

PROJECT PLAN

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Project Title: Phone Bill Analyser

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Computing Project

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1. Project Plan

1.1. Overview

Management of this COMP8780 project will be aligned with the Project Management Body of Knowledge (Project Management Institute, 2000). The project plan addresses the PMBOK knowledge areas (scope, time, cost, quality, human resources, communications, risk, procurement and integration) and the project WBS is structured around the PMBOK project process groups (initiating, planning, executing, controlling and closing).

1.2. Scope

The following table is a 3-level WBS for the Bill Analyser Project. The 3-level WBS defines the scope of the project for COMP8780. A 5-level WBS has been created, which includes task effort estimates.

WBS#	phase	Task	Sub-task
1	initiation		
1.1		project proposal	
1.1.1			write project proposal
1.2		independent study contract	
1.2.1			write independent study contract
1.3		vision and scope	
1.3.1			write vision and scope
1.3.2			incorporate vision and scope feedback
1.4		initial presentation	
1.4.1			develop slides
1.4.2			write speech
1.4.3			practice presentation
1.5		project plan	
1.5.1			write project plan
1.5.2			incorporate feedback
1.5.3			re-baseline project plan after requirements development
1.6		create templates	
1.6.1			create risk log template
1.6.2			create issues and defect log template
1.6.3			create code templates
2	executing		
2.1		research technologies (enough for product selection)	
2.1.1			data mining libraries

WBS#	phase	Task	Sub-task
2.1.2			virtualisation
2.1.3			web mining
2.2		requirements development	
2.2.1			prototype
2.2.2			use cases
2.3		architecture	
2.3.1			identify views of system to model
2.3.2			model architectural views
2.4		design, code and unit test	
2.4.1			data generator (DG)
2.4.2			calculator (CAL)
2.4.3			predictor (PRED)
2.4.4			database (DB)
2.5		integration test	
2.5.1			integrate components
2.5.2			write
2.5.3			execute
2.5.4			fix
2.5.5			retest
2.6		final report	
2.6.1			incorporate previous content
2.6.2			abstract - separate to introduction
2.6.3			introduction
2.6.4			background
2.6.5			requirements
2.6.6			timetable
2.6.7			modelling
2.6.8			implementation
2.6.9			testing

WBS#	phase	Task	Sub-task
2.6.10			discussion, conclusions and future work
2.6.11			bibliography
2.7		final presentation	
2.7.1			develop slides
2.7.2			write speech
2.7.3			practice presentation
3	controlling		
3.1		stakeholder engagement	
3.1.1			weekly meetings with supervisor
3.2.1			weekly community of practice meetings
4	closing		
4.1		submit final report	
4.1.1			write email and submit final report

1.3. Time Plan (Schedule)

1.3.1 Weekly Summary Schedule

phase	Task	Weeks	1	2	3	4	5	6	7	b1	b2	8	9	10	11	12	13	14
initiation		1-5	■	■	■	■	■											
	project proposal	1	■															
	vision and scope	2-3		■	■													
	initial presentation	3-4			■	■												
	project plan	2-5		■	■	■	■											
	create templates	4				■												
executing		1-13	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	research technologies (enough for product selection)	1-3	■	■	■													
	requirements development	3-4			■	■												
	architecture	4-5				■	■											
	design, code and unit test	6-b2						■	■	■	■							
	integration test	b2-8									■	■	■					
	final report	8-13										■	■	■	■	■	■	
	final presentation	12														■		
controlling		1-14	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	stakeholder engagement	1-14	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
closing		14																■
	submit final report	14																■

Note:

- Week b1 = 1st week of the mid-semester break - week starting 13-Apr-2009.
- Week b2 = 2nd week of the mid-semester break - week starting 20-Apr-2009.

