

# ECSE Capstone Project Risk Analysis: Team #2

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## Identified Risks

### Risk #1: Task(s) Taking Too Much Time

**Why this is a risk:** It is impossible to tell how long something will take until you have delved into it first. A task requiring more time than expected could be the result of team member(s) encountering great difficulty due to a required skill set that was unknown prior to starting (or a variety of other reasons, such as a task being a genuinely difficult undertaking), then leading to the task taking far longer than is required to finish the project on time.

#### Example of this risk:

- Team member(s) are not previously aware they need to have knowledge of a certain technology for an implementation task, and are forced to spend a long time researching/learning about it.
- A certain task involving a scope that is too large for the assigned team member(s) to work on, leading to a lack of motivation or shortcuts being taken

**Potential mitigation strategy:** The struggling team member(s) should take initiative to use the project management tool Jira to split the tasks into more achievable scopes, and give status updates so there are no surprises for the other team members in meetings about progress. If needed, the team leader can host a meeting for the team to plan ahead and resolve how others can assist once they have capacity. When planning tickets in the team's fixed meeting slots there needs to be input from multiple team members so that not just one member's definition of difficulty is used.

#### - **Mitigation Justifications:**

- **Specific & Verifiable:** Team member(s) only need to identify what's causing difficulties and communicate that. Having multiple opinions on a task's difficulty will be done directly at the fixed meeting times.
- **Assigned:** The responsibility is on the team member(s), it is clear that those who have capacity are the ones who step in to help
- **Appropriate:** The team member(s) who are struggling on the task know why the task is considered 'hard' and can effectively split the task. The difficulty of the task being well considered before also means that there is less work to actually split up the task
- **Realistic:** Those struggling are going to be willing to split up tasks, and does not take much effort for communicating this
- **Example of mitigation strategy application:** Teammate #1 believes that the scope of implementing a feature in software requires creating too many individual modules and requires integration as well. Teammate #1 therefore splits up the task into one for each module and notifies the team. Teammate #2 who has just finished a simple task and has capacity picks up this task and the completion of the project tasks aren't significantly delayed.

**Monitoring plan:** As per our team charter, we will require team members to talk about the difficulties they are facing during status updates and meetings. Reported difficulties which are accompanied by deadlines not being met will be considered as issues, and actions from the mitigation strategy are to be applied, starting with splitting the tasks.

## **Risk #2: The team charter is not fully respected**

**Why this is a risk:** The team charter outlines values, priorities, role, responsibilities, and ground rules. Whether or not these are followed by each and every team member is unpredictable and hence a risk.

### **Examples of this risk:**

- Team member(s) veer from the roles they are given in the charter
- Team member(s) never or rarely uphold core values in the charter
- Team member(s) violate ground rules in the charter

**Potential mitigation strategy:** There is an inherent assumption that all team members want to succeed. Under this assumption, a great mitigation strategy would be that if the team charter is violated in any way, *and* comes as a detriment to the team, a review of the charter initiated by the group leader will take place, whereby roles, responsibilities, ground rules, and values can be either reiterated or changed depending on how the project is currently going and the extent to which the charter was violated. If a team member continues to violate the charter at the detriment of the team, escalation to teaching staff may be necessary as they pose a legitimate threat to the success of the project through no fault of the rest of the team.

### **Mitigation Justifications:**

- **Specific & Verifiable:** The review/escalation to university staff is done simply via communication channels set up by the group, or by email to the staff.
- **Assigned:** The group leader is responsible for review initiation/staff escalation.
- **Appropriate:** Directly addresses the issue by reviewing a charter that may not have been suitable in the first place *or* holds the violating team member accountable by escalation to staff.
- **Realistic:** Requires only communication via internal channels (e.g. Slack, Discord) or email if an escalation occurs.
- **Example of mitigation strategy application:** Teammate #1 notices that Teammate #2 is violating the charter by “stealing” their role. This causes a lack of work cohesion due to Teammate #1 having to swap work to temporarily address the issue. Teammate #1 argues that given the circumstances, it makes more sense for them to take on that particular role, and requests a review of the charter. A team meeting is held to review the charter and the team agrees that Teammate #1 and #2 should swap roles, restoring group cohesion and enhancing the team charter.

