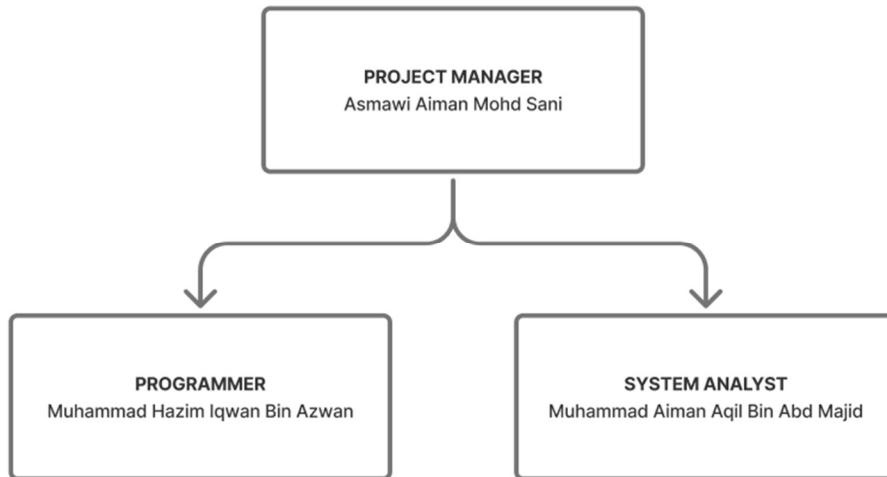
This is a subscription to dedicated backup storage for 3 years at RM79.99 annually ($RM79.99 \times 3 \text{ years} = RM239.97$). It provides critical security protection against data loss and enables recovery capabilities in case of system failures or data corruption. This cost is spread across the full 3-year period for continuous data protection.

Maintenance Cost (RM9,900.00)

This covers a technical support service subscription for 3 years at RM3,300.00 annually (RM3,300.00 x 3 years = RM9,900.00). The maintenance service is provided to KOOP-KPMIM and covers assistance with minor system changes and troubleshooting as needed. This ensures the system can be adjusted and optimized over time.

By combining all of the recurring expenses, the total of expenses is RM12,539.97 for 3 years of maintaining the system. All of the expenses are necessary to keep the system running and functioning as intended.

vi. Project Organizational Structure



Project Manager: The Project Manager is responsible for overall project planning, execution and delivery of the project. They coordinate all project activities, manage resources, create and track the project schedule, handle budgeting and ensure quality standards are met. The Project Manager communicates with stakeholders, makes key decisions, identifies and mitigates risks and ensures the project team works effectively.

Programmer: The Programmer is responsible for writing the code that brings the HRMS to life. They develop the system components based on the requirements analysis, implement the database structure, create user interfaces, and build system functionality like employee registration, payroll management, leave management, organizational policy management and employee management. The Programmer also performs testing, debugging and maintenance of the code to make sure that the system able to work properly.

System Analyst: The System Analyst is responsible for understanding the client's needs and translating them into technical requirements. They conduct fact-finding through interviews and observations, analyze the current manual HR processes at KOOP-KPMIM, identify issues and design solutions. The System Analyst documents requirements, creates system specifications, designs process flows and ensures the system will solve the problems identified in the feasibility study, such as inefficient data entry, paper-based record keeping and disorganized data management.

Based on the role, everyone on the development team given their own specific task but when there is an exceptional, even project manager can involve in the coding process since there is limited number of manpower available.

vii. Communication Method

Communication among the development teams

Types Of Communication	Frequency	Location	Purpose	Ways of Implementation
Scheduled meeting	Every Monday.	Meeting room.	Track the progress of the project and discuss current problem and way to solve it.	All of the development team will be invited via email and mandatorily to attend the meeting and present their current progress and obstacle they face (if any).
Email	Anytime (when necessarily needed).	-	Assigning special task or asking for individual help with record of task assignment.	Project manager will email specifically to one or more of the development team if there is problems that require extra care and specialized task.

WhatsApp	Anytime (when necessarily needed).	-	Discussing the problems that occur during development that does not very alarming and fast assisting when asking for help.	All of the development team will be added into a WhatsApp group and able to discuss with each other in that group.
Emergency meeting	Anytime (when necessarily needed).	Meeting room or Zoom meeting.	Pointing out if there is a major change toward the project due to unexpected events.	Project manager will email the invitation to the meeting and make the announcement on WhatsApp group about the emergency meeting.
File sharing	Anytime as needed	GitHub	To add new lines of code into the main coding.	All of the development team will be given access to do pull request on the project GitHub repository to add changes to the code.