1.3.2 Detailed Tasks by Week

Week	Phase	Task	Sub-task	Sub-sub-task	Sub-sub-sub-task	Total Effort (Hours)
1	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 1		1.0
			weekly meetings with supervisor	meeting week 1		0.8
	executing	research technologies (enough for product selection)	virtualisation	open-source virtualisation		1.2
				proprietary virtualisation		2.0
	initiation	independent study contract	write independent study contract			2.0
						0.0
	project proposal	write project proposal			16.0	
1 Total						23.0
2	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 2		1.0
			weekly meetings with supervisor	meeting week 2		0.8
	executing	research technologies (enough for product selection)	web mining	open-source products	WM	3.0
				proprietary products	WM	3.0
	initiation	vision and scope	write vision and scope			6.6
	planning	project plan	write project plan	scope (inc WBS)		4.5
				time (inc schedule)		4.0
2 Total						22.9

Week	Phase	Task	Sub-task	Sub-sub-task	Sub-sub-sub-task	Total (Hours)	Effort
3	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 3		1.0	
			weekly meetings with supervisor	meeting week 3		0.8	
	executing	requirements development	prototype	report prototype		1.5	
				vertical paper prototype		4.3	
	initiation	initial presentation	develop slides			1.7	
		vision and scope	incorporate vision and scope feedback			1.8	
	planning	project plan	write project plan	communication plan		0.4	
				cost plan		0.4	
				integration plan		0.4	
				procurement plan		0.4	
				quality management plan		1.5	
				resource plan (e.g. hours available)		1.1	
			risk management approach		0.4		
3 Total						15.7	
4	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 4		1.0	
			weekly meetings with supervisor	meeting week 4		0.8	
	executing	architecture	identify views of system to model			1.9	
		requirements development	prototype	vertical code prototype		8.6	
			use cases	high-level use cases		3.6	

Week	Phase	Task	Sub-task	Sub-sub-task	Sub-sub-sub-task	Total (Hours)	Effort	
	initiation	initial presentation	practice presentation			1.1		
			write speech			2.4		
	planning	quality control	project plan	incorporate feedback			1.8	
			create code templates			1.5		
			create issues and defect log template			0.5		
			create risk log template			0.5		
4 Total						23.7		
5	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 5		1.0		
			weekly meetings with supervisor	meeting week 5		0.8		
	executing	architecture	model architectural views			11.2		
			design, code and unit test	database (DB)	DB detailed design		6.4	
	planning	project plan	re-baseline project plan after requirements development			1.8		
5 Total						21.2		
6	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 6		1.0		
			weekly meetings with supervisor	meeting week 6		0.8		
	executing	design, code and unit test	database (DB)	DB implement		5.0		
			data generator (DG)	DG detailed design		3.2		
				DG code		11.0		
				DG unit test	DG draft unit test		2.4	
6 Total						23.4		

Week	Phase	Task	Sub-task	Sub-sub-task	Sub-sub-sub-task	Total (Hours)	Effort
7	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 7		1.0	
			weekly meetings with supervisor	meeting week 7		0.8	
	executing	design, code and unit test	calculator (CAL)	CAL code	CAL code - part 1	10.0	
				CAL detailed design		3.2	
			data generator (DG)	DG unit test	DG execute unit test DG fix DG re-execute unit test	2.4 1.4 2.4	
	7 Total						21.1
b1	executing	design, code and unit test	calculator (CAL)	CAL code	CAL code - part 2	10.0	
				CAL unit test	CAL draft unit test	2.4	
					CAL execute unit test	2.4	
					CAL fix	1.4	
					CAL re-execute unit test	2.4	
			predictor (PRED)	PRED code	PRED code - part 1	10.0	
				PRED detailed design		3.2	
				read DM library guides		2.0	
				read theory		2.4	
		research technologies (enough for product selection)	data mining libraries	Perl DM library		2.0	
				Java DM library (e.g. weka)		2.0	
b1 Total						40.2	
b2	executing	design, code and unit test	predictor (PRED)	PRED code	PRED code - part 2	10.0	
				PRED unit test	PRED draft unit test	2.4	

Week	Phase	Task	Sub-task	Sub-sub-task	Sub-sub-sub-task	Total (Hours)	Effort
					PRED execute unit test	2.4	
					PRED fix	1.4	
					PRED re-execute unit test	2.4	
		integration test	execute			2.4	
					integrate components	3.6	
					write	2.4	
		b2 Total				27.0	
8	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 8		1.0	
			weekly meetings with supervisor	meeting week 8		0.8	
	executing	final report	abstract - separate to introduction			8.0	
			incorporate previous content			1.9	
			introduction			6.0	
			requirements			2.0	
		integration test	fix			1.4	
			retest			2.4	
		8 Total				23.4	
9	3.1	stakeholder engagement	weekly meetings with supervisor	meeting week 9		0.8	
	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 9		1.0	
		9 Total				1.8	
10	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 10		1.0	
			weekly meetings with supervisor	meeting week 10		0.8	
		10 Total				1.8	

