SECD2523 -16 Database: 20242025 – SEMESTER 1

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Phase 2

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2.0 Database Design Requirements

2.1 Data Requirements

Entity	Data to be stored	Requirements of Data
Patient	1.patient ID 2.Full Name 3.Date of Birth 4.Contact Number 5. Email Adress	- [1] Patient ID is unique. - [4] Contact number must follow the format XXX-XXX-XXXX. - [5] Patients must provide a valid email address during registration.
Doctor	1.Doctor ID 2.Full Name 3.Speciality 4.Contact Number	- [1] Doctor ID is unique. - [3] Specialty must be specified and must match qualifications. - [4] Contact number must follow the format XXX-XXX-XXXX.
Nurse	1.Nurse ID 2.Full Name 3.Departemetn	- [1] Nurse ID is unique. - [3] Contact number must follow the format XXX-XXX-XXXX. - [4] Department must be assigned upon hiring.
Appointment	1.Appointment ID 2.Patient ID 3.Doctor ID 4.Date and Time 5.Status	- [1] Appointment ID is unique. - [2] [3] Patient ID and Doctor ID must be valid references. - [4] Each appointment must have a scheduled date and time. - [5] Status must be updated after each appointment (e.g., Completed, Cancelled).
Department	1.Department ID 2.Departement Name 3.Location	- [1] Department ID is unique. - [2] Department name must be specified and cannot be blank.

		- [3] Location must be designated (e.g., Floor or Building).
Treatment	1.Treatment ID 2.Patient ID 3.Doctor ID 4.Treatment Description 5. Date of Treatment	- [1] Treatment ID is unique. - [3] Treatment description must be detailed and clear. - [4] Date of treatment must be recorded.
Medication	1.Medication ID 2.Name 3. Dosage	- [1] Medication ID is unique. - [2] Medication name must be clearly specified. - [3] Dosage must be defined and follow medical standards.
Bill	1. Bill ID 2. Patient ID 3. Amount 4. Payment Status	- [1] Bill ID is unique. - [2] Patient ID must be valid and linked to an existing patient. - [3] Amount must be a positive decimal value. - [4] Payment status must be updated upon payment processing.
Lab Test	1. Test ID 2. Patient ID 3. Test Name 4. Data Conducted 5.Lab ID	- [1] Test ID is unique. - [2] Patient ID must be valid and linked to an existing patient. - [3] Test name must be clearly specified. - [4] Date conducted must be recorded and valid. -[5]The Lab ID specifies where the test is performed.
Visitor	1. Visitor ID 2. Patient ID 3. Relationship	- [1] Visitor ID is unique. - [2] Patient ID must be valid and linked to an existing patient. - [3] Visitor's relationship to the patient must be specified.
Inventory	1. Item ID 2. Item Name 3. Quantity	- [1] Item ID is unique. - [2] Item name must be clearly specified and cannot be blank. - [3] Quantity must be a non-negative integer.
Emergency	1. Emergency ID 2. Patient ID	- [1] Emergency ID is unique.

	3.Date and Time of Emergency 4. Type of Emergency			- [2] Patient ID must be valid and linked to an existing patient. - [3] Date and time of the emergency must be recorded. - [4] Type of emergency must be clearly specified.

2.2 Transaction Requirements

Entity	Data	Data Entry	Data Update	Data Deletion	Data Queries
Patient	1.patient ID 2.Full Name 3.Date of Birth 4.Contact Number 5. Email Address	Sign up by patient, receptionist	Update information by patient	Delete account by receptionist	Query on patient data by doctor, nurse, patient, appointment, medication, bill, lab test, visitor, emergency
Doctor	1.Doctor ID 2.Full Name 3.Speciality 4.Contact Number	Sign up by doctor	Update information by doctor	Delete account by doctor	Query on doctor data by patient, doctor, treatment, medication
Nurse	1.Nurse ID 2.Full Name 3.Departemetn	Sign up by nurse	Update information by nurse	Delete account by nurse	Query on nurse data by patient, emergency
Appointment	1.Appointment ID 2.Patient ID 3.Doctor ID 4.Date and Time 5.Status	Entered by patient	Update information by patient, doctor	Delete appointment by patient, doctor	Query on appointment data by doctor, patient
Department	1.Department ID 2.Department Name 3.Location	Entered by manager	Update information by manager	Delete department data by manager	Query on department data by everyone
Treatment	1.Treatment ID 2.Patient ID 3.Doctor ID 4.Treatment Description	Entered by doctor	Update information by doctor	Delete treatment by doctor	Query on treatment data by doctor, nurse, patient, medication, lab test

	5. Date of Treatment				
Medication	1.Medication ID 2.Name 3. Dosage	Add new medication information	Update existing medication	Delete medication records	Query medication data for doctor,nurses,and pharmacists regarding prescriptions and treatments
Bill	1. Bill ID 2. Patient ID 3. Amount 4. Payment Status	Create a new bill for a patient	Update billing details	Delete a bill record	Query bill information for patients, doctors, and billing departments
Lab Test	1. Test ID 2. Patient ID 3. Test Name 4. Data Conducted 5.Lab ID	Record a new lab test for a patient	Update details of an existing lab test	Remove a lab test record	Query lab test information for doctors, nurses, and patients
Visitor	1. Visitor ID 2. Patient ID 3. Relationship	Add a new visitor record for a patient	Update visitor details	Remove a visitor record	Query visitor information for patients, staff, and administration
Inventory	1. Item ID 2. Item Name 3. Quantity	Add new inventory items	Update item details	Remove an inventory item	Query inventory information for staff and management regarding stock levels and availability
Emergency	1. Emergency ID 2. Patient ID 3.Date and Time of Emergency 4. Type of Emergency	Record a new emergency incident for a patient	Update details of an existing emergency record	Remove an emergency record	Query emergency information for doctors, nurses, and emergency response teams

2.3 Cross-Reference Analysis

The table shows the cross reference between the Patient, Doctor, Nurse and visitors views with the main type of data used by all the entities.

	Doctor	Nurse	Visitor	Patient
Patient	X	X	X	X
Doctor	X	X		X
Nurse	X	X	X	X
Appointment	X	X		X
Department	X	X		X
Treatment	X	X		X
Medication	X	X		X
Lab Test	X	X		X
Bill	X	X		X
Visitor	X	X	X	X
Inventory	X	X		
Emergency	X	X		X