

Design Documentation

Project 10

Team Wow

Product: Food Data

Helping food science with data gathering and analysis software

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CS 380

11/14/2017

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1. Introduction

1.1 Purpose

The purpose of this design documentation is to layout the design of the website made for Dr. Gee with the purpose of helping food science with data gathering and analysis. This design documentation is for the reference of the programming team which contains Shaina Greer-Short, Frank Senseney, Geoff Worley, and Connor Taylor. It is also for the project advisor, Szilard Vajda, and the client David Gee.

1.2 Scope

The software product to be produced is a website called "Food Data". Food Data will allow users to create sensory evaluation tests that can be used by judges when judging food samples. Currently judgements are written on paper and then transcribed into excel spreadsheets this product will be beneficial in that it will automate this process. The objective of this website is to allow judges to simply indicate on a tablet the score they give the food sample. That data shall automatically be condensed into an excel spreadsheet for downloading. Another goal of this website is to allow the randomization of three digit numbers to be used as sample identifiers. This will enable users to keep track of which sample is of which type while preventing judges from identifying sample types.

1.3 Definitions, Acronyms, and Abbreviations

CWU – Central Washington University

Sensory Evaluation – a scientific discipline that analysis and measures human responses to the composition of food and drink

1.4 References

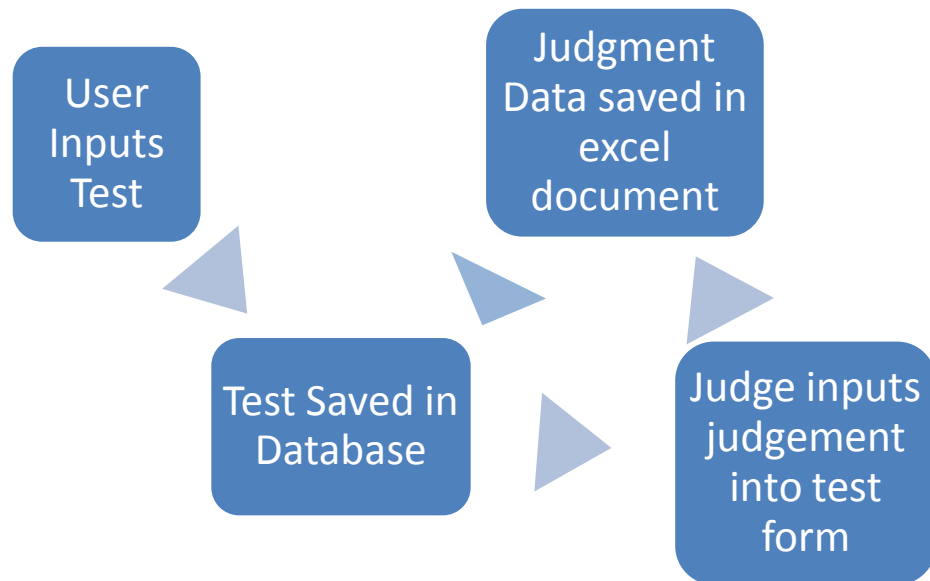
Appendix, Document A. Questionnaire for Tenderness, 11/11/2017, Central Washington University

1.5 Overview

The rest of this design documentation contains a clarification of the designs, and technical aspects of the product. Details on work flow are contained in section two. Details on design are contained in section three, four and five. The technical details for this project are contained in section six.

