

Patient Appointment Application Project

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Summary

The company is creating an application that will allow patient appointments to be scheduled. The application will include the following database.

Expectations

1. The application will store data in a SQL database.
2. The application must use views, stored procedures, and functions.
3. The application must be simple and keep costs at a minimum.
4. A working prototype should be available in a short period of time.

Document History

Here is an account of changes to this document and any blocking issues.

Change Log

Who	When	What

Open Issues

Who	When	What

Closed Issues

Who	When	What

Solution Naming Conventions

Database (OLTP)

Object Type	Convention	Example	Description
Table	TableName	Products	A table used to hold data
View	vViewName	vProducts	A saved select statement that provides data
Stored Proc.	pProcedureName	pInsProducts	A set of saved statements for data transactions
Primary Key Constraint	pkObjectName	pkProducts	A constraint to enforce Primary Key functionality
Foreign Key Constraint	fkObjectNameToObjectName	pkProductsToCategories	A constraint to enforce Foreign Key functionality
Check Constraint	ckObjectNamePurpose	ckProductStandardPriceGreaterThanOrEqualToZero	A constraint to enforce Domain integrity
Unique Constraint	uObjectName	uProductName	A constraint to enforce Unique values

OLTP Database Tables

Table Name: Clinics

Description: Contains clinic data

Columns

Column Name	Data Type	Example	Notes
ClinicID	int	1	Auto-numbered Primary Key column
ClinicName	nVarchar(100)	Backbone	Unique
ClinicPhoneNumber	nVarchar(100)	206-123-1234	Check to match Phone pattern 206-123-1234
ClinicAddress	nVarchar(100)	North way parking way	
ClinicCity	nVarchar(100)	Seattle	
ClinicState	nchar(2)	WA	
ClinicZipCode	nVarchar(10)	98105	Check to match ZipCodecode pattern

Constraints

Column Name	Primary Key	Foreign Key	Not Null	Check	Unique	Default
ClinicID	Yes	No	Yes	No	No	Yes
ClinicName	No	No	Yes	No	Yes	No
ClinicPhoneNumber	No	No	Yes	Yes	No	No
ClinicAddress	No	No	Yes	No	No	No
ClinicCity	No	No	Yes	No	No	No
ClinicState	No	No	Yes	No	No	No
ClinicZipCode	No	No	Yes	Yes	No	No

Table Name: Patients

Description: Contains patient data
Columns

Column Name	Data Type	Example	Notes
PatientID	int	1	Auto-numbered Primary Key column
PatientFirstName	nVarchar(100)	Minseok	
PatientLastName	nVarchar(100)	Choi	
PatientPhoneNumber	nVarchar(100)	206-123-1234	Check to match Phone pattern 206-123-1234
PatientAddress	nVarchar(100)	North way parking way	
PatientCity	nVarchar(100)	Seattle	
PatientState	nchar(2)	WA	
PatientZipCode	nVarchar(10)	98105	Check to match ZipCodecode pattern

Constraints

Column Name	Primary Key	Foreign Key	Not Null	Check	Unique	Default
PatientID	Yes	No	Yes	No	No	Yes
PatientFirstName	No	No	Yes	No	No	No
PatientLastName	No	No	Yes	No	No	No
PatientPhoneNumber	No	No	Yes	Yes	No	No
PatientAddress	No	No	Yes	No	No	No
PatientCity	No	No	Yes	No	No	No
PatientState	No	No	Yes	No	No	No
PatientZipCode	No	No	Yes	Yes	No	No

Table Name: Doctors

Description: Contains doctor data
Columns

Column Name	Data Type	Example	Notes
DoctorID	int	1	Auto-numbered Primary Key column
DoctorFirstName	nVarchar(100)	Minseok	
DoctorLastName	nVarchar(100)	Choi	
DoctorPhoneNumber	nVarchar(100)	206-123-1234	Check to match Phone pattern 206-123-1234
DoctorAddress	nVarchar(100)	North way parking way	
DoctorCity	nVarchar(100)	Seattle	
DoctorState	nchar(2)	WA	
DoctorZipCode	nVarchar(10)	98105	Check to match ZipCodecode pattern

