Risk Assessment and Management Plan (RMP)

Table of Contents

1. Introduction

The risk assessment and management plan: documents that lists hazards and risks that could affect a software project, along with mitigation or avoidance techniques. The plan's objective is to guarantee that the project is finished on schedule, on budget, and with the appropriate standard.

2. Advantages of the risk assessment and management plan

- Early identification of any possible problems allows for the necessary mitigation through suitable action.
- Risks are prioritized according to their likelihood and probable consequences, which helps the team concentrate on the most crucial problems.
- Improve project performance by lowering the risk of overruns in budgets and delays.

3. How Risks and Assessment identified among our team

Through discussion sessions where team members shared their knowledge and experiences and explored potential risks, the project team determined the risks connected with the project. The group also carried out analysis to determine the most common hazards on internet platforms and the kinds of vulnerabilities to which the project was most at risk.

The team evaluated and ranked the hazards according to their likelihood and possible consequences. The group produced a risk management strategy that comprised tactics to reduce or remove the risks that were identified as well as a method for tracking the effectiveness of the risk management measures through reporting and monitoring. The team was able to concentrate on the most significant risks and raise the likelihood that the project would succeed thanks to this thorough approach.

- Measurement information for the Risks

Impact measures: Low = 1 day delay, Medium = 3 days delay, High = 5 days delay

Probability measures: Low = (0 - 30%), Medium = (30 - 70%), High = (70% - 100%)

4. Tables

4.1. Risk management chart

Impact / Probability	Low	Medium	High
Low	R07		R02, R04, R05, R08, R15
Medium	R16	R06, R10, R12	R01, R03, R11, R13, R14
High		R09	

Figure [4.1]: Risk management chart

4.2. List of identified risks

Risk ID	Risk Type and Description	Risk Score	Resolved in Sprint	Strategy and Effectiveness
US-1.1	• Technical • Management • External • Budget • Schedule • Etc.	• Medium • High		• Mitigate • Accept • Avoid • Transfer
R01	**Time Risk:** The project is limited by the capstone timeframe, meaning once the timeframe ends, the contract with the client also ends and the project should be completed.	Impact: High (5 days delay) Probability: Medium (50%) Risk Score: High Consequences: 1) Team members are under more	Sprint 5	**Strategy:** By efficient planning, we can make sure all the features we need are complete. **Strategy type:** Mitigate **Contingency plan:** Removing the more unnecessary features and saving them for last.

		pressure to meet their deadlines. 2) Potential quality reduction caused by time restraints.		**When to invoke the contingency plan:** Invoke the plan when the team is deviating too much off schedule.
R02	**Application Risk:** there exists the risk that our project doesn't solve the problem we intended.	Impact: High (5 days delay) Probability: Low (5%) Risk Score: Medium Consequences: If the application fails to achieve its goal, the time and resources spent developing it were wasted.	Sprint 5	**Strategy:** Survey our solution to see if it theoretically makes sense. Proper testing before more costly implementations. **Strategy type:** Mitigate **Contingency plan:** do it again next semester or replan the solution. **When to invoke the contingency plan:** when the app fails or when user testing is very negative.
R03	**Skill Risk:** there is a chance the team won't have the skill set in order to complete the project in the time frame or at all.	Impact: High (5 days delay) Probability: Medium (30%) Risk Score: Medium Consequences:1) Potential delays in the project brought on by a lack of team knowledge. 2) a higher chance of mistakes and poor quality output if team members are not equipped with the required skills.	Sprint 5	**Strategy:** Proper planning and use of our programmers' skills. **Strategy type:** Mitigate **Contingency plan:** hire additional more skilled individuals to make up for the lack and teach. **When to invoke the contingency plan:** when straying too far off the schedule.
R04	**Legal risk:** The risk that the execution of the	Impact: High (5 days delay)	Sprint 5	**Strategy**: Reviewing legal conventions or precedent is beyond the scope of our

