SYSTEMS AND SOFTWARE REQUIREMENTS SPECIFICATION (SSRS) FOR

Phunctional UML Editor
(pUML)

Version 0.0
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pUML SSRS

RECORD OF CHANGES

Change Number	Date completed	Location of change (e.g., page or figure #)	A M D	Brief description of change	Approved by (initials)	Date approved
df84c744c60f	11/02/11	hg/code/QT Project	A	Added code stubs for node implementation (nodes.cpp, diagrams.cpp, etc)	LE	11/02/11
eae63bed20d2	11/2/11	/.hgignore	A	added .hgignore	LE	11/2/11
b119831d6fea	11/6/11	N/A	M	organized submitted material into folders	LE	11/6/11
82fe1ebeeade	11/6/11	/.hgignore	M	.hgignore to ignore file locks.	LE	11/6/11
6bf8d2e6f033	11/6/11	/hg/documentation/html	A	Added the html doxygen output to the repository	Auto	11/6/11
db54296b4deb	11/11/11	hg/documentation/UMLsymbols	A	Updated folder with UML Symbols documentation	MM	11/11/11
1cca683da3f3	11/13/11	/hg/code/mainwindow/	A	Added makefile	LE	11/13/11
4d98e0c6a896	11/13/11	hg/code/mainwindow/	A	submitted UML menu (mainwindow.cpp, GUI.h, etc)	XS	11/13/11
efce0b2f8a24	11/13/11	hg/code/	A	added pUML.cpp	LE	11/13/11
2f45b5a240af	11/17/11	hg/code/Doagram Objects/	A	QT drawing funcitons of circle and actor(circle.cpp...etc)	ZC	11/17/11
8f708577a183	12/2/11	hg/documentation/	A	added UML diagrams and screen shots (use case, interaction, etc)	MM	12/2/2011
ec72fce5eb27	12/4/11	hg/code/mainwindow/	A	Dialog for file->New	DW	12/4/11
442733ec36c2	12/4/11	hg/code/mainwindow/	M	Modified Shen's mainwindow code to gray out tool bars.	DW	12/4/11
8712d7dd4c91	12/4/11	hg/code/mainwindow/makefile	D	fixed case collision with Makefile and makefile	JA	12/4/11

cc9ebc151eb9	12/5/11	hg/code/mainwindow/	A	Created canvas to allow for drawing area within the main window	JA	12/5/11
6d8c31be300e	12/6/11	/hg/Presentation	A	Submitted User Manual/power point presentation	MM	12/6/11
93098598b83f	12/8/11	hg/documentation/dox	A	created script to run doxygen on all folders inside puml/code	LE	12/8/11

*__A__ - ADDED __M__ - MODIFIED __D__ - DELETED

PUML SSRS
TABLE OF CONTENTS

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1 Introduction

1.1 IDENTIFICATION

The software system being considered for development is referred to as Phunctional UML Editor (pUML). The customer providing specifications for the system is Professor Bruce Bolden at the University of Idaho. The ultimate customer, or end-user, of the system will be University of Idaho Computer Science students and/or faculty. This is a new project effort, so the version under development is version 0.0.

1.2 PURPOSE

The purpose of the system under development is to create and store UML diagrams. While the system will be used by Computer Science students at the University of Idaho, this document is intended to be read and understood by UICS software designers and coders.

1.3 SCOPE

The pUML software was conceptualized as a Software Engineering class project, and was launched in September 2011 . The pUML project is as of the date of this SSRS publication, incomplete, and has yet no aquirers, users, support agencies at this time. Upon completion, the pUML software will be available only for distribution to the University of Idaho Computer Science department, and will be supported by the development team.

1.4 DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

Term or Acronym	Definition
Alpha test	Limited release(s) to selected, outside testers
Beta test	Limited release(s) to cooperating customers wanting early access to developing systems
Final test	aka, Acceptance test, release of full functionality to customer for approval
DFD	Data Flow Diagram
SDD	Software Design Document, aka SDS, Software Design Specification
SRS	Software Requirements Specification
SSRS	System and Software Requirements Specification

1.5 REFERENCES

There are no references to be cited for the pUML SSRS at this time.