Communication among clients and the development

Types Of Communication	Frequency	Location	Purpose	Ways of Implementation
Scheduled meeting	Every Friday	Zoom meeting	Sharing the progress with the client.	Client will be contacted either via email or WhatsApp depending on the comfortability of the client for the meeting invite.
Consultation session	Anytime when needed	Zoom meeting	Discussing about current or new features of the system.	Client can ask the system analyst for the consultation session during office hour when they are inquiry about the project or they want to either add or modify the features of the system.

HUMAN RESOURCES MANAGEMENT SYSTEM

Requirement Gathering

Prepared by:

ASMAWI AIMAN MOHD SANI

Project Manager

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1.0 OBJECTIVES

The objective of the A-Solution Sdn Bhd in producing this Quality Assurance Plan is as following:

1. To ensure the HRMS meets all specified requirements and delivers the expected functionality for KOOP-KPMIM's HR operations.
2. To establish systematic processes for identifying and eliminating defects early in the development lifecycle.
3. To maintain consistent quality standards throughout all phases of system development
4. To verify that the system is secure, reliable, and provides accurate information handling for sensitive employee data.
5. To ensure the HRMS delivers a positive user experience for all stakeholders including employees, HR staff and managers.

2.0 QUALITY POLICY

The quality policies for the A-Solution Sdn Bhd are as following:

1. To deliver high-quality software solutions that meet or exceed client requirements and expectations, specifically ensuring the HRMS for KOOP-KPMIM operates reliably with minimal errors and maximum efficiency.
2. To establish and maintain rigorous quality standards throughout the development lifecycle, ensuring that every component of the HRMS is thoroughly tested and validated before deployment.
3. To continuously improve our development processes through regular reviews and refinements, incorporating feedback from both team members and clients to enhance future project deliveries.

3.0 PRELIMINARY PLAN

The preliminary plan is divided into 3 main area as following

3.1 Exception Handling

Exception handling refers to the process of anticipating, detecting, and resolving abnormal events or errors that may occur during system development and operation. It involves identifying potential risks and implementing strategies to mitigate their impact on project success.

Potential Risks in Project Development	Level Of Risks	Response Plan/Mitigation Strategy
1. Inadequate requirement gathering leading to system features not meeting KOOP-KPMIM's HR needs	High	<ol style="list-style-type: none">1. Conduct multiple fact-finding sessions with different stakeholders (HR staff, managers, employees)2. Develop prototypes for early feedback3. Implement an agile development approach with regular client reviews
2. Schedule delays due to unexpected technical challenges during development	Medium	<ol style="list-style-type: none">1. Include buffer time in the project timeline2. Prioritize features for phased implementation3. Maintain regular code reviews to identify issues early
3. Integration challenges with existing KOOP-KPMIM environment	Medium	<ol style="list-style-type: none">1. Document all integration points early2. Create test environments that simulate integration scenarios3. Schedule additional testing time for integration points

3.2 Procedure – Change Control Procedure

Change Control Procedure refers to the formal process for identifying, evaluating, approving and implementing changes to the HRMS project scope, deliverables or requirements after the initial planning phase has been completed.

Change Control Procedure

1. Identification of potential changes

The Project Manager identifies change requests from any stakeholders, including KOOP-KPMIM management, HR staff, or employees. For example, the HR staff at KOOP-KPMIM requests adding a new functionality to the HRMS to generate customized payslip formats with additional breakdown of allowances and deductions.

2. Analysis of change request

The System Analyst evaluates the technical feasibility, impact on existing features, and resource requirements for implementing the requested change. For the customized payslip format, the System Analyst would assess the existing payroll database structure, reporting template modifications needed and additional calculation requirements to support the detailed breakdown.

3. Evaluation of change request

The Project Manager evaluates the business value, priority and potential impact on project timeline, budget and quality. For the customized payslip format, the Project Manager determines that implementing this change would provide greater transparency for employees regarding their compensation in which aligns with KOOP-KPMIM's goal of transparency but would require additional development resources.

4. Planning of change

If the change is approved, the Project Manager updates the project plan, including revised timelines, resource allocation and budget adjustments. For the customized pay slip feature, the Project Manager revises the Gantt chart to allocate additional development time for the programmer, adjusts the project completion date and documents the additional cost for the feature.