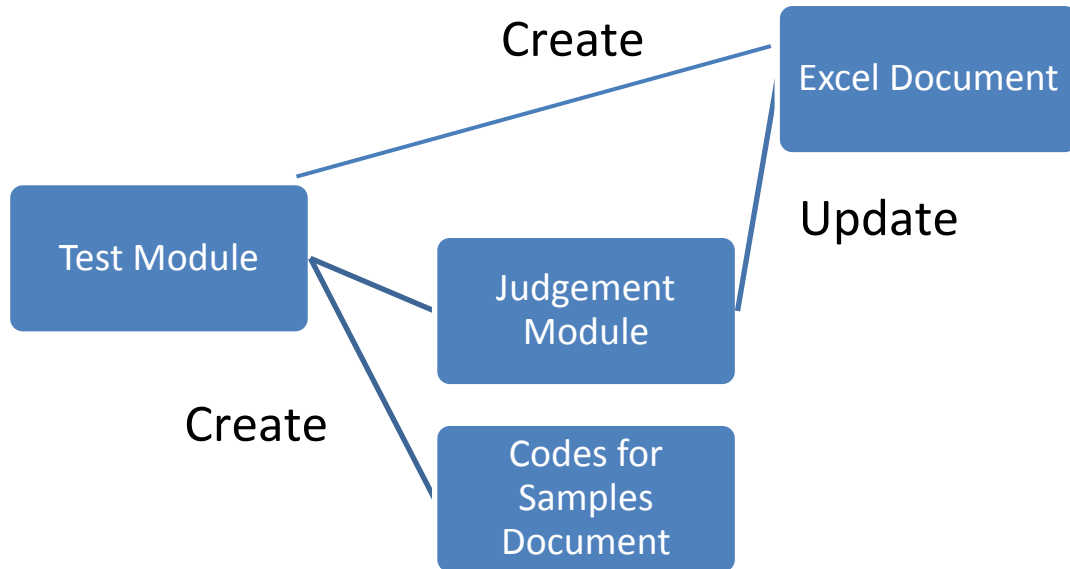
2. Work Flow

We are saving the tests in a database because we determined that this was the most time and space efficient way of saving the tests. We decided to save the judgement data in excel sheets instead of a database for several reasons. First, the client does not want to use a database. He wants the data to be available in excel sheets. Second, it would be a waste of space to save all data in a database and then have to convert it into an excel document every time that a user wants to look at the data. Third, because the differences in the test make it so that it would be extremely inefficient and confusing to try and save all the tests in the same table. So, the best way to save the data in a database would be to have a separate table for every test. If this was used as a solution then there would be hundreds or thousands of tables in the database. With there being no maintenance on this website such a solution could be a challenge because of future problems with the data.



