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# 1. Analysis

## 1.1 The problem: identification and background

For my project I will be making test equipment management software. This could be used by anyone from home labs to Research and development labs, there could be a single person to a hole facility using the software the software to record test results and trace them. There are two current systems that are used. The first is writing the data down on a piece of paper. The second is imputing the data in to a spread sheet.

## 1.2 Description of the current system

There are two systems currently used. The First system is writing the data down on a sheet paper, this would be done for every combination of test equipment, this would be stored in a folder near the bit of equipment. The second system is using spread sheet software like Excel. The user would in put the data in to a column sequentially. Both of these systems can become very cluttered quickly and for both the format can change across its lifetime.

Graphical user interface, table

Description automatically generatedThis is an example of spreed sheet software being used to show the drifted of a power supply

### 

### 1.2.1 Problems with current system

There are quite a few issues with the paper system, one of which is the physical sheets of paper can easily be lost. This would mean that the records of the device history could be lost. There is yet another issue with using paper to store the data, that is some peoples handwriting could be difficult to read.

The spread sheet system also has a few issues. The first issue is that as more data gets entered it will continue to get more cluttered, this would make it more difficult to add more. Furthermore this system does not scale as if two people add data at the same time some data could get lost or over written. This limits the system to smaller establishments.

## 1.3 Objectives

1. The User should be able to add a new measurement device to the data base. They should be able to specify the following:
   1. Model – The name of the measurement device
   2. Count – The largest number it can display
   3. Date of Purchase – The day the device was purchased
   4. Date of Calibration – The last time the device was calibrated
2. The User should be able to add a new standard to the data base. They should be able to specify the following:
   1. Model – The name of the standard
   2. Date of Purchase – The day the device was purchased
   3. Date of Calibration – The last time the device was calibrated
3. Measurement devices should be able to be assigned functions with the appropriate ranges
4. Standards should be able to be assigned functions with the appropriate ranges
5. The user should be able to make new functions/ranges. They should be able to specify the following:
   1. Function – The symbol of the function (The function Ohm would have the symbol Ω)
   2. Exponent – The number of the power (The function kilo Ohm would have the exponent 3 as one kilo Ohm can be represented by 1x10^3)
   3. Function\_name – The name of the function
6. The software should be able to create graphs
   1. The user should be able to select a measurement device and a standard to get the recorded data to be displayed
   2. It should be able to show the allowed drift of the
   3. The graphs should be able to show all the data between to dates
      1. These records should be scaled correctly in both axes, any gaps in date records should be shown as a blank place
   4. It should show statistical data points such as:
      1. Standard deviation
      2. Drift
      3. PPM

## 1.4 Data Modelling

## 1.4.1 Analysis Entity Relationship Diagram // Object Diagrams // Storyboard [delete as appropriate]

# 2 Design (12 marks)

## 2.1 Hierarchy Chart

## 2.2 Normalised Entity Relationship Diagram.

### 2.2.1 Entity Description in standard notation

### 2.2.2 Design Data Dictionary

For each table in your database describe as shown below:

Table XXX

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Description** |
|  |  |  |
|  |  |  |
|  |  |  |

Table YYY

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Description** |
|  |  |  |
|  |  |  |
|  |  |  |

## 2.3. Form and algorithm Design

### 2.3.1 Form1

#### 2.3.1.1 Form Screen Shot

#### 2.3.1.2 Structure Chart

#### 2.3.1.3 Class Diagram

#### 2.3.1.4 Pseudo Code

#### 2.3.1.5 Validation

### 2.3.2 Form2

#### 2.3.2.1 Form Screen Shot

#### 2.3.2.2 Structure Chart

#### 2.3.2.3 Class Diagram

#### 2.3.2.4 Pseudo Code

#### 2.3.2.5 Validation

### 2.3.1 Form3

#### 2.3.3.1 Form Screen Shot

#### 2.3.3.2 Structure Chart

#### 2.3.3.3 CLass Diagram

#### 2.3.3.4 Pseudo Code

#### 2.3.3.5 Validation

## 2.4 Report Design

### 2.4.1 Report 1

#### 2.4.1.1 Screen shot

#### 2.4.1.2 SQL and or Pseudo Code

### 2.4.2 Report 2

#### 2.4.2.1 Screen shot

#### 2.4.2.2 SQL and or Pseudo Code

# 3 Testing (8 marks)

## 3.1 Test Plan

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Area tested** | **Test data** | **Description purpose** | **Expected outcome** | **Output reference** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## 3.2 Test Results

Screen shots or link to YouTube

# 4 Evaluation (4 marks)

## 4.1 Objectives comparison

## 4.2 Improvements

## 4.3 Analysis of 3rd party feedback

# 5 Technical Solution (42 Marks)