

# **Team 6: Mellow Yellow CSPN-CSPL GUI**

## **Test Report**

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## **Abstract**

The purpose of this document is to record the testing plan, as well as the results of the tests, which are to be used on the CSPN Graphical User Interface. The tests were broken into three separate phases. Phase one verified the functionality of the CSPN GUI's operational features. This includes making sure that port options are operational and the proper dialog box is displayed showing the options that were set to send to the port. Also to test that the GUI can invoke third party applications. Finally to make sure that all of the GUI structural characteristics, i.e. the toolbar and subsequent menus, are functional and are appropriate to the functionality of the GUI. Phase two verified the functionality of the GUI's text editor. Lastly, phase three verified the functionality of the GUI's image viewer, and phase four verified the use of third-party applications such as Ghostview. There are a total of six distinct test cases that were used in order to ensure the reliability and functionality of the GUI and all of its components as implemented by the Mellow Yellow development team

The Mellow Yellow team consists of the following members and their responsibilities:

- Kerry Hammil: Team leader and writer
- Alex Velkov: Writer
- Nick Gunder: GUI developer
- Ryoji Noda: Architectural developer
- Brock Rogers: GUI tester
- Azrina Hussin: Architectural tester

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## **1 Introduction**

This section gives the reason for the production of this document, provides a description of the Graphical User Interface under test designed by the Mellow Yellow team, and gives a list of references that were used in the production of this document.

### **1.1 Purpose**

This document is used to describe the testing procedure that was used to test the GUI as implemented by the Mellow Yellow team to run on a Windows 9x/NT machine. The goal of the testing is to ensure the reliability of the product and to ensure that the customer is getting what they asked for.

### **1.2 Scope**

The goals of this document are:

- 1.2.1 To describe what facets of the GUI and its components were tested.
- 1.2.2 To critic the different aspects of the GUI on a pass/fail basis.

1.2.3 To document the six distinct test cases used to test the GUI.

### 1.3 Definitions, Acronyms and Abbreviations

This portion of the document will give any definitions, acronyms or abbreviations that will be used throughout this document.

#### 1.3.1 Definitions

Design Level	The design decomposition of the software item (for example, system, subsystem, program, or module).
Pass/Fail Criteria	Decision rules used to determine whether a software item or a software feature passes or fails a test.
Mellow Yellow	Team 6 of Computer Science course number 422 instructed by Dr. Frederick Sheldon.
Milestones	A defined deliverable by the customer
Product	The end deliverable defined as the CSPN GUI
Software Feature	A distinguishing characteristic of a software item (for example, performance, portability, or functionality).
Software Item	Source code, object code, job control code, control data, or a collection of these items.
Test	(1) A set of one or more test cases, or (2) A set of one or more test procedures, or (3) A set of one or more test cases and procedures.
Test Case Specification	A document specifying inputs, predicted results and a set of execution conditions for a test item.
Test Design Specification	A document specifying the details of the test approach for a software feature r combination of software features and identifying the associated tests.
Test Item	A software item which is an object of testing.

Test Plan	A document describing the scope, approach, resources and schedule of intended testing activities. It identifies test items, the features to be tested, the testing tasks, who will do each task and any risks requiring contingency planning.
Test Procedure Specification	A document specifying a sequence of actions for the execution of a test.
Test Summary Report	A document summarizing testing activities and results. It also contains an evaluation of the corresponding test items.
Testing	The process of analyzing a software item to detect the differences between existing and required condition (that is, bugs) and to evaluate the features of the software item.

### 1.3.2 Acronyms and Abbreviations

API	Application Programming Interface
ANSI	American National Standards Institute
ASCII	American Standard Code for Information Interchange
CDR	Critical Design Review
CGE	CSPN Generated Editor
CSP	Communicating Sequential Processes
CSPL	C-Based Stochastic Petri-Net Language
CSPN	CSP-to Petri Net
DNB	Design Notebook
GUI	Graphical User Interface
IEEE	The Institute of Electrical and Electronic Engineers
OOD	Object Oriented Design
OS	Operating System

SPNP	Stochastic Petri Net Package
SRS	Software Requirements Specification
VC	Versioning Control

#### 1.4 References

1. IEEE Standards Board. IEEE Guide to Software Design Descriptions March 1993.  
IEEE Standards Board, United States of America, 1993.
2. Sheldon, Frederick T. General Documentation Style Guidelines and Standards,  
Washington State University EECS, Pullman, WA, 1999.
3. Sheldon, Frederick T. Test Report Guidelines, Washington State University EECS,  
Pullman, WA, 1999.
4. Sheldon, Frederick T. CSPN - Software User's Manual Version 1.0, University of  
Colorado, Colorado Springs, 1998.
5. Sommerville, Ian. Software Engineering, Addison-Wesley. New York, 1996.

#### 1.5 Overview

Within the CS 422 course six teams were formed to design, build and test three different phases of the CSPN tool functionality. Each phase had two teams assigned to complete that task, the phases were CGE, GUI and Port. Mellow Yellow is one of the teams put together to complete the task of building a functional GUI. The GUI must have the capability of displaying CSPN image files, opening a text editor (also built by the

Mellow Yellow team) to be operated by the user. Finally, the user must be able to select options flags which are sent to the Port team via a live data structure, which in turn are to be used in generating the final petri-net.

## **2 Test Design Specification**

This section of the document covers some of the testing artifacts for the Mellow Yellow GUI.

### **2.1 Purpose**

The purpose of this portion of the document is to specify refinements of the test approach and to identify the features to be tested by this design and its associated tests.

### **2.2 Outline**

The five test cases described in the demonstration portion of the project, as well as in the abstract portion of this document, along with one more test case verifying the GUI toolbar option buttons were tested. Each test had many sub-tests assigned to them which are describe in the SRS. After each test had been performed and given a pass or fail rating, those finding were mapped to the individual SRS requirement to ensure that every requirement had been tested.

### **2.3 Features Tested**

Every feature, i.e. requirement, listed in the SRS was tested. The tests varied from giving the particular feature varying levels of input, as in the text editor, to simply clicking buttons and making sure that outputs in either case returned the expected output.

## **2.4 Test Identification**

Each test will be given a specific identifier which corresponds to the requirements in the SRS and can also be found in the Requirements Traceability Matrix (RTM). The result from each test will be marked by either a pass or fail.

## **2.5 Feature Pass/Fail Criteria**

The criteria used for grading each test will be on a pass/fail basis only. The procedures that were used to verify each test were analogy, analysis, demonstration or inspection.

## **3.1 Test Case 1 – Text Editor**

The text editor is used for creating and modifying test, postscript, dot and CSPL files. This particular text editor also has the added feature of creating and editing bitmap files using the object painter option.

### **3.1.1 Purpose**

To test the functionality of the text editor and ensure that proper results are achieved.

### **3.1.2 Test Case Specification Identifier**

The test case identifier associated with this test is TESTTED.

### **3.1.3 Test Items**

Requirements for this test case refer to requirements TEW1 – TEW5, TV1 – TV5, PD1 – PD4, RTD1 – RTD5 and FTD1 – FTD8 as specified by the SRS.

#### **3.1.4 Input Specifications**

The inputs for this test shall be an existing text, dot, postscript or CSPL file.

#### **3.1.5 Output Specifications**

Text shall appear in the typing area and the data from that file shall not be corrupted. If the file is too large to view in the viewing area scroll bars shall be provided in order to allow the user to see the whole file. The general editing commands such as cut, copy and paste shall be available to the user via a toolbar, a shortcut or from a menu option.

#### **3.1.6 Environmental Needs**

The GUI and its subsequent parts, the text editor and image viewer, are to be run on a Windows 9x/NT machine. The text editor places no constraints on the size of the file that can be opened, or created, for editing. Only the size of the memory that the computer that the GUI is being run on is a constraint.

#### **3.1.7 Special Procedural Requirements**

No special constraints on the test procedure are needed to execute this test case.

#### **3.1.8 Intercase Dependencies**

No test cases which must be executed prior to this test case.

## **3.2 Test Case 2 – Image Viewer**

The image viewer is used for displaying bitmap, gif and jpeg files.

### **3.2.1 Purpose**

To test the functionality of the image viewer and ensure that proper results are achieved.

### **3.2.2 Test Case Specification Identifier**

The test case identifier associated with this test is TESTIV.

### **3.2.3 Test Items**

Requirements for this test case refer to requirements IVW1 – IVW6 as specified by the SRS.

### **3.2.4 Input Specifications**

The inputs for this test shall be an existing bitmap, gif or jpeg image file.

### **3.2.5 Output Specifications**

The image shall be displayed properly in the viewing area of the image viewer. If the image is too large to fit into the viewing area scroll bars shall be provided to allow for viewing of the entire image.

### **3.2.6 Environmental Needs**

The environmental needs to execute this test case is specified as in 3.1.6

### **3.2.7 Intercase Dependencies**

No test case which must be executed prior to this test case.

## **3.3 Test Case 3 – Invoking Third Party Applications**

The GUI shall be able to invoke applications such as the text editor and the image viewer via a toolbar option or menu option.

### **3.3.1 Purpose**

To test the ability to invoke third party applications from within the GUI and ensure that the proper application has been loaded correctly.

### **3.3.2 Test Case Specification Identifier**

The test case identifier associated with this test is TESTTPA.

### **3.3.3 Test Items**

Requirements for this test case refer to requirements TB23 and TB24 as specified by the SRS.

### **3.3.4 Input Specifications**

The inputs for this test shall be clicking toolbar options to invoke both the image viewer and the text editor.

### **3.3.5 Output Specifications**

Both the text editor and the image viewer shall be called to the screen.

### **3.3.6 Environmental Needs**

The environmental needs to execute this test case is specified as in 3.1.6

### **3.3.7 Intercase Dependencies**

No test cases which must be executed prior to this test case.

## **3.4 Test Case 4 – Sending Port Command Switches**

The GUI shall be able to set flags, from a set list of flags, to send to the port team which will be used to develop the final petri-net.

### **3.4.1 Purpose**

To test the ability of the GUI to properly set CSPN flags and ensure that they are sent to the port team in the proper data structure format.

### **3.4.2 Test Case Specification Identifier**

The test case identifier associated with this test is TESTPCS.

### **3.4.3 Test Items**

Requirements for this test case refer to requirements TO1 – TO8 and CP1 – CP12 as specified by the SRS.

### **3.4.4 Input Specifications**

The inputs for this test will be to click on any number of CSPN flags and then click on the send button to send those options to the port.

### **3.4.5 Output Specifications**

The output shall result in a dialog box that pops up and lets the user know what options were sent to the port.

### **3.4.6 Environmental Needs**

The environmental needs to execute this test case is specified as in 3.1.6

### **3.4.7 Intercase Dependencies**

No test cases which must be executed prior to this test case.

## **3.5 Test Case 5 – GUI Functionality**

The GUI shall have a set of toolbar, and menu, items that shall perform the correct operation when that option is selected. The status bar and title bar shall display the correct information in regard to the file that is currently opened.

### **3.5.1 Purpose**

To test the ability of the GUI to properly perform all commonly used toolbar and menu items. Such operations include, but are not limited to, opening a file, saving a file, turning sound on and off, and things of the like.

### **3.5.2 Test Case Specification Identifier**

The test case identifier associated with this test is TESTGUIF.

### **3.5.3 Test Items**

Requirements for this test case refer to requirements HE1, HE2, GW1 – GW5 and SB1 as specified by the SRS.

### **3.5.4 Input Specifications**

The inputs for this test will be to click on the toolbar options and make sure that the correct operation was performed. For this test two menu operations, opening a file and looking at the help files, will be exercised. Also two toolbar options, saving a file and turning the sound on and off, will as well be exercised.

### **3.5.5 Output Specifications**

The output for the menu operations shall result in a file being opened, and the data being presented correctly on the screen, and a help dialog box shall appear that allows the user to navigate through the various help topics. The output for the toolbar options shall result in a dialog box popping up allowing for the user to save a file under any directory that they desire, and the sound option being toggled between being on and being off.

### **3.5.6 Environmental Needs**

The environmental needs to execute this test case is specified as in 3.1.6

### **3.5.7 Intercase Dependencies**

No test cases which must be executed prior to this test case.

## **3.6 Test Case 6 – Context Sensitive Help**

The text editor shall be able to allow the user to access context sensitive help via a toolbar option.

### **3.6.1 Purpose**

To test the ability of the text editor to allow for context sensitive help and to ensure that the proper help menu is displayed after running the operation.

### **3.6.2 Test Case Specification Identifier**

The test case identifier associated with this test is TESTCSH.

### **3.6.3 Test Items**

Requirements for this test case refer to requirements CSHS1 – CSHS5 as specified by the SRS.

### **3.6.4 Input Specifications**

The inputs for this test will be to click on the context sensitive help icon located on the text editor toolbar. Next will be to move the cursor over another toolbar, or menu, option and click the mouse button again.

### **3.6.5 Output Specifications**

The output shall result in a help dialog box that displays the pertinent information on the operation that the user clicked on.

### **3.6.6 Environmental Needs**

The environmental needs to execute this test case is specified as in 3.1.6

### **3.6.7 Intercase Dependencies**

To test the context sensitive help in the text editor, the test case TESTTPA must be executed prior to this test case.

## Appendix A: Requirements Traceability Matrix

Table A.1 Requirements Traceability Matrix (RTM) (filled in with DFD Identifiers) with keys that shall be used for requirement checking. The DFD identifiers listed refer to the level 1 DFD.

System Level	Sub-System Level	DFD	Module	Verification	Test
Requirement ID	Requirement ID	Identifiers	Name(s)	Method	Identifier
ME1	ME1	3+4	Menus	I	TESTGUIF
ME1	ME2	3+4	Menus	I, D	TESTGUIF
ME1	FM1	3+4	File Menu Items	I	TESTTED
ME1	FM2	3+4	File Menu Items	I	TESTTED
ME1	FM3	3+4	File Menu Items	I, D	TESTTED
ME1	FM4	4	File Menu Items	I, D, A	TESTTED
ME1	FM5	3 <sup>rd</sup> Party	File Menu Items	I	TESTTED
ME1	FM6	3 <sup>rd</sup> Party	File Menu Items	I, D	TESTTED
ME1	FM7	3 <sup>rd</sup> Party	File Menu Items	I	TESTTED
ME1	FM8	3 <sup>rd</sup> Party	File Menu Items	I, D	TESTTED
ME1	FM9	3 <sup>rd</sup> Party	File Menu Items	I	TESTTED
ME1	FM10	4	File Menu Items	I, D	TESTTED
ME1	FM11	3 <sup>rd</sup> Party	File Menu Items	I	TESTTED
ME1	FM12	3 <sup>rd</sup> Party	File Menu Items	I, D	TESTTED
ME1	FM13	3 <sup>rd</sup> Party	File Menu Items	I, D	TESTGUIF
ME1	ED1	4	Edit Menu Items	I	TESTGUIF
ME1	ED2	4	Edit Menu Items	I	TESTGUIF
ME1	ED3	4	Edit Menu Items	I	TESTGUIF
ME1	ED4	4	Edit Menu Items	I	TESTGUIF
ME1	ED5	4	Edit Menu Items	I	TESTGUIF
ME1	ED6	4	Edit Menu Items	I	TESTGUIF
ME1	ED7	4	Edit Menu Items	I	TESTGUIF
ME1	ED8	4	Edit Menu Items	I	TESTGUIF
ME1	ED9	4	Edit Menu Items	I, D	TESTGUIF
ME1	ED10	4	Edit Menu Items	I	TESTGUIF
ME1	ED11	4	Edit Menu Items	I, D	TESTGUIF
ME1	ED12	4	Edit Menu Items	I	TESTGUIF
ME1	ED13	4	Edit Menu Items	I	TESTGUIF

System Level	Subsystem Level	DFD	Module	Verification	Test
Requirement ID	Requirement ID	Identifiers	Name(s)	Method	Identifier
ME1	ED14	4	Edit Menu Items	I	TESTGUIF
ME1	TO1	4	Tool Menu Items	I	TESTPCS
ME1	TO2	4	Tool Menu Items	I, D	TESTPCS
ME1	TO3	4	Tool Menu Items	I	TESTPCS
ME1	TO4	4	Tool Menu Items	I, D	TESTPCS
ME1	TO5	2	Tool Menu Items	A	TESTPCS
ME1	TO6	4	Tool Menu Items	I	TESTPCS
ME1	TO7	4	Tool Menu Items	I, D	TESTPCS
ME1	TO8	4	Tool Menu Items	I, D	TESTPCS
ME1	WI1	4	Window Menu Items	I	TESTGUIF
ME1	WI2	4	Window Menu Items	I, D	TESTGUIF
ME1	WI3	4	Window Menu Items	I, D	TESTGUIF
ME1	HE1	4	Help Menu Items	I	TESTGUIF
ME1	HE2	4	Help Menu Items	I, D	TESTGUIF
TB1	TB1	4	Toolbar	I	TESTGUIF
TB1	TB2	4	Toolbar	I	TESTTED
TB1	TB3	4+3 <sup>rd</sup> Party	Toolbar	I, D	TESTTED
TB1	TB4	4	Toolbar	I	TESTTED
TB1	TB5	3 <sup>rd</sup> Party	Toolbar	I, D	TESTTED
TB1	TB6	4	Toolbar	I	TESTTED
TB1	TB7	3 <sup>rd</sup> Party	Toolbar	I	TESTTED
TB1	TB8	3 <sup>rd</sup> Party	Toolbar	I, D	TESTTED
TB1	TB9	3 <sup>rd</sup> Party	Toolbar	I	TESTTED
TB1	TB10	3 <sup>rd</sup> Party	Toolbar	I, D	TESTTED
TB1	TB11	4+3 <sup>rd</sup> Party	Toolbar	I	TESTTED
TB1	TB12	4+3 <sup>rd</sup> Party	Toolbar	I	TESTTED
TB1	TB13	4	Toolbar	I	TESTTED
TB1	TB15	4+3 <sup>rd</sup> Party	Toolbar	I	TESTTED
TB1	TB16	4	Toolbar	I	TESTTED
TB1	TB17	3 <sup>rd</sup> Party	Toolbar	I	TESTTED
TB1	TB18	3 <sup>rd</sup> Party	Toolbar	I	TESTTED
TB1	TB19	3 <sup>rd</sup> Party	Toolbar	I, D	TESTTED
TB1	TB20	4	Toolbar	I, D	TESTTED
TB1	TB21	4	Toolbar	I	TESTTED
TB1	TB22	2	Toolbar	D, A	TESTTED
GW1	GW1	4	Window Options	I, D	TESTGUIF
GW1	GW2	4	Window Options	I	TESTGUIF
GW1	GW3	4	Window Options	I	TESTGUIF

System Level	Sub-System Level	DFD	Module	Verification	Test
Requirement ID	Requirement ID	Identifiers	Name(s)	Method	Identifier
GW1	GW4	4	Window Options	I, D	TESTGUIF
GW1	GW5	1	Window Options	I, D	TESTGUIF
CSH1	CSH1	1	Help Options	I, D	TESTCSH
CSH1	CSH2	1	Help Options	I, D	TESTCSH
CSH1	CSH3	1+3 <sup>rd</sup> Party	Help Options	I, D	TESTCSH
CSH1	CSH4	1+3	Help Options	I, D	TESTCSH
CSH1	CSH5	1+4	Help Options	I, D	TESTCSH
SB1	SB1	4	Status Bar	I, D	TESTGUIF
DB1	OFD1	1	Dialog Boxes	I, D	TESTTPA
DB1	OFD2	4+3 <sup>rd</sup> Party	Dialog Boxes	I, D	TESTTPA
DB1	OFD3	4+3 <sup>rd</sup> Party	Dialog Boxes	I	TESTTPA
DB1	OFD4	4+3 <sup>rd</sup> Party	Dialog Boxes	I, D	TESTTPA
DB1	OFD5	4+3 <sup>rd</sup> Party	Dialog Boxes	I	TESTTPA
DB1	OFD6	4	Dialog Boxes	I, D	TESTTPA
DB1	OFD7	4+3 <sup>rd</sup> Party	Dialog Boxes	I	TESTTPA
DB1	OFD8	4+3 <sup>rd</sup> Party	Dialog Boxes	I	TESTTPA
DB1	OFD9	4+3 <sup>rd</sup> Party	Dialog Boxes	I	TESTTPA
DB1	SFD1	3 <sup>rd</sup> Party	Displaying Files	I, D	TESTTPA
DB1	SFD2	3 <sup>rd</sup> Party	Displaying Files	I	TESTTPA
DB1	SFD3	3 <sup>rd</sup> Party	Displaying Files	I, D	TESTTPA
DB1	SFD4	3 <sup>rd</sup> Party	Displaying Files	I	TESTTPA
DB1	SFD5	3 <sup>rd</sup> Party	Displaying Files	I, D	TESTTPA
DB1	SFD6	3 <sup>rd</sup> Party	Displaying Files	I, D	TESTTPA
DB1	SFD7	ND	Displaying Files	D, A	TESTTPA
DB1	SFD8	3 <sup>rd</sup> Party	Displaying Files	I	TESTTPA
DB1	SFD9	3 <sup>rd</sup> Party	Displaying Files	I	TESTTPA
DB1	SFD10	3 <sup>rd</sup> Party	Displaying Files	I, D	TESTTPA
DB1	FTD1	3 <sup>rd</sup> Party	Finding Text	I, D	TESTTED
DB1	FTD2	3 <sup>rd</sup> Party	Finding Text	I, D	TESTTED
DB1	FTD3	3 <sup>rd</sup> Party	Finding Text	I, D	TESTTED
DB1	FTD4	3 <sup>rd</sup> Party	Finding Text	I	TESTTED
DB1	FTD5	3 <sup>rd</sup> Party	Finding Text	I, D	TESTTED
DB1	FTD6	3 <sup>rd</sup> Party	Finding Text	I, D	TESTTED
DB1	FTD7	3 <sup>rd</sup> Party	Finding Text	I, D	TESTTED
DB1	FTD8	3 <sup>rd</sup> Party	Finding Text	I	TESTTED
DB1	RTD1	3 <sup>rd</sup> Party	Finding Text	I, D	TESTTED
DB1	RTD2	3 <sup>rd</sup> Party	Finding Text	I, D	TESTTED
DB1	RTD3	3 <sup>rd</sup> Party	Finding Text	I, D	TESTTED
DB1	RTD4	3 <sup>rd</sup> Party	Finding Text	I, D	TESTTED
DB1	RTD5	3 <sup>rd</sup> Party	Finding Text	I	TESTTED

System Level	Sub-System Level	DFD	Module	Verification	Test
Requirement ID	Requirement ID	Identifiers	Name(s)	Method	Identifier
DB1	PD1	3 <sup>rd</sup> Party	Printing	I, D	TESTTED
DB1	PD2	3 <sup>rd</sup> Party	Printing	I, D	TESTTED
DB1	PD3	3 <sup>rd</sup> Party	Printing	I, D	TESTTED
DB1	PD4	3 <sup>rd</sup> Party	Printing	I, D	TESTTED
DB1	AD1	4	About	I	TESTCHS
DB1	AD2	4	About	I	TESTCHS
DB1	OD1	3 <sup>rd</sup> Party	Options	I, D	TESTTPA
DB1	OD2	3 <sup>rd</sup> Party	Options	I, D	TESTTPA
DB1	OD3	3 <sup>rd</sup> Party	Options	I, D	TESTTPA
DB1	OD4	3 <sup>rd</sup> Party	Options	I, D	TESTTPA
DB1	OD5	4	Options	I, D	TESTTPA
DB1	OD6	4	Options	I, D	TESTTPA
DB1	CP1	4	CSPN Port Options	I, D	TESTPCS
DB1	CP2	4	CSPN Port Options	I, D	TESTPCS
DB1	CP3	4	CSPN Port Options	I, D	TESTPCS
DB1	CP4	4	CSPN Port Options	I, D	TESTPCS
DB1	CP5	4	CSPN Port Options	I, D	TESTPCS
DB1	CP6	4	CSPN Port Options	I, D	TESTPCS
DB1	CP7	4	CSPN Port Options	I, D	TESTPCS
DB1	CP8	4	CSPN Port Options	I, D	TESTPCS
DB1	CP9	4	CSPN Port Options	I, D	TESTPCS
DB1	CP10	4	CSPN Port Options	I, D	TESTPCS
DB1	CP11	4	CSPN Port Options	I, D	TESTPCS
DB1	CP12	4	CSPN Port Options	I, D	TESTPCS
TEW1	TEW1	3 <sup>rd</sup> Party	Text Editor Window	I, D	TESTTED
TEW1	TEW2	3 <sup>rd</sup> Party	Text Editor Window	I	TESTTED
TEW1	TEW3	3 <sup>rd</sup> Party	Text Editor Window	I	TESTTED
TEW1	TEW4	3 <sup>rd</sup> Party	Text Editor Window	I, D	TESTTED
TEW1	TEW5	3 <sup>rd</sup> Party	Text Editor Window	I	TESTTED

System Level	Sub-system Level	DFD	Module	Verification	Test
Requirement ID	Requirement ID	Identifiers	Name(s)	Method	Identifier
TEW1	TV1	3 <sup>rd</sup> Party	Text Properties	I, D	TESTTED
TEW1	TV2	3 <sup>rd</sup> Party	Text Properties	I	TESTTED
TEW1	TV3	3 <sup>rd</sup> Party	Text Properties	I, D	TESTTED
TEW1	TV4	3 <sup>rd</sup> Party	Text Properties	I, D	TESTTED
IVW1	IVW1	3	Image Viewer	I, D	TESTIV
IVW1	IVW2	3	Image Viewer	I	TESTIV
IVW1	IVW3	3	Image Viewer	I	TESTIV
IVW1	IVW4	3	Image Viewer	I	TESTIV
IVW1	IVW5	3	Image Viewer	I, D	TESTIV
IVW1	IVW6	3	Image Functions	I, D, A	TESTIV
IVW1	IVW7	Not Supported	Image Functions	D, A	

**KEY:** D = by Demonstration, A = by Analysis, I = Inspection, and An = by Analogy

The hierarchy of system level requirements and their corresponding component level requirements are parts of the RTM. The component, labeled subsystem requirements, are said to be traceable to the system level which are their parent requirements. The subsystem level requirements are so called derived requirements.

The RTM provides one place where all requirements are listed, where they all located within the program, and finally how each is to be certified. One column is provided to mark if each of the requirements has been tested as a matter of tracking the progress and for use in the demonstration.

There are various verification methods to show that a particular requirement has been satisfied.

A= Analysis method is used to show that non-functional requirements have been met like response time.

I= Inspection method is used to show that something like using specific coding standards has been adhered to.

D= Demonstration method is used to show that by say running the program that it computes the correct output.

An= Analogy is used when all else fails. This method in some reasonably rigorous fashion shows or proves that a particular requirement(s) is met through some indirect

means. For example, if the program displays the correct symbol then it shows that some other requirements that cannot be reasonably isolated, has also been satisfied.

## Appendix B: Test Summary Results

Table B.1 Test Summary Results with test case identifiers and subsystem level RTM identifiers.

Test Case Identifiers	RTM Subsystem Level Identifiers	Pass/Fail Criteria	Comments
TESTTED	FM1	Pass	
TESTTED	FM2	Pass	
TESTTED	FM3	Pass	
TESTTED	FM4	Pass	
TESTTED	FM5	Pass	
TESTTED	FM6	Pass	
TESTTED	FM7	Pass	
TESTTED	FM8	Pass	
TESTTED	FM9	Pass	
TESTTED	FM10	Pass	
TESTTED	FM11	Pass	
TESTTED	FM12	Pass	
TESTTED	TB2	Pass	
TESTTED	TB3	Pass	
TESTTED	TB4	Pass	
TESTTED	TB5	Pass	
TESTTED	TB6	Pass	
TESTTED	TB7	Pass	
TESTTED	TB8	Pass	
TESTTED	TB9	Pass	
TESTTED	TB10	Pass	
TESTTED	TB11	Pass	
TESTTED	TB12	Pass	
TESTTED	TB15	Pass	
TESTTED	TB16	Pass	
TESTTED	TB17	Pass	
TESTTED	TB18	Pass	
TESTTED	TB19	Pass	
TESTTED	TB20	Pass	
TESTTED	FTD1	Pass	

