

Patient Appointment Application Project

Owner: Brendan Carlquist

Date: 6/5/17

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
Brendan	6/3/17	Check constraints for Zip codes are nonresponsive with sample data.

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	ckProductStandardPriceGreaterThanZero	A constraint to enforce Domain integrity
Unique Constraint	uObjectName	uProductName	A constraint to enforce Unique values

OLTP Database Tables

Table Name: Clinic

Description: Contains Clinic data

Columns

Column Name	Data Type	Example	Notes
ClinicID	int	1	PK, Identity (1,1)
ClinicName	nvarchar(100)	ZooClinic	Not null
ClinicAddress	nvarchar(100)	14840 single trace	Not null
ClinicCity	nvarchar(100)	Austin	Not null, in US
ClinicState	nvarchar(2)	TX	Not null, State abbreviation
ClinicZip	nVarchar(15)	78728	Not null
ClinicInitDate	Date	2014-08-11	Record creation date, default = getDate()

Constraints

Constraint Name	Constraint type	Parameter	Reference	Formula
pkClinic	Primary Key	ClinicID	NA	NA
defaultDate	Default	ClinicInitDate	NA	Getdate()
IDClinic	Identity	ClinicID	NA	(1,1)

Table Name: Doctor

Description: Contains Doctor data

Columns

Column Name	Data Type	Example	Notes
DoctorID	int	1	PK, Identity (1,1)
DoctorFirstName	nvarchar(100)	Dr. Bob	Not null
DoctorLastName	nvarchar(100)	Petrone	Not null
DoctorInitDate	Date	20140101	Default = getdate(), not null
DoctorHireDate	Date	20000101	Not null
DoctorBirthDate	Date	19600101	Not null
DoctorEducation	nvarchar(100)	MIT doctorate in oceanography	
DoctorSex	Nvarchar(1)	M	M,F,B,T,etc.

Constraints

Constraint Name	Constraint type	Parameter	Reference	Formula
pkDoctor	Primary key	DoctorID	NA	NA
chDoctorAge	Check	DoctorBirthDate	NA	this < getdate()

Table Name: Patient

Description: Contains Patient data

Columns

Column Name	Data Type	Example	Notes
PatientID	Int	1	PK, Identity (1,1)
PatientFirstName	nvarchar(100)	Bob	Not null
PatientLastName	nvarchar(100)	Petrone	Not null
PatientPhoneNumber	Nvarchar(100)}	1234567890	
PatientEmail	Nvarchar(100)	Me@you.com	
PatientAddress	Nvarchar(100)	14840 single trance	Not null
PatientCity	Nvarchar(100)	Austin	Not null
PatientState	Nvarchar(2)	TX	Not null, Two letter abbreviation
PatientZip	Nvarchar(15)	78728	Not null
PatientInsuranceInfo	Nvarchar(100)	Lunesta, company name, coverage type.	Not currently in use, but may become applicable.
PatientInitDate	Date	20140101	Initialization date.
PatientBirthDate	Date	19960824	Not null

Constraints

Constraint Name	Constraint type	Parameter	Reference	Formula
pkPatient	Primary key	PatientID	NA	NA
defaultInitDate	Default	PatientInitDate	NA	This = getdate()
chPatientAge	Check	PatientAge	NA	This < getdate()

Table Name: Receptionist

Description: Contains Receptionist data

Columns

Column Name	Data Type	Example	Notes
ReceptionistID	Int	1	Not Null
ReceptionistFirstName	nVarchar(100)	Claire	Not Null
ReceptionistLastName	nVarchar(100)	Peterson	default, Not Null
ReceptionistInitDate	Date	20140101	Not Null
ReceptionistPassword	nVarchar(100)	musicRock\$	PK, Identity

Constraints

Constraint Name	Constraint type	Parameter	Reference	Formula
pkReceptionist	Primary key	ReceptionistID	NA	NA
defaultInitDate	Default	ReceptionistInitDate	NA	This = getdate()

Table Name: Appointment

Description: Contains Appointment data

Columns

Column Name	Data Type	Example	Notes
AppointmentID	Int	1	PK, Identity
AppointmentClinicID	Int	1	Not Null
AppointmentPatientID	Int	1	Not Null
AppointmentDoctorID	Int	1	Not Null
AppointmentReceptionistID	Int	<u>1</u>	Not Null
AppointmentDateTime	DateTime	20140101 14:00:00	Not Null
AppointmentInitDate	Date	20140101	Not Null, default
AppointmentNotes	nvarchar(200)	Patient had diarrhea. It was not nice.	