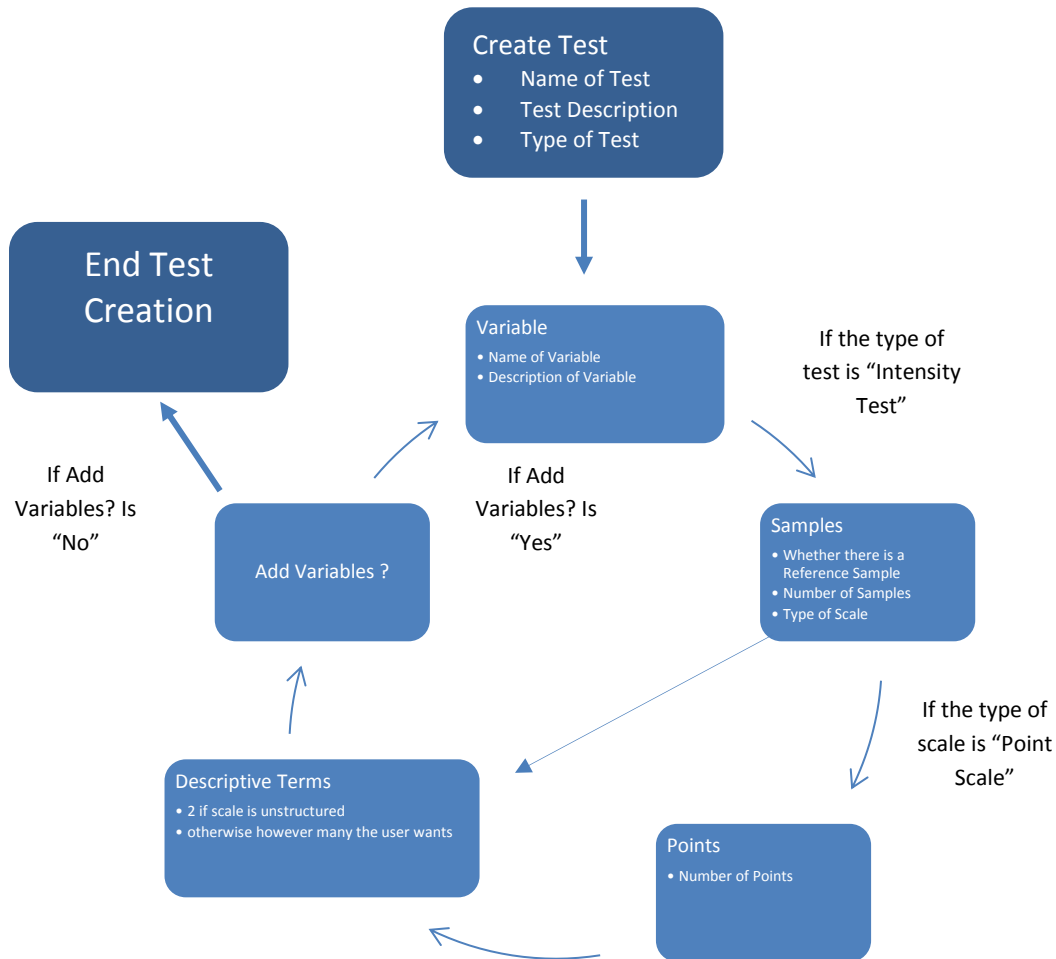
3. Outputs Design

This design was required by the requirements the client gave the project team.



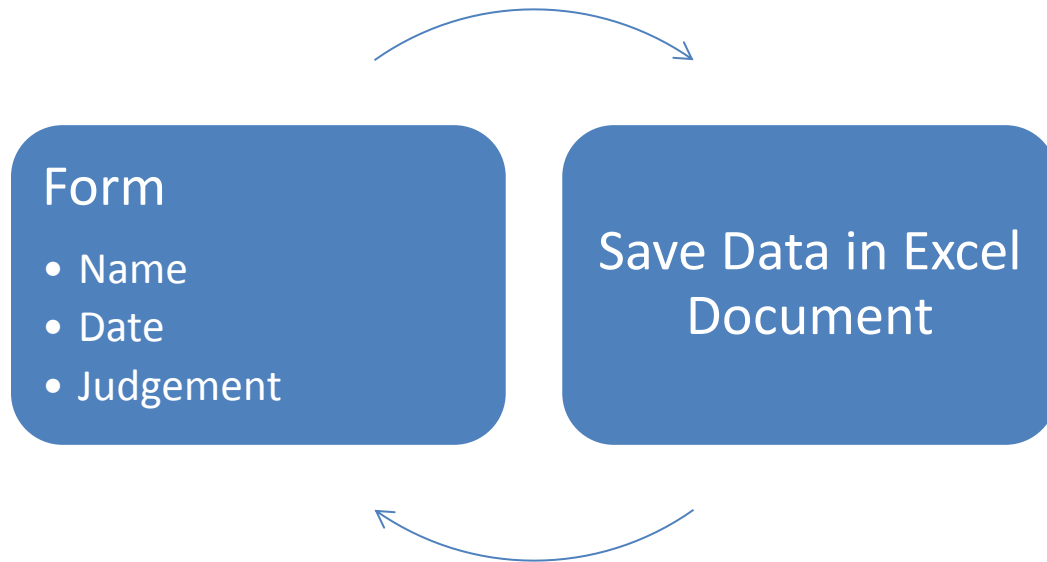
3.1 Create Test

We determined to cut up the test creation process into several parts because we believe it will make the website easier to use and learn because the user will only have to consider one aspect of their test at a time. We cut the test up into these specific parts because it allows for the test to change based on inputs (e.g. what type of test is being created will change what other questions about the test the user will need to answer).



