Group Members :

1902089 – Hardik Maheshwari

1902091 – Jash Makhija

1902101 – Shobhit Mirjankar

1902102 – Harsh Modi

Experiment 1

Aim :

To prepare a detailed problem statement for the selected mini project and to identify a suitable software model for the same.

Title : Medical Record Management System

Problem Statement :

- The need for medical record management has increased as technology and medicine practices have rapidly changed. Medical professionals have a legal and ethical obligation to protect patient information and properly manage records. Failure to do so can result in medical errors and data breaches, which can lead to costly fines. When health records are mismanaged, patients are put at risk. According to a study by Johns Hopkins, medical errors are the third leading cause of death in the United States. Poor management can lead to medication errors, missed diagnoses, treatment lapses and other potentially life-threatening events. Patient privacy is also at risk. Medical records contain highly sensitive personal information, and when oversights occur, privacy is compromised. With healthcare data breaches increasing, patients are losing confidence. According to a recent consumer survey, 87% of patients are unwilling to share their full medical histories, citing concerns about privacy protections.

- The purpose of the web application is to tackle the aforementioned problems effectively using Blockchain technology. The application will require the patients to enter their medical records and these records will be stored safely in the blockchain. This would provide a secure means to store the medical records as blockchain is less prone to security threats and is very difficult to hack as data isn't stored in a central server, but across a huge network of computers, which constantly check and verify if the records are accurate. Thus, the application provides a safe and trustworthy environment for the patients to store their medical records.
- Blockchain eliminates any central governing authority as it is a distributed ledger, thus nobody can tamper with the medical records. The patients would use their private key to store the records and as long as the private key is not shared with anyone, nobody can tamper with the records. For any doctor to access the patient's record, the patient simply has to share the public key with the doctor. The doctor can then view the record of the patient and can prescribe necessary medications. The patient can then update the medical records and store the updated records in the blockchain. Thus, the application helps in minimizing medical errors by ensuring that the records are authentic and tamper-proof.
- The application also helps store the entire patient's history in a single location thus making it very easy and convenient for any doctor to study new patients. Certain hospitals may not have records of a patient thus causing unnecessary delays in gathering patient information which could be harmful in emergency situations. However, with this application such delays would be avoided as the entire patient's history can be retrieved easily.

Software Model : The software development life cycle model decided to implement this application is the Incremental model as :

- The requirements of the application are clearly defined and understood.
- The application needs to be developed in a short period of time.
- Blockchain will be used to develop the application and it is relatively a new technology.
- The Incremental model is more flexible and it is less costly to change scope and requirements.
- It is easier to test and debug during a smaller iteration.