5. Implementation

The development team implements the approved change according to the technical specifications developed during the analysis phase. For the customized pay slip feature, the Programmer modifies the payroll module, creates new template designs and ensures the calculations accurately reflect all compensation components.

6. Reviewing and Closing

The Project Manager verifies that the change has been implemented correctly and meets the requirements specified in the change request. The KOOP-KPMIM HR Manager, who has the authority to approve changes, reviews and accepts the customized pay slip feature, confirming it meets their needs for transparent compensation reporting. The change request is documented as completed and the Project Manager updates all relevant project documentation.

3.3 Quality Control Activities

Quality control activities are organized evaluation procedures intended to find flaws, confirm standards compliance and guarantee deliverables fulfill requirements at every stage of the system development lifecycle.

1. System Planning

- Inspection of the Feasibility Report for the HRMS
- Walkthrough on the project objectives and scope
- Review of the project plan including timeline and resource allocation
- Review of the quality assurance plan

2. System Analysis

- Inspection of fact-finding techniques and results (interview and research)
- Review of the requirements specification document (SRS)
- Walkthrough of the current KOOP-KPMIM HR process flow
- Review of user stories for each role (Employee, HR staff, Manager)

3. System Design

- Walkthrough of user interface (UI) and user experience (UX) designs
- Inspection of system architecture
- Walkthrough of workflow designs for leave applications and complaints

4. System Implementation

- Code reviews for all modules (login, employee portal, HR portal, manager portal)
- Unit testing for individual functions
- System testing for end-to-end functionality
- Integration testing for interdependent modules
- User acceptance testing with KOOP-KPMIM staff

5. System Maintenance

- Review of system documentation for maintainability
- Inspection of error logs and system performance reports
- Walkthrough of backup and recovery procedures
- Review of change request procedures
- Inspection of user feedback and enhancement requests

HUMAN RESOURCES MANAGEMENT SYSTEM

Requirement Gathering

Prepared by:

ASMAWI AIMAN MOHD SANI

Project Manager

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1.0 Two Fact- Finding Techniques Findings

- Interview Finding Report

Interview Date	6/5/2025
Location	Lecturer's Room
Interviewee Details	Name: Maizatul Eliza Binti Mansor Position: Lecturer and HR Organization name: Koperasi Kolej Profesional MARA
Current Situation	<ul style="list-style-type: none">• Staff must apply for leave 3 days prior to the requested date• Leave approval/rejection depends on current events (students, college events, emergency)• There are 2 work shifts: morning (8:00am-5:00pm) and evening (5:00pm-10:00pm)• Employee records are physically stored in files by KOOP secretary• No standardized pay slip system in place• Each store's staff interview is handled by different people• Policies are communicated through job offer letters• Staff manage their own shift rotation between morning and evening schedules

Problems identified	<ul style="list-style-type: none"> • Manual leave application process requiring advance notice • Physical paper-based employee record storage with limited accessibility • Limited visibility to organizational policies • Manual handling of employee resignation and onboarding • No centralized employee information management system
Requirements	<ul style="list-style-type: none"> • Digital leave application and approval system • Centralized employee record database • Standardized payslip generation system • Digital repository for organizational policies • Role-based access control for different user types (HR, managers, employees)

- Research Finding Report

In this fact-finding, chosen system to be research is HRMIS 2.0 since it is the system used by government servant and HRMS inspiration system.

Research Subject	Human Resources Management Information System (HRMIS) – Malaysian government
Research Methods	<ul style="list-style-type: none"> • Review of HRMIS user guidelines • Examination of system features and capabilities

Key Findings	<ul style="list-style-type: none"> • HRMIS provides centralized management of employee personal data, service records and more • Digital leave application system with multi-level approval workflow • Integrated performance management module for annual evaluations • Self-service portal allowing employees to update personal information and view leave balances
Applicable Features For KOOP-KPMIM	<ul style="list-style-type: none"> • Implementation of role-based access with distinct user interfaces for employees, managers and HR • Digital leave management workflow with automated approval routing • Centralized employee data repository
Implementation	<ul style="list-style-type: none"> • The cloud-based architecture is more suitable for KOOP-KPMIM than HRMIS's enterprise deployment • KOOP-KPMIM requires a simpler approval hierarchy than the government's multi-layer structure • HRMIS's service record tracking can be adapted for the cooperative's simpler employment structure

Conclusion	<p>The HRMIS system provides a comprehensive model for the development of KOOP-KPMIM's HRMS, with adaptations needed to scale appropriately for a smaller organization. The digital workflows, role-based access and employee self-service capabilities are particularly relevant to addressing the cooperative's current manual process challenges.</p>
------------	--

2.0 Fact-Findings Evidence

Please refer at Attachment section for all the evidence.

