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| **CIS 4911 Senior Capstone Project**  **Section U01**  **Java Gluster FS v2.0**  **Group Member: Juan C. Riano** |
| **Mentor: Louis Zuckerman**  **Instructor: Masoud Sadjadi**  **2/2/2015** |

*Abstract*

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# 1: Introduction

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## 1.1: Problem Definition

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## 1.2: Background

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## 1.3: Definitions, Acronyms, and Abbreviations

* *Start here...*

## 1.4: Overview of Document

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# 2: Feasibility Study

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## 2.1: Description of Current System

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**Functionality**:

* Able to connect to a GlusterFS volume using the NIO.2 API
* Able to perform basic synchronous file I/O
  + Reading the contents of a file all at once
  + Writing a chunk of bytes to a file all at once
* Able to handle file attributes
  + See owner/group id (as a number), size, permissions, and last modified timestamp on files and directories
  + Set file permissions
* Able to view file system/volume statistics
  + See the total, free, and usable bytes in a volume
* Directory listing (with filtering) functionality
* Able to move/rename files (partial implementation; not to specs)
* Able to watch files for changes
* Able to publish test coverage and code quality reports to SonarQube

**Limitations**:

* Unable to perform asynchronous I/O
  + Cannot seek and read/write portions of a file
* Basic error reporting and handling
* Cannot create directories
* Cannot create hard links
* Cannot delete files or directories
* Cannot copy files or directories
* Cannot move/rename files based on the Java 7 specs
* Watch system is slow and blocking, utilizing polling
* Project version misaligned with GlusterFS
* Cannot determine whether two files are the same
* Cannot properly parse file attributes
* Cannot determine whether a directory is empty
* Unable to retrieve the file store associated with a file
* Attribute support limited
  + Owner/group identification limited to numbers, no name support
  + Cannot change owner/group

**Constraints**:

* System is written in Java
* System requires Internet access due to GlusterFS

## 2.2: Purpose of New System

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## 2.3: High-level Definition of User Requirements

* *Start here...*

## 2.4: Alternative Solutions

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### 2.4.1: Description of Alternatives

**Alternative 1**: *Start here...*

*Start here...*

**Alternative 2**: *Start here...*

*Start here...*

**Alternative 3**: *Start here...*

*Start here...*

*Start here...*

### 2.4.2: Selection Criteria

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### 2.4.3: Analysis of Alternatives

*Start here...*

**Alternative 1**: ***Start here...***

* **Operational feasibility**: *Start here...*
* **Resource feasibility**: *Start here...*
* **Financial feasibility**: *Start here...*

**Alternative 2**: ***Start here...***

* **Operational feasibility**: *Start here...*
* **Resource feasibility**: *Start here...*
* **Financial feasibility**: *Start here...*

**Alternative 3**: *Start here...*

* **Operational feasibility**: *Start here...*
* **Resource feasibility**: *Start here...*
* **Financial feasibility**: *Start here...*

## 2.5: Recommendations

*Start here...*

# 3: Project Plan

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## 3.1: Project Organization

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### 3.1.1: Project Personnel Organization

*Start here...*

### 3.1.2: Hardware and Software Resources

*Start here...*

## 3.2: Identification of Tasks, Milestones, and Deliverables

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# 4: Appendix

This chapter consists of the following appendices:

* Appendix A – Project Schedule
* Appendix B – Feasibility Matrix
* Appendix C – Cost Matrix
* Appendix D –Diary of Meetings

## 4.1: Appendix A – Project Schedule

4.2: Appendix B – Feasibility Matrix

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## 4.3: Appendix C – Cost Matrix

*Start here...*

## 4.4: Appendix D – Diary of Meetings

**Begin meeting**: 1/22/2015 @4:00 PM

**Location**: Picture Marketing office

**Meeting Agenda**: Overview of GlusterFS-Java-Filesystem

**In attendance**: Louis Zuckerman, Juan Riano

**Summary of events**:

* Personal introductions
* Overview of GlusterFS
* Overview of GlusterFS-Java-Filesystem
* Discussed possible areas of development for project
* Overview of development environment
* Discussed extent of project (resulting in timeline)

**End meeting**: 6:00PM

**Start meeting**: 1/27/2015 @6:30 PM

**Location**: Picture Marketing office

**Meeting Agenda:** Define scope of project, set up development environment

**In attendance**: Louis Zuckerman, Juan Riano

**Summary of events**:

* Defined Example class as the target to be refactored and converted into a live tutorial to be used by developers
* Installed and configured Java JDK 7
* Installed Git
* Forked GlusterFS-Java-Filesystem to development computer
* Installed IntelliJ
* Installed GlusgerFS
* Installed Maven
* Installed VirtualBox
* Installed Vagrant
* Set up development environment

**End meeting**: 8:30PM

**Start meeting**: 2/1/2015 @4:30 PM

**Location**: Picture Marketing office

**Meeting Agenda**: Define approach to develop Example class

**In attendance**: Louis Zuckerman, Maylem Gonzalez, Ian Herbig, Juan Riano

**Summary of events**:

* Personal introductions between previous and current development team
* Discussed previous team's experience and input on new objectives of the project
* Fixed issues with development environment
* Discussed Agile and Behavior Driven Development
* Planed to use a BDD framework to drive the development of the Example class
* Discussed the acceptant process to be used.

**End meeting**: 6:30PM

**Start meeting**: 2/3/2015 @7:00 PM

**Location**: Picture Marketing office

**Meeting Agenda**: Expand on the usage of BDD framework to implement the project's tutorial

**In attendance**: Louis Zuckerman, Juan Riano

**Summary of events**:

* Surveyed different BDD frameworks including Cucumber, jBehave and jDave
* Agreed to decide between Cucumber-jvm and jBehave

**End meeting**: 8:00PM

**Start meeting**: 2/22/2015 @5:00 PM

**Location**: Picture Marketing office

**Meeting Agenda**: Work on properly integrate Maven and jBehave to make the integration tests run

**In attendance**: Louis Zuckerman, Juan Riano

**Summary of events**:

* Juan explained how jBehave was currently integrated to Maven
* Juan explained how Maven was unable to find the “gluster” scheme
* Louis figured how to force Maven to find the “gluster” scheme

**End meeting**: 6:00PM

**Start meeting**: 2/24/2015 @7:00 PM

**Location**: Picture Marketing office

**Meeting Agenda**: Work again on properly integrate Maven and jBehave to make the integration tests run

**In attendance**: Louis Zuckerman, Juan Riano

**Summary of events**:

* Juan explained how jBehave was still not loading the “gluster” scheme, it was just skipping the tests and thus not failing them.
* Juan showed what he had find that could help in solving the issue.
* Louis figured how to force Maven to find the “gluster” scheme by not using the jBehave pluggin at tall, but still using the jBehave classes.

**End meeting**: 8:30:00PM

5: References

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