Week	Phase	Task	Sub-task	Sub-sub-task	Sub-sub-sub-task	Total (Hours)	Effort
11	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 11		1.0	
			weekly meetings with supervisor	meeting week 11		0.8	
	executing	final report	background			6.0	
			bibliography			2.0	
			implementation			2.0	
			modelling			2.0	
			testing			2.0	
			timetable			2.0	
11 Total						17.8	
12	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 12		1.0	
			weekly meetings with supervisor	meeting week 12		0.8	
	executing	final presentation	develop slides			3.3	
			practice presentation			4.4	
			write speech			4.8	
		final report	install guide			4.8	
12 Total						19.1	
13	controlling	stakeholder engagement	weekly community of practice meetings	meeting week 13		1.0	
			weekly meetings with supervisor	meeting week 13		0.8	
	executing	final report	discussion, conclusions and future work			12.0	
			admin guide			4.8	
13 Total						18.6	
14	closing	submit final report	write email and submit final report			0.6	
	controlling	stakeholder	weekly community of	meeting week 14		1.0	

Week	Phase	Task	Sub-task	Sub-sub-task	Sub-sub-sub-task	Total (Hours)	Effort
		engagement	practice meetings				
			weekly meetings with supervisor	meeting week 14		0.8	
14	Total					2.3	
	Total					301.9	

1.4. Human Resource Plan

Table 1 shows the time the Department of Computer Science expect students to work on a 12 unit masters project and the time that Stephen Bowman has available to work on the project.

<u>DCS expected time</u>		hours
	weeks in semester	14
	hours per week	20
	Total hours expected	280
<u>Stephen's available time</u>		
<u>normal weeks:</u>		
	Sat	2
	Sun	4
	Mon	2
	Tue	2
	Wed	4
	Thu	2
	Fri	1
	total per week	17
	number of normal weeks	10
	<u>total normal weeks</u>	170
<u>2 weeks study leave</u>		
	Sat	4
	Sun	8
	Mon	8
	Tue	8
	Wed	8
	Thu	8
	Fri	8
	total per week	52
	number of weeks leave	2
	<u>total leave weeks</u>	104
<u>2 weeks leave</u>		
	Sat	0
	Sun	0
	Mon	0
	Tue	0
	Wed	1
	Thu	1
	Fri	0
	total per week	2
	number of weeks leave	2
	<u>total leave weeks</u>	4
	<u>Stephen's total available time</u>	278

Table 1 DCS Expected and Stephen's Resource Availability

Table 2 is derived from the project schedule and indicates the number of hours effort Stephen plans to spend each week on the project.

Week Number	Total Effort (Hours)
1	23.0
2	22.9
3	19.7
4	23.7
5	21.2
6	23.4
7	21.1
b1	36.2
b2	27.0
8	23.4
9	1.8
10	1.8
11	17.8
12	14.3
13	13.8
14	2.3
Grand Total	292.8

Table 2 Planned Hours of Work per Week

Table 3 is the earned value analysis plan for the project. It indicates the Budgeted Cost of Work Scheduled (BCWS) for the project. Actuals shall be tracked each week to determine whether or not the project is tracking schedule and resource plan.