Constraints

Column Name	Primary Key	Foreign Key	Not Null	Check	Unique	Default
DoctorID	Yes	No	Yes	No	No	Yes
DoctorFirstName	No	No	Yes	No	No	No
DoctorLastName	No	No	Yes	No	No	No
DoctorPhoneNumber	No	No	Yes	Yes	No	No
DoctorAddress	No	No	Yes	No	No	No
DoctorCity	No	No	Yes	No	No	No
DoctorState	No	No	Yes	No	No	No
DoctorZipCode	No	No	Yes	Yes	No	No

Table Name: Appointments

Description: Contains appointment data
Columns

Column Name	Data Type	Example	Notes
AppointmentID	int	1	Auto-numbered Primary Key column
AppointmentDateTime	datetime	12/03/2020 13:02:23	
AppointmentPatientID	int	1	References Patients
AppointmentDoctorID	int	1	References Doctors
AppointmentClinicID	int	1	References Clinics

Constraints

Column Name	Primary Key	Foreign Key	Not Null	Check	Unique	Default
AppointmentID	Yes	No	Yes	No	No	Yes
AppointmentDateTime	No	No	Yes	No	No	No
AppointmentPatientID	No	Yes	Yes	No	No	No
AppointmentDoctorID	No	Yes	Yes	No	No	No
AppointmentClinicID	No	Yes	Yes	No	No	No

OLTP Database Views

View Name: vClinics

Description: Selects clinic data

Columns

Column Name	Source	Example	Notes
ClinicID	Clinics.ClinicID	1	
ClinicName	Clinics.ClinicName	Backbone	
ClinicPhoneNumber	Clinics.ClinicPhoneNumber	206-123-1234	
ClinicAddress	Clinics.ClinicAddress	North way parking way	
ClinicCity	Clinics.ClinicCity	Seattle	
ClinicState	Clinics.ClinicState	WA	
ClinicZipCode	Clinics.ClinicZipCode	98105	

View Name: vPatients

Description: Selects patient data

Columns

Column Name	Source	Example	Notes
PatientID	Patients.PatientID	1	
PatientFirstName	Patients.PatientFirstName	Minseok	
PatientLastName	Patients.PatientLastName	Choi	
PatientPhoneNumber	Patients.PatientPhoneNumber	206-123-1234	
PatientAddress	Patients.PatientAddress	North way parking way	
PatientCity	Patients.PatientCity	Seattle	
PatientState	Patients.PatientState	WA	
PatientZipCode	Patients.PatientZipCode	98105	

View Name: vDoctors

Description: Selects doctor data

Columns

Column Name	Source	Example	Notes
DoctorID	Doctors.DoctorID	1	
DoctorFirstName	Doctors.DoctorFirstName	Minseok	
DoctorLastName	Doctors.DoctorLastName	Choi	
DoctorPhoneNumber	Doctors.DoctorPhoneNumber	206-123-1234	
DoctorAddress	Doctors.DoctorAddress	North way parking way	
DoctorCity	Doctors.DoctorCity	Seattle	
DoctorState	Doctors.DoctorState	WA	
DoctorZipCode	Doctors.DoctorZipCode	98105	

View Name: vAppointments

Description: Selects appointment data

Columns

Column Name	Source	Example	Notes
AppointmentID	Appointments.AppointmentID	1	
AppointmentDateTime	Appointments.AppointmentDateTime	12/03/2020 13:02:23	
AppointmentPatientID	Appointments.AppointmentPatientID	1	
AppointmentDoctorID	Appointments.AppointmentDoctorID	1	
AppointmentClinicID	Appointments.AppointmentClinicID	1	

