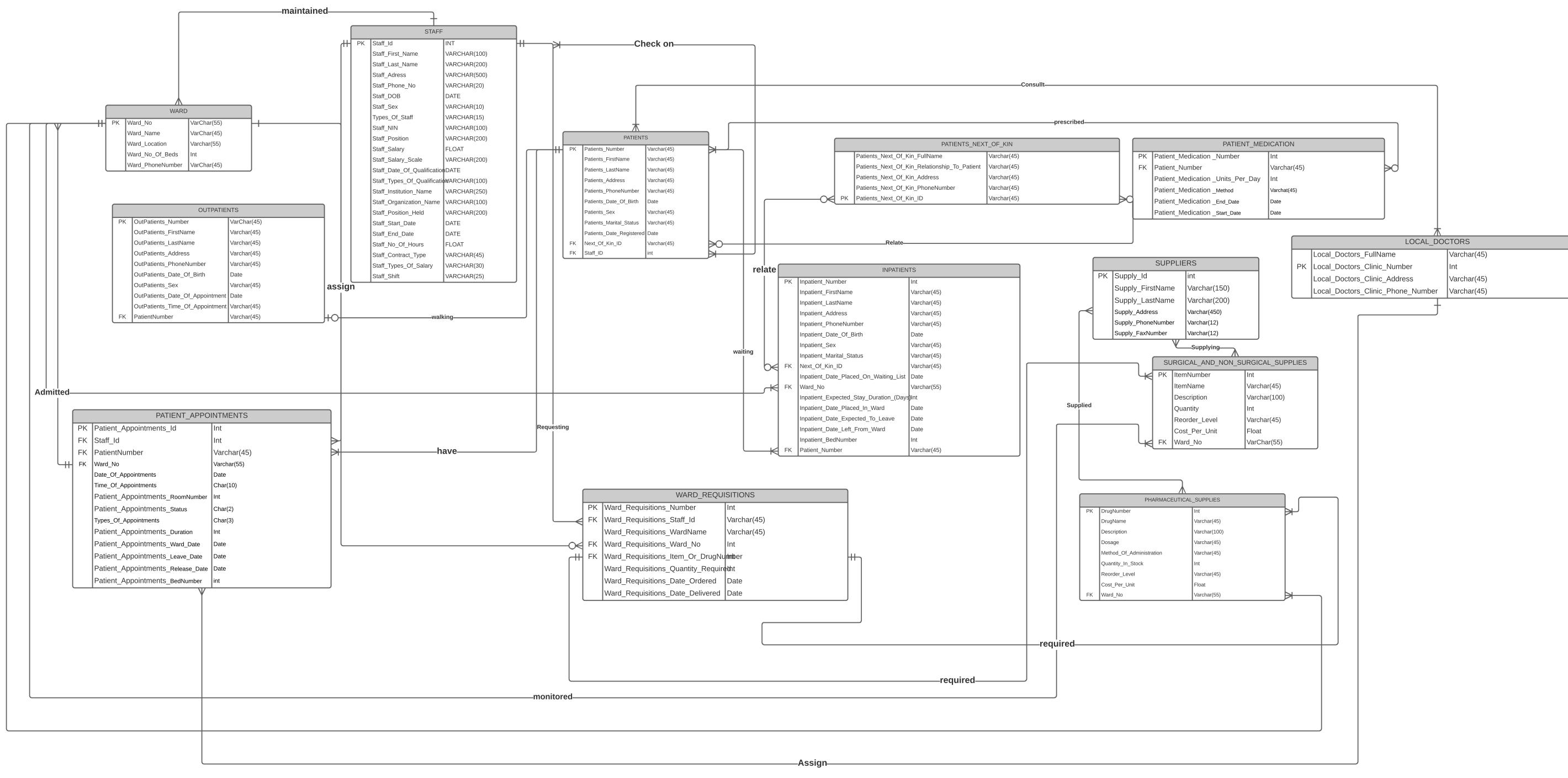
CIS 340 PROJECT Date: 03/30/2022 Group Name: Name 1: TULU BEKELE Name 2: GRAYDEN SHUPE Name 3: BISRAT TADESSE

PHASE I: E-R MODEL



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1. Identify entity types with brief description.
