SE 3XA3: Development Plan
XPyCharts

Team 4, xPy
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Table 1: **Revision History**

Date	**Version**	**Notes**
Date 1	1.0	Notes
Date 2	1.1	Notes

This document describes the requirements for .... The template for the Software Requirements Specification (SRS) is a subset of the Volere template (**?**). If you make further modifications to the template, you should explicity state what modifications were made.

1 Project Drivers

1.1 The Purpose of the Project

1.2 The Stakeholders

1.2.1 The Client

1.2.2 The Customers

1.2.3 Other Stakeholders

1.3 Mandated Constraints

1.4 Naming Conventions and Terminology

1.5 Relevant Facts and Assumptions

User characteristics should go under assumptions.

2 Functional Requirements

2.1 The Scope of the Work and the Product

2.1.1 The Context of the Work

2.1.2 Work Partitioning

2.1.3 Individual Product Use Cases

2.2 Functional Requirements

Requirement #: 1
Description: The software shall read data given to it.
Rationale: Data is needed to construct a graph.

Originator: Hatim Rehman
Fit Criterion: The data used by the program is identical to the data given to it.
Customer Satisfaction: 5 **Customer Dissatisfaction:** 5
Priority: High **Conflicts:** 2,3,4,5
History: Created October 10, 2016

Requirement #: 2
Description: The software will raise an exception if the data format cannot be plotted, and stop the program.
Rationale: It is safer to stop the program after it is realized the data points do not meet the expected format, versus letting the program proceed to unexpected behaviour.
Originator: Hatim Rehman
Fit Criterion: The program execution halts when improper data is entered.
Customer Satisfaction: 5 **Customer Dissatisfaction:** 5
Priority: High **Conflicts:** 3,4,5
History: Created October 10, 2016

Requirement #: 3
Description: The software will construct a coordinate system that will fit all the data points.
Rationale: This ensures the coordinate system is always dynamically generated to work for all data sets.
Originator: Hatim Rehman
Fit Criterion: The maximum value on the xy axes is $\geq$ maximum x, y in data set.
Customer Satisfaction: 5 **Customer Dissatisfaction:** 5
Priority: High **Conflicts:** 4,5
History: Created October 10, 2016

Requirement #: 4
Description: The software shall plot all the data points.
Rationale: The user will want all the data plotted.
Originator: Hatim Rehman

Fit Criterion: All data points exist on the generated graph.
Customer Satisfaction: 5 **Customer Dissatisfaction:** 5
Priority: High **Conflicts:** 5
History: Created October 10, 2016

Requirement #: 5
Description: The software will connect a line that passes through all the data points if the data points are a function of x.
Rationale: Imposing a constraint on only graphing functions ensures validity and correctness (a function only has one interpretation), whereas graphing relations introduces ambiguity in the shape of the line.
Originator: Hatim Rehman
Fit Criterion: A line passes through all the points if there is only one y value for each x.
Customer Satisfaction: 5 **Customer Dissatisfaction:** 5
Priority: High **Conflicts:** None
History: Created October 10, 2016

3 Non-functional Requirements

3.1 Look and Feel Requirements

Requirement #: 1 Requirement Type: 10a Event/Use case #:
Description: The graphs produced should be visually appealing and look professional
Rationale: The programmer may be producing graphs for presentations, and will appreciate a good looking product
Originator: Louis Bursey
Fit Criterion: 70% of people surveyed believe that graphs are visually appealing and look professional
Customer Satisfaction: 4 **Customer Dissatisfaction:** 2
Priority: Medium **Conflicts:** None
Supporting Materials: None
History: Created October 5, 2016

3.2 Usability and Humanity Requirements

Requirement #: Requirement Type: 11a Event/Use case #:

Description: The product should be easy to use for novice Python programmers

Rationale: The programmer using this library should be able to focus on their program, not on using this library

Originator: Louis Bursey

Fit Criterion: 80% of programmers familiar with Python successfully use the product

Customer Satisfaction: 4 **Customer Dissatisfaction:** 3

Priority: Medium **Conflicts:** None

Supporting Materials: None

History: Created October 5, 2016

Requirement #: Requirement Type: 11b Event/Use case #:

Description: When natural language is required, this product will use English

Rationale: Python is written in English

Originator: Louis Bursey

Fit Criterion: No non-English natural language is used in the product

Customer Satisfaction: 1 **Customer Dissatisfaction:** 5

Priority: High **Conflicts:** None

Supporting Materials: None

History: Created October 5, 2016

Requirement #: Requirement Type: 11c Event/Use case #:

Description: The programmer using this product should quickly be able to learn how to use this product

Rationale: Programmers who face a steep learning curve will be discouraged from using this product

Originator: Louis Bursey

Fit Criterion: Programmers familiar with Python are able to produce graphs within an average twenty minutes of acquiring the library

Customer Satisfaction: 4 **Customer Dissatisfaction:** 4

Priority: Medium **Conflicts:** None

Supporting Materials: None

History: Created October 5, 2016

Requirement #: Requirement Type: 11d Event/Use case #:

Description: When used incorrectly, the product should generate error messages that are easy to understand

Rationale: Knowing when and how the library is being used incorrectly will help developers use the library more efficiently.

