

# 12 Risk Management

## Risks Register

ID	Type	Description	Probability	Impact (out of 5)	Exposure	Justification	
1	Project	Team members are not familiar with the programming languages, frameworks, and tools used in the project.	70%	4	2.8	If some team member is inexperienced with technologies used in the project, they may take a lot of time to learn the technologies. This situation may slow down the project process.	Sprint 0
2	Business	Customer requirements are not met after the delivery of the final product.	20%	4	0.8	Since the project development planning time is only four months, It may be hard to meet the client's expectation.	
3	Project	Team members rarely participate in meetings due to personal reasons.	70%	1	0.7	The absent members are not at the same step as the others.	
4	Project	The project is delayed delivery.	20%	3	0.6	The project may not be launched in time due to software issues, hardware issues, communication issues and other unknown issues.	
5	Project	Team members may lack writing skill or communication skill in English.	80%	1	0.8	Most team members are not native English speakers, so it may be difficult for them to write or speak in English.	
6	Project	The GitHub codebase/branch may be messy.	70%	4	2.8	We have more than 10 student have authority of pull/commit on GitHub. For some students who did not have good commit practices, they may create unnecessary branches and meet merge conflicts.	
7	Project	Meaningless content is still included in the evaluation of the student's contribution.	70%	2	1.4	Some students sent some meaningless messages on the slack platform or made multiple commits on GitHub but did not bring progress to the project. This part of the content will still improve students' contribution.	
8	Project	Team members may not always do development work where they should be.	30%	4	1.2	When some members did not check the task schedule on the Confluence or JIRA, they mistakenly performed invalid work in the part that did not belong to them.	
9	Project	The team decides to change the programming language or framework or other technologies they used before in the middle or late sprint.	20%	4	0.8	In the beginning, the team choose to use a technology for frontend/ backend development. However, during the middle or late sprint, the team members think it is better to use another technology instead.	
10	Product	The data may come from different resources, so that it may cause conflicts between data or the data cannot be merged.	50%	4	2.0	Different platform has its own data format. If it doesn't deal with data in a proper way, it may cause big problem such as conflicts.	
11	Product	Data may be leaked, causing serious security issues.	40%	4	1.6	Security problem may happen in the system anytime and anywhere. The system must guarantee data integrity and authenticity.	

## Risk Matrix

High (5)			
Medium (3-4)	2, 4, 8, 9	1011	1, 6
Low (1-2)			3, 5, 7
Impact/ Likelihood	Low (<=30%)	Medium (30%-60%)	High (>=60%)

## Response to Risks

ID	Trigger	Owner	Response	Resources Required
1	Lack of experience	Scrum Master	Each team member should start learning relevant knowledge in the first few weeks.	Learning materials (e.g. online tutorials)
2	<ul style="list-style-type: none"> <li>Misunderstand the client's requirements;</li> <li>Unable to develop the required functions</li> </ul>	Scrum Master/ Product Owner	<ul style="list-style-type: none"> <li>The team should frequently communicate with the client and continuously validate requirements with the client.</li> <li>The team members should reasonably arrange the tasks and their required time for each sprint, and should be familiar with the needed technologies as much as possible.</li> </ul>	<ul style="list-style-type: none"> <li>Slack, Zoom, Gmail</li> <li>Trello, learning materials</li> </ul>

3	Absence of a meeting	Scrum Master/ Group leader	One of the team members can create meeting notes for each meeting and record each meeting. The absent members can get help from other members if they do not understand some meeting contents.	Zoom, Slack, Confluence
4	Poor time management	Scrum Master/ Frontend Leader/ Backend Leader	The project owner, frontend leader and backend leader can use Trello to track the tasks to make sure every task is finished on time.	Trello
5	<ul style="list-style-type: none"> <li>Writing Documents</li> <li>Having meetings</li> </ul>	Each Team Member	<ul style="list-style-type: none"> <li>After finishing the documentation, the team member can ask other team members to check it.</li> <li>Every team member should control the speed of communication.</li> </ul>	<ul style="list-style-type: none"> <li>Grammarly</li> <li>Slack, Zoom</li> </ul>
6	<ul style="list-style-type: none"> <li>When students start work on a new function, they create a new branch for it.</li> <li>When some student work on same task and end up with conflict in code</li> </ul>	Quality Assurance/ Scrum master	<ul style="list-style-type: none"> <li>Quality Assurance to set up a document about how to use Git effectively on Confluence.</li> <li>Ensure that each task on JIRA is assigned only to one developer so that no overlaps happen.</li> </ul>	JIRA, Confluence
7	<ul style="list-style-type: none"> <li>When some students want to text more to help them achieve higher scores</li> <li>When some students don't know how to work more efficiently or express ideas in short language</li> </ul>	Product Owner	<ul style="list-style-type: none"> <li>Supervisors will have to use their own discretion in assessing a team's communication quality.</li> </ul>	Slack, GitHub
8	<ul style="list-style-type: none"> <li>When there are new/updated documents on Confluence, or new/updated tasks on JIRA, but team members fail to get notified and are ignorant of the changes.</li> </ul>	ScrumMaster /Product Owner  /People who make changes to documents or tasks	<ul style="list-style-type: none"> <li>When making changes or additions to Confluence documents or tasks on JIRA, the person doing this should ensure that everyone is notified of the latest arrangements.</li> <li>Team members should proactively confirm messages and check documents/tasks.</li> </ul>	Confluence, JIRA
9	Code writing	Frontend Developer/ Backend Developer	<ul style="list-style-type: none"> <li>Frontend/ Backend leader should find the best technologies for development as soon as possible.</li> <li>The team will not change the technologies after Sprint 0.</li> </ul>	VScode, Pycharm
10	<ul style="list-style-type: none"> <li>Different resources may use different data formats.</li> </ul>	Architecture Lead/Testing Lead	<ul style="list-style-type: none"> <li>In the developing period, the architecture lead and developers should consider every format of data we will collect and make sure the encoding type is able to read and write.</li> <li>The testing lead should design the testing cases in consideration of this problem.</li> </ul>	VScode, Pycharm
11	<ul style="list-style-type: none"> <li>Someone attacks system to obtain data illegally.</li> </ul>	Architecture Lead/Developer	<ul style="list-style-type: none"> <li>Choose Cryptographic Algorithms when transferring data. The architecture lead and developers should make more efforts to ensure data can be secure during developing.</li> </ul>	VScode, Pycharm