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**Applied Information Technology**

**AIT 735 Case Studies in Database Management Systems**

**Case Study Title: Patient Information Management System-on premises to cloud migration**

***Physical Design***

**Physical Design**

DBMS Software: Microsoft SQL Server 2019 Express

Interface: Microsoft SQL Server Management Studio

**SQL statements for creating tables in the Database:**

|  |  |
| --- | --- |
| **Table Number & Name** | **SQL statement/code** |
| Table1: user\_type | Create table user\_type (user\_type\_id int not null primary key identity,  user\_type\_desc varchar (20) not null unique); |
| Table1: Constraints | Alter table user\_type  add unique (user\_type\_desc), constraint user\_type\_desc check (user\_type\_desc in ('patient', 'doctor', 'admin')); |
| Table2: user\_account | Create table user\_account (user\_id varchar(10) not null primary key,  user\_type\_id int not null,  Foreign key (user\_type\_id) references user\_type(user\_type\_id),  Password varchar (20) not null); |
| Table 3: Patient | Create table patient (patient\_id int not null primary key,  first\_name varchar (20) not null,  last\_name varchar (20) not null,  gender char (1) not null,  email\_id varchar (20) not null,  date\_of\_birth date not null,  user\_id varchar(10) not null,  account\_balance numeric(5,2) not null,  foreign key (user\_id) references user\_account(user\_id)); |

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| Table 3: constraints | Alter table patient  add unique (email\_id), constraint gender check (gender in ('M','F')); |
| Table 3: constraints | Alter table patient  add unique (email\_id), constraint gender check (gender in ('M','F')); |
| Table 4: Specialization | Create table specialization (specialization\_id int not null primary key identity,  Specialization\_desc varchar (20) not null); |
| Table 4 constraints | Alter table specialization  add unique(specialization\_desc), constraint specialization\_desc check  (specialization\_desc in ('Physician', 'Gynecologist ', 'Pediatrician', 'Allergist', 'Ophthalmologist')); |
| Table 5: Doctor | Create table doctor (doctor\_id int not null primary key identity,  name varchar (20) not null,  email\_id varchar (20) not null,  user\_id varchar (10) not null,  specialization\_id int not null,  foreign key (specialization\_id) references specialization (specialization\_id),  date\_of\_joining date not null,  foreign key (user\_id) references user\_account(user\_id)); |
| Table 5: constraints | Alter table doctor  add unique (email\_id); |
| Table 6: record | Create table record (record\_id int not null primary key identity,  Date\_of\_visit date not null,  Diagnosis varchar (20) not null,  amount\_charged numeric (5,2) not null,  doctor\_id int not null,  patient\_id int not null,  foreign key (doctor\_id) references doctor(doctor\_id),  foreign key (patient\_id) references patient (patient\_id)); |
| Table 6: constraint | Alter table record  add check (amount\_charged > 0); |
| Table 7: payment\_type | Create table payment\_type (payment\_type\_id int not null primary key identity,  Payment\_description varchar (20) not null); |
| Table 7: Constraints | Alter table payment\_type  add unique (payment\_description), constraint payment\_description check(payment\_description in ('Credit card', 'Debit card', 'check', 'cash')); |
| Table 8: payment | Create table payment (payment\_id int not null primary key identity,  Amount numeric(5,2),  payment\_type\_id int not null,  patient\_id int not null,  Foreign key (payment\_type\_id) references payment\_type (payment\_type\_id),  Payment\_date datetime not null,  Foreign key (patient\_id) references patient (patient\_id)); |
| Table 8: constraint | Alter table payment  add check(amount>0); |
| Table 9: phone\_type | Create table phone\_type (phone\_type\_id int not null primary key identity,  Phone\_type\_desc varchar(20) not null); |
| Table 9: constraints | alter table phone\_type  add unique(phone\_type\_desc), constraint phone\_type\_desc check(phone\_type\_desc in('Daytime phone', 'Mobile', 'Evening phone')); |
| Table10: Phone | Create table phone (phone\_id int not null primary key identity,  phone\_type\_id int not null,  user\_id varchar(10) not null,  Foreign key (phone\_type\_id) references phone\_type(phone\_type\_id),  Foreign key (user\_id) references user\_account(user\_id),  Phone\_number varchar(20) not null); |
| Table 11: address\_type | Create table address\_type (address\_type\_id int not null primary key identity,  address\_type\_desc varchar(30) not null); |
| Table 11: constraints | Alter table address\_type  add unique (address\_type\_desc), constraint address\_type\_desc check(address\_type\_desc in(‘Mailing address’, ‘Permanent address’)); |
| Table 12: address | Create table address (address\_id int not null primary key identity,  address\_type\_id int,  user\_id varchar(10) not null,  Foreign key (address\_type\_id) references address\_type(address\_type\_id),  Foreign key (user\_id) references user\_account(user\_id),  street varchar (20) not null,  city varchar (15) not null,  zipcode char(5) not null); |
| Table 13: appointment | Create table appointment (appointment\_id int not null primary key identity,  patient\_id int not null,  doctor\_id int, not null,  Foreign key (patient\_id) references patient(patient\_id),  Foreign key (doctor\_id) references doctor(doctor\_id),  Reason\_of\_visit varchar(25) not null); |
| Table 14: medication | Create table medication (medication\_id int not null primary key identity,  patient\_id int not null,  doctor\_id int not null,  Foreign key (patient\_id) references patient(patient\_id),  Foreign key (doctor\_id) references doctor(doctor\_id),  Medication\_name varchar(20) not null,  Dosage varchar (15) not null); |

**References:**

Carolyn E. Begg and Thomas Connolly, Database Systems: A Practical Approach to Design,

Implementation, and management,6th ed USA, Pearson,1996.