  Ward: a division of an hospital specialized in a given type of care for example infectious diseases.
  Staff: a group of medical person(employees) charged with carrying out the work of an establishment or executing some undertaking
  Patients: a person under the care of the hospital.
  Patient's-Next-Of-Kin: a person who related to a patient and should be reached in case of emergency.
  Local Doctors:a physician, member of the hospital medical staff responsible to patients' care
  Patient Appointments: when a patient is referred by an external doctor to the hospital.
  OutPatients: a patient who stays home overnight while under the care of the hospital.
  Inpatients: a patient who is supposed to stay overnight in the hospital during the treatment.
  Patient Medication: order to a patient for the administration of medication as prescribed by a doctor.
  Surgical and Nonsurgical Supplies: medical supply that need to be sterile(e.g syrings) and accessory supply(wich is a medical supply that are
  non-sergical e.g plastic bags and aprons).
  Pharmaceutical supplies: medical supply administered as drug.
  Ward Requisitions: request by a charge nurse in order to obtain surgical, accessory and pharmaceutical supplies from the hospital central supply
  stock.
  Suppliers: material used to support the hospital operation including care to patients.
                  2. Identify relationship types with brief description. You must include the Multiplicity and attribute if any.
Ward(1-M(*)) maintained Staff(1-1)
Attributes: Ward_No, Ward_Name, Ward_Location, Ward_No_Of_Beds, Ward_PhoneNumber
Wards are maintained by one staff member
Staff are assigned to many wards
Staff(1-1) assign Patient Appointments(1-M(*))
Attributes: Staff_Id, Staff_First_Name, Staff_Last_Name, Staff_Address, Staff_Phone_No, Staff_DOB, Staff_Sex, Types_Of_Staff, Staff_NIN, Staff_Position, Staff_Salary,
Staff_Salary_Scale, Staff_Date_Of_Qualification, Staff_Types_Of_Qualification, Staff_Institution_Name, Staff_Organization_Name, Staff_Position_Held, Staff_Start_Date,
Staff_End_Date, Staff_No_Of_Hours, Staff_Contract_Type, Staff_Types_Of_Salary, Staff_Shift
ONE STAFF CAN HAVE MULTIPLE APPOINTMENTS
ONE APPOINTMENT CAN INCLUDE ONLY ONE STAFF
Patient_Appointments(1-M(*)) have Patients(1-1)
Attributes: Patient_Appointments_Id, Staff_Id, PatientNumber, Ward_No, Date_Of_Appointments, Time_Of_Appointments, Patient_Appointments_RoomNumber,
Patient_Appointments_Status, Types_Of_Appointments, Patient_Appointments_Duration, Patient_Appointments_Ward_Date, Patient_Appointments_Leave_Date,
Patient_Appointments_Release_Date, Patient_Appointments_BedNumber
ONE PATIENT CAN HAVE MULTIPLE APPOINTMENTS
ONE APPOINTMENT CAN INCLUDE ONLY ONE PATIENT
Patients(1-M(*)) prescribed Patient_Medication(0-M(*))
Attributes: Patients_Number, Patients_FirstName, Patients_LastName, Patients_Address, Patients_PhoneNumber, Patients_Date_Of_Birth, Patients_Sex,
Patients_Marital_Status, Patients_Date_Registered, Next_Of_Kin_ID
ONE PATIENT CAN HAVE MULTIPLE MEDICATIONS
ONE MEDICATION CAN HAVE MULTIPLE PATIENTS
Patient_Medication(0-M(*)) prescribed Patients(1-M(*))
Attributes: Patients_Number, Patients_FirstName, Patients_LastName, Patients_Address, Patients_PhoneNumber, Patients_Date_Of_Birth, Patients_Sex,
Patients_Marital_Status, Patients_Date_Registered, Next_Of_Kin_ID
ONE PATIENT CAN HAVE MULTIPLE MEDICATIONS
ONE MEDICATION CAN HAVE MULTIPLE PATIENTS
Ward_Requisitions(1-1) Requesting Staff(1-M(*))
