Project Proposal

R&D CLIENT PORTFOLIO MANAGEMENT V1.2

Team:

Penelope Huang

Yu Tang

CLIENT NAME: RAMESH LAL

MENTOR NAME: STEPHEN THORPE

DATE: 2/8/2023

Executive Summary

This proposal aims to show the overall flow of the project. The project was designed for client Edmund Lai on top of an original semi-automatic management system. He wants our team to write reports for CPM system and asked our team to automate his original management system and develop dashboards and generate report function. The project will provide the development environment required for automation with analysis management.

Our team uses Scrum, chose this approach because we felt the need to have a structured framework, so we didn't get off track. We also want some flexibility to adequately handle uncertainty during the project.

In addition, our teams will employ management plans for communication, change, risk and quality assurance. Our teams have daily stand-ups and retrospectives where feedback is shared for communication. Change and risk management will be done through change request forms and risk registers. Quality assurance will be ensured through code reviews, unit testing, and customer feedback.

Contents

Terms reference

As the number of our academic research and student projects increased, AUT's semi-automated portfolio management system was no longer sufficient. Our client, Ramesh Lai, Managing Principal at AUT, felt the need for efficient project management tools, especially in terms of automation and reporting capabilities.

His goal is to automate the management system as much as possible, hoping to provide every student with the opportunity to work on industry projects.

The AUT system currently supports some automated functions, such as automatically sending emails to students, but there are still many parts that require manual operations. This made it difficult for the team to extract useful data about programs, students, and clients at the end of each semester.

Our project will reduce the human-dependent part of the management system. The running process of the system will display some graphical data information to customers such as dashboard features and comprehensive reporting functions to ensure that the stages of execution can be seen.

To ensure our academic research and student projects can be managed more efficiently, we need a more powerful and automated system. Additionally, accurate data reporting capabilities are critical to our analysis of research trends, course needs and opportunities for collaboration with industry.

Rational of the project

The project exists to address a range of problems in existing portfolio management, providing automated solutions to improve efficiency, accuracy and decision quality. Existing portfolio management may involve complex tasks and links, and automated processes can significantly improve existing processes and bring more advantages and value to portfolio management (Lahmann, 2018).

Key issues and opportunities:

1. Improve efficiency and reduce labour costs: Portfolio management involves many complex links and tasks, such as data collection, project allocation, team coordination, etc. If you rely entirely

on manual processing, it will consume a lot of time and labour costs. Automated processes can drastically reduce processing time, improve efficiency, and reduce labour costs.

2. Increased Accuracy and Reduced Error Rates: Manual processing can present risks of oversight, error, or inaccurate data entry, especially when managing large-scale portfolios. Automated processes can drastically reduce the incidence of human error and improve data accuracy and consistency.

3. Real-time monitoring and feedback: The automated process can monitor the progress of the project and the work of the team in real time and discover potential problems and bottlenecks in time. This allows the team to respond to issues more quickly, keeping the project on track.

4. Improve decision quality: Automated processes can make decisions based on data and algorithms, eliminating the influence of human subjectivity. This helps improve the quality and consistency of investment decisions, leading to better achievement of investment objectives.

5. Data Analysis and Insights: Data generated by automated processes can be used for in-depth data analysis and insights to help identify patterns, trends and opportunities. This will provide more insight into portfolio management, enabling more precise decision making.

Although the implementation of automated management brings many benefits, there are also risks that need to be recognized, such as data quality, over-reliance on technology, and unexpected events. These risks need to be fully considered during project design and implementation, and appropriate measures should be taken to reduce the impact of the risks. Overall, the project aims to maximize returns while managing potential risks for more efficient, accurate and sustainable portfolio management.

Project objective and scope

Project objective

Our client for this project is Ramesh Lai. His requirement is to write two reports:

- A report analyses the existing AUT management system.
- A report analyses and studies the ideal portfolio management system

The client also asked the group to design and prototype a fully automated portfolio management system that could:

- Increase efficiency in assigning projects to students and improve stakeholder communication.
- Capture and identify information displayed in dashboards and provide comprehensive reports.