**Monitoring plan:** Any disagreements or rising tensions in the team should be met with a review of a team charter, and breaches will be considered an issue that should lead to steps taken from our mitigation plan.

## **Risk #3: Team member is not attending a meeting**

**Why this is a risk:** This causes a sequence of issues because the project is targeted at teamwork, and thus meetings are one of the primary ways of doing so. Lack of attendance can reduce clarity when it comes to work expectations at a given point. This lack of clarity can cause members to get stuck, not complete the work, or complete the work in a manner which is not coherent with the outlines we set up in meetings. Non-attendance of meetings is a primary cause of members who miss deadlines, so it must be avoided where possible.

### **Examples of this risk:**

- Team member(s) miss catch ups that we have in accordance with workload

- Team member(s) miss the regular weekly meetings the group hosts

**Potential mitigation strategy:** Firstly we need to ensure that appropriate measures are in place that a member who misses a meeting can effectively and accurately catch up. Meeting minutes are recorded in a google doc on our shared drive.

The best method for this is taking meeting minutes on Google Docs. A missed meeting can be caused by lack of clarity surrounding meeting times, so a clear time that all members can consistently attend is stated for regular meetings, and adhered to. We have decided to make this time 12pm on Tuesdays during lab time in our designated lab room.

The meeting chairperson will send reminders to all members about the meeting via Slack/Discord, in the evening prior to the meeting such that everyone is informed. We also set clear expectations that unless there is a good reason, meeting attendance is mandatory. If people are consistently missing meetings, without justification, the chairperson will contact the course management.

- **Mitigation Justifications:**

- **Specific & Verifiable:** Minutes recorded in every meeting on google docs on shared drive. 12pm Tuesday regular meeting times in our lab room. Reminders are sent out on the night prior to the meeting.
- **Assigned:** Assigned minute taker takes meeting minutes as described in the team charter. Chairperson sends meeting reminders. Team leader reports malfeasance to staff.
- **Appropriate:** Setting a clear time agreed with everyone, sending reminders addresses the issue directly because lack of awareness and clarity can cause people to miss meetings. This addresses it so people have adequate time to state whether there is a clash with the meeting, and will ensure all members are fully aware of meeting times.
- **Realistic:** Missing meetings with an appropriate excuse is fine, and minutes are taken to accommodate this. Reminders are a simple, achievable method of ensuring awareness.

**Monitoring plan:** We will always take attendance at meetings and immediately consider the absence of members an issue, and take the appropriate action from our mitigation plan.

#### **Risk #4: Risk of losing team assets (software and hardware)**

**Why this is a risk:** Work carried out in a team environment requires assets to be stored in multiple places, which can result in version conflict and loss of the most recent branch of work.

**Examples of this risk:**

- A member may code/build a part of the project which other members will need to build upon, if they do not have access to the latest version then project assembly may be difficult or impossible.
- Physical prototype components could be misplaced or not accessible when a member needs them to work on their task.

**Potential mitigation strategy:** For code and design files, we need to establish a practice of frequently pushing new changes to our code on GitHub, so we can reduce the risk of losing important work. We need to also make sure that all the code that is being worked on is in our repository and prevent scenarios where a team member could code on local files kept on their devices and be more susceptible to data loss. Adherence to this strategy would mean that our project would go as smoothly as possible and we can spend more resources on improving existing code rather than attempting to recover or recreate lost code.

For prototype components, a repository in the uni is needed, either a locker, an allocated bin in a lab, or some other accessible and fixed secure location. This will be assigned when more information becomes available from the course coordinators. It will be the responsibility of each team member that accesses the repository to return all assets and any new ones to the repository, and remain contactable via the Slack/Discord, in case another member needs immediate access to them.

