

Project Plan

Team Decided - Raft Consensus Library

Introduction

This part of the document outlines the high level objectives for each iteration, and where each architectural element will be delivered. Further to these, it will identify all risk mitigation strategies and allow for the execution of contingency plans where required. This plan aims to be a complete and concrete expression of the concepts of the Unified Process.

There are no mitigation strategies scheduled during this project plan as we are going to utilise the benefit of our design-focused planning to enable avoidance of risks, where we then have a fall back of contingency in place.

Project practices and measurements

This project will be performed through the application of the iterative design methodology, this includes fortnightly outline of work to be completed each iteration and a review of the progress in the previous iteration. This includes lessons learnt and assessment of any issues and contingencies.

This project's code development will utilise multiple distinct programming techniques to achieve it's non-functional requirement of exceptional code quality. These includes:

- TDD - throughout unit testing and integration testing to ensure functional outcomes are achieved
- Pair programming - A practice of two developers working together on the same screen (IDE, diagramming software, etc.), this technique has shown in practice to realise high levels of code quality
- Style guidelines - These are strict standards of code readability quality which each team member must adhere to
- Code review - This is the process of ensuring each member's code is reviewed by another before committing to the permanent code branch. This verifies quality through a two party acceptance system.

Deployment

This project will have a smooth a simple deployment. It's project repositories on Bitbucket will be set to public, and the code will be packaged and made available online for use through the Visual Studio package manager, NuGet.

Project milestones and objectives

Subject	Phase	Iteration	Dates	Primary objectives (risks and use case scenarios)
ITC303 – Software Development Project 1	Inception Phase	I-1	12/03 – 25/03	Establish Vision Establish Initial Use Case Model Complete Preliminary Non-functional Requirement Analysis Identify/Document Candidate Architectures Establish Version Control
		I-2	26/03 – 8/04	Establish Risk List Complete Full Description for Critical Core Risky Difficult (CCRD) Use Case Implement Technical Competency Demonstrator Create Test Plan Establish Initial Project Plan Deliver Life Cycle Objectives Milestone (LCOM) Complete Inception Phase Project Assessment
	Construction Phase	E-1	9/04 – 22/04 (Session Break)	Contingency for the delivery of LCOM Mitigate Highest Priority Risk - Detailed diagramming of all desired features of the library, as well as the writing of integration tests as part of the TDD methodology Implement Highest Priority Architectural Element(s) to Support CCRD Use Case - High Quality Code Complete Development Testing for Highest Priority Architectural Element(s) - High Quality Code, TDD
		E-2	23/4 – 6/05	Mitigate 2 nd Highest Priority Risk(s) - Network Communication and Security Implement 2 nd Highest Priority Architectural Element(s) to Support CCRD Use Case - Network Communication and Security Complete Development and Integration Testing for 2 nd Highest Priority Architectural Element(s) - Network Communication and Security
		E-3	7/05 – 20/05	Mitigate 3 rd Highest Priority Risk(s) - Distributed Consistent Log and Fault Tolerance Implement 3 rd Highest Priority Architectural Element(s) to Support CCRD Use Case - Distributed Consistent Log and Fault Tolerance Complete Development and Integration Testing for 3 rd Highest Priority Architectural Element(s) - Distributed Consistent Log and Fault Tolerance Ensure the Functionality of the Prototype Confirm all Integration Tests Pass for CCRD Use Case by the Prototype
		E-4	21/05 – 3/06	Contingency for completion of E-3 Deliver Life Cycle Architecture Milestone (LCAM) Complete Elaboration Phase Project Assessment
	Mid-year Semester Break			

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ITC309 – Software Development Project 2	Feature Phase	C-1	9/07 – 22/07	<p>Implement 2nd Highest Priority Use Case(s) - Dynamic Cluster Membership (2 node, odd nodes, even nodes)</p> <p>Complete Development and Integration Testing for 2nd Highest Priority Use Case(s) - Dynamic Cluster Membership (2 node, odd nodes, even nodes)</p> <p>Complete Internal User Acceptance Testing for 2nd Highest Priority Use Case(s) - Dynamic Cluster Membership (2 node, odd nodes, even nodes)</p>
		C-2	23/07 – 5/08	<p>Implement 3rd Highest Priority Use Case(s) - Choosing Ideal Leader and Warm Nodes</p> <p>Complete Development and Integration Testing for 3rd Highest Priority Use Case(s) - Choosing Ideal Leader and Warm Nodes</p> <p>Complete Internal User Acceptance Testing for 3rd Highest Priority Use Case(s) - Choosing Ideal Leader and Warm Nodes</p>
		C-3	6/0 – 19/08	<p>Implement 4th Highest Priority Use Case(s) - Upgrade Path and Detailed Performance Analysis/Optimization</p> <p>Complete Development and Integration Testing for 4th Highest Priority Use Case(s) - Upgrade Path and Detailed Performance Analysis/Optimization</p> <p>Complete Internal User Acceptance Testing for 4th Highest Priority Use Case(s) - Upgrade Path and Detailed Performance Analysis/Optimization</p>
		C-4	20/08 – 2/09 (Session Break)	<p>Contingency for the completion of C-1 through C-3 iterations</p> <p>Deliver Initial Operational Capability Milestone (IOCM)</p> <p>Complete Construction Phase Project Assessment</p>
	Transition Phase	T-1	3/09 – 16/09	<p>Contingency for the completion of IOCM</p> <p>Deploy Application - Open Source the Code Library and Make Available through NuGet</p> <p>Complete 1st Round External User Acceptance Testing - Through Practical Integration Into An Open Source Project</p> <p>Contingency - Resolve Any Identified Issues</p>
		T-2	17/09 – 30/09	<p>Complete 2nd Round External User Acceptance Testing - Finalisation of Practical Integration Into An Open Source Project</p> <p>Contingency - Resolve Any Identified Issues</p> <p>Go Through All existing Project Management Documentation and Ensure Quality</p> <p>Being work on Product Release Milestone</p>
		T-3	1/10 – 14/10	<p>Contingency for the Completion of PRM and Any Other Requirements</p> <p>Deliver Product Release Milestone (PRM)</p> <p>Complete Final Project Assessment</p>