The problem I am going to solve is how I can develop a protocol for technicians to follow to demonstrate to a client the benefits of using a relational database management system to maintain the HR data. For the purposes of this research project, it is assumed that the client would be currently maintaining their HR data in a spreadsheet system.

I expect that the protocol I develop as a solution to this problem will be successful. By establishing a testable protocol I will present a faster system than the existing one. This comparison will be demonstrated through a side-by-side technical evaluation.

The problem with spreadsheets is that they are static as opposed to dynamic in nature. Relational databases, however, are dynamic. Relational databases are based on E.F Codd's relational model of data from 1970. Relational databases organize data into rows and columns; which make one or more tables. There is a unique key for each row. Rows in one table can be linked to rows in another table by using the unique keys. Relational tables need to follow certain rules for data integrity. Rows should not be the same because if they are then there may be problems choosing between selections. If there are duplicate rows, there can be problems resolving which of two possible selections is needed.

//A second integrity rule of the traditional relational model is that column values must not be repeating groups or arrays. A third aspect of data integrity involves the concept of a null value. A database takes care of situations where data may not be available by using a null value to indicate that a value is missing. It does not equate to a blank or zero. A blank is considered equal to another blank, a zero is equal to another zero, but two null values are not considered equal. When each row in a table is different, it is possible to use one or more columns to identify a particular row. This unique column or group of columns is called a primary key. Any column that is part of a primary key cannot be null; if it were, the primary key containing it would no longer be a complete identifier. This rule is referred to as entity integrity.// Relational databases are important because of they allow for the efficient storage and retrieval of data. Newcomers should be aware of YY.

My project will involve taking spreadsheet data and making it work in a relational database. Utilizing the Oracle database and its tools/languages is the recommended solution. The proposed solution requires that the Oracle database and its required tools be installed and available for both development and deployment phases. The spreadsheet data will be imported in to the Oracle database. Collection of PLSQL programs (Oracle's proprietary language) will be used to provide the requested functionality. SQL-DML commands (Data Manipulation Language) will be imbedded in the PLSQL blocks to perform manipulation of the employee data. Using the Family of Oracle products for this project can potentially save money for the client as PLSQL is the Oracle's proprietary language and does not need to be purchased separately.

As for measuring my results and client satisfaction, I have developed the following hypothesis: If, or example, client A is able to understand the protocol provided to him by a technician, he will be able to port his HR data stored on a spreadsheet into an Oracle database. Because he will have improved ability to manipulate and store HR data, he will be more efficient and satisfied.

I would like for Professor Narock to supervise this project. I have had several classes with him and feel he has sufficient skill in this area to monitor my work. He is also aware that I am in Redwood City, California doing my internship and that I will not be able to appear in person until December 1, 2015.

Desired Timetable:

Week One (Fall semester): I will discuss with my client a potential area where I will be able to research a problem and demonstrate a protocol that will provide a solution. I will search on-line sources, scholarly journals, and company history in order to better understand my subject and begin to formulate my hypothesis

Week Two: I will begin to write a three page topic submission that will detail my proposed project. I will incorporate the steps that I will take to arrive at my conclusion. I will state why I think the client will benefit from my solution.

Week Three: Increase my knowledge of PLSQL.

Analyze what Functions/Procedures need to be created to perform the necessary operations. **Note:** make sure to create exception handling blocks in the programs and print appropriate error messages out.

Create the menu system using PLSQL

SQL will be imbedded in the PLSQL code in order to manipulate the data in the database**.**