- **Mitigation Justifications:**

- **Specific & Verifiable:** Defined repositories for project assets to be stored.
- **Assigned:** Clearly practice for project assets. Onus on each member interacting with project assets to follow these guidelines.
- **Appropriate:** We've used these before and they are designed for this purpose.
- **Realistic:** Each student would have enough experience with coding or lab work to have a part of their routine where they double check that their work is safeguarded.

**Monitoring plan:** We will make it part of our team policy to immediately notify everyone in discord that such an incident has happened and make sure that any reports of lost work is considered an issue right away.

## **Risk #5: Not being able to communicate with a team member**

**Why this is a risk:** If it is not possible to make contact with a team member then there will be a breakdown in task allocation and management. Initially the team may be uncertain how to handle lack of communication and will continue working as normal on the assumption that the missing team member will get back to them soon enough. However, if the team member continues to be unresponsive, the team may be left in a position where other members must urgently try to pick up the slack in a short period of time to ensure deadlines are met. Otherwise, the work flow of the team may be severely inhibited and negatively affect the performance of the team in its current milestone and the project as a whole.

**Examples of this risk:**

- A team member has given up on the project and refuses to engage with the team or course.
- A team member becomes incapacitated such that they are unable to communicate or respond to the team for an extensive period of time.

**Potential mitigation strategy:** The team has organised two weekly meetings that everyone must attend in person unless they communicate beforehand that they are unable to attend and the team approves. Therefore, any unexplained absences are noticed immediately. The team leader will ensure a team member contacts the missing individual near the start of the meeting to ascertain if they are coming (running late). In the event the team member does not attend the meeting, they will have two days to follow up with the team about their absence and what they missed, otherwise the team leader will notify the tutor of communication difficulties.

- **Mitigation Justifications:**

- **Specific & Verifiable:** Outlines allowable absences and timeframes, as well as frequency of meetings.
- **Assigned:** Team leader is responsible for notifying tutor of unacceptable absence.
- **Appropriate:** The team has agreed upon an acceptable amount of time before and after meetings for the team member to communicate absence.
- **Realistic:** It is easy to notice absence from in-person meetings and communicate through Slack, Discord or email.

**Example of mitigation strategy application:** Suppose that during one of the weekly in-person meetings, Team Member A is unexpectedly absent. As per the mitigation strategy, the team notices the absence immediately. A team member will then reach out to Team Member A at the start of the meeting to inquire about their attendance.

If Team Member A doesn't respond during the meeting, the team gives them a two-day window to follow up and communicate the reason for their absence. If, after two days, Team Member A still hasn't reached out, the team leader takes the responsibility to notify the tutor about the communication difficulties, ensuring that potential issues are addressed promptly.

**Monitoring plan:** We will base a team member's availability on whether or not they are giving updates on the relevant channels and attending meetings. If there is a lack of communication past the given limit of two days we should consider this risk as becoming an issue.

## **General Monitoring Plan (Once the risks become issues)**

Our general monitoring plan for all identified risks will ensure that we have a way to know if the mitigation steps outlined above are being followed in case a risk starts becoming an issue.

A start should be to dedicate some time to discuss the outlined risks and the progress of mitigating other previously identified issues. A discord/slack channel for updates should be created for this purpose where a repeating reminder will be used to encourage team members to provide updates.

These updates can be a daily status check where team members should specify what they will be working on for the day (it is ok to say nothing if that is the case), this way in meetings we can go off these updates as a way to evaluate our progress.

We will be using Jira, a task management software, to outline what work needs to be done and record who has completed them. With this software, we will be able to:

- Measure the rate at which the work is being completed
- Track whether we are performing ahead-of/on-pace-with/behind schedule
- Create tasks, including a description of what needs to be done, acceptance criteria and an estimated difficulty
- View tasks in progress, in review or completed by each team member

This software also provides implicit communication about the work rate of individual team mates which can assist in initiating conversations when people are blocked.

Using Jira's commenting feature, we can encourage the team to comment on their progress, which provides a detailed history on how the task progressed. This however should not be a substitute for splitting tasks into appropriate sizes.