Earned Value Analysis Plan

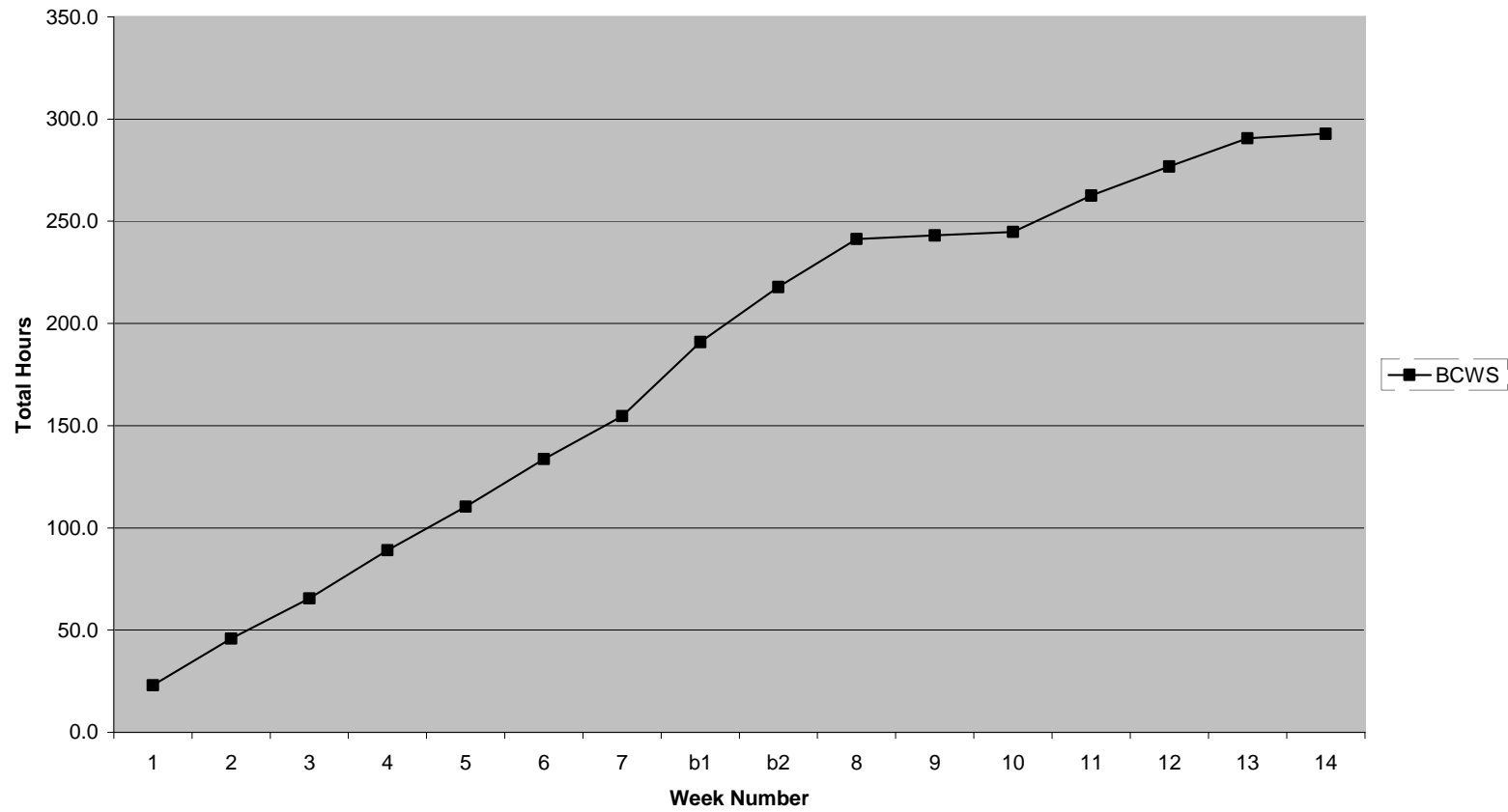


Table 3 Earned Value Analysis Plan

1.5. Risk Management Plan

Risks to successful completion of the project shall be identified, documented and managed throughout the project. Risks shall be managed to minimise the probability and impact of adverse conditions which may impact project outcomes. Risks will be documented in a spreadsheet.

Each risk will be rated in terms of its severity. The severity will be determined using two criteria:

- Likelihood: the probability that the risk will eventuate; and
- Consequence: the potential impact to the project if the risk eventuates.

The severity ratings are adapted from the Tax Office Risk Assessment and Management Plan Template (Project Management Improvement Team, 2008).