3.2 Judge Interface

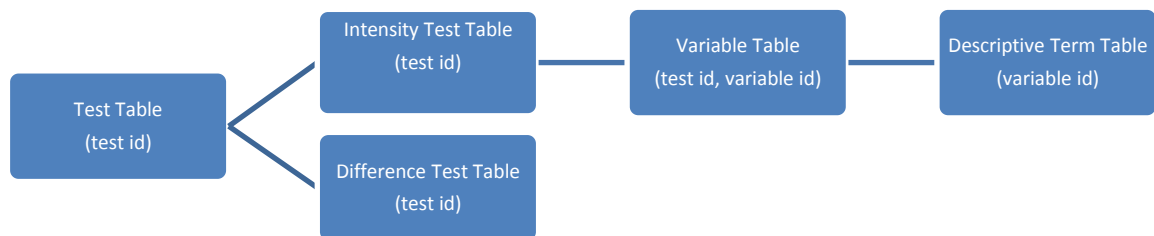
This design explains the process that is gone through to obtain the data for the tests. A judge enters their data in a form (see Appendix Document A, "Questionnaire for Tenderness"), the data is saved and then the website reverts to the form so that the next judge can enter data.




4. Database Design

We determined to cut the tests into these specific tables for several reasons. We decided to cut the tests into two different tables (Intensity Test Table and Difference Test Table) because intensity tests and difference tests (triangle and duo/trio tests) require different inputs and so separating the tables helps remove extra empty rows that the table would otherwise contain. We decided to cut the Intensity Test table into several parts because of a one to multiple relationship. For example, one intensity test can test for several variables. Because the amount of variables that is tested for depends on the user it would not be space efficient to store the variables with the other test data, the same is true of descriptive terms in relation to variables.


Each table will have its own classes and methods to pull the user input from the website with main tables (e.g. Test, Intensity Test, etc.) calling their sub-tables classes (e.g. Intensity Test, Variable, etc.). The values in parenthesis below the name of the table are the keys that match the tables to each other so that we can reliably determine which data belongs together. The subsections her contain the different variables contained in each table, these variables are required to complete the fulfil the client's requirements. Variable ids are automatically assigned when tests are added to the database and serve as keys.




4.1 Test Table

	Type of test
Test id	


4.2 Intensity Test Table

	name	description	Number of samples	Username of creator	Password of creator	Creation date	Name excel document
Test id							


4.3 Difference Test Table

	name	description	type	Reference Sample	Number of samples	Name variable	Description variable	Low end descriptive term	High end descriptive term	Username creator	Password creator	Date created	Name excel
Test id													

4.4 Variable Table

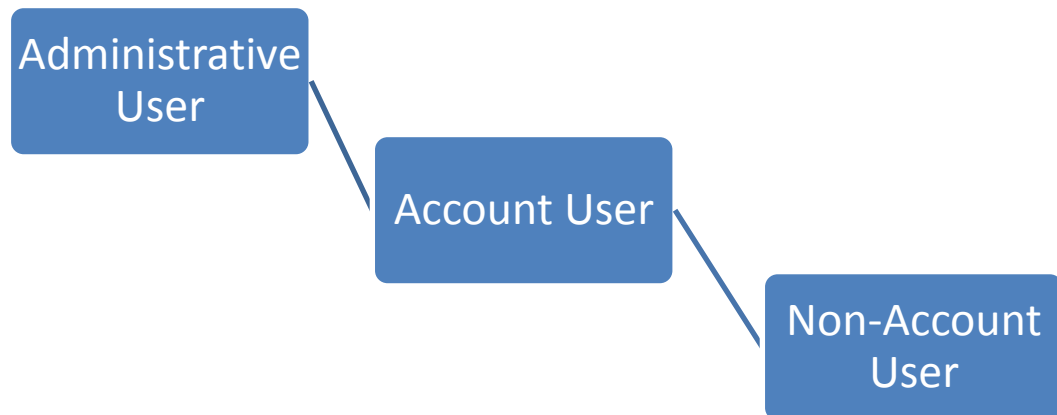
Test id	 variable id	Variable name	Variable description	Scale type	Number of points
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4.5 Descriptive Table

variable id	 descriptive term id	Descriptive term name	Descriptive term number
-------------	---	-----------------------	-------------------------

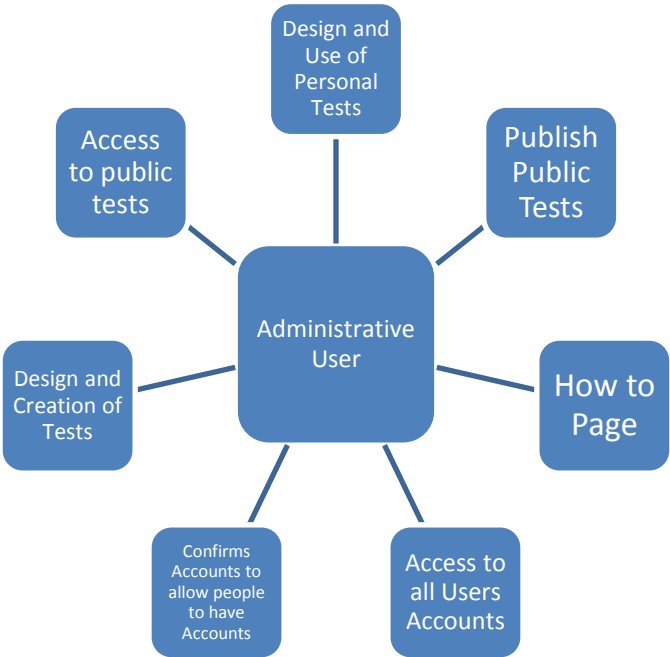
5. User Design

This design shows the hierarchy of users and what the user can see. For example, the Account user can see the Account user view and the Non-Account user vies, but cannot see the Administrative user view. The subsections here show everything the user specified in that sub-section can view.



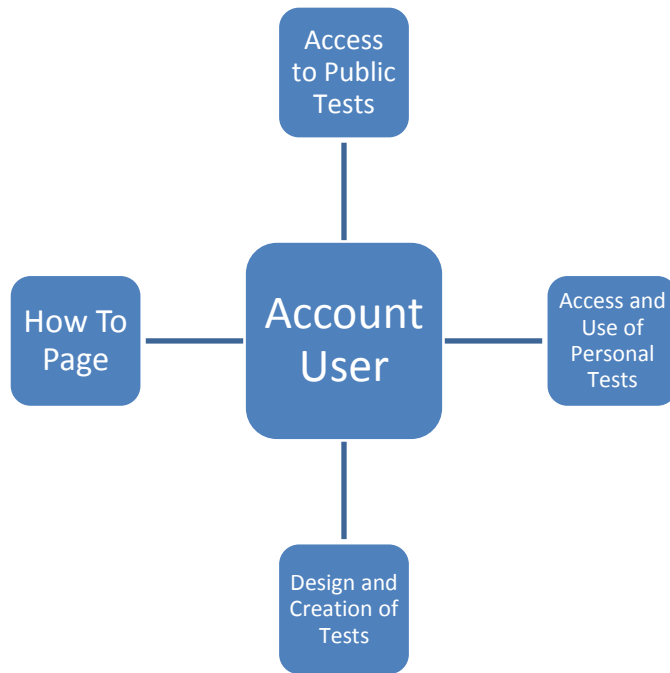
5.1 Administrative User

The administrative user can access all parts of the website.



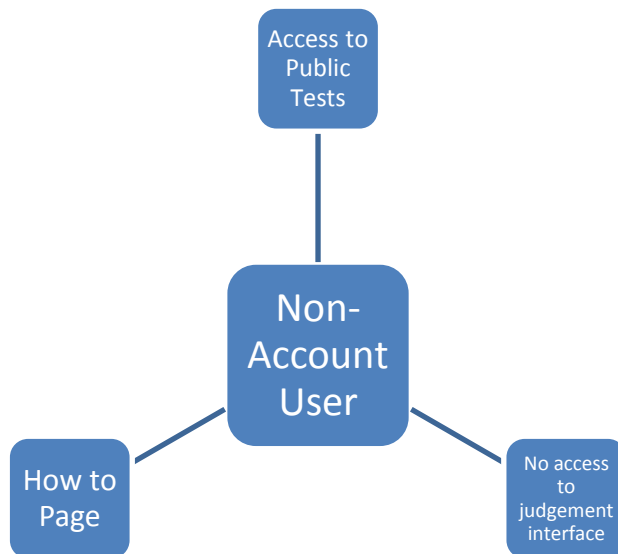
5.2 Account User

The Accounts user can see what they have done, but cannot access anyone else's tests.