ATTACHMENTS

No.: _____

1. Can you explain the process when there is a staff applying for leave?
- Staff need to apply 3 days prior, approval/rejection of leaves depending on current events (not much students, college events, emergency leave). Normally, there is 2 shifts, morning (8.00a.m - 5.00 p.m) and evening shift (5.00 p.m - 10.00 p.m).

2. Can you show me example of pay slip?
- Not applicable

3. Where do employee records are saved?
- It is done by KOOP secretary and physically store in files

4. If there is a staff send in resignation, how are the intake of new staff handled and how new staff know KOOP's policy?
- Each store staff interview handled by different people. Policies of KOOP stated in job offer letter. There will be job briefing for new staff

5. How work schedules are handled?
- Shift rotation morning and evening shift trial handle self-handle by the staff as long shift hours are met

Date: 6 May 2025

Interviewee sign: 
MAZAKA EZRA MANSOR
Persegi
Jalan Sungai Kurau
Tinggi Perak
Kuala Lumpur

Interviewer sign: 

Figure 6: Interview notes



Figure 7: Image of interview

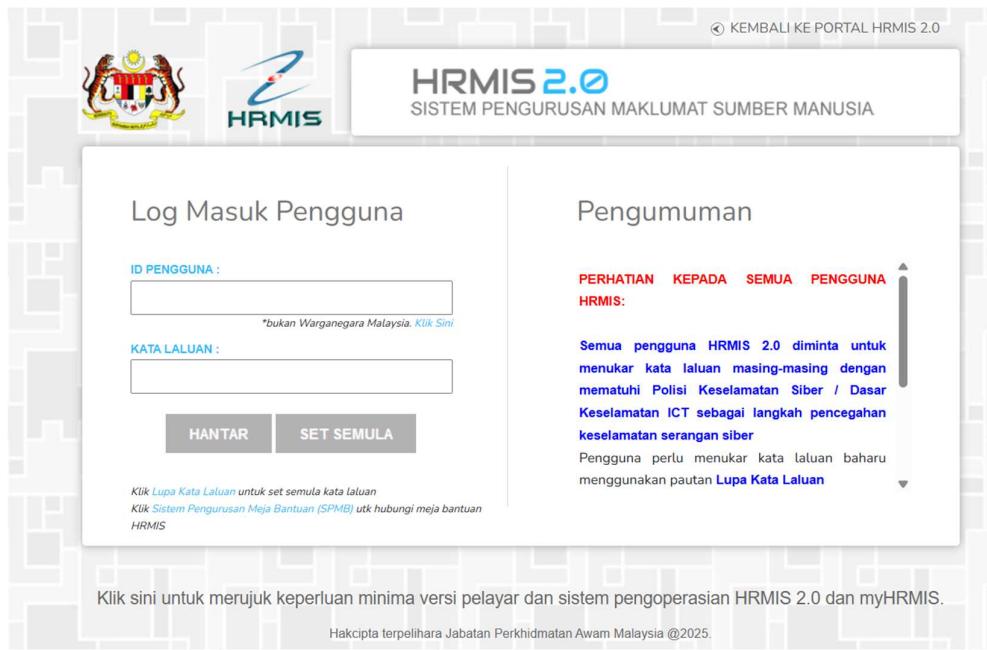


Figure 8: HRMIS login

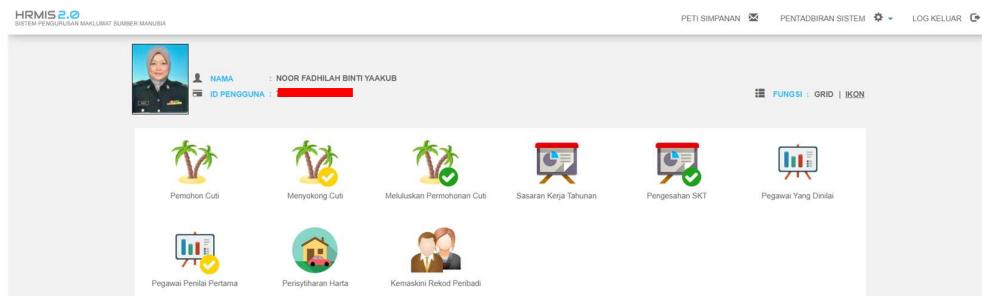


Figure 9: HRMIS homepage

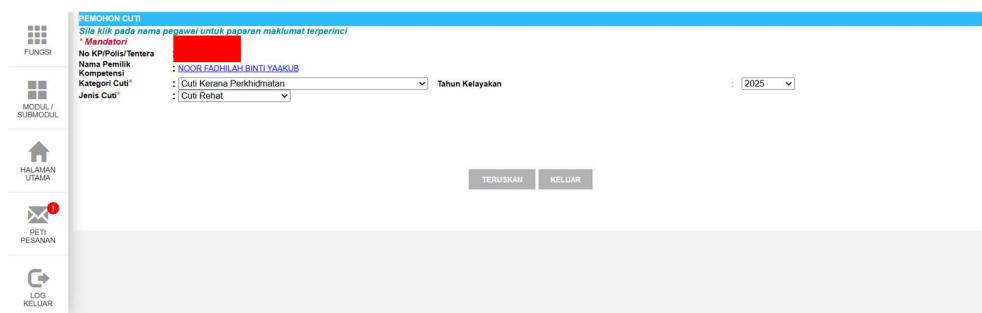


Figure 10: HRMIS leave application page

PEMILIK CUTI

Sila isi pada ruang yang kosong dengan maklumat terperinci

Nama Pemilik Kompetensi: INDIRA FAHILAH BINTI YAAKUB
Tarikh Mula: 01/01/2025
Kategori Cuti: Cuti Kerana Perkhidmatan
Jenis Cuti: Cuti Relah

Tarikh Akhir: 31/12/2025

TERUSKAN **KELUAR**

HALAMAN PEMILIK KOMPETENSI

Kelаяkan	Status Cuti	Sejarah Permohonan Cuti	Maklumat GCR	Profil Perkhidmatan

KELAYAKAN CUTI DANHED PEGAWAI

Jumlah Rekod : 1

Tahun	Cuti Dibawa Dari Tahun Lepas	Kelayakan Tahun Semasa (%)	Jumlah Kelаяkan (C) (A+B)	Cuti Diambil (D)	Baki Dibawa Dari Tahun Lepas (%)	Baki Kelayakan Tahun Semasa (%)	Baki Cuti (E) (E+F)	GCR	Cuti Dibawa Ke Hadapan (H)	Cuti Dijangka Lupa / Cuti Lupa (I)
2025	0	30	30	11	0	19	19	0	0	0

[1]

KELAYAKAN CUTI-CUTI LAIN (2025)

Jumlah Rekod : 15

Bill	Jenis Cuti	Jumlah Kelаяkan	Cuti Diambil	Baki
1	Cuti Separuh Gaji	180	0	180
2	Cuti Tanpa Gaji	360	0	360
3	Cuti Saki (Awam)	180	3	177
4	Cuti Bersalin	360	0	270

KELUAR

Figure 11: HRMIS leave approval page

PEMILIK REKOD: DATIN NOOR FAHILAH BINTI YAAKUB [REDACTED]

SEJARAH PERKHIDMATAN

Data Perihal	Persyaratan/Sudan Ikhlas	Kelangsungan	Bahasa	Lesen	Kecacatan	Passport	Sejarah Perkhidmatan
Pendidikan dan Kelayakan Profesional	Pengalaman Bekerja	Anugerah	Akaun	Kesihatan	Permit Kerja	Profil Perkhidmatan	Kursus

SEJARAH MAKLUMAT KURSUS PEMILIK KOMPETENSI

Jumlah Rekod : 55

Bill	Nama Kursus	Tamat	Tarikh Mula	Tarikh Tamat
1	KURSUS INDUKSI UMUM DAN KHUSUS PT-GAWAI IMIGRESEN KP17 Siri 1/2010	DI MITC ANCASA MELAKA	06/03/2010	26/03/2010
2	KURSUS PENGURUSAN JENAZAH LELAKI & PEREMPUAN		10/07/2010	10/07/2010
3	KURSUS ASA PEGAWAI DEPOT DI PULAPEN SIRI 4/2010		21/11/2010	27/11/2010
4	BENGKEL PENGETAHUAN DOKUMEN MS ISO 9001:2008	WILAYAH PERSEKUTUAN KUALA LUMPUR	04/01/2011	08/01/2011
5	BENGKEL PENGETAHUAN LAPORAN AUDIT PEMANTAUAN SISTEM PENGURUSAN KUALITI (SPK)	KEADAH	26/01/2011	29/01/2011
6	MESYUARAT PENYELARASAN AUDIT PRA-PERMAIHAAN PENSIJILAN MS ISO 9001:2008	NEGERI SEMBILAN	13/03/2011	16/03/2011
7	KURSUS PENGUKUHAN AUDIT DALAM MS ISO 9001:2008	WILAYAH PERSEKUTUAN KUALA LUMPUR	20/07/2011	21/07/2011
8	OPERASI BERSEPADU PEKAN MUNDU,	KELANTAN	01/02/2012	06/02/2012
9	KURSUS GAYA HIDUP SIHAT	JOHOR	10/02/2012	12/02/2012
10	AUDIT DALAMAN DEPOT AJIL	TERENGGANU	15/02/2012	18/02/2012
11	MESYUARAT PENYELARASAN PENAMBAHBAIKAN MS ISO 9001:2008	MELAKA	23/02/2012	26/02/2012
12	KURSUS SEMAKAN SOP & PENYEDIAAN SOP OKU	PERAK	14/03/2012	15/03/2012
13	KURSUS ASAS KONSELING	PULAU PINANG	31/05/2012	31/05/2012
14	AUDIT DALAMAN DEPOT SEMULIA	KELANTAN	16/07/2012	18/07/2012
15	AUDIT DALAMAN DEPOT SEMULIA	SARAWAK	26/08/2012	28/08/2012
16	AUDIT DALAMAN RIMAH PERINDUING TG. KEILING	MELAKA	29/08/2012	30/08/2012
17	BENGKEL PENEMUAN AUDIT DALAMAN	MELAKA	10/09/2012	12/09/2012
18	AUDIT SUSULAN DEPOT IMIGRESEN AJIL	TERENGGANU	18/09/2012	19/09/2012
19	AUDIT SUSULAN DEPOT IMIGRESEN SEMULIA	SARAWAK	27/09/2012	29/09/2012
20	BENGKEL PENAMBAHBAIKAN DOKUMEN MS ISO 9001:2008	PERAK	06/02/2013	07/02/2013

Halaman 1 daripada 3

Figure 12: HRMIS staff personal information page

HUMAN RESOURCES MANAGEMENT SYSTEM

Software Requirement Specification

Prepared by:

ASMAWI AIMAN MOHD SANI

Project Manager

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Software Requirement Specification

1.0 Purpose of Software Requirements Specifications (SRS)

This document serves as the System Requirements Specifications (SRS) for the Human Resources Management System (HRMS) for KOOP-KPMIM. Its primary purpose is to comprehensively document all functional and non-functional requirements for the web-based HRMS that will transform KOOP-KPMIM's manual HR operations into an efficient digital platform. The SRS establishes a formal agreement between A-Solution Sdn Bhd and KOOP-KPMIM by clearly defining system capabilities including employee self-service portals, digital leave management, automated payroll processing and centralized document management. This document guides the development team throughout implementation by serving as the baseline for quality assurance testing and facilitates effective project management including risk mitigation and change control. By addressing identified problems such as time-consuming manual data entry, paper-based records and inefficient leave processes. This SRS ensures the HRMS aligns with KOOP-KPMIM's organizational goals of transparency, efficiency and professional work culture while supporting their vision of being "Trustworthy, Progressive and Professional".

2.0 Intended Audience

The intended audience for this SRS includes the following:

Primary users:

- **Employees:** All KOOP-KPMIM staff who will access personal information, view pay slips, submit leave requests and file complaints
- **HR Staff:** Personnel managing employee registration, payroll processing, policy updates, recruitment, and complaint handling
- **Managers:** Department heads approving leave requests, setting goals, and requesting new hires

Administrative:

- **System Administrators:** Create and manage users account
- **Development Team:** A-Solution's Project Manager, System Analyst and Programmers using this document for implementation
- **KOOP-KPMIM Management:** Senior leadership monitoring efficiency improvements and strategic alignment

3.0 Project Scope**3.1 Input**

User Type	Input	Description
Employee	Personal information updates	Input changes to contact details, emergency contacts, bank information, education records, marital status, family record, personal details (IC no, gender, citizenship, ethnic, email, etc)
Employee	Leave application details	Input leave type, dates, reason, supporting documents if required
Employee	Complaint submission	Input complaint category, description, evidence/attachments
HR Staff	Employee registration data	Input new employee details: personal info, position, salary, department, start date
HR Staff	Payroll information	Input salary adjustments, allowances, deductions, overtime hours
HR Staff	Policy documents	Input new/updated organizational policies, procedures, announcements

Manager	Leave approval decision	Input approval/rejection status with comments/reasons
Manager	Goal setting information	Input departmental objectives, KPIs, target metrics
Manager	Recruitment request	Input how many personnel, position of personnel needed
HR staff	Employee registration	Input employee ID and password for login purpose, position and payroll information
System Admin	User credentials	Input username, password, role assignments, access permissions

3.2 Output

User Type	Output	Description
Employee	Pay slip	Digital pay slip showing salary breakdown, deductions, net pay
Employee	Leave balance report	Current leave entitlements, used days, pending approvals, remaining balance
Employee	Personal profile view	Complete employee record with all registered information
Manager	Pending approval	Leave requests and hiring approvals
HR staff	Pending approval	Complaints from staffs, recruitment request from manager
All user	Policy documents	Accessible organizational policies

3.3 Data Involved

Data Name	Data Involved
Employee Personal Data	Full name, IC number, contact details, address, emergency contacts, marital status, family members
Employment Information	Employee ID, department, position, hire date, employment status, reporting manager
Payroll Data	Basic salary, allowances, deductions, EPF/SOCSO contributions, bank details
Leave Records	Leave types, entitlements, applications, approvals, balances, leave history
Policy Documents	HR policies, code of conduct, standard operating procedures
Complaint Records	Complaint ID, category, description, status, related documents

4.0 Restrictions In the Client's Premises That Can Be Applied in The Project.

- a. **Limited IT Infrastructure:** KOOP-KPMIM currently relies on basic desktop computers without dedicated servers. System must be web-based to avoid hardware upgrades and accessible through existing equipment.
- b. **Budget Constraints:** As a cooperative with limited financial resources, initial investment is capped at RM20,000. System must use open-source technologies where possible to minimize licensing costs.
- c. **Staff Technical Proficiency:** Employees have varying computer literacy levels. Interface must be simple and intuitive, requiring minimal training for adoption across all user groups.
- d. **Data Security Requirements:** Employee personal data and payroll information are highly sensitive. System must implement role-based access control to protect confidential information.

- e. **Working Hour Restrictions** KOOP-KPMIM operates in two shifts (8am-5pm and 5pm-10pm). System maintenance and updates must be scheduled outside these hours to avoid business disruption.

5.0 Functional Requirements (By User Type)

Employee:

- Login with unique credentials to access personal dashboard
- View and update personal information (contact details, emergency contacts, bank info)
- Submit leave applications with type, dates, and reasons
- View leave balance and application status
- Download monthly pay slips in PDF format
- Submit complaints to HR with attachments
- View company policies and announcements
- View departmental goals set by managers

Human Resources (HR) Staff

- Register new employees with complete login and career information
- Generate and distribute digital pay slips
- Manage organizational policies and documents
- View how many recruitments needed based on manager requests
- Process employee complaints
- Update and publish company policies

Manager

- Review and approve/reject team member leave requests
- Set departmental goals and objectives
- Submit new hire requisitions to HR

System Administrator

- Create and manage user accounts

6.0 Non- Functional Requirements (General System Expectation)

1. **Performance System:** must handle at least 50 concurrent users.
2. **Reliability System:** must maintain 99% uptime during business hours.
3. **Security:** Password in the database must be hashed
4. **Usability:** Interface must be accessible via web browsers (Chrome, Firefox, Edge) without plugins.
5. **Compatibility:** System must work on Windows 10/11, macOS, and Ubuntu.
6. **Scalability:** Architecture must support growth up to 80 users without major restructuring. System should handle 3 years of historical data without performance degradation.
7. **Availability:** System must be accessible 24/7 from any location with internet connection. Scheduled maintenance must not exceed 10 hours per month and must be performed outside business hours (10pm-6am).

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