Scope

High-level requirements:

1. The application will simulate the real management system; this can help us understand the operation status of the management system.

2. Project service autonomy can reduce labour and improve service quality.

Non-functional Requirements and functional requirements:

1. Assignment system: The system can automatically assign students to appropriate projects

2. Automated Email Notification System: It can automatically send emails to students and teachers when specific events occur.

3. Dashboard: Information that can display and track the number of software development projects, the number of service science projects, and the number of students participating in a specific project. Identify long-term customers, the types of projects they offer, etc.

4. Report Generation: The system can automatically generate monthly reports on project allocation and progress.

Stakeholders :

Understanding the beneficiaries in portfolio management is critical as it helps to ensure that investment strategies and decisions truly meet the needs and expectations of relevant stakeholders. Key stakeholders include project developer, mentors, and customers.

Details on the Appendix 2

Risks and Mitigation Strategies

Risk: Insufficient resources leading to project delays - The current project team has only two participants, which may not be enough to complete all project tasks within the scheduled time.

Mitigation Strategy:

- Task prioritization - Work with the team to prioritize tasks to ensure the most critical tasks are completed first.
- Obtain additional resources: Communicate with project stakeholders to explore possible additional resources.

Risk: Key requirements may be missed, resulting in the system not meeting the basic needs of users.

Mitigation Strategy: Conduct multiple rounds of requirements gathering and validation with all key stakeholders before the project begins.

Infrastructure and human resource requirements

technical infrastructure:

1. Visual Studio & Visual Studio Code: for code development.
2. GitHub: for version control.
3. Figma: for designing software prototypes.
4. React and Vercel: If you need to make pages software development.
5. Trello: For task management and tracking.
6. Teams: For group communication and file sharing

Alternative plan :

Use SVN for collaborative work and version control, but because the project developers have used GitHub before, they chose GitHub.

Technical infrastructure :

Technical infrastructure enables the operation and management of enterprise IT services and IT environments (Indeed, 2023).

Networking: This CPM needs to access the network to use the API and send emails and process data

Computing: This CPM requires hardware and software equipment for user computers, servers, operating systems, databases and storage systems.

Skills Analysis:

Our team has identified three sets of skills that this project will likely use. C# related skills are the most important for our group, because C# software will enable us to effectively deal with data, business logic and interaction with database, so as to gain more excellent knowledge.

PROJECT SKILLS	DESIRED SKILL LEVEL	GROUP MEMBERS CURRENT SKILL LEVEL	
		Yu	Penelope
RELATED SKILLS			
C#	HIGH	MODERATE	MODERATE
Framework	HIGH	MODERATE	MODERATE
Design Patterns	HIGH	MODERATE	MODERATE
Algorithm	HIGH	MODERATE	LOW
Reptile	HIGH	LOW	LOW
JavaScript/TypeScript	HIGH	LOW	MODERATE
IT- SPECIFIC			
Concept of agile project management	MODERATE	MODERATE	MODERATE
SDLC (software development life cycle)	MODERATE	HIGH	LOW
PERSONAL			
Communication	MODERATE	LOW	LOW
Time Management	MODERATE	LOW	HIGH
Self- Management	MODERATE	MODERATE	HIGH
Leadership	LOW	HIGH	LOW

For the automatization we can use NumPy. It can play an important role in an automated project management and team collaboration platform, especially in data processing, computing and analysis. Agile project management is the management style in which our teams successfully complete projects within specified time frames. The skill level required is moderate, but still critical, as agile management allows teams to be flexible with stakeholders

and allows for frequent feedback. One of the skills in agile management is organization and time management to ensure we fit the management style. A deeper understanding will be gained once the project begins. As a team, we use Google as a research platform to increase our knowledge.

Project management methodology

Our team will use the Scrum method. Scrum provides a framework for agile project management that allows a small part of rapid iteration, rapid response changes, and continuous delivery of projects to ensure that any adjustment required can be made in time (Ken & Jeff, 2020).

