**Professional and Ethical Issues**

**Data Encryption**

Our software product will deal with large amount of human genome data. Since the data contains confidential information, we will use data encryption to prevent the unauthorized access and thus make our system trustworthy and reliable. In this way, only the authorized people will be able to access and utilize the data. In order to provide secure login authentication, the system should verify the identity of users by using their username and password information. Hence, each user should provide their username and password information to the system before starting to use it.

**Data Distribution**

We will distribute the data across multiple servers, which are located at different physical locations, to provide users with faster access time. The purpose of distributing the data is to process the data transaction requests on multiple servers instead of one server. By reducing the data transaction time, we are aiming to improve the performance of the system at the end-user side.

**Data Replication**

In order to keep the database updated, we will use data replication on the servers. If a change has been made on a server, then the data replication updates the other servers to apply that change on them. The idea of data replication is to keep the data up-to-date in all distributed server locations.