# Patient Appointment Application Project

Owner: <Ally Krinsky>

Date: <3/15/2020>

# **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 |
| AKrinsky | 3/15 | Update Milestone 2 |

# Solution Naming Conventions

## Database (OLTP)

|  |  |  |  |
| --- | --- | --- | --- |
| Object Type | Convention | Example | Description |
| Table | TableName | Clinics | A table used to hold data |
| View | vViewName | vClinics | A saved select statement that provides data |
| Stored Proc. | pProcedureName | pInsClinics | A set of saved statements for data transactions |
| Foreign Key Constraint | FK\_ObjectNameToObjectName | FK\_Clinics | A constraint to enforce Foreign Key functionality |
| Check Constraint | ckObjectNamePurpose | ckClinicZipCOde | A constraint to enforce Domain integrity |

# **OLTP Database Tables**

## Table Name: Clinics

Description: Contains product data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Example | Notes |
| ClinicID | int | 1 | PK, Identity (1,1) |
| ClinicName | nvarchar(100) | ClinicA | Unique |
| ClinicPhoneNumber | Nvarchar(100) | (206)-111-1234 | CHECK LIKE '([0-9][0-9][0-9])-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]') |
| ClinicAddress | Nvarchar(100) | 123 Main St. | NA |
| ClinicCity | Nvarchar(100) | Seattle | NA |
| ClinicState | Nchar(100) | WA | NA |
| ClinicZipCode | Nvarchar(100) | 98105 | CHECK LIKE '([0-9][0-9][0-9])-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]' or ([0-9][0-9][0-9])-[0-9][0-9][0-9]) |

### Constraints

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Primary Key | Foreign Key | Not Null | Check | Unique | Default |
| ClinicID | Yes | No | Yes | No | Yes | No |
| ClinicPhoneNumber | No | No | Yes | Yes | No | NO |
| ClinicZipCode | No | No | Yes | No | No | No |

## Table Name: Patients

Description: Contains category data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Example | Notes |
| PatientID | int | 1 | PK, Identity (1,1) |
| PatientFirstName | nvarchar(100) | Bob | NA |
| PatientLastName | Nvarchar(100) | Smith | NA |
| PatientPhoneNumber | Nvarchar(100) | (206)-111-1234 | CHECK LIKE '([0-9][0-9][0-9])-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]') |
| PatientAddress | Nvarchar(100) | 123 Main St. | NA |
| PatientCity | Nvarchar(100) | Seattle | NA |
| PatientState | Nchar(100) | WA | NA |
| PatientZipCode | Nvarchar(100) | 98105 | CHECK LIKE '([0-9][0-9][0-9])-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]' or ([0-9][0-9][0-9])-[0-9][0-9][0-9]) |

### Constraints

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Primary Key | Foreign Key | Not Null | Check | Unique | Default |
| PatientID | Yes | No | Yes | No | Yes | No |
| PatientPhoneNumber | No | No | Yes | Yes | No | NO |
| PatientZipCode | No | No | Yes | No | No | No |

## Table Name: Doctors

Description: Contains category data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Example | Notes |
| DoctorID | int | 1 | PK, Identity (1,1) |
| DoctorFirstName | nvarchar(100) | Bob | NA |
| DoctorLastName | Nvarchar(100) | Smith | NA |
| DoctorPhoneNumber | