**Group 12**

**Iteration #4**

**Math Graphics 2.0.1**

**Test Plan**

Revision A

**Revision History**

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| --- | --- | --- | --- |
| **DATE** | **REV** | **AUTHOR** | **DESCRIPTION** |
| 4/17/17 | A | ardecost | First Draft |
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# **1. Introduction**

The software testing team has been tasked with testing the Math Graphics 2.0.1 program which has been written in Java.

## **Test Plan Objectives**

This Test Plan for the Math Graphics program supports the following objectives:

* Setup and execute the software product, understand how the software works.
* Use the software as an end-user to gain operational familiarity.
* Communicate to the team the System Test strategy.
* Define deliverables and responsible parties.
* Communicate to all team members the various Dependencies and Risks

# **2. Scope**

## **2.1.** User **Entry**

The program allows the user to enter in a function and have the graph displayed.

## Visualization

The program allows the user to display graphs in the forms listed below:

* Cartesian 2D
* Polar 2D
* Cartesian 3D

User has the ability to zoom in/out, pan up/down/left/right and choose the desired display range.

## Colors

User has the ability to change and save the colors of the following elements:

* Background
* Panel
* Line 1
* Line 2
* Axis
* Line 3D

## **2.4. S**ave/Export

User has the ability to save an image of the displayed graph or export the data to file.

# **Test Strategy**

The test strategy consists of a series of different tests that will fully exercise the graphics program. The primary purpose of these tests is to uncover the systems limitations and faults. A list of the various planned tests and a brief explanation follows below.

## **3.1. System Test**

The System tests will focus on the behavior of the math graphics system. User scenarios will be executed against the system as well as screen mapping and error message testing. Overall, the system tests will test the integrated system and verify that it meets the requirements defined in the requirements document.

## **3.2. Performance Test**

Performance test will be conducted to ensure that the payroll system’s response times meet the user expectations and does not exceed the specified performance criteria. During these tests, response times will be measured under heavy stress and/or volume.

## **3.3. Security Test**

//Marked for deletion: I don’t believe we are concerned with security, haha.

Security tests will determine how secure the new payroll system is. The tests will verify that unauthorized user access to confidential data is prevented.

## **3.4. Automated Test**

A suite of automated tests will be developed to test the basic functionality of the payroll system and perform regression testing on areas of the systems that previously had critical/major defects. The tool will also assist us by executing user scenarios thereby emulating several users.

## **3.5. Stress and Volume Test**

//Marked for deletion: Not a concern for a single user program.

We will subject the payroll system to high input conditions and a high volume of data during the peak times. The System will be stress tested using twice (20 users) the number of expected users.

## **3.6. Recovery Test**

//Marked for deletion: I don’t believe we’re overly concerned with system overload, loss of data,

//etc.

Recovery tests will force the system to fail in a various ways and verify the recovery is properly performed. It is vitally important that all payroll data is recovered after a system failure & no corruption of the data occurred.

## **3.7. Documentation Test**

Tests will be conducted to check the accuracy of the user documentation. These tests will ensure that no features are missing, and the contents can be easily understood.

## **3.8. Beta Test**

The Payroll department will beta tests the new payroll system and will report any defects they find. This will subject the system to tests that could not be performed in our test environment.

## **3.9. User Acceptance Test**

//Unsure if we’d do this ourselves, since we seem to be testing for an unknown entity (the

//professor?). Ha

Once the payroll system is ready for implementation, the Payroll department will perform User Acceptance Testing. The purpose of these tests is to confirm that the system is developed according to the specified user requirements and is ready for operational use.

# **4. Environment Requirements**

## **4.1.** Computer

//I used the minimum requirements from Oracle for Java 8. (java.com)

* Java compatible Windows, MAC or Linux computer.
* (Minimum) Pentium 2 266 MHz processor
* 128MB RAM
* 124 MB for JRE; 2 MB for Java Update
* Java JDK
* Eclipse IDE
* Math Graphics 2.0.1 source code

# **5. Test Schedule**

* Ramp up/System familiarization (4/23/2017)
* System Test (4/30/2017)
* Beta Test //Mark for change/deletion
* User Acceptance Test //Will we be the “users” for this?

# **6. Control Procedures**

## **6.1 Reviews**

The project team will perform reviews for each Phase. (i.e. Requirements Review, Design Review, Code Review, Test Plan Review, Test Case Review and Final Test Summary Review). Will be discussed in online meeting, using Flowdock. All team members will be emailed invites.

## **6.2 Bug Review meetings**

Regular online meetings (Flowdock) will be held to discuss reported defects The development department will provide status/updates on all defects reported and the test department will provide additional defect information if needed. All member of the project team will participate.

## **6.3 Change Request**

Once testing begins, changes to the graphics program are discouraged. If functional changes are required, these proposed changes will be discussed with group. The group will determine the impact of the change and if/when it should be implemented.

## **6.4 Defect Reporting**

When defects are found, the testers will complete a defect report on the defect tracking system. The defect tracking system is accessible by all members of the team. When a defect has been fixed or more information is needed, we can change the status of the defect to indicate the current state. Once a defect is verified as fixed, the report can be closed.

# //Nothing below this statement has been modified from the

# //original template.

# **7. Functions To Be Tested**

The following is a list of functions that will be tested:

* Add/update employee information
* Search / Lookup employee information
* Escape to return to Main Menu
* Security features
* Scaling to 700 employee records
* Error messages
* Report Printing
* Creation of payroll file
* Transfer of payroll file to the mainframe
* Screen mappings (GUI flow). Includes default settings
* FICA Calculation
* State Tax Calculation
* Federal Tax Calculation
* Gross pay Calculation
* Net pay Calculation
* Sick Leave Balance Calculation
* Annual Leave Balance Calculation

A Requirements Validation Matrix will “map” the test cases back to the requirements. See Deliverables.