Due to the limited number of team members, Scrum collaboration and self – organizing principles are very suitable for our environment.

PM methodology :

1.1 Teams meeting and investigate.

1.2 Investigate Technologies and Research on the web for similar products and the client organization.

1. 3 Team meeting with mentor.

1.4 Investigate Project method.

1.5 Meeting with the client to confirm project rationale, objective, and scope.

1.6 Develop project plans.

1.7 Develop project plans 2.

1.8 Proposal writeup

1.9 Proposal presentation

Deliverable- approved proposal (baseline), ready to execute.

Method Practices:

Regular Meetings: Meet daily to discuss progress, address any obstacles and set goals for the day.

Backlog Management: Continuously update and prioritize product backlog items based on customer feedback and project needs.

Iteration: The team continuously researches and refines features, adding new features based on the changing needs of the project.

Team roles and work behaviour & practices

Roles:

Each role has its own responsibilities, and through cooperation and coordination, the entire team will be able to achieve the smooth running of the project.

Client	Ramesh Lai
Project Manager	Tang Yu
Developer	Penelope Huang
Mentor	Stephen Thorpe

- Details in Appendix 5.

Schedule and milestone report:

The schedule is developed by determining the duration of each task of the project. Due to our agile project management methodology, these dates are not final and may change during project development. We provide guidance on what tasks we need to accomplish to achieve the desired outcome and when. Detail in Appendix 8。

Risk and Issues Register

The daily stand-up meeting will significantly reduce risks. On top of that, our team will share imminent blockers on the MS Teams chat room at any time so that they can be solved. Risks will be managed through the Risk Register, seen in Appendix 6 and 7.

Success factors

1. Customers are satisfied with our case analysis and research on CMP.

2. The cost should be within the budget set by the client.

3. Customers will be satisfied with the quality and functional design.

Cost analysis

- As per the project guideline (150 hours per semester). Our team will get feedback from the mentor weekly according to the project cycle, which calculates to 1 hour per week for the working hour of the mentor (14 weeks per semester).
- The cost of team members' working hours is based on the minimum wage in NZ, which's $22.7 pre-Hour.
- The mentors' cost is based on the project guideline, which's $142/Per Hour.
- Software license fees are from each website. The reserve amount is for unexpected risks.
- The total project cost of estimate is $5393(GST excluded) in semester 1.

Appendix

Appendix 1 — Business Case

With the increase in the number of AUT academic research and student projects, students' participation in various projects is one of the important ways to improve practical ability and cultivate teamwork spirit. Traditional manual project management methods can lead to problems such as untimely information processing, uneven team distribution, and difficulty in monitoring progress. In order to solve these problems, we plan to develop an automated project management and team collaboration platform to assist AUT to better manage the projects that students participate in. The platform will cover the entire lifecycle of a project, from project screening to final delivery, to ensure that projects can be completed on time and with high quality.

The platform will use intelligent algorithms, combined with factors such as project feasibility assessment and student ability matching, to automatically screen and organize potentially valuable projects, thereby reducing the workload in the manual screening process. Based on multi-dimensional data such as students' interests, abilities, and academic performance, the platform will automatically assign students to appropriate projects. The platform will not only consider students, but also assign tutors. The platform will provide real-time project progress monitoring to ensure that the project progresses as planned. Customers can view project status and issues at any time.

Appendix 2— Stakeholder register

Project Name: AUT Portfolio Management System		Date: 1 Aug 2023		
Stakeholder's Name	Role	Group	Category	Contact Email
Stphen Thorpe	Mentor	AUT	Internal	stephen.thorpe@aut.ac.nz
Yu Tang	Project Leader	AUT	Internal	xmk7520@autuni.ac.nz
Penelope Huang	Project Member	AUT	Internal	ryq1234@autuni.ac.nz
Ramesh Lal	Client	AUT	External	ramesh.lal@aut.ac.nz

Sign-off: (Signatures of all above stakeholders. Can sign by their names in table above.)

