

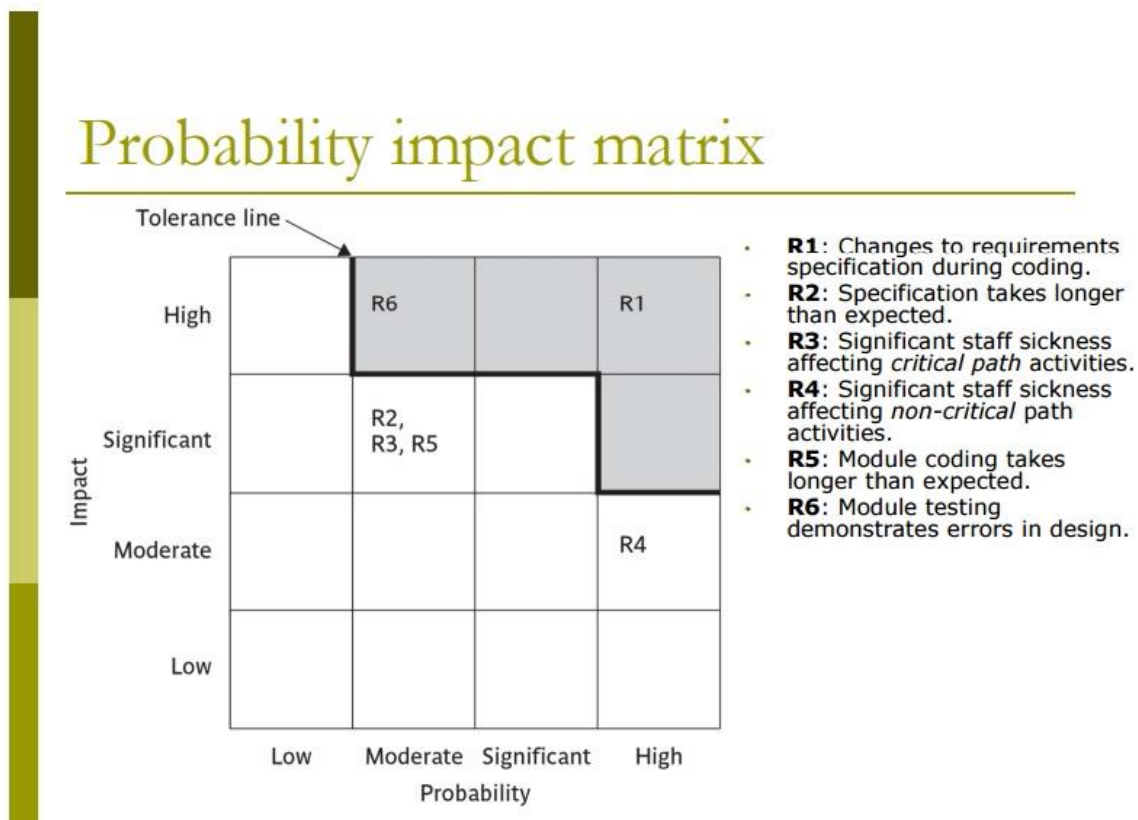
## Risk analysis & measures document

I'm jealous of your bit, because of lecture "7-Risk Management.pdf". Take advantage of it - you have absolutely amazing potential with this document!

Below is the recommended structure for this document.

### Probability impact matrix

In a section above the risks list, include a "probability impact matrix" diagram. Then put each risk in the risk list on it. Similar to below:



### Risk list

Include "Boehm's top 10 software development risks" (see slide #12 in lecture "7-Risk Management.pdf").

### Risk template

If you want to see Hoa dance, state each risk in the following template (I can't merge table cells, so it looks messy... but it should help). There is a "legend" for this template after the template example.

Risk ID:	Risk:	Risk priority:	Risk exposure level:	Risk category(s):
Causation analysis				

How this risk was identified:	Cause(s):	Probability:		
<b>Effects analysis</b>				
Risk type:	Impact level:	Effect(s) categories:	Potential effect(s):	
<b>Occurrence details</b>				
Risk occurred:	Actual cause & effect:	Action taken to leverage/mitigate the risk:	Details on how the risk was dealt:	How could this risk be dealt with more effectively in future projects:

Example:

Risk ID: RSK-1	Risk: Integration of UI & back-end API	Risk priority: SERIOUS	Risk exposure level: HIGH	Risk category(s): ACTORS, TECHNOLOGY, TASKS
<b>Causation analysis</b>				
<b>How this risk was identified</b> CHECKLIST	<b>Cause(s)</b> Necessary linking of the front-end code & back-end code, to deliver a correct software solution	<b>Probability</b> 1.00		
<b>Effects analysis</b>				
<b>Risk type</b> NEGATIVE	<b>Impact level</b> HIGH	<b>Effect(s) categories</b> SCHEDULE	<b>Potential effect(s)</b> Additional development time required to ensure successful interoperability of both systems	
<b>Occurrence details</b>				
<b>Risk occurred</b> YES	<b>Actual cause &amp; effect</b> JavaScript API complied with the protocol, but it's scope went outside the protocol specification.  PHP API did not comply	<b>Action taken to leverage/mitigate the risk</b> RISK ACCEPTANCE, RISK MITIGATION	<b>Details on how the risk was dealt</b> Formal protocol specification was created, which was to be complied with by both systems	<b>How could this risk be dealt with more effectively in future projects</b> Prevent scope creep when implementing code that requires

	<p>with the protocol.</p> <p>Additional 3 weeks development time was required to allow interoperability of both systems</p>			<p>compliance with protocol.</p> <p>Don't be naive, by ensuring the implementation complies with the protocol before software integration.</p>
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### Risk template legend

Risk exposure level: (LOW | MEDIUM | HIGH)

Risk priority: (MINOR | SERIOUS)

- See slide #10 in lecture "7-Risk Management.pdf"

Risk type: (NEGATIVE | POSITIVE)

Risk category(s): (ACTORS and/or TECHNOLOGY and/or TASKS and/or STRUCTURE)

- See slide #6 in lecture "7-Risk Management.pdf"

Effect(s) categories: (FINANCIAL and/or SCHEDULE and/or SCOPE)

Potential effect(s):

- See slide #15 in lecture "7-Risk Management.pdf"

Probability: (any decimal number between 0.00 & 1.00)

- See slide #15 in lecture "7-Risk Management.pdf"

Impact level: (HIGH | SIGNIFICANT | MODERATE | LOW)

- See slide #17 in lecture "7-Risk Management.pdf"

Risk occurred: (YES | NO)

How this risk was identified: (CHECKLIST | BRAINSTORMING | CAUSAL MAP)

- See slide #11 in lecture "7-Risk Management.pdf"

Action taken to leverage/mitigate the risk: (RISK ACCEPTANCE | RISK AVOIDANCE | RISK REDUCTION | RISK TRANSFER | RISK MITIGATION)

- See slide #21 in lecture "7-Risk Management.pdf"

## List of major risks encountered during project lifetime

### Week 1

[NEGATIVE] Underestimating the time required to deliver the software solution, due to uncertainty of future events

[NEGATIVE] Inexperienced team member

[NEGATIVE] Time overhead required to understand team member's strengths and weaknesses

### Week 2

[NEGATIVE] Uncertainty about the volatility of elicited requirements from Hoa & Daniel (the "clients")

### Week 3

[POSITIVE] New team member joined, allowing workload to be spread more comfortably

[NEGATIVE] New team member entering late into the project

[NEGATIVE] Scope creep & gold-plating during requirements brainstorming session

[NEGATIVE] Unknown time required to deliver the documentation, due to ambiguous requirements which needed to be clarified for correct documentation

### Week 4

[NEGATIVE] Documentation task delegated to a team member inexperienced with the involved technologies

[NEGATIVE] Potential inconsistencies between team members on what they think we are to build (e.g. Michael may think we are building solution A, but everyone else is in the mindset of building solution B)

[POSITIVE] Requirements elicitation through additional methods allowed documentation to be correct

[POSITIVE] Delegating different documentation tasks across multiple team members enhances project productivity significantly, compared to just 1 person doing all the documentation

[NEGATIVE] Documentation merging between team members has the potential to be catastrophic

### Week 5

[NEGATIVE] Potentially incorrect documentation, from a requirements validation perspective ("are we building the right product?")

### Week 6

[POSITIVE] Delegating tasks to multiple team members enhances project productivity.

[POSITIVE] Formal protocol specification created beforehand, which enhances the probability of a smooth integration between the UI & back-end system, which must communicate to each other.

### Week 7

[NEGATIVE] Integrating the UI & back-end system presents the risk of interoperability upon integration. If interoperability fails, additional overhead development time is required to allow interoperability.

[POSITIVE] The meeting (where the integration of the UI & back-end systems) was an opportunity for person-to-person verbal communication, which is more efficient & effective than inconsistent & spontaneous virtual communication.

### **Week 8**

[POSITIVE] Smooth integration of systems developed by different people enhances team morale significantly, ultimately enhancing team productivity temporarily.

[POSITIVE] As more of the solution is developed, a clearer idea of the system that the client(s) want is clearer, ultimately enhancing team productivity & morale.

[NEGATIVE] As more of the solution is developed, a clearer idea of the system that the client(s) want is clearer. The risk presented is that of potentially delivering an incorrect system.