# **8. Resources and Responsibilities**

The Test Lead and Project Manager will determine when system test will start and end. The Test lead will also be responsible for coordinating schedules, equipment, & tools for the testers as well as writing/updating the Test Plan, Weekly Test Status reports and Final Test Summary report. The testers will be responsible for writing the test cases and executing the tests. With the help of the Test Lead, the Payroll Department Manager and Payroll clerks will be responsible for the Beta and User Acceptance tests.

## **8.1. Resources**

The test team will consist of:

* A Project Manager
* A Test Lead
* 5 Testers
* The Payroll Department Manager
* 5 Payroll Clerks

## **Responsibilities**

|  |  |
| --- | --- |
| Project Manager | Responsible for Project schedules and the overall success of the project. Participate on CCB. |
|  |  |
| Lead Developer | Serve as a primary contact/liaison between the development department and the project team.  Participate on CCB. |
|  |  |
|  |  |
| Test Lead | Ensures the overall success of the test cycles. He/she will coordinate weekly meetings and will communicate the testing status to the project team.  Participate on CCB. |
|  |  |
| Testers | Responsible for performing the actual system testing. |
|  |  |
| Payroll Department Manager | Serves as Liaison between Payroll department and project team. He/she will help coordinate the Beta and User Acceptance testing efforts. Participate on CCB. |
|  |  |
| Payroll Clerks | Will assist in performing the Beta and User Acceptance testing. |

# **Deliverables**

|  |  |  |
| --- | --- | --- |
| **Deliverable** | **Responsibility** | **Completion Date** |
|  |  |  |
| Develop Test cases | Testers | 6/11/2008 |
|  |  |  |
| Test Case Review | Test Lead, Dev. Lead, Testers | 6/12/2008 |
|  |  |  |
| Develop Automated test suites | Testers | 7/01/2008 |
|  |  |  |
| Requirements Validation Matrix | Test Lead | 6/16/2008 |
|  |  |  |
| Obtain User ids and Passwords for payroll system/database | Test Lead | 5/27/2008 |
|  |  |  |
| Execute manual and automated tests | Testers & Test Lead | 8/26/2008 |
|  |  |  |
| Complete Defect Reports | Everyone testing the product | On-going |
|  |  |  |
| Document and communicate test status/coverage | Test Lead | Weekly |
|  |  |  |
| Execute Beta tests | Payroll Department Clerks | 8/18/2008 |
|  |  |  |
| Document and communicate Beta test status/coverage | Payroll Department Manager | 8/18/2008 |
|  |  |  |
| Execute User Acceptance tests | Payroll Department Clerks | 9/03/2008 |
|  |  |  |
| Document and communicate Acceptance test status/coverage | Payroll Department Manager | 9/03/2008 |
|  |  |  |
| Final Test Summary Report | Test Lead | 9/05/2008 |

# **10. Suspension / Exit Criteria**

If any defects are found which seriously impact the test progress, the QA manager may choose to

Suspend testing. Criteria that will justify test suspension are:

* Hardware/software is not available at the times indicated in the project schedule.
* Source code contains one or more critical defects, which seriously prevents or limits testing progress.
* Assigned test resources are not available when needed by the test team.

# **Resumption Criteria**

If testing is suspended, resumption will only occur when the problem(s) that caused the suspension has been resolved. When a critical defect is the cause of the suspension, the “FIX” must be verified by the test department before testing is resumed.

# **Dependencies**

## **Personnel Dependencies**

The test team requires experience testers to develop, perform and validate tests. These

The test team will also need the following resources available: Application developers and Payroll Clerks.

## **Software Dependencies**

The source code must be unit tested and provided within the scheduled time outlined in the Project Schedule.

## **12.3 Hardware Dependencies**

The Mainframe, 10 PCs (with specified hardware/software) as well as the LAN environment need to be available during normal working hours. Any downtime will affect the test schedule.

## **Test Data & Database**

Test data (mock employee information) & database should also be made available to the testers for use during testing.

# **Risks**

## **13.1. Schedule**

The schedule for each phase is very aggressive and could affect testing. A slip in the schedule in one of the other phases could result in a subsequent slip in the test phase. Close project management is crucial to meeting the forecasted completion date.

## **13.2. Technical**

Since this is a new payroll system, in the event of a failure the old system can be used. We will run our test in parallel with the production system so that there is no downtime of the current system.

## **13.3. Management**

Management support is required so when the project falls behind, the test schedule does not

get squeezed to make up for the delay. Management can reduce the risk of delays by supporting the test team throughout the testing phase and assigning people to this project with the required skills set.

## **13.4. Personnel**

Due to the aggressive schedule, it is very important to have experienced testers on this project. Unexpected turnovers can impact the schedule. If attrition does happen, all efforts must be made to replace the experienced individual

## **13.5 Requirements**

The test plan and test schedule are based on the current Requirements Document. Any changes to the requirements could affect the test schedule and will need to be approved by the CCB.

# **14. Tools**

The Acme Automated test tool will be used to help test the new payroll system. We have the licensed product onsite and installed. All of the testers have been trained on the use of this test tool.

# **Documentation**

The following documentation will be available at the end of the test phase:

* Test Plan
* Test Cases
* Test Case review
* Requirements Validation Matrix
* Defect reports
* Final Test Summary Report

# **16. Approvals**

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| **Name (Print)** | **Signature** | **Date** |
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