Section 4

Risk Assessment and Mitigation

4.1   Introduction

Throughout the project we will face a number of potential risks however we will do our best to mitigate them. When analysing the risks we will focus on two factors, likelihood and severity.

A risk can either have a high, medium, or low chance of becoming a reality. If a problem is not likely to occur when running a project three times or more we deem it to have a low likelihood. If it is likely to occur once during the project or when running a project twice we deem it medium likelihood. Finally, if it is likely to occur multiple times during the project, we will deem it as high likelihood.

A risk can also either be high, medium, or low in severity. A high severity risk could result in months of lost progress up to having to totally start over. A medium severity risk could result in the loss of between one week and a few weeks of progress. Finally a low severity risk would only result in a maximum of a few days of lost progress.

To combine these two factors into something meaningful we will use a risk matrix (Figure 4.1). This will allow us to find a balance and identify the risks that will pose major problems.

		Likelihood		
		Low	Medium	High
	Low	Low	Low	Medium
Severity	Medium	Low	Medium	High
	High	Medium	High	High

Figure 4.1: Table showing how likelihood and severity of a risk combine to show overall impact of the risk

Green cells in the matrix are considered to be overall low risk, this is because they are not particularly likely to happen and if they do they will not have be severe enough to majorly impact the project. Orange cells signify an overall medium risk. They are either likely to happen but low severity, very unlikely to happen but would have a very severe impact or somewhere between. Overall high severity risks, red cells, are the most important to mitigate. They have a reasonably high chance of happening and could result in the loss of weeks or months of work.

It is important to categorise risks once they have been identified so that we can prioritise mitigation, it is imperative that overall high risks cannot happen and in the case that they do we must be able to cope with them and have protocols in place to lessen the impact.

We will be presenting the risks in a risk register with columns identifying, analysing and showing the mitigations for the risk. This will give us an accessible and easily modifiable document which we will be able to use throughout the project when considering or attempting to mitigate risks.

4.2   Risk Assessment

Category	Name	Severity	Likelihood	Overall	Mitigation	Contingency
Staff	Team member leaves	High	Low	Medium		
Staff	Staff sick or unable to attend meetings.	Medium	High	High	Let other members of the team know as soon as possible	Other staff takes over their work temporarily.
Staff	Dont have the skill required to complete the task.	Low	Medium	Low	Research the skills needed. Ask other team members if they know how to help.	Read books and the internet about required skills.
Staff	Staff dont listen others opinion	Low	Low	Low	More communication, consult Richard/Fiona if the problem continues.	Stay together and work out the root reason, then resolve it.
Staff/Requirements	Staff failed to complete the task before deadline.	High	Low	Medium	More rapid sprint to ensure everyone is on track.	Cut our optional features and complete the compulsory requirements first.
Requirements	Change of requirements	Low	High	Medium	Keep in touch, build and show to the client	Update the requirement document and update the product.
Requirements	Responsible of telling the customer that requirements were impossible and offer alternative options.	Low	Low	Low	Negotiate with the customer before updating the requirements.	Explain to the customer what has to be changed.
Requirements	Cannot meet the requirement	High	Low	Medium	Design realistic requirements before start coding.	Modify the requirements so it can be met.
Tech	Data lost - e.g. hard drive failure.	Medium	Low	Low	Backup data regularly to cloud or different devices.	Restore most recent backed up data.
Tech	IT facility failure	Low	Low	Low	Routine maintenance to devices.	Use campus computer to continue development.
Tech	Security threats	High	Low	Medium	Install antivirus software and enable firewall.	Seek IT support for help and continue working.
Tech	Software bug that causes data loss.	High	Medium	High	Backup data before executing dangerous commands.	Reset to the previous commit using git.

Category	Name	Severity	Likelihood	Overall	Mitigation	Contingency
Tools	Tools not available	Low	Medium	Low	Research background information about alternatives before proceeding.	Switch to an alternative tool, request help from IT support or create one if enough time before deadline.
Tools	Unfamiliar with the toolset.	Low	Medium	Low	Learn how to use the tool.	Ask IT support or other teammates for help.
Tools	Tools does not fit into the project after start off.	Low	Medium	Low	Do extensive research and comparison before integrating to the workflow.	Find alternative and re-evaluate options.
Estimation	Estimates that there will not be enough time to finish the whole project.	High	Medium	High	Allocate and plan the time efficiently.	Plan and spend more time for the project.
Customer	Customer changes the requirements.	Low	High	Medium	Keep in touch and understand the necessary changes as soon as possible.	Examine new requirements and update them accordingly.
Customer	Customer doesn't allow or understand why we have to change the requirements.	Medium	Medium	Medium	Keep in touch with the customer	Sit next with the customer and talk through the reason why.
Test	Bugs discovered	Medium	High	High	Understand the code and have comments around them.	Fix bugs.
Test	Something wrong but cannot find the errors.	Medium	Medium	Medium	Put comment around the code to describe, and do tests.	Debug the problem using a debugger and seek for help.