Constraints

Constraint Name	Constraint type	Parameter	Reference	Formula
pkAppointment	Primary key	AppointmentID	NA	NA
defaultInitDate	Default	AppointmentInitDate	NA	This = getdate()
fkAppointmentPatient	Foreign key	AppointmentPatientID	Patient(PatientID)	
fkAppointmentDoctor	Foreign key	AppointmentDoctorID	Doctor(DoctorID)	
fkAppointmentReceptionist	Foreign key	AppointmentReceptionistID	Receptionist(ReceptionistID)	
fkAppointmentClinic	Foreign key	AppointmentClinicID	Clinic(ClinicID)	

OLTP Database Views

View Name: vClinic

Description: Selects Clinic data

Columns

Column Name	Source	Example	Notes
ClinicID	Clinic.ClinicID	1	
ClinicName	Clinic.ClinicName	ZooClinic	
ClinicAddress	Clinic.ClinicAddress	14840 single trace	
ClinicCity	Clinic.ClinicCity	Austin	
ClinicState	Clinic.ClinicState	TX	
ClinicZip	Clinic.ClinicZip	78728	

View Name: vDoctor

Description: Selects Doctor data

Columns

Column Name	Source	Example	Notes
DoctorID	Doctor.DoctorID	1	
DoctorFirstName	Doctor.DoctorFirstName	Dr. Bob	
DoctorLastName	Doctor.DoctorLastName	Petrone	
DoctorHireDate	Doctor.DoctorHireDate	20000101	
DoctorBirthDate	Doctor.DoctorBirthDate	19600101	
DoctorEducation	Doctor.DoctorEducation	MIT doctorate in oceanography	
DoctorSex	Doctor.DoctorSex	M	

View Name: vPatient

Description: Selects Patient data

Columns

Column Name	Source	Example	Notes
PatientID	Patient.PatientID	1	Join Column
PatientFirstName	Patient.PatientFirstName	Bob	
PatientLastName	Patient.PatientLastName	Petrone	
PatientPhoneNumber	Patient.PatientPhoneNumber	1234567890	
PatientEmail	Patient.PatientEmail	Me@you.com	
PatientAddress	Patient.PatientAddress	14840 single trance	
PatientCity	Patient.PatientCity	Austin	
PatientState	Patient.PatientState	TX	
PatientZip	Patient.PatientZip	78728	
PatientInsuranceInfo	Patient.PatientInsuranceInfo	Lunesta, company name, coverage type.	

PatientBirthDate	Patient.PatientBirthDate	19960824	
------------------	--------------------------	----------	--

View Name: vAppointment

Description: Selects Appointment data

Columns

Column Name	Source	Example	Notes
AppointmentID	Appointment.AppointmentID	1	
AppointmentClinicID	Appointment.AppointmentClinicID	1	
AppointmentPatientID	Appointment.AppointmentPatientID	1	
AppointmentDoctorID	Appointment.AppointmentDoctorID	1	
AppointmentReceptionistID	Appointment.AppointmentReceptionistID	<u>1</u>	
AppointmentDateTime	Appointment.AppointmentDateTime	20140101 14:00:00	
AppointmentNotes	Appointment.AppointmentNotes	Patient had diarrhea. It was not nice.	

View Name: vReceptionist

Description: Selects Receptionist data

Columns

Column Name	Source	Example	Notes
ReceptionistID	Receptionist.ReceptionistID	1	
ReceptionistFirstName	Receptionist.ReceptionistFirstName	Claire	
ReceptionistLastName	Receptionist.ReceptionistLastName	Peterson	
ReceptionistPassword	Receptionist.ReceptionistPassword	1\$2b3@K&	

View Name: vSchedule

Description: Selects the next few days' worth of appointments.

Columns

Column Name	Source	Example	Notes
AppointmentID	Appointment.AppointmentID	1	
datetime	Appointment.AppointmentDateTime	20140101	
PatientName	p.PatientFirstName + ' ' + p.PatientLastName	Sue Marcy	
DoctorName	d.DoctorFirstName + ' ' + d.DoctorLastName	Dr. Henry Petrone	
Clinic	Clinic.ClinicName	FeastClinic	

View Name: vAppointmentsByDoctorSex

Description: selects the joined Doctor and Appointment data grouped by DoctorSex.

Columns

Column Name	Source	Example	Notes
sex	Doctor.Doctorsex	M	
Appointment count	Count(*)	50	

View Name: vDoctorCountBySex

Description: selects Doctor data grouped by DoctorSex.

Columns

Column Name	Source	Example	Notes
sex	Doctor.Doctorsex	M	
Doctor count	Count(*)	50	

View Name: vDoctorEmploymentLengthBySex

Description: selects Appointment joined data.