[NEGATIVE] Designing the database schema before requirements elicitation presents the risk of an incorrect database schema, which would require additional development time to ensure a correct software solution is delivered.

### **Week 9**

[POSITIVE] This week allowed team members to enhance their productivity on this subject, due to minimal timetable conflicts.

[POSITIVE] Presenting the software solution in its intermediate state to the client, allows for feedback. This presents the positive risk of ensuring correct requirements from the clients, which increases team morale & hence, team productivity.

[NEGATIVE] Presenting the software solution in its intermediate state to the client, allows for feedback. This presents the potential negative risk of identifying an incorrect software solution. Since getting feedback this late in the project, the schedule would not be long enough to re-create the solution.

[NEGATIVE] At this stage, the team perceived the solution to be almost complete. This overconfidence presents the risk of a feeling of invulnerability, which will result in significantly degraded team morale if the solution hits a "roadblock", or the solution is identified as being incorrect by the clients.

### **Week 10**

[NEGATIVE] Unexpected inconsistent availability of Michael Nguyen (lead) degraded team cohesion & communication effectiveness. This presents the short-term risk of misperception of communication & lower team productivity.

[POSITIVE] This stage of the project is very late in the project's schedule & hence, there is the positive risk of potentially finishing the project early. This "potential" can be leveraged as a source of motivation to enhance team productivity (i.e.: "carrot on a stick" human psychology).

[NEGATIVE] This stage of the project is very late in the project's schedule & hence, there is the risk of project failure if there are any difficult roadblocks encountered

[POSITIVE] Techniques were carried out in an attempt to motivate & train an inexperienced team member. This presents the positive risk of being able to utilize the member's time to shorten the project schedule in the future.

[NEGATIVE] Techniques were carried out in an attempt to motivate & train an inexperienced team member. This presents the potential negative risk of investing time at the cost of no result.

### **Week 11**

[POSITIVE] Obtaining positive feedback from clients at this late stage in the project can significantly increase team morale

[POSITIVE] Due to timetables of all team members having no conflict at the scheduled meeting time, it presents an opportunity to praise the effort of all members to enhance team productivity & morale.

[POSITIVE] Feedback from the client confirmed that the solution the team has been developing for the past 11 weeks is correct (from a requirements validation perspective). This enhanced comfortability levels within the team.

[NEGATIVE] Documentation has not been started yet, which has been initially scheduled over the course of 2 weeks. Starting the documentation this late (with only 1 week remaining) presents the risk of incomplete and/or low quality documentation.

[POSITIVE] The tight deadline presents a positive risk, in the sense that it can be leveraged to be a source of "urgency", which enhances team productivity significantly.

### **Week 12**

[NEGATIVE] New requirements were discovered, which meant that additional development time was required to deliver a correct software solution. Conflicts between software development workload & documentation workload requires meticulous & strategically effective workload delegation amongst team members. The risk presented is overrunning the planned schedule & delivering an incomplete solution.

[NEGATIVE] Towards the end of the tertiary session, demands from other subjects increase. This presents the negative risk of requiring team members to dedicate less time to the project whilst they juggle workload between subjects.

[NEGATIVE] The lead experienced the unexpected external factor of work pressure, which resulted in a highly productive team member who has been delegated work critical to project success to be underutilized. This is a negative risk, because there were verbal commitments made to the team which stated full utilization of the lead during this time in the project.

[NEGATIVE] Due to the shortfall in project schedule, little time can be dedicated to testing the software solution. The risk of having major bugs in the system is enhanced, as well as having a system fault occur whilst presenting the software solution to the clients.

## **Effort estimation document**

*YOU WILL NEED TO CO-OPERATE WITH YANG ([zy783@uowmail.edu.au](mailto:zy783@uowmail.edu.au)), WHO IS CREATING THE*

*TASK DURATIONS IN HIS "DETAILED PROJECT PLAN". YOU WILL NEED THE DURATIONS OF HIS TASKS TO GENERATE THIS DOCUMENT.*

*PLEASE ATTEND SUNDAY'S MEETING @ 12:00, BUILDING 3 PROJECT LAB  
TO 100% COMPLETE THIS DOCUMENT.*

For each task:

- State it's type -> "EI", "EO", "EQ", "ILF" or "EIF" (see lecture "5.Software Effort Estimation.pdf", slide #15)
- State if it is "low", "medium" or "high" complexity
- Calculate the function point count for the task
- Calculate the adjusted function point count for the task (there is a slide in the lecture "5.Software Effort Estimation.pdf", that teaches you how to do this)

For the entire project:

- Use COCOMO1 to calculate the number of man months (& the other info such as project type) needed for this project (critical: include your math calculations to make Hoa dance)
- Use COCOMO2 to calculate the number of man/person months (critical: include your math calculations)