	project might violate a legal convention or rule.	Probability: Low (0 - 5%) Risk Score: Medium Consequences: If the project is discovered to be in violation of the law, there could be harm to its trust and reputation.		project, but making a minor change **Strategy type:** Transfer **Contingency plan:** We will revert to the old state of the system if something serious arises **When to invoke the contingency plan:** If our project leads to a serious legal problem, but this is extremely unlikely in our opinion.
R05	**Fraud risk:** The risk that our project will be exploited by one of the team members with malicious intent, for example, to steal user data.	Impact: High (5 days delay) Probability: Low (0 - 5%) Risk Score: Medium Consequences: Bad reputation and a loss of user trust in the event that private information is lost or stolen.	Sprint 5	**Strategy:** We believe that the likelihood that any of our team would do something like that is extremely low since there is almost no incentive to steal our clients' information, since it has little utility outside of the system and the legal repercussions would far outweigh the upside. **Strategy type:** Mitigate **Contingency plan:** We will forward the pertinent information to law enforcement if we believe a crime was committed. **When to invoke the contingency plan:** If we believe a malicious action has been committed.
R06	**Scalability Risk:** The website may not perform well if the number of users or	Impact: Medium (3 days delay) Probability: Medium (30 - 40%)	Sprint 5	**Strategy:** Mitigate by using a scalable and reliable infrastructure and use load testing for the platform to

	operations is high due to imperfect infrastructure.	Risk score: Medium Consequences: lower user satisfaction if the website performs poorly during periods of high number of users.		ensure that its scalability is acceptable **Strategy type:** Mitigate **Contingency plan:** Try alternate deployment methods and services and change the faulty algorithms if applicable **When to invoke contingency plan:** When we are severely limited by our application's performance
R07	**Team dynamics risk:** Some team members might have difficulty working together due to personal conflicts and different working styles	Impact: Low (1 days delay) Probability: Low (10%) Risk score: Low Consequences: 1) Conflicts between teammates break up team spirit and communication, there will be a decrease in production and collaboration. 2) Possible quality problems or project delays caused by conflict and misunderstanding amongst team members.	Sprint 5	**Strategy:** Proper team meetings and encourage team communication. **Strategy type:** Mitigate **Contingency plan:** Assess the teams composition and explore the possibility to invoke sub teams to avoid any more conflicts within team members. **When to invoke contingency plan:** When the conflict of team members persists despite initial attempts to resolve it.
R08	**Security risk:** There is a risk that our application might be vulnerable to cyberattacks, especially since none of our team	Impact: High (5 days delay) Probability: Low (0 - 10%) Risk score: Medium	Sprint 5	**Strategy:** Avoid by implementing security measures like 2FA, encryption and DDOS protection **Contingency plan:** Make a subteam that will be in charge

	members are cybersecurity experts.	Consequences: 1) Possible security breaches or unapproved access to private data might damage user confidentiality and confidence.		of cybersecurity if it becomes a relevant problem **When to invoke contingency plan:** If cybersecurity threats become a credible threat to our product
R09	**Availability of Resources Risk:** An unexpected trip by a team member could affect the status of the project and connections within the team.	Impact: Medium (3 days delay) Probability: High (90 %) Risk score: High Consequences: 1) Postponed completion of the traveling team member's allocated job. 2) Possible slowing in decision-making procedures. 3) Additional tasks for the remaining team members.	Sprint 3	**Strategy:** Assign tasks to the remaining team members and modify deadlines as necessary. **Strategy type:** Mitigate **Contingency plan:** assign responsibilities to other team members and use remote collaboration technologies to keep the traveling team member engaged. **When to invoke contingency plan:** If the traveling team member's absence significantly impacts team communication or project progress, then implement the plan.
R10	**Risk Associated with Technology Compatibility**: Team members who use MacBooks might have trouble using some of the technologies selected for the project.	Impact: Medium (3 days delay) Probability: Medium (30%) Risk score: Medium Consequences: 1) Delays in task completion. 2) A greater dependence on pair programming. 3) Possibility of lower team spirit or	Sprint 3	**Strategy:** depending on pair programming as a means of cooperation. Assist team members in learning how to use pair programming or adjust to new technologies by offering guidance and assistance. **Strategy type:** Mitigate **Contingency plan:** If required, look into other tools or development environments that work with MacBooks. Set aside more time for pair programming sessions to make

		annoyance if certain technologies aren't completely utilized.		sure that everyone is working together effectively. **When to invoke contingency plan:** Use the strategy if team members who use MacBooks continue to face major challenges because of the selected technologies, which is impeding the project's progress or the quality of their work.
R11	**Platform Change risk:** Risk that changing platforms from Uno to React might create problems	Impact: Medium (delayed the development of the frontend by at least a week) Probability: Certain Risk Score: Medium-High Consequences: 1) Delay in task completion for the frontend. 2) Domino effect: Delays in frontend development caused setbacks for backend development as well.	Sprint 2	**Strategy:** Use Chris as a resource for frontend developers since he has by far the most experience with the new framework. Chris is able to help the other developers with most of their bugs. **Strategy type:** Mitigate **Contingency plan:** If required, use more time-consuming learning resources for React to improve our developers' knowledge **When to invoke contingency plan:** Use the contingency plan if the number of setbacks for the frontend becomes too much.