The probability of occurrence will have one of five values:

- Rare: highly unlikely to occur - $\leq 20\%$ chance of occurring before the end of COMP8780;
- Unlikely: could occur some times - $>20\%$ & $\leq 40\%$ chance of occurring before the end of COMP8780;
- Even Chance: might occur at some time - $>40\%$ & $\leq 60\%$ chance of occurring before the end of COMP8780;
- Likely: will probably occur at some time - $>60\%$ & $\leq 80\%$ chance of occurring before the end of COMP8780; and
- Almost certain: is expected to occur in most circumstances - $>80\%$ chance of occurring before the end of COMP8780.

The impact of occurrence will have one of five potential values:

- Low: minor impact to project deliverables and timelines;
- Medium: moderate change to project deliverables and timelines;
- High: quality of key deliverables compromised, major change to project outcomes, and $>10\%$ delay in schedule;
- Very High: quality of deliverables severely compromised, major project outcomes may not be achieved, and $>15\%$ delay in schedule; or
- Severe: quality of deliverables severely compromised, major project outcomes will not be achieved, and $>25\%$ delay in schedule.

Impact	Severe	High	High	Severe	Severe	Severe
	Very High	High	High	High	Severe	Severe
	High	Significant	High	High	High	High
	Medium	Medium	Medium	Significant	Significant	Significant
	Low	Low	Low	Medium	Medium	Significant
		Rare	Unlikely	Even Chance	Likely	Almost Certain
	Probability					

Table 4 Risk Severity Derived from Impact and Probability

The severity will be determined by combining impact and probability as shown in Table 4. Risk shall be managed as follows:

- Severe severity risks shall be discussed with the project supervisor on a least a weekly basis. Other DCS and computing professionals shall be approached for advice and assistance as appropriate;
- High severity risks shall be discussed with the project supervisor at least every fortnight;

- Significant risks shall be discussed with the project supervisor every 2-3 weeks; and
- Medium and low level risks shall be tracked by Stephen.

Appropriate mitigations for risks may include some or all of the following approaches:

- Changes to deliverables;
- Internet, text book or library research;
- Discussion with work colleagues; or
- Changes to scope or schedule.

1.6. Quality Management Plan

The quality of the system developed will be improved by utilising an iterative and incremental software development methodology with prototyping. For COMP8780, two iterations and two increments of the Phone Bill Analyser will be developed. The first iteration and increment will be for the vertical (end-to-end) prototype that confirms the system requirements and demonstrates and validates the end-to-end system architecture. The prototype will also provide domain knowledge which will assist with choice of appropriate data mining techniques.

The second iteration and increment of the Phone Bill Analyser will constitute the final product developed for the COMP8780 project. Later iterations and increments after the completion of COMP8780 will further enhance and change the Phone Bill Analyser.

Quality will also be enhanced by a rigorous staged approach involving the following stages:

- Business requirements documented in the vision and scope;
- User requirements documented in use cases;
- Prototypes to validate the requirements and system architecture;
- System architecture documented in architectural models;
- Detailed designs for each component;
- Unit tests to validate system components against their detailed designs; and
- Integration tests to validate the entire system against its business and ser requirements.

1.7. Cost Plan

There is no need for a budget for this project. All resources for this project will be acquired for free, either from the internet, library, or using current resources of Stephen Bowman (e.g. computer hardware).

1.8. Communication Plan

Communication about the project will occur in the following ways:

- Weekly community of practice meetings;
- Weekly project supervisor meetings;
- An initial talk to supervisors and faculty about the purpose of the project;
- This project plan indicating the plan for what, how and when the project shall accomplish;

- A final report including background information; the projects requirements, design, implementation and testing artefacts; and discussion, conclusions and future work;
- A final talk summarising the outcome of the project.

1.9. Procurement Plan

All resources for this project will be acquired for free, either from the internet, library, or using current resources of Stephen Bowman (e.g. computer hardware).

1.10. Integration Plan

The plans shall be integrated by Stephen Bowman. Integrating the plans will involve making tradeoffs throughout the project between the various plans. For example, scope may need to be modified to ensure that the schedule can be met. These tradeoffs shall be agreed with the project supervisor.

2. Bibliography

Project Management Improvement Team, Australian Taxation Office, 2008, *Risk Assessment and Management Plan*, Unpublished.

Project Management Institute, 2000, *A Guide to the Project Management Body of Knowledge (PMBOK Guide) 2000 Edition*, Project Management Institute, Newtown Square, Pennsylvania.