1.6 OVERVIEW AND RESTRICTIONS

This document is for limited release only to UI CS personnel working on the project.

Section 2 of this document describes the system under development from a holistic point of view. Functions, characteristics, constraints, assumptions, dependencies, and overall requirements are defined from the system-level perspective.

Section 3 of this document describes the specific requirements of the system being developed. Interfaces, features, and specific requirements are enumerated and described to a degree sufficient for a knowledgeable designer or coder to begin crafting an architectural solution to the proposed system.

Section 4 provides the requirements traceability information for the project. Each feature of the system is indexed by the SSRS requirement number and linked to its SDD and test references.

Sections 5 and up are appendices including original information and communications used to create this document.

2 OVERALL DESCRIPTION

2.1 PRODUCT PERSPECTIVE

This product is independent of any other product, and as such, is self-contained.

2.2 PRODUCT FUNCTIONS

This product's primary function is to allow the user to create UML diagrams. The program will allow the user to create new diagrams, edit existing diagrams, and save them to access later.

2.3 USER CHARACTERISTICS

The intended user for the pUML software is a software engineer, with a need to organize the parts of the software engineering project. This user is already familiar with computers and generally has some experience in programming languages.

2.4 CONSTRAINTS

Since the pUML project was developed as a class assignment, further development of this project will halt if the University of Idaho faculty overseeing this project decide that this project should to no longer continue.

2.5 ASSUMPTIONS AND DEPENDENCIES

The requirements for the pUML software were dictated by University of Idaho Computer Science Department faculty, and any further direction this project may take will depend on their decisions. Furthermore, should any decision be made, for example, a new programming language must be utilized, or different features are to be added/removed, this project could change.

2.6 SYSTEM LEVEL (NON-FUNCTIONAL) REQUIREMENTS

2.6.1 Site dependencies

The pUML software has no dependencies on any external resources, such as internet access, etc.. Any modern operating system (2008+) should be sufficient to support the pUML software, and since this software is cross-platform, there should be no complications.

2.6.2 Safety, security and privacy requirements

There are no safety, security or privacy requirements at this time.

2.6.3 Performance requirements

This software is to be supported on one terminal per install, and since there are no dependencies, it may be installed on a theoretically infinite number of terminals. This software is not designed to be remotely accessed, and as a result, one user per session is recommended as well. The software has not been tested to determine efficient transaction times as of the date of this SSRS publication.

2.6.4 System and software quality

The fully developed software should be available for use and reliably handle all requests 98 percent of the time. Undo and Redo options will be available to handle errors made on the part of the user. Earlier stored sessions are not a part of the software package at this time, but may be developed at a later release. This software is not designed for any level of flexibility at this time, but a future release may permit integration with other software environments. Testability has not been tested at this time.

2.6.5 Packaging and delivery requirements

The executable system and all associated documentation (i.e., SSRS, SDD, code listing, test plan (data and results), and user manual) will be delivered to the customer on CD's and/or via email, as specified by the customer at time of delivery. Although document "drops" will occur throughout the system development process, the final, edited version of the above documents will accompany the final, accepted version of the executable system.

2.6.6 Personnel-related requirements

The system under development has no special personnel-related characteristics.

2.6.7 Training-related requirements

No training materials or expectations are tied to this project other than the limited help screens built into the software and the accompanying user manual.

2.6.8 Logistics-related requirements

The pUML software is intended for use on University of Idaho Computer Science department computers as well as computer science students' personal computers including, at a minimum, operating systems Windows 7, Mac OSX, and Linux. Any minimum hardware requirements lie outside the scope of the resources available, and there are no software application dependencies at this time.

2.6.9 Precedence and criticality of requirements

All requirements have equal weight.

3 SPECIFIC REQUIREMENTS

3.1 EXTERNAL INTERFACE REQUIREMENTS

3.1.1 Hardware Interfaces

- Operating system and environment capable of running QT 4.2.
  - Storage disk

E.g., hard drive, SSD, or secondary flash. 15 MB of space on one of these storage disks will be required to execute the pUML executable. Additional space will be required to save user generated projects.

