**Design Documentation**

**Project 10**

**Team Wow**

**Product: Food Data**

**Helping food science with data gathering and analysis software**

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**CS 380**

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8. **Introduction**
   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. **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. **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. **References**

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

* 1. **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.

1. **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.

1. **Outputs Design**

Create

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

Create

Update

* 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).

Create Test

* Name of Test
* Test Description
* Type of Test

End Test Creation

If the type of test is “Intensity Test”

If the type of scale is “Point Scale”

If Add Variables? Is “Yes”

If Add Variables? Is “No”

* 1. **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.

1. **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.

* 1. **Test Table**

|  |  |
| --- | --- |
| KeyTest id | Type of test |

* 1. **Intensity Test Table**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| KeyTest id | name | description | Number of samples | Username of creator | Password of creator | Creation date | Name excel document |

* 1. **Difference Test Table**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| KeyTest id | 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 |

* 1. **Variable Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test id | Keyvariable id | Variable name | Variable description | Scale type | Number of points |

* 1. **Descriptive Table**

|  |  |  |  |
| --- | --- | --- | --- |
| variable id | Keydescriptive term id | Descriptive term name | Descriptive term number |

1. **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.

* 1. **Administrative User**

The administrative user can access all parts of the website.

* 1. **Account User**

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

* 1. **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.

1. **Technical Design Components**
   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.

* 1. **Classes and Methods**
     1. **Class createExcel**

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

* + 1. **Class saveExcel**

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

* + - 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.

* + - 1. **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.

* + 1. **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).