Columns

Column Name	Source	Example	Notes
sex	Doctor.Doctorsex	M	
Length of employment	sum(datediff(day, d.DoctorHireDate, cast(getdate() as date)))/count(*)	10	

View Name: vAppointmentDetail

Description: selects Doctor data grouped by DoctorSex.

Columns

Column Name	Source	Example	Notes
AppointmentID	Appointment.AppointmentID	1	
AppointmentDateTime	Appointment.AppointmentDateTime	20140101 12:00:00	
patient name	Patient.PatientFirstName + ' ' + Patient.PatientLastName	Maranda Sianghio	
doctor name	Doctor.DoctorFirstName + ' ' + Doctor.DoctorLastName	Dr. Brendan C	
ClinicName	Clinic.ClinicName	XenoSphereClinic	
Receptionist	Receptionist.ReceptionistFirstName + ' ' + Receptionist.ReceptionistLastName	Xeno Marc	

View Name: vClinicDetail

Description: selects Clinic joined data.

Columns

Column Name	Source	Example	Notes
city	Clinic.ClinicCity	M	
name	Clinic.ClinicName	ZooClinic	
year	year(AppointmentDateTime)	2012	
number of appointments	count(*)	56	

OLTP Database Stored Procedures

Stored Procedure Name: pInsClinic

Description: Inserts Clinic data

Parameters

Parameter Name	Data Type	Type	Example	Notes
ClinicID	int	Output	1	
ClinicName	nVarchar(100)	Input	ZooClinic	
ClinicAddress	nVarchar(100)	Input	14840 single trace	
ClinicCity	nVarchar(100)	Input	Austin	
ClinicState	nVarchar(2)	Input	TX	
ClinicZip	nVarchar(15)	Input	78728	

Results

Column Name	Data Type	Type	Example	Notes
ClinicID	int	Output	1	Returns Inserted ID using @@Identity

Stored Procedure Name: pUpdClinic

Description: Updates Clinic data

Parameters

Parameter Name	Data Type	Type	Example	Notes
ClinicID	int	Input	1	
ClinicName	nVarchar(100)	Input	ZooClinic	
ClinicAddress	nVarchar(100)	Input	14840 single trace	
ClinicCity	nVarchar(100)	Input	Austin	
ClinicState	nVarchar(2)	Input	TX	
ClinicZip	nVarchar(15)	Input	78728	

Results

Column Name	Data Type	Type	Example	Notes
NA				

Stored Procedure Name: pDelClinic

Description: Deletes Clinic data

Parameters

Parameter Name	Data Type	Type	Example	Notes
ClinicID	Int	Input	1	

Results

Column Name	Type	Example	Notes
NA			

Stored Procedure Name: pInsDoctor

Description: Inserts Doctor data

Parameters

Parameter Name	Data Type	Type	Example	Notes
DoctorID	int	Output	1	
DoctorFirstName	nVarchar(100)	Input	Dr. Bob	
DoctorLastName	nVarchar(100)	Input	Petrone	
DoctorHireDate	Date	Input	20000101	
DoctorBirthDate	Date	Input	19600101	
DoctorEducation	nVarchar(100)	Input	MIT doctorate in oceanography	
DoctorSex	nVarchar(100)	Input	M	

Results

Column Name	Data Type	Type	Example	Notes
DoctorID	int	Output	1	Returns Inserted ID using @@Identity

Stored Procedure Name: pUpdDoctor

Description: Updates Doctor data

Parameters

Parameter Name	Data Type	Type	Example	Notes
DoctorID	int	Input	1	
DoctorFirstName	nVarchar(100)	Input	Dr. Bob	
DoctorLastName	nVarchar(100)	Input	Petrone	
DoctorHireDate	Date	Input	20000101	
DoctorBirthDate	Date	Input	19600101	
DoctorEducation	nVarchar(100)	Input	MIT doctorate in oceanography	
DoctorSex	nVarchar(100)	Input	M	

Results

Column Name	Data Type	Type	Example	Notes
NA				

Stored Procedure Name: pDelDoctor

Description: Deletes Doctor data

Parameters

Parameter Name	Data Type	Type	Example	Notes
DoctorID	Int	Input	1	

Results

Column Name	Type	Example	Notes
NA			

Stored Procedure Name: plnsPatient

Description: Inserts Patient data

Parameters

Parameter Name	Data Type	Type	Example	Notes
PatientID	int	Output	1	
PatientFirstName	nVarchar(100)	Input	Bob	
PatientLastName	nVarchar(100)	Input	Petrone	
PatientPhoneNumber	nVarchar(100)	Input	1234567890	
PatientEmail	nVarchar(100)	Input	Me@you.com	
PatientAddress	nVarchar(100)	Input	14840 single trance	
PatientCity	nVarchar(100)	Input	Austin	
PatientState	nVarchar(2)	Input	TX	
PatientZip	nVarchar(15)	Input	78728	
PatientInsuranceInfo	nVarchar(100)	Input	Lunesta, company name, coverage type.	
PatientBirthDate	Date	Input	19960824	