R12	**Code Coverage Testing Delay Risk:** The code coverage testing would take longer than expected due to external matters, which would affect the project overall schedule.	Impact: Medium (4 days delay) Probability: Medium (30%) Risk Score: Medium Consequences: 1) it will increase the chance of errors and problems in the code. 2) Possible hold-ups to find and fix the problems. 3) It will decrease the trust in the reliability and dependability of the system.	Sprint 3	**Strategy:** Code coverage testing is made as a top priority in the next sprint and assigns multiple developers from the team to complete testing. **Strategy type:** Mitigate **Contingency plan:** Provide more resources and continue the testing process into later sprints, if the code coverage testing can't be done in Sprint 3. We will make sure that other important tasks are not missed. **When to invoke contingency plan:** if some problems happen during the code coverage testing and stop it from being done in the allocated sprint time.
R13	**Security Risk:** The condo management system could be exposed to security risks, such as virus attacks, hacking, and data breaches, which is dangerous to the data and system reliability.	Impact: High (5 days delay) Probability: Medium (30%) Risk Score: High Consequences: 1) It will harm the system's reputation. 2) Users might lose trust in the system. 3) Potential legal consequences.	Sprint 5	**Strategy:** Reduce the risk by increasing the security measures, such as firewalls, robust security measures, regular evaluation of the security.. **Strategy type:** Mitigate **Contingency plan:** Create backup plans, communicate more with the stakeholders, and create strategies for the security so we can react quickly to any harm. **When to invoke contingency plan:** If a security breach happens.

R14	**Compliance with Regulations Risk:** laws or industry standards might change at any point in time, that will impact how the condo management system will operate or what it will be able to do.	Impact: High Probability: Medium (30%) Risk Score: High Consequences: 1) It might lead to legal consequences and fines. 2) There will be some disturbances in the system's operation. 3) It will impact the system's reputations, if found non-compliant.	Sprint 5	**Strategy:** The risk of non-compliance can be reduced by outsourcing changes or updates to guarantee that the system complies with industry standards and laws. **Strategy type:** Transfer **Contingency plan:** Make a contract with third-party providers to keep up with the updates and changes, and they can inform the team on what to do and how to react to these changes. **When to invoke contingency plan:** There are significant changes to laws or industry standards.
R15	**Management Risk:** The likelihood of internal mismanagement that might result in project failures or errors. This may involve poor decisions, insufficient allocation of the resources, poor communication, and failure to adapt to new changing conditions.	Impact: High Probability: Low (40%) Risk Score: High Consequences: 1) Project Delays: Missing deadlines. 2) Budget Overcharges: poor decisions and insufficient allocation of the resources might lead to time wasting more than what was planned.	Sprint 5	**Strategy:** Develop strong management procedures and plan more ways to communicate in order to reduce management risk. This needs solid planning, continuous reviewing, and having backup plans. **Strategy type:** Mitigate **Contingency plan:** Develop a good risk strategy that will show detailed steps that needs to be done when mismanagement occurs. To better solve identified issues, the plan should outline how resources should be reallocated, adjust the scopes of the project or change the management methods. **When to invoke contingency plan:** When there is an early sign of project changing, like missing deadlines, going over time, drop on team performance, then the

				contingency plan should be invoked.
R16	**Technical Development Risk:** The chance that the condo management system's technology will age and become less effective, and may become unsuitable with the new hardware and software, that leads to a poorer user experience than the new systems.	Impact: Low Probability: Medium (40%) Risk Score: Medium Consequences: 1) Decreased in user's satisfaction. 2) Problems with the interface that come for difficulties integrating the system with new technologies. 3) Maintenance costs will increase because older systems require more time and money to maintain.		**Strategy:** Stay up to date with the customer and users needs and keep up with the technological developments. That will make it easier to upgrade system components and schedule regular updates. **Strategy type:** Mitigate **Contingency plan:** Develop a strategy to make continuous reviews on technology and identify the components that may become outdated. **When to invoke contingency plan:** Every specific period of time (a year), when the technical development creates that the system or the system components might become outdated, after that the contingency plan should be invoked.

Figure [4.2]: List of identified risks