Penelope Huang

_____

Yu Tang

_____

Stephen Thorpe

_____

Ramesh Lal

_____

Appendix 3— Stakeholder management strategy

When designing and implementing an automated project management and team collaboration platform, multiple stakeholders are involved, including students, mentors, and project leaders. To ensure the successful launch and smooth operation of the platform, a comprehensive stakeholder management strategy needs to be developed to meet the needs and expectations of all parties.

student:

Participation in decision-making: In the early stages of platform design, invite students to participate in requirements gathering and feature design to ensure that the platform meets their actual needs.

Personalized experience: Provide personalized project recommendation and interest expression functions to ensure that students can choose projects that match their interests and abilities.

Client:

Transparent delivery process: Provide customers with project progress and delivery status that can be viewed at any time to ensure that customers have a clear understanding of project progress.

Technical Team:

Requirements collection and design: Establish a close cooperative relationship with the technical team to ensure that the platform meets the needs of various stakeholders. Conduct continuous testing and feedback loops to ensure the quality and stability of the platform.

Data security and privacy protection:

Protect user data: strictly abide by data privacy laws and regulations and protect the security and privacy of users' personal information and project data.

Transparent data use: Explain to stakeholders how the platform collects, stores and uses data to ensure transparent data use.

Appendix 4— Project charter including roles and responsibilities

This project aims to design an automated project management and team collaboration platform to provide a comprehensive solution for schools, universities and other educational institutions to help effectively manage the projects that students participate in and improve the success rate of projects and the efficiency of teamwork.

Design an intelligent platform to support the full lifecycle management of projects, from project selection to delivery. Analyse the student's project interest list and GPA, so that students can be matched with projects that match their abilities. Automatically assign students to appropriate projects, ensuring balanced team composition and efficient collaboration. Provide real-time project progress monitoring and problem-solving support to help the team advance projects efficiently. Ensure that project delivery meets customer expectations and quality requirements and improve the punctuality and quality of project delivery.

Roles and Responsibilities:

The team leader will be responsible for the leadership of the entire project to ensure that the project team collaborates efficiently, and the project achieves the expected goals as planned. He or she will develop plans, make decisions, and coordinate the efforts of the various team members. The team lead will ensure the successful implementation of the project and work closely with all roles to ensure the smooth running and optimization of the project. The team is responsible for the design and performance of the platform.

Instructors participate in the functional design of the platform, provide training and support for instructors, and ensure that the educational nature of the project is guaranteed.

Client participates in project requirements gathering, represents external clients, and ensures project delivery meets client expectations.

Risk Management:

Ensure that the technical team has sufficient technical capabilities to avoid technical challenges affecting project progress.

Strengthen data security measures to ensure the privacy and security of user data.

Strengthen data security measures to ensure the privacy and security of user data.

Project timeline:

Planning and needs analysis phase: 12 months.

Evaluation and Improvement Phase: Ongoing

Appendix 5— Team contract

Role	Name	Organization/Position	Content Information
Client	Ramesh Lai	AUT CMS Professor	Ramesh.Lai@autuni.ac.nz
Project Manager	Tang Yu	AUT Student	xmk7520@autuni.ac.nz
Developer	Penelope Huang	AUT Student	Ryq1234@autuni.ac.nz
Mentor	Stephen Thorpe	Lecturer	stephen.thorpe@aut.ac.nz

Risk Register

Risk	Date	Description	Resolution Description	Status

Issue Register

Issue	Date	Description	Priority	Resolution Date

Appendix 8— Milestone report (version 1)

Milestone	Date	Status	Issues/Comments
Part1			
Project Team Allocation	9/8/2023	Finish	
Team Meeting with the client	17/8/2023	Finish	
Project Proposal	18/8/2023	InProgress	