Results

Column Name	Data Type	Type	Example	Notes
PatientID	int	Output	1	Returns Inserted ID using @@Identity

Stored Procedure Name: pUpdPatient

Description: Updates Patient data

Parameters

Parameter Name	Data Type	Type	Example	Notes
PatientID	int	Input	1	
PatientFirstName	nVarchar(100)	Input	Bob	
PatientLastName	nVarchar(100)	Input	Petrone	
PatientPhoneNumber	nVarchar(100)	Input	1234567890	
PatientEmail	nVarchar(100)	Input	Me@you.com	
PatientAddress	nVarchar(100)	Input	14840 single trance	
PatientCity	nVarchar(100)	Input	Austin	

PatientState	nVarchar(2)	Input	TX	
PatientZip	nVarchar(15)	Input	78728	
PatientInsuranceInfo	nVarchar(100)	Input	Lunesta, company name, coverage type.	
PatientBirthDate	Date	Input	19960824	

Results

Column Name	Data Type	Type	Example	Notes
NA				

Stored Procedure Name: pDelPatient

Description: Deletes Patient data

Parameters

Parameter Name	Data Type	Type	Example	Notes
PatientID	Int	Input	1	

Results

Column Name	Type	Example	Notes
NA			

Stored Procedure Name: plnsReceptionist

Description: Inserts Receptionist data

Parameters

Parameter Name	Data Type	Type	Example	Notes
ReceptionistID	int	Output	1	
ReceptionistFirstName	nVarchar(100)	Input	Claire	
ReceptionistLastName	nVarchar(100)	Input	Peterson	
ReceptionistPassword	nVarchar(100)	Input	1\$2b3@K&	

Results

Column Name	Data Type	Type	Example	Notes
ReceptionistID	int	Output	1	Returns Inserted ID using @@Identity

Stored Procedure Name: pUpdReceptionist

Description: Updates Receptionist data

Parameters

Parameter Name	Data Type	Type	Example	Notes
ReceptionistID	int	Input	1	

ReceptionistFirstName	nVarchar(100)	Input	Claire	
ReceptionistLastName	nVarchar(100)	Input	Peterson	
ReceptionistPassword	nVarchar(100)	Input	1\$2b3@K&	

Results

Column Name	Data Type	Type	Example	Notes
NA				

Stored Procedure Name: pDelReceptionist

Description: Deletes Receptionist data

Parameters

Parameter Name	Data Type	Type	Example	Notes
ReceptionistID	Int	Input	1	

Results

Column Name	Type	Example	Notes
NA			

Stored Procedure Name: plnsAppointment

Description: Inserts Appointment data

Parameters

Parameter Name	Data Type	Type	Example	Notes
AppointmentID	Int	Output	1	
AppointmentClinicID	Int	Input	1	
AppointmentPatientID	Int	Input	1	
AppointmentDoctorID	Int	Input	1	
AppointmentReceptionistID	Int	Input	1	
AppointmentDateTime	DateTime	Input	20140101 14:00:00	
AppointmentNotes	nvarchar(200)	Input	Patient had diarrhea. It was not nice.	

Results

Column Name	Data Type	Type	Example	Notes
AppointmentID	int	Output	1	Returns Inserted ID using @@Identity

Stored Procedure Name: pUpdAppointment

Description: Updates Appointment data

Parameters

Parameter Name	Data Type	Type	Example	Notes
AppointmentID	Int	Input	1	

AppointmentClinicID	Int	Input	1	
AppointmentPatientID	Int	Input	1	
AppointmentDoctorID	Int	Input	1	
AppointmentReceptionistID	Int	Input	<u>1</u>	
AppointmentDateTime	DateTime	Input	20140101 14:00:00	
AppointmentNotes	nvarchar(200)	Input	Patient had diarrhea. It was not nice.	

Results

Column Name	Data Type	Type	Example	Notes
NA				

Stored Procedure Name: pDelAppointment

Description: Deletes Appointment data

Parameters

Parameter Name	Data Type	Type	Example	Notes
AppointmentID	Int	Input	1	

Results

Column Name	Type	Example	Notes
NA			