View Name: vAppointmentsByPatientsDoctorsAndClinics

Description: Selects appointments by data from patients, doctors and clinics

Columns

Column Name	Source	Example	Notes
AppointmentID	Appointments.AppointmentID	1	Primary key
AppointmentDate	Appointments..AppointmentDate	12/03/2020	Format as US MM/DD/YYYY from AppointmentDateTime
AppointmentTime	Appointments.AppointmentTime	12:12	Format as 24 hour HH:MM from AppointmentDateTime
PatientID	Patients.PatientID	1	Joined by Patient Primary key
PatientName	Patients.PatientName	Minseok Choi	Last Name + First Name
PatientPhoneNumber	Patients.PatientPhoneNumber	206-123-1234	
PatientAddress	Patients.PatientAddress	North way parking way	
PatientCity	Patients.PatientCity	Seattle	
PatientState	Patients.PatientState	WA	
PatientZipCode	Patients.PatientZipCode	98105	
DoctorID	Doctors.DoctorID	1	Joined by Doctor Primary key
DoctorName	Doctors.DoctorName	Jia Kang	Last Name + First Name
DoctorPhoneNumber	Doctors.DoctorPhoneNumber	206-123-1234	
DoctorAddress	Doctors.DoctorAddress	North way parking way	
DoctorCity	Doctors.DoctorCity	Seattle	
DoctorState	Doctors.DoctorState	WA	
DoctorZipCode	Doctors.DoctorZipCode	98105	
ClinicID	Clinics.ClinicID	1	Joined by Clinic Primary key
ClinicName	Clinics.ClinicName	Backbone	
ClinicPhoneNumber	Clinics.ClinicPhoneNumber	206-123-1234	
ClinicAddress	Clinics.ClinicAddress	North way parking way	
ClinicCity	Clinics.ClinicCity	Seattle	
ClinicState	Clinics.ClinicState	WA	
ClinicZipCode	Clinics.ClinicZipCode	98105	

View Name: vAppointmentsNumberByPatients

Description: Selects number of appointment by patients

Columns

Column Name	Source	Example	Notes
PatientName	Patients.PatientName	Minseok Choi	Last Name + First Name
PatientPhoneNumber	Patients.PatientPhoneNumber	206-123-1234	
PatientAddress	Patients.PatientAddress	North way parking way	
PatientCity	Patients.PatientCity	1	
PatientState	Patients.PatientState	UW	
PatientZipCode	Patients.PatientZipCode	206-123-1234	
NumberOfAppointments	Appointments	12	Count of appointments by patients

View Name: vAppointmentsNumberByYear

Description: Selects number of appointment by Year where it's doctors' state from California

Columns

Column Name	Source	Example	Notes
AppointmentYear	Appointments.AppointmentDateTime	2010	Each year of appointments record
NumberOfAppointments	Patients	12	Joined by Doctors from California. Counting appointments for each year.

OLTP Database Stored Procedures

Stored Procedure Name: pInsClinics

Description: Processes inserting new Clinic into Clinics table and captures newly created Clinic.

Parameters

Parameter Name	Data Type	Type	Example	Notes
@ClinicID	int	Output	1	Returns Inserted ID using @@Identity
@ClinicName	nVarchar(100)	Input	Backbone	Validated by uClinicName
@ClinicPhoneNumber	nVarchar(100)	Input	206-123-1234	Validated by ckClinicPhoneNumber
@ClinicAddress	nVarchar(100)	Input	North way parking way	
@ClinicCity	nVarchar(100)	Input	Seattle	
@ClinicState	nchar(2)	Input	WA	
@ClinicZipCode	nVarchar(10)	Input	98105	Validated by ckClinicZipCode

Results

Column Name	Data Type	Type	Example	Notes
NA	Int	Return	1	1 = No error -1 = Validation error
ClinicID	Int	Select	1	Inserted Primary Key of Clinic

Stored Procedure Name: pUpdClinics

Description: Processes updating new Clinic into Clinics table

Parameters

Parameter Name	Data Type	Type	Example	Notes
@ClinicID	int	Input	1	
@ClinicName	nVarchar(100)	Input	Backbone	Validated by uClinicName
@ClinicPhoneNumber	nVarchar(100)	Input	206-123-1234	Validated by ckClinicPhoneNumber
@ClinicAddress	nVarchar(100)	Input	North way parking way	
@ClinicCity	nVarchar(100)	Input	Seattle	
@ClinicState	nchar(2)	Input	WA	
@ClinicZipCode	nVarchar(10)	Input	98105	Validated by ckClinicZipCode

Results

Column Name	Data Type	Type	Example	Notes
NA	Int	Return	1	1 = No error -1 = Validation error

Stored Procedure Name: pDelClinics

Description: Processes deleting new Clinic into Clinics table

Parameters

Parameter Name	Data Type	Type	Example	Notes
@ClinicID	int	Input	@ClinicID	

Results

Column Name	Type	Example	Notes
NA	Return Code	1	1 = No error -1 = General error

Stored Procedure Name: pInsPatients

Description: Processes inserting new Patient into Patients table and captures newly created Patient.Parameters