Test Case Identifiers	RTM Subsystem Level Identifiers	Pass/Fail Criteria	Comments
TESTTED	FTD2	Pass	
TESTTED	FTD3	Pass	
TESTTED	FTD4	Pass	
TESTTED	FTD5	Pass	
TESTTED	FTD6	Pass	
TESTTED	FTD7	Pass	
TESTTED	FTD8	Pass	
TESTTED	RTD1	Pass	
TESTTED	RTD2	Pass	
TESTTED	RTD3	Pass	
TESTTED	RTD4	Pass	
TESTTED	RTD5	Pass	
TESTTED	PD1	Pass	
TESTTED	PD2	Pass	
TESTTED	PD3	Pass	
TESTTED	PD4	Pass	
TESTTED	TEW1	Pass	
TESTTED	TEW2	Pass	
TESTTED	TEW3	Pass	
TESTTED	TEW4	Pass	
TESTTED	TEW5	Pass	
TESTTED	TV1	Pass	
TESTTED	TV2	Fail	No highlighting of CSPN keywords.
TESTTED	TV3	Fail	No line numbers displayed next to each line of text.
TESTTED	TV4	Pass	
TESTTED	TV5	Pass	
TESTIV	IVW1	Pass	
TESTIV	IVW2	Fail	The image viewer is set to a fixed size within the GUI window.
TESTIV	IVW3	Pass	
TESTIV	IVW4	Pass	
TESTIV	IVW5	Pass	
TESTIV	IVW6	Pass	
TESTGUIF	HE1	Pass	
TESTGUIF	HE2	Pass	
TESTGUIF	HE3	Pass	
TESTGUIF	GW1	Fail	The GUI is set to a fixed size and cannot be resized, minimized or maximized.
TESTGUIF	GW2	Pass	
TESTGUIF	GW3	Pass	
TESTGUIF	GW4	Pass	
TESTGUIF	GW5	Fail	The GUI is set to a fixed size and cannot be

			resized.
Test Case Identifiers	RTM Subsystem Level Identifiers	Pass/Fail Criteria	Comments
TESTGUIF	SB1	Pass	
TESTPCS	TO1	Pass	
TESTPCS	TO2	Pass	
TESTPCS	TO3	Pass	
TESTPCS	TO4	Pass	
TESTPCS	TO5	Pass	
TESTPCS	TO6	Pass	
TESTPCS	TO7	Pass	
TESTPCS	TO8	Pass	
TESTPCS	CP1	Pass	
TESTPCS	CP2	Pass	
TESTPCS	CP3	Pass	
TESTPCS	CP4	Pass	
TESTPCS	CP5	Fail	Failure transitions are enabled but there is no interactive menu to set how many.
TESTPCS	CP6	Fail	Iterations are enabled but there is no menu to set how many iterations are desired.
TESTPCS	CP7	Pass	
TESTPCS	CP8	Pass	
TESTPCS	CP9	Pass	
TESTPCS	CP10	Pass	
TESTPCS	CP11	Pass	
TESTPCS	CP12	Pass	
TESTCSH	CSH1	Pass	
TESTCSH	CSH2	Pass	
TESTCSH	CSH3	Fail	Context sensitive help is available but no tool-tips are available.
TESTCSH	CSH4	Pass	
TESTCSH	CSH5	Pass	
TESTTPA	TB23	Pass	Text editor invoked and displayed.
TESTTPA	TB24	Pass	Image viewer invoked and displayed.

Table B.1 – Test Summary Report

## Appendix C: Approval Signature

Table C.1 Signatures of approval by all member of the Mellow Yellow team as well as the signature of approval by the course instructor for cpts442 Dr. Frederick Sheldon.

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Approval  
Kerry Hammil  
Team Leader

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Date

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Approval  
Alex Velkov  
Writer

---

Date

---

Approval  
Nick Gunder  
Developer

---

Date

---

Approval  
Ryoji Noda  
Developer

---

Date

---

Approval  
Azrina Hussin  
Tester

---

Date

---

Approval  
Brock Rogers  
Tester

---

Date

---

Approval  
Dr. Frederick Sheldon  
Cpts 422 Professor

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Date