3.1.2 Software Interfaces

- QT 4.2
  - C++ compiler

Note: Software interfaces are expected to change before the next release.

3.1.3 User Interfaces

- Monitor

Since pUML is a graphical program, a sufficiently large and bright monitor is recommended.

- Keyboard

The user will frequently need to fill in text fields.

- Mouse

The majority of user interaction is through the mouse.

3.1.4 Other Communication Interfaces

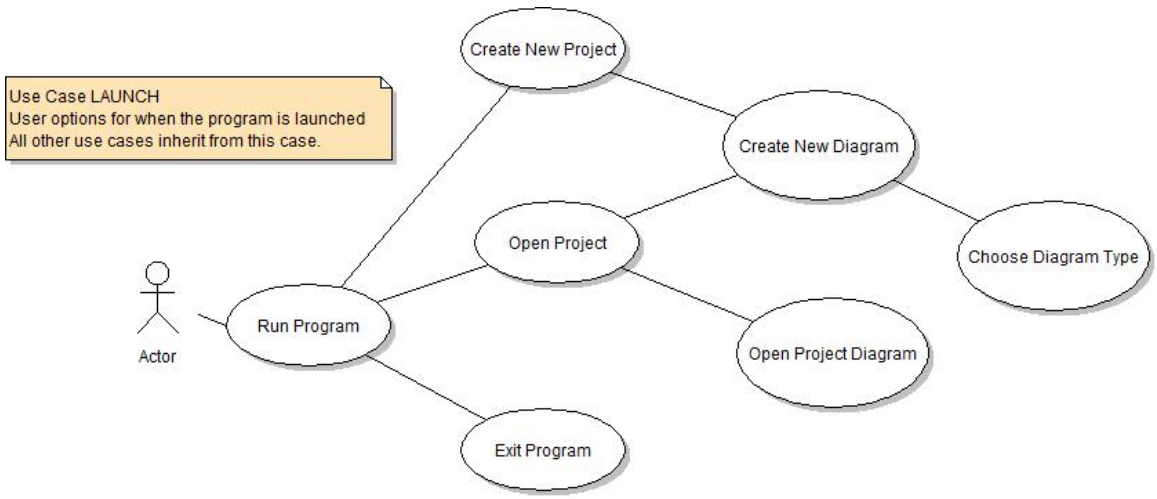
No other interfaces are required.

3.2 SYSTEM FEATURES

3.2.1 Use Cases and Descriptions

The following use cases represent three different stages at which options will be available to the user.

3.2.1.1 Launch These options will be available to the user upon the immediate launch of pUML.



Use Case Name	**Run Program**
Details	TBD

Use Case Name	**Create New Project**
Details	TBD

Use Case Name	**Open Project**
Details	TBD

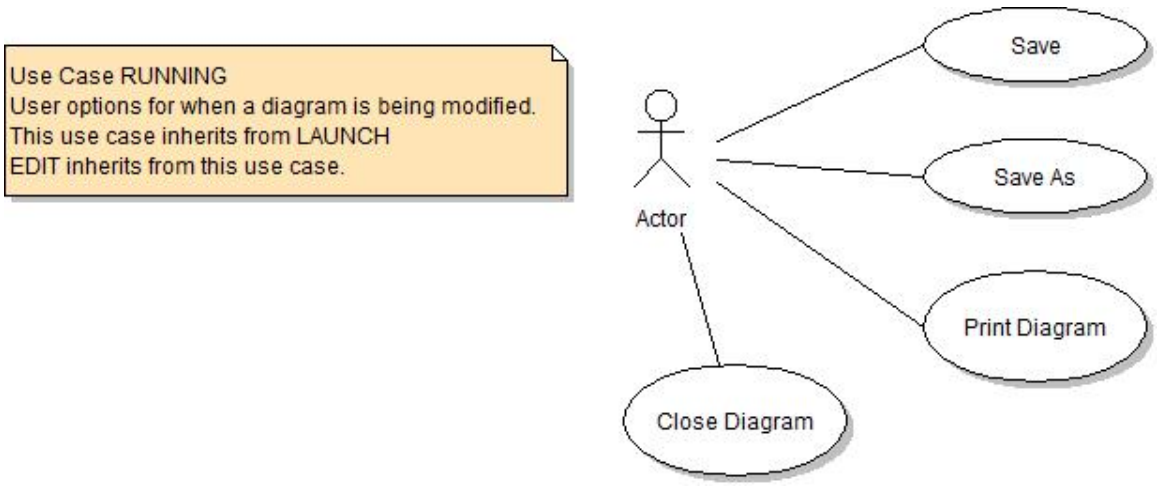
Use Case Name	**New Diagram**
Participating Actor	User
2* *Flow of Events*	1. The user selects new file from menu 2. Program requests user select a diagram type (includes ChooseDiagramType use case) 3. The program responds by creating a new file with a blank drawing canvas
Entry Condition	User selects New File from commands
Exit Condition	Program successfully opens new file
Quality Requirements	TBD