5.3 Non-Account User

The Non-Account user is anyone that attempts access to the website despite not having an account. These people can view the website and the public tests, but cannot do anything with the tests.



6. Technical Design Components

6.1 Input Authentication

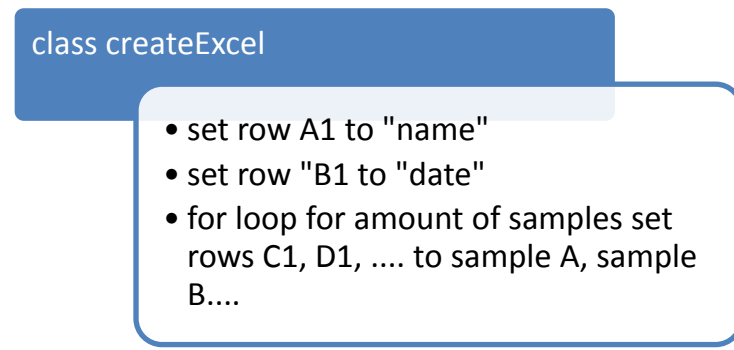
This describes the process that every input is put through before being entered either into the excel document or the database to determine that the input is correct and will not crash the product.



6.2 Classes and Methods

6.2.1 Class createExcel

Class createExcel will be used to create the excel sheet for every test. This design contains the pseudocode of the class.

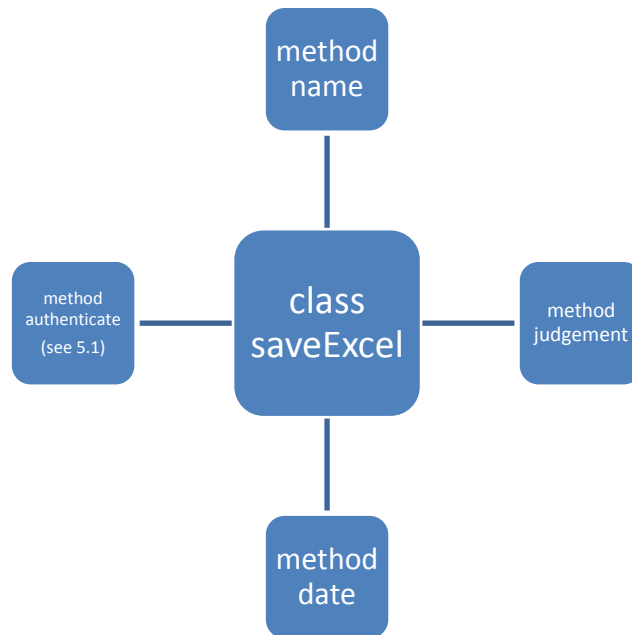


6.2.2 Class saveExcel

Class saveExcel will be used to update the excel sheet after every judgement is made.

