

Assignment 3 – White-box Testing

TEST PLAN

Members:

Faisal Hossain

Dylan Mah

Michele Esercitato

Cheyenne Goh

Version History

Version #	Written by	Revision date	Approved by	Approval date	Outline
1.0	Michele Dylan Faisal Cheyenne	2022/02/20	Michele Dylan Faisal Cheyenne	2022/02/20	Test plan creation

INTRODUCTION

This test plan outlines our group's strategy to develop and run test cases for the JFreeChart application. We will be using JUnit version 4, JMock version 2.5.1, hamcrest core version 1-3 and the EclEmma extension in Eclipse. This plan identifies the methods to be tested, the division of work and schedule for the team.

1 TEST STRATEGY

1.1 Scope of Testing

1.1.1 Features to be tested

As specified in the assignment outline we will be testing 2 classes: "Range" and "DataUtilities" from the "org.jfree.data" package.

From these classes we will be testing the following methods:

Class	Method	Description
Range	getUpperBound	Returns the upper bound for the range.
Range	getLowerBound	Returns the lower bound for the range.
Range	getCentralValue	Returns the central value for the range.
Range	contains	Returns true if the range contains the specified value and false otherwise.
Range	isNaNRange	Returns true if both the lower and upper bounds are Double.NaN, and false otherwise.
Range	getLength	Returns the length of the range.
Range	intersects	Returns true if the range intersects with the specified range, and false otherwise.
Range	constrain	Returns the value within the range that is closest to

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		the specified value.
Range	combine	Creates a new range by combining two existing ranges.
Range	combineIgnoringNaN	Returns a new range that spans both range1 and range2. This method has a special handling to ignore Double.NaN values.
Range	expandToInclude	Returns a range that includes all the values in the specified range AND the specified value.
Range	expand	Creates a new range by adding margins to an existing range.
Range	shift	Shifts the range by the specified amount.
Range	scale	Scales the range by the specified factor.
Range	equals	Tests this object for equality with an arbitrary object.
Range	hashCode	Returns a hash code.
Range	toString	Returns a string representation of this Range.
DataUtilities	equals	Tests two arrays for equality.
DataUtilities	calculateColumnTotal	Returns the total of the values in one column of the supplied data table.
DataUtilities	calculateRowTotal	Returns the total of the values in one column of the supplied data table.

DataUtilities	createNumberArray	Constructs an array of Number objects from an array of double primitives.
DataUtilities	createNumberArray2D	Constructs an array of arrays of Number objects from a corresponding structure containing double primitives.
DataUtilities	getCumulativePercentages	Returns a KeyedValues instance that contains the cumulative percentage values for the data in another KeyedValues instance.
DataUtilities	clone	Returns a clone of the specified array.

1.1.2 Features not to be tested

The classes and methods not specified in section 1.1.1.

1.2 Test Type

The features specified in section 1.1 are tested through the implementation of White-Box Unit Testing, for the JFreeChart application provided.

1.3 Test Logistics

1.3.1 Who will test?

Tests will be developed by 2 group pairs, consisting of the members of this plan. Each pair will focus on 1 of the classes, after which, the pairs will swap their target classes and review the test cases built.

1.3.2 When will the tests occur?

Tests will be run anytime from 2022-02-19 to 2022-02-20, at any point where a pair group is available.

2 TEST OBJECTIVES

The test objectives for this test plan is to verify the capabilities of the Range and DataUtilities classes and its methods.

3 TEST DELIVERABLES

Test deliverables are provided as below

3.1 Before Testing

- Test Plan Documents

3.2 During Testing

- EcEmma Code Coverage Report

3.3 After Testing

- Lab Report
- Virtual Demo
- Eclipse Project Test Suite