Attributes: Ward_Requisitions_Number, Ward_Requisitions_Staff_Id, Ward_Requisitions_WardName, Ward_Requisitions_Ward_No,
Ward_Requisitions_Item_Or_DrugNumber, Ward_Requisitions_Quantity_Required, Ward_Requisitions_Date_Ordered, Ward_Requisitions_Date_Delivered
ONE STAFF CAN HAVE MULTIPLE REQUISITIONS
ONE REQUISITION CAN INCLUDE ONLY ONE STAFF
Suppliers(1-M(*)) Supplying Surgical_And_Non_Surgical_Supplies(1-M(*))
Attributes: Supply_Id, Supply_FirstName, Supply_LastName, Supply_Address, Supply_PhoneNumber, Supply_FaxNumber
ONE SUPPLIER CAN HAVE MULTIPLE ITEMS
ONE ITEM CAN HAVE MULTIPLE SUPPLIERS
Surgical_And_Non_Surgical_Supplies(1-M(*)) Supplying Suppliers(1-M(*))
Attributes: ItemNumber, ItemName, Description, Quantity, Reorder_Level, Cost_Per_Unit, Ward_No
ONE SUPPLIER CAN HAVE MULTIPLE ITEMS
ONE ITEM CAN HAVE MULTIPLE SUPPLIERS
Outpatients (1-1) walking Patients(1-1)
Attributes: OutPatients_Number, OutPatients_FirstName, OutPatients_LastName, OutPatients_Address, OutPatients_PhoneNumber, OutPatients_Date_Of_Birth,
OutPatients_Sex, OutPatients_Date_Of_Appointment, OutPatients_Time_Of_Appointment, PatientNumber
Patients can become outpatients when they do not need to stay at the hospital
Outpatients can become patients when they do not need to come to the hospital for an appointment
Inpatients (1-M(*)) waiting Patients(1-M(*))
Attributes: Inpatient_Number, Inpatient_FirstName, Inpatient_LastName, Inpatient_Address, Inpatient_PhoneNumber, Inpatient_Date_Of_Birth, Inpatient_Sex,
Inpatient_Marital_Status, Next_Of_Kin_ID, Inpatient_Date_Placed_On_Waiting_List, Ward_No, Inpatient_Expected_Stay_Duration_(Days),
Inpatient_Date_Placed_In_Ward, Inpatient_Date_Expected_To_Leave, Inpatient_Date_Left_From_Ward, Inpatient_BedNumber, Patient_Number
Patients can become Inpatients when they stay in the hospital
Inpatients can become regular patients when they stop staying at the hospital
Patients_Next_Of_Kin (1-M(*)) Relate Patients(1-M(*))
Attributes: Patients_Next_Of_Kin_FullName, Patients_Next_Of_Kin_Relationship_To_Patient, Patients_Next_Of_Kin_Address, Patients_Next_Of_Kin_PhoneNumber,
Patients Next Of Kin ID
```

Next of kin can be related to many patients Patients can have many next of kin local_doctors (1-M(*)) Consult Patients(1-M(*))

Attributes: Local_Doctors_FullName, Local_Doctors_Number, Local_Doctors_Clinic_Address, Local_Doctors_Clinic_Phone_Number Local doctors can be consultants for many patients Patients can have several local doctors

pharmaceutical_supplies(1-M(*)) supplied Suppliers(1-M(*)) Attributes: DrugNumber, DrugName, Description, Dosage, Method_Of_Administration, Quantity_In_Stock, Reorder_Level, Cost_Per_Unit, Ward_No Pharmaceutical supplies can be supplied by one or many suppliers

3. Describe each entity type in detail

Suppliers can supply one or many pharmaceutical supplies

```
Ward_number : Unique identifier(Pk)
Ward_Name: this is also unique identifier
Ward Location: Location of Ward
Ward_No_Of_Beds: Number of beds in hospital
Ward_Phone_Number: telephone extension Number
Primary key: Ward Number
```

Alternate Key: Ward_Name **Staff** Staff_Id: Unique identifier(Pk)

Staff_Name: composite first and last name of charged nurse or charged employee Staff_Address: full address of stafff Staff_Phone_No: Telephone Number of staff Staff DOB: Staff Date of Birth Staff_Sex: Staff Gender(mal)e or female...... Staff_Types: Types of staff or charged nurse/ employee Staff_NIN: Staff National Insurance Number Staff_Position: Position they are assigned for Staff_Salary: Current Salary of Staff Staff_Salary_Scale: Scale of staff salary Memeber's qualification: Include Date_Qualification, Types_Of_Qualification, and Institution_Name