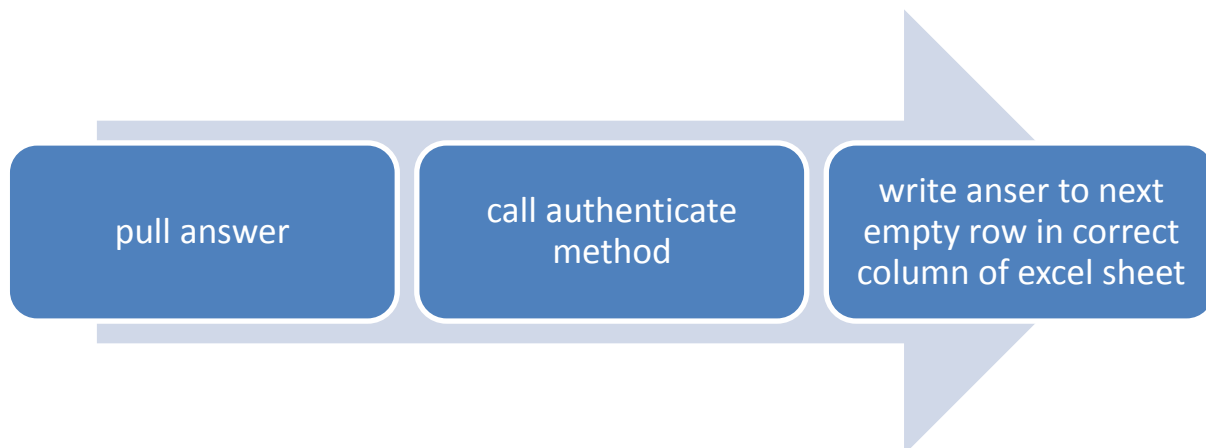
6.2.2.1 Methods

This design contains the main methods of the saveExcel class. Each input has its own method as this will be an instance class.



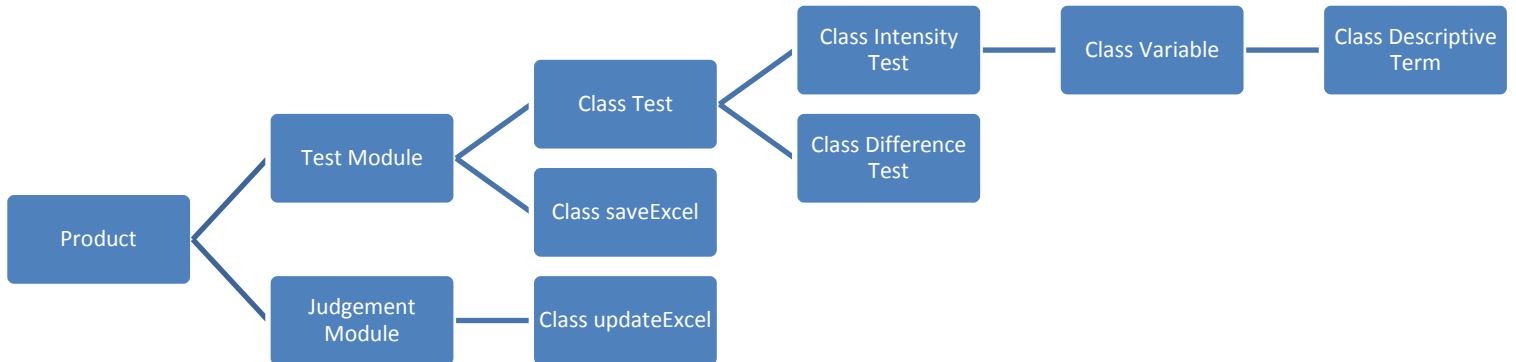
6.2.2.2 Name, Date, and Judgement Methods

This design shows what the basic content will be for the Name, Date, and Judgement methods. The judgement method will have a for loop so that data for multiple samples can be recorded.



6.2.3 Overall Classes Design

This design shows how all the class will be organized and react to each other. This gives a general overview.



Appendix

Document A

A copy of the current written judgement sheet for both the unstructured scale (above) and the point scale (below a 9-point scale).

Questionnaire for Tenderness

Name _____ Date _____

Evaluate the following cake samples for tenderness using the following unstructured scale by making a vertical line indicating your tenderness rating.

SAMPLE	Firm	Very Soft
-----	-----+-----	-----+
-----	-----+-----	-----+
-----	-----+-----	-----+
-----	-----+-----	-----+
-----	-----+-----	-----+
-----	-----+-----	-----+

Questionnaire for Textural Acceptability

Name _____ Date _____

Exceptional quality cakes should have a **fine and even textural appearance, thin cell walls, small air cells, and have a soft velvety texture**. Evaluate the following cake samples using a **9-point** scale where:

1 = poor textural quality cake
 5 = acceptable textural quality cake
 9 = exceptional textural quality cake

Sample	Acceptability Score
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____