**Data Management Plan**

In our project automatic grading and feedback tool for java, we need a database where we can store the data like the user credentials, assignments grades and feedback of the assignment for the analysis purpose. We chose backend scripting language as PHP technology because it is easy to develop web applications and it has several advantages which will be discussed below. We have chosen MySQL database which is very compatible with PHP.

PHP is basically used for web development. It is a backend server side scripting language. Most of the programmers find PHP quite easy as its syntaxes are similar to C and C++. It is a cross platform and can run on both UNIX and WINDOWS servers. It is dynamic and works in combination of HTML in order to display the dynamic elements on the page. The best part of PHP is that it easily interfaces with MySQL/apache server. In general PHP is secure, economical, fast and reliable for web applications development.

MySQL is an open source relational database management system. With its performance, it has become the world’s primary database choice for web based applications. The most common applications for MySQL are PHP and java based applications that require a database storage. It consists of API for almost all the major programming languages and can be integrated easily with various programming languages like PHP, C++, Perl, Python etc. It works on many system platforms such as IRIX, Linux, macOS, Microsoft Windows etc. and it is globally known for being the most secure database management. MySQL has distinct storage-engine framework that provides the system administrators to configure the database server in order to provide a flawless performance and it is cost effective.

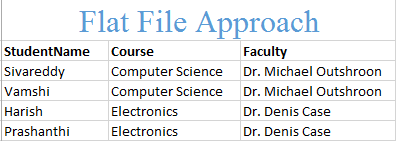
The combination of PHP and MySQL provides various options in order to create any kind of website. Most of the open source websites such as word press use PHP and MySQL databases to present the contents and information present in the blog. A dynamic site developed using PHP and MySQL can be updated with much more ease and effectiveness when compared to any other site. A dynamic website is easy to maintain, update and create the static page.

Flat file contains one record per line. The fields in each record are separated by comma or tab characters. The data is organized in series of rows and columns in a tabular format. Flat file advantages are, we can easily understand the data after seeing the tabular format, maintaining the flat file database system is very easy, less skills set are required for implementation of flat files and XML sheets are used for storing the data.

Flat files disadvantages are, there is a problem with data access because flat files are stored in offline so only local device users can access the data. In flat files data is stored more than once so its means that data redundancy and data inconsistency is occur. Flat file is having less security, anyone can easily retrieve the data. If the data in huge amount, the searching process is time consuming.

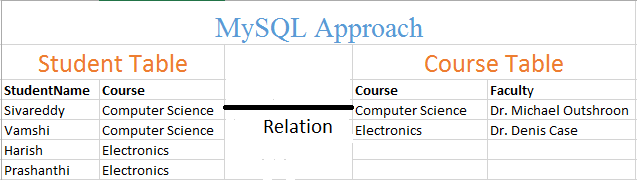
Flat files belong with the offline entities and form the machinery of operating systems and thus cannot be accessed through network. Databases that are accessed on a network share are useful as it can be accessed by many people who are looking for information.

Flat files are facing major problems with data inconsistency and data redundancy. We can observe in the below diagram.



In the above diagram the course and faculty data are repeated more than once. It means that data inconsistency and data redundancy is exists.

We can overcome the above problems in MySQL database which is shown in the below diagram.



In the above diagram we are having two different tables which are connected through a relation. So, based on this approach we can overcome the data inconsistency and data redundancy problems.

Databases can handle multi-process/multithreaded access and can access from network. They are also reliable and can handle transaction and concurrent access

As MySQL has more advantages over flat file and flat file has severe disadvantages when compared to MySQL, we consider MySQL.