Parameter Name	Data Type	Type	Example	Notes
@PatientID	nVarchar(100)	Input	1	Returns Inserted ID using @@Identity
@PatientFirstName	nVarchar(100)	Input	Minseok	
@PatientLastName	nVarchar(100)	Input	Choi	
@PatientPhoneNumber	nVarchar(100)	Input	206-123-1234	Validated by ckPatientPhoneNumber
@PatientAddress	nVarchar(100)	Input	North way parking way	
@PatientCity	nVarchar(100)	Input	Seattle	
@PatientState	nchar(2)	Input	WA	
@PatientZipCode	nVarchar(10)	Input	98105	Validated by ckPatientZipCode

Results

Column Name	Data Type	Type	Example	Notes
NA	Int	Return	1	1 = No error -1 = Validation error
PatientID	Int	Select	1	Inserted Primary Key of Patient

Stored Procedure Name: pUpdPatients

Description: Processes updating new Patient into Patients table

Parameters

Parameter Name	Data Type	Type	Example	Notes
@PatientID	int	Input	1	
@PatientFirstName	nVarchar(100)	Input	Minseok	
@PatientLastName	nVarchar(100)	Input	Choi	
@PatientPhoneNumber	nVarchar(100)	Input	206-123-1234	Validated by ckPatientPhoneNumber
@PatientAddress	nVarchar(100)	Input	North way parking way	
@PatientCity	nVarchar(100)	Input	Seattle	
@PatientState	nchar(2)	Input	WA	
@PatientZipCode	nVarchar(10)	Input	98105	Validated by ckPatientZipCode

Results

Column Name	Data Type	Type	Example	Notes
NA	Int	Return	1	1 = No error -1 = Validation error

Stored Procedure Name: pDelPatients

Description: Processes deleting new Patient into Patients table

Parameters

Parameter Name	Data Type	Type	Example	Notes
@PatientID	int	Input	@PatientID	

Results

Column Name	Type	Example	Notes
NA	Return Code	1	1 = No error -1 = General error

Stored Procedure Name: pInsDoctors

Description: Processes inserting new Doctor into Doctors table and captures newly created Doctor.

Parameters

Parameter Name	Data Type	Type	Example	Notes
@DoctorID	nVarchar(100)	Output	1	Returns Inserted ID using @@Identity
@DoctorFirstName	nVarchar(100)	Input	Minseok	
@DoctorLastName	nVarchar(100)	Input	Choi	
@DoctorPhoneNumber	nVarchar(100)	Input	206-123-1234	Validated by ckDoctorPhoneNumber
@DoctorAddress	nVarchar(100)	Input	North way parking way	
@DoctorCity	nVarchar(100)	Input	Seattle	
@DoctorState	nchar(2)	Input	WA	
@DoctorZipCode	nVarchar(10)	Input	98105	Validated by ckDoctorZipCode

Results

Column Name	Data Type	Type	Example	Notes
NA	Int	Return	1	1 = No error -1 = Validation error
DoctorID	Int	Select	1	Inserted Primary Key of Doctor

Stored Procedure Name: pUpdDoctors

Description: Processes updating new Doctor into Doctors table

Parameters

Parameter Name	Data Type	Type	Example	Notes
@DoctorID	int	Input	1	
@DoctorFirstName	nVarchar(100)	Input	Minseok	
@DoctorLastName	nVarchar(100)	Input	Choi	
@DoctorPhoneNumber	nVarchar(100)	Input	206-123-1234	Validated by ckDoctorPhoneNumber
@DoctorAddress	nVarchar(100)	Input	North way parking way	
@DoctorCity	nVarchar(100)	Input	Seattle	
@DoctorState	nchar(2)	Input	WA	
@DoctorZipCode	nVarchar(10)	Input	98105	Validated by ckDoctorZipCode

Results

Column Name	Data Type	Type	Example	Notes
NA	Int	Return	1	1 = No error -1 = Validation error

Stored Procedure Name: pDelDoctors

Description: Processes deleting new Doctor into Doctors table

Parameters

Parameter Name	Data Type	Type	Example	Notes
@DoctorID	int	Input	@DoctorID	

Results

Column Name	Type	Example	Notes
NA	Return Code	1	1 = No error -1 = General error