Task name	Duration	Start	Finish
Project Proposal	16 days	2/8/2023	18/8/2023
Identify Project	7 days	2/8/2023	9/8/2023
Investigate Technologies	7 days	2/8/2023	9/8/2023
Requirements gathering	7 days	2/8/2023	9/8/2023
Executive Summary	3 days	12/8/2023	14/8/2023
Term of reference	6 days	12/8/2023	18/8/2023
Rationale for the project	6 days	12/8/2023	18/8/2023
Scope and objectives	6 days	12/8/2023	18/8/2023
Project method	6 days	12/8/2023	18/8/2023
Project plan	3 days	15/8/2023	18/8/2023
Skills analysis	2 days	16/8/2023	18/8/2023
costs analysis	2 days	16/8/2023	18/8/2023
Prepare presentation	4 days		
Complete Project Proposal	0 days		

Communication Management Plan				
Stakeholder Group	Require	Frequency	Vehicle	Owner
Project Team	Analyse and research CPM system Design and make CPM system prototype	Daily	Teams Meeting	Project Manager
Project Mentor	Give advice help the team	Weekly	Teams Meeting	AUT
Client	Propose the project and give scope	Weekly	Meeting	AUT

Communication Stakeholder Register				
Stakeholder's Name	Role	Communication Preferences	Power	Contact Information
Stphen Thorpe	Mentor	Teams Email	Low	stephen.thorpe@aut.ac.nz
Yu Tang	Project Leader	Teams Email Meeting	High	xmk7520@autuni.ac.nz
Penelope Huang	Project Member	Teams Email Meeting	High	ryq1234@autuni.ac.nz
Ramesh Lal	Client	Email Meeting	High	ramesh.lal@aut.ac.nz

Appendix 10－ Change management plan

This change management plan is designed to ensure that changes to automated portfolio management projects can be effectively managed and controlled to minimize adverse impacts while ensuring that project objectives are achieved.

Change process :

1. Identification :

Any member or stakeholder can submit a change request. A change request shall include a description of the change, reason, expected impact, and proposed resolution.

2. Evaluation :

The project lead and relevant team members will evaluate the change request to determine its impact and necessity. A risk assessment will be performed if necessary.

3. Approve :

After the change is evaluated, the team will decide whether to approve the change. If the change is approved, a detailed change plan will be developed including resources, timing and expected results.

Change control :

1. Every change must go through an evaluation and approval process to ensure the rationality and necessity of the change.
2. The change must have a detailed plan, including resources, timing, and
   implementation methods.
3. Before implementing a change, sufficient analysis and verification must be carried out to ensure that the change will not affect existing functions and data.
4. For each change, a risk assessment must be performed to identify potential risks
   and possible problems. According to the risk, formulate the corresponding mitigation plan to reduce the adverse impact.

Change Requirements :

1. During the change process, the project team and stakeholders must provide the
   team members and stakeholders with the change information in a
   timely manner to avoid unnecessary guesses and misunderstandings.
2. Every change must have detailed records, including the reasons for the change,
   decision-making process, implementation steps and results.
3. The change management process is regularly reviewed to ensure the
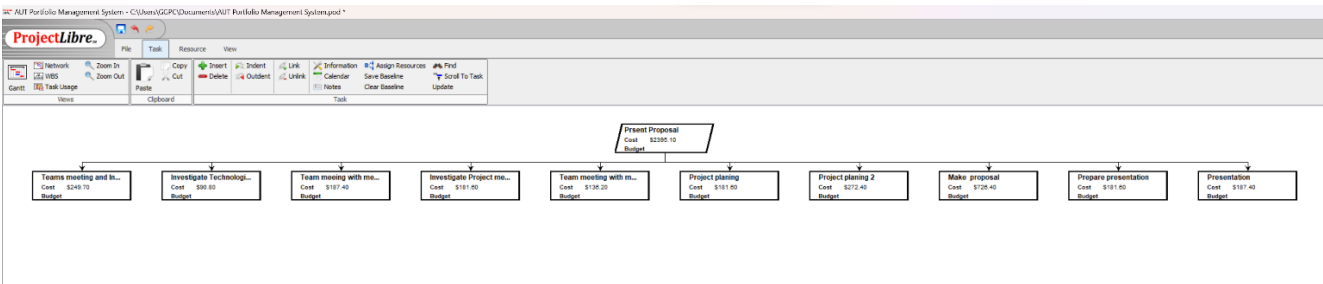   effectiveness and suitability of the process.