Originator: Louis Bursey

Fit Criterion: 80% of programmers using the library for the first time can understand the error messages they create

Customer Satisfaction: 5 **Customer Dissatisfaction:** 4

Priority: High **Conflicts:** None

Supporting Materials: None

History: Created October 5, 2016

3.3 Performance Requirements

Requirement #: Requirement Type: 12a Event/Use case #:

Description: The product should generate graphs in a timely manner

Rationale: The program should not take so long that it slows down the programmer's workflow

Originator: Louis Bursey

Fit Criterion: The library takes under 20 seconds to generate graphs of a reasonable size

Customer Satisfaction: 4 **Customer Dissatisfaction:** 4

Priority: High **Conflicts:** None

Supporting Materials: None

History: Created October 5, 2016

Requirement #: Requirement Type: 12c Event/Use case #:

Description: The product should produce accurate graphs

Rationale: Visual representations of data are useless if they don't represent data faithfully

Originator: Louis Bursey

Fit Criterion: Graphs produced should have no less than 20% differ-

ence between it and a graph generated by JCharts
Customer Satisfaction: 5 **Customer Dissatisfaction:** 5
Priority: High **Conflicts:** None
Supporting Materials: None
History: Created October 5, 2016

Requirement #: Requirement Type: 12d Event/Use case #:
Description: The product should always be available
Rationale: The product cannot unexpectedly go out of service, as programmers will depend on its availability
Originator: Louis Bursey
Fit Criterion: The product is always available
Customer Satisfaction: 1 **Customer Dissatisfaction:** 5
Priority: High **Conflicts:** None
Supporting Materials: None
History: Created October 5, 2016

Requirement #: Requirement Type: 12e Event/Use case #:
Description: The library will not stall out, if used incorrectly it will always display error messages and abort
Rationale: Programmers using the library will depend on graphs not stalling out their programs
Originator: Louis Bursey
Fit Criterion: Errors in use always create error messages and aborts, not stalls
Customer Satisfaction: 1 **Customer Dissatisfaction:** 5
Priority: High **Conflicts:** None
Supporting Materials: None
History: Created October 5, 2016

Requirement #: Requirement Type: 12f Event/Use case #:
Description: The library will be able to produce graphs with up to 500 data points
Rationale: Programmers using the library will want to build graphs from large data sets
Originator: Louis Bursey

Fit Criterion: Graph with up to 500 data points can be generated without problems

Customer Satisfaction: 3 **Customer Dissatisfaction:** 5

Priority: High **Conflicts:** None

Supporting Materials: None

History: Created October 5, 2016

3.4 Operational and Environmental Requirements

Requirement #: Requirement Type: 13a Event/Use case #:

Description: The product should operate on laptops and desktops

Rationale: Programmers work on laptops and desktops and the library should work in this environment

Originator: Louis Bursey

Fit Criterion: Personal computer users can run programs that use the library

Customer Satisfaction: 3 **Customer Dissatisfaction:** 5

Priority: High **Conflicts:** None

Supporting Materials: None

History: Created October 5, 2016

Requirement #: Requirement Type: 13a Event/Use case #:

Description: The product should be usable as a Pyton library

Rationale: The Python language is the supported language of this project

Originator: Louis Bursey

Fit Criterion: The product is importable in a Python program

Customer Satisfaction: 1 **Customer Dissatisfaction:** 5

Priority: High **Conflicts:** None

Supporting Materials: None

History: Created October 5, 2016

Requirement #: Requirement Type: 13c Event/Use case #:

Description:

Rationale: The product should be distributed as a zip file that is importable in Python programs

Originator: Louis Bursey
Fit Criterion: The product is importable in a Python program
Customer Satisfaction: 3 **Customer Dissatisfaction:** 4
Priority: High **Conflicts:** None
Supporting Materials: None
History: Created October 5, 2016

Requirement #: Requirement Type: 13d Event/Use case #:
Description: Future releases of the project will be backwards compatible
Rationale: Backwards compatibility keeps programmers from having to update their code when we make changes
Originator: Louis Bursey
Fit Criterion: Releases are backwards compatible
Customer Satisfaction: 2 **Customer Dissatisfaction:** 5
Priority: High **Conflicts:** None
Supporting Materials: None
History: Created October 5, 2016

3.5 Maintainability and Support Requirements

Requirement #: Requirement Type: 13d Event/Use case #:
Description: The product should work in Windows, Linux and Mac OSX environments
Rationale: Programmers working in all of these environments will need graphing capabilities
Originator: Louis Bursey
Fit Criterion: The library is usable in all of these environments
Customer Satisfaction: 4 **Customer Dissatisfaction:** 5
Priority: High **Conflicts:** None
Supporting Materials: None
History: Created October 5, 2016

3.6 Security Requirements

There are no security requirements for this project

3.7 Cultural Requirements

There are no cultural requirements for this project

3.8 Legal Requirements

There are no legal requirements for this project

3.9 Health and Safety Requirements

A graphing library does not pose any serious health and safety risks.

4 Project Issues

4.1 Open Issues

4.2 Off-the-Shelf Solutions

4.3 New Problems

4.4 Tasks

4.5 Migration to the New Product

4.6 Risks

4.7 Costs

4.8 User Documentation and Training

4.9 Waiting Room

4.10 Ideas for Solutions

5 Appendix

This section has been added to the Volere template. This is where you can place additional information.

5.1 Symbolic Parameters

The definition of the requirements will likely call for SYMBOLIC_CONSTANTS. Their values are defined in this section for easy maintenance.