Work Experience: Org_Name,Position_Held, Start_Date, and End_Date Staff_No_Of_Hours: Number of hours worked per week Staff_Contract_Type: Permanent or Temporary Staff_Types_Of_Salary: Weekly/ Monthly

Staff_Shift: Staff work schedule(early, late, or night shift Primary Key: Staff ID

PATIENTS

Patients_Number: Unique Patient Number which is (Pk) Patients_Name: Composite(First, LastName) Patients_Address: full patients address Patients_Phone_Number: patient phone number Patients_DOB: patient date of birth Patients_Sex: patinet gender(male of female....) Patients_Martial_Status: single, married, divorce.. Patients_Date_Registered: date registered with the hospital Nex_Of_Kin_ID: the details of emergency contact Primary Key: Clinic/ patient number Foreighn Key: Next Of Kin ID This Patient Table also includes the data of outpatient and inpatient.

PATIENT'S _NEXT_OF_KIN NEXT OF KIN Full Name: First, Middle, and last name

NEXT_OF_KIN_Relationship_To_Patient: Their Relationship NEXT_OF_KIN_Address: Emergency contact full address NEXT_OF_KIN_Phone_Number: telephone number NEXT_OF_KIN_ID: Unique identifier Primary Key: NEXT_OF_KIN_ID

Foreign Key: Patient Id **LOCAL DOCTORS** Local_Doctor_Full_Name: First,Middle, and Last Name of Doctors Local_Doctor_Clinic_Number: Unique identifier (Pk)

Local_Doctor_Clinic_Phone_Number: Telephone Number

Local_Doctor_Clinic_Address: Full Clinic Address

Primary Key: Clinic Number PATIENTS APPOINTMENTS Patients appointments_ID: unique identifier Patients appointments_ Date: date of an appointments Patients appointments_ Time: time of appointment Patients appointments_ Room_Number: patient examination room Patients appointments_ Status: outpatient or placed on waitlist Patients appointments_ Type: types of an appointments Patients appointments_ Duration: time taken Patients appointments_ Ward_Date Patients appointments_ Leave_Date: Date of patient leave from hospital Patients appointments_ Release _Date: Released from hospital Patients appointments_Bed_Number: bed number associated with patient

Foreign Key: Staff_ID, Ward_No, Patient_Number are foreign keys

PATIENTS MEDICATION Name: Patient's Full name(First, Middle, and Last Name) Number: Patient Number DrugNumber: unique identifiers

Primary Key: Patients appointments_Id

Units per Day: Method: method of administration Start Date: date they will start the medication End Date: date they will end Primary Key: DrugNumber

SURGICAL AND NONSURGICAL SUPPLIES

Foriegn Key: Patient Number

Item_Number: unique identifier Item_Name: name of the item Description: description of the item Quantity: quantity in stock ReorderLevel: CostPerUnit: Cost of an item PRIMARY KEY: Item Number Forign Key: Ward_Numb This Table has also the data of PHARMCEUTICAL_SUPPLIES

WARD REQUISITIONS Ward requisitons number QuantityRequired: DateOrdered: DateDelivered: Primary Key: Ward_Requisitions_Number Foreign Key: Item/drug Number, WardNumber, and Staff_Id are Foreign Keys

SUPPLIERS Supply_ID: supply unique adentifiers Supply_Name: supply first and last name Supply_Address: supply full address Supply_PhoneNumber: supply phone number Supply_FaxNumber: supply fax number Primary Key: Supply_ID