Project Scope Statement

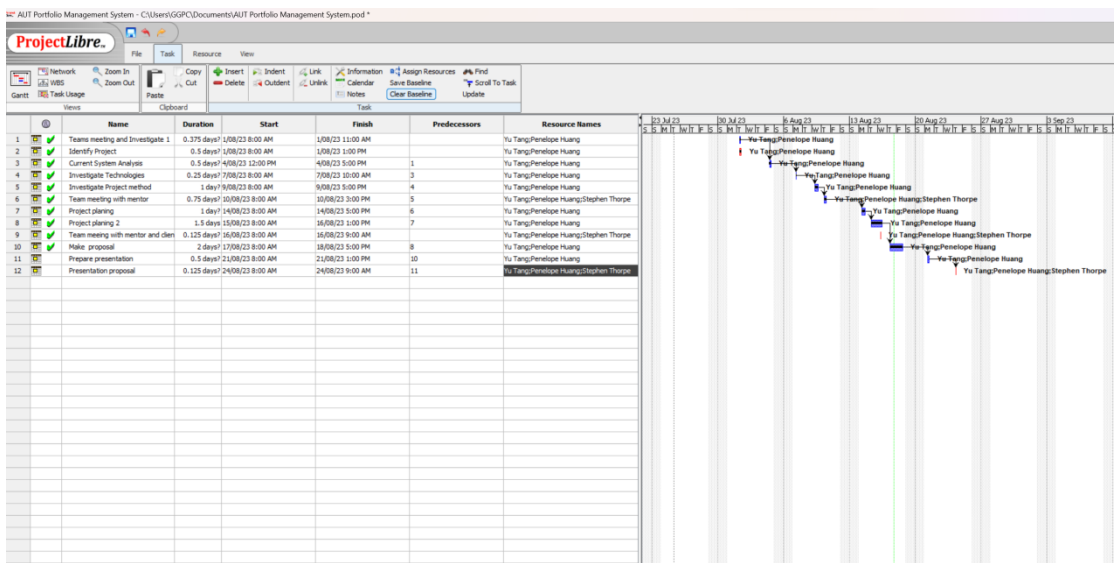| Project Name:	AUT Portfolio Management System		
Project sponsor:	Ramesh Lal	Project Leader:	Yu Tang
Date:	18/8/2023	Company:	AUT

Scope Description	Investigate existing systems and propose an ideal customer portfolio management system that could replace the current semi-automated SharePoint system. The system is highly automated for assigning projects to students, with features such as dashboards and reports
Acceptance Criteria	• Write two detailed reports: one on current business processes and one on the ideal portfolio system, both reviewed and approved by the client. • Design and develop a prototype system that includes key features such as automatic assignment of students to projects, dashboards and report generation.
Project Deliverables	• Report on analysis and investigation of existing semi-automated SharePoint systems • Reports on surveys and studies of ideal or model portfolio systems • Design and create prototype systems based on collected requirements
Project Exclusions	• The project will involve prototyping, but not the complete development of a new software system. • Physical infrastructure procurement.
Project Constraints	• The project must be completed before June 2024. • The project funding depends on the continuous analysis and investigation of the ideal portfolio management system for the project.
Project Assumptions	• Current system understanding: The project team understands the capabilities and limitations of the current SharePoint system. • Skills: The team has the skills required for analysis and development, and skills that are not available can be addressed through skill development. • Key deliverables of the project: two reports and prototyping

Appendix 13— Work Breakdown Structure (WBS)

