***Software Engineering***

***Assignment 1***

GIT link: https://github.com/HamzaAlhodaiby/CCAS-4.3

**Functional Requirements:**

* The database **must** store patient personal details like names, addresses, and contact information. (FR01)
* It **must** store patient medical records, including history, diagnosis, treatments, and allergies. (FR02)
* It **must** allow authorized medical staff to retrieve patient records. (FR03)
* The system **must** log every access or modification to patient records. (FR04)
* The database **must** support scheduling and managing appointments for patients and doctors. (FR05)
* It **must** store information about doctors, nurses, and staff, including qualifications and schedules. (FR06)
* The database **must** manage billing information and patient insurance details. (FR07)
* It **should** allow patients to access their own records through a secure patient portal. (FR08)
* The database **must** enable the hospital staff to generate medical reports, such as lab results and X-rays. (FR09)
* It **must** manage inventory for medical supplies and equipment. (FR10)
* The system **should** support tracking bed occupancy and patient discharge status. (FR11)
* It **could** allow integration with external systems like pharmacies and laboratories. (FR12)
* The database **should** support role-based access controls for data security. (FR13)
* It **must** include backup and recovery features to prevent data loss. (FR14)
* The system **could** provide analytics and reporting for hospital operations. (FR15)
* The database **must** store and manage emergency contact information for each patient. (FR16)
* It **should** store referral information between healthcare providers. (FR17)
* The database **must** support different types of medical records, such as lab tests, imaging, and prescriptions. (FR18)
* It **should** support multilingual data input and retrieval. (FR19)
* The system **must** comply with healthcare regulations like HIPAA and GDPR. (FR20)

**Non-functional Requirements:**

* The database **must** ensure high availability with 99.9% uptime. (NFR01)
* It **should** have a query response time of less than 2 seconds. (NFR02)
* The system **must** use encryption for sensitive data at rest and in transit. (NFR03)
* The database **must** support scalability to handle increasing data and user load. (NFR04)
* It **should** provide disaster recovery mechanisms within 30 minutes of an outage. (NFR05)