Use Case Name	**Choose Diagram Type**
Participating Actor	User
2* *Flow of Events*	1. User selects a diagram type 2. Program loads and displays only objects for the selected diagram type
Entry Condition	Included from New Diagram use case
Exit Condition	Included from New Diagram use case
Quality Requirements	TBD

Use Case Name	**Open Diagram**
Participating Actor	User
2* *Flow of Events*	1. User selects Open File from menu 2. Program opens an explorer window 3. User selects a file 4. Program loads selected file into program
Entry Condition	User selects Open File from menu.
Exit Condition	File is successfully opened.
Quality Requirements	User selected file must be able to be opened in pUML.

Use Case Name	**Close Program**
Participating Actor	User
2* *Flow of Events*	1. User clicks X 2. If file is not saved, include Save File As use case 3. Program Exits
Entry Condition	User initiates File menu option Close Program or clicks X in the corner of the window.
Exit Condition	File is successfully saved and the program exits.
Quality Requirements	TBD

3.2.1.2 Running These options will be available to the user if a project has been opened. This case inherits all options from Launch.



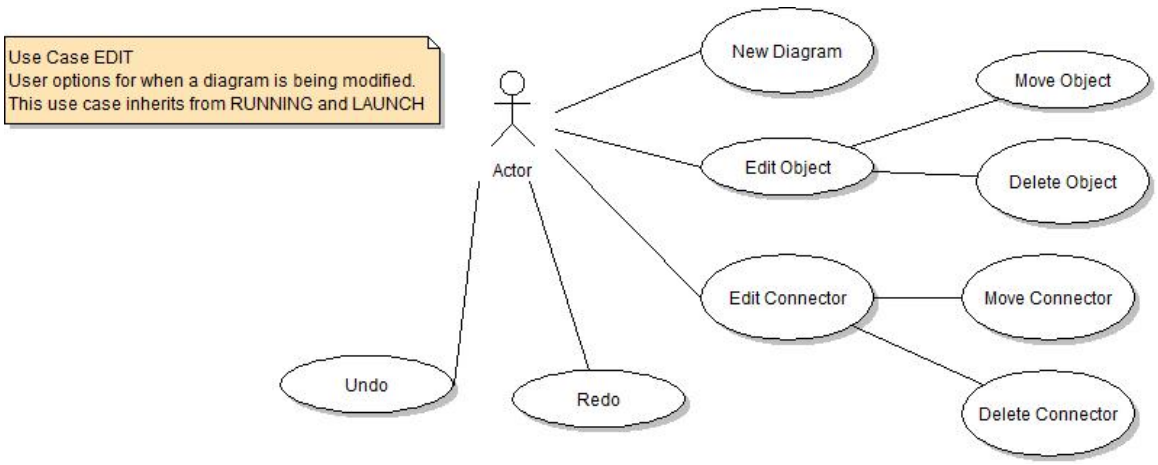
Use Case Name	**Save File**
Participating Actor	User
2* *Flow of Events*	1. The user selects save file 2. Program saves file a. If file has not been previously saved, ask user where to save b. If file has been previously saved, ask user where to save
Entry Condition	User selects Save File from main menu or clicks save button.
Exit Condition	File is successfully saved
Quality Requirements	TBD

