**Overview:** The PMS Software uses a combination of third party frameworks and tools to create a safe, secure, and robust database system for the needs of Project Managers. A custom API was also designed to communicate between the GUI and the mysql database.

**General Project File Structure:** There are many folders included in the main project directory, not all of them are required for the PMS software to run.

* **Diagrams & Images:** Contains all of the high-low level design diagrams. The .xml files are to be opened, viewed, and edited in a program called Draw.io which can be used either on any browser, or downloaded and installed as a desktop app.
* **Mysql Workbench Files:** Holds all of the files necessary for setting up a Mysql database server. Has sql scripts and workbench models.
* **Project Management System:** The main directory for the Java project which allows you to use a simplified GUI to interact with the PMS Database.
  + **Lib:** Contains the external jar files which are necessary for connecting and handling queries from the Mysql server to the Java program.
  + **Src:** The source directory for holding all of the source code for the java project.
    - **Data:** Holds all of the interface files which act as an API for communicating between the Java project and Mysql.
    - **Domains:** Holds all of the Java object representations of all of the functional requirements listed by the client. This reflects everything visualized in the diagrams.
    - **Drivers:** Holds the classes which handle the inputs of the user and outputs queries/commands. The files with the postfix DAO are responsible for calling the previously listed interface methods based on user input.
    - **Resource**: Holds all of the Mybatis xml files which are responsible for mapping Java objects into the Mysql database tables. The two objects are not exact reflections of each other.
* **Source Documents:** Holds all reference documents given by the client.
* **Storyboard UI Files:** Holds all of the pre-implementation early mockup designs of the user interface. These were copied from the storyboard of the last project.

**Mysql:** The main tool for the handling/storage of data in the database. Uses keys to identify items within a table. These keys are unique and automatically increment with each insertion of a new item. The keys never change even if an item is deleted or modified. The link supplied below will send you to the download page for Mysql Workbench. This program is the central tool for storing and handling all the data on a server. Talk to your local IT specialist to set up a Mysql database on your network. There will also be instructions below to help set up the server on your own with the given Mysql script and model files. There are multiple methods to import the necessary tables into Mysql Workbench and into your local server.

* **Mysql Installation:** The Windows MSI installer for the Mysql Workbench program is included in the main project folder under the name “mysql-installer-web-community-8.0.13.0.msi”. Install this program before proceeding any further with the guide. If you are not on a Windows PC, you can use the alternate installers place there instead. Included are the installers for both Mac OSX and Ubuntu Linux.
* **Database Server Setup:** This method involves using the Entity Relationship Diagram Model for the workbench. Using this file you can translate the diagram directly into the necessary creation tables in the main pmsdb schema.
  1. Open Mysql Workbench and go through the first time installation & server setup instructions.
  2. When creating your first connection, use these settings and save them. Also make sure to reflect these settings in the config.properties file inside folder “Project Management System” -> “resource”.
     + Connection Name: PMSDatabase
     + Connection Method: Standard (TCP/IP)
     + Hostname: localhost
     + Port: 3306
     + Username: root
     + Password: !Thevoid380
  3. Once you have connected to your newly created server the next step is to create a new schema. On the top tab with the small icons, select the “create a new schema” option.
  4. Name the schema “pmsdb” and hit apply.
  5. On the top tab select “file” then “open model”. Navigate to the “Mysql Workbench Files” -> “Models” folder and select the “ERD Workbench Model.mwb” file.
  6. Open the EER Diagram inside Mysql Model.
  7. Go to the “Database” tab and select the “forward engineer” option. Go through and hit accept to everything to complete the forward engineering of the model.
  8. Then go to the “Database” tab and select the “Synchronize Model” option. Go through and hit accept to everything to complete the synchronization process.
  9. Your IP should now have a fully functioning database server with the properly configured tabes.
  10. You can now either perform queries directly in the Mysql Workbench or use the Java application to automate the process of manually inputting queries.

**Mybatis:** A framework to help execute Mysql scripts within Java. This simplifies the complicated standard JDBC procedures for handling Mysql queries in Java. There are two libraries that were imported and configured inside the build path of the Java project to allow the use of Mybatis mappers. The files are **mybatis-3.4.6.jar** and **mysql-connector-java-8.0.13.jar**. To add these files to the build path for the java project, right click on the project and selecting the “configure build path” option. From there, click on “Add jars” and select the two files listed.