Appendix 14— Project schedule

		Name	Duration	Start	Finish	Predecessors	Resource Names
1		Teams meeting and Investigate 1	0.375 days?	1/08/23 8:00 AM	1/08/23 11:00 AM		Yu Tang;Penelope Huang
2		Identify Project	0.5 days?	1/08/23 8:00 AM	1/08/23 1:00 PM		Yu Tang;Penelope Huang
3		Current System Analysis	0.5 days?	4/08/23 12:00 PM	4/08/23 5:00 PM	1	Yu Tang;Penelope Huang
4		Investigate Technologies	0.25 days?	7/08/23 8:00 AM	7/08/23 10:00 AM	3	Yu Tang;Penelope Huang
5		Investigate Project method	1 day?	9/08/23 8:00 AM	9/08/23 5:00 PM	4	Yu Tang;Penelope Huang
6		Team meeting with mentor	0.75 days?	10/08/23 8:00 AM	10/08/23 3:00 PM	5	Yu Tang;Penelope Huang;Stephen Thorpe
7		Project planing	1 day?	14/08/23 8:00 AM	14/08/23 5:00 PM	6	Yu Tang;Penelope Huang
8		Project planing 2	1.5 days	15/08/23 8:00 AM	16/08/23 1:00 PM	7	Yu Tang;Penelope Huang
9		Team meeing with mentor and clien	0.125 days?	16/08/23 8:00 AM	16/08/23 9:00 AM		Yu Tang;Penelope Huang;Stephen Thorpe
10		Make proposal	2 days?	17/08/23 8:00 AM	18/08/23 5:00 PM	8	Yu Tang;Penelope Huang
11		Prepare presentation	0.5 days?	21/08/23 8:00 AM	21/08/23 1:00 PM	10	Yu Tang;Penelope Huang
12		Presentation proposal	0.125 days?	24/08/23 8:00 AM	24/08/23 9:00 AM	11	Yu Tang;Penelope Huang;Stephen Thorpe

Appendix 15— Quality assurance plan

Our team will prioritize ensuring product quality with the concept of Total Quality Management (TQM). It will not only focus on specific project cycles but also the entire process. Unlike reactive quality control that traces failures, developing a quality assurance plan can significantly reduce risks and shorten project timelines.

UI

Before entering the next development cycle, our team will ensure the following principles are met:

- Design Clarity: This is to ensure other team members can clearly understand the design, reducing risks when making design changes.
- Review Meetings: These are aimed at improving the upcoming sprint processes.
- Solution Inspection: This involves identifying any errors from the perspective of other team members and enhancing the solutions.
- Customer (or Mentor) Feedback: This will narrow the gap between customer expectations and the anticipated functionality of the final product.

Appendix 16 – **Disclaimer**

Auckland University of Technology

Bachelor of Computer & Information Sciences

Research & Development Project

Disclaimer:

Clients should note the general basis upon which the Auckland University of Technology undertakes its student projects on behalf of external sponsors:

While all due care and diligence will be expected to be taken by the students, (acting in software development, research or other IT professional capacities), and the Auckland University of Technology, and student efforts will be supervised by experienced AUT lecturers, it must be recognised that these projects are undertaken in the course of student instruction. There is therefore no guarantee that students will succeed in their efforts.

This inherently means that the client assumes a degree of risk. This is part of an arrangement, which is intended to be of mutual benefit. On completion of the project it is hoped that the client will receive a professionally documented and soundly constructed working software application, some part thereof, or other appropriate set of IT artefacts, while the students are exposed to live external environments and problems, in a realistic project and customer context.

In consequence of the above, the students, acting in their assigned professional capacities and the Auckland University of Technology, disclaim responsibility and offer no warranty in respect of the "technology solution" or services delivered, (e.g. a "software application" and its associated documentation),both in relation to their use and results from their use.

References

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Ken, S., & Jeff, S. (2020, Nov). *The Scrum Guide.* scrumguides: https://scrumguides.org/

Lahmann, M. (2018). *AI will transform project management. Are you ready?* pwc: www.pwc.ch/ta