Use Case Name	**Save As**
Details	TBD

Use Case Name	**Print Diagram**
Participating Actor	User
2* *Flow of Events*	1. User initiates print. 2. Program sends to printer
Entry Condition	User initiates Print
Exit Condition	Diagram successfully sent to printer
Quality Requirements	TBD

Use Case Name	**Close Diagram**
Details	TBD

3.2.1.3 Editing These options will be available to the user while ediiting a UML diagram. This case inherits all use cases from Launch and Running.



Use Case Name	**Create New Object**
Participating Actor	User
2* *Flow of Events*	1. User selects an object from a valid list of objects 2. User places object on canvas.
Entry Condition	Toolbar is loaded with valid objects for diagram type
Exit Condition	Object has been successfully placed on drawing canvas.
Quality Requirements	TBD

Use Case Name	**Edit Object**
Details	TBD

Use Case Name	**Edit Connector**
Details	TBD

Use Case Name	**Undo**
Details	TBD

Use Case Name	**Redo**
Details	TBD

3.2.2 System feature: Project management tasks suite

3.2.2.1 Introduction/Purpose of this feature Several processes are required to manage projects. These include the saving of files, loading projects from files, and deleting projects.

3.2.2.2 Input/Output sequence for this feature The user selects the "File" pull down menu at the top left corner of his or her screen. The options currently supported are "New", "Open", "Revert", "Copy As", "Save", "Save As", and "Delete Project".

3.2.2.2.1 New This creates a new project space. The user shall be presented with a dialog option to save the previous project. Once completing this dialog, the previous project will be closed and a new project space will be created.

3.2.2.2.2 Open This opens a previously saved project. The user shall be presented with a dialog option to save the previous project. Once completing this dialog, the previous project will be closed and the selected project will be opened.

3.2.2.2.3 Revert This disregards all unsaved changes made to the project and reverts to the saved version. A confirmation dialog shall be presented to the user before this action is completed.

3.2.2.2.4 Copy As This creates a new project space. First, the program will be saved. Then the user shall be presented with a dialog to choose a unique name for the new project space. Once completing this dialog, a copy of the previous project will be cloned into the new project space. The previous project shall be closed and the new project shall be opened.

3.2.2.2.5 Save This saves the current state of the project into an XML that can later be used to recreate the project state. If the current project does not have a name, the "Save" option will be an alias for the "Save As" option.

3.2.2.2.6 Save As This creates a new project space and then saves the project state into the new project. In contrast with "Copy As", this option does not affect the previous project.

3.2.2.2.7 Delete Project This deletes the current project and all files within the project folder. The user shall be presented with a confirmation dialog before this action is completed. Upon completion, a blank and unnamed project will be active in the project window.

4 REQUIREMENTS TRACEABILITY

This section shall contain traceability information from each system requirement in this specification to the system (or subsystem, if applicable) requirements it addresses. A tabular form is preferred, but not mandatory.

Feature Name	Req No.	Requirement Description	Priority	SDD	Alpha Release		Beta Release	
					Test Case(s)	Test Res.	Test Case(s)	Test Res.
Select Diagram Type	1.1	Selects the appropriate diagram type	M	N/A	N/A	N/A	N/A	N/A
Save function	2.1	Saves the Diagram to file	M	N/A	N/A	N/A	N/A	N/A
Draw function	2.1	Draws current objects	M	N/A	N/A	N/A	N/A	N/A
Open File	2.1	Opens previously saved file	M	N/A	N/A	N/A	N/A	N/A
New File	2.1	Creates New File	M	N/A	N/A	N/A	N/A	N/A
SSRS and SSDD	2.1	Too much work.	M	N/A	N/A	N/A	N/A	N/A

Priorities are: **M**andatory, **L**ow, **H**igh

SDD link is version and page number or function name.

Test cases and results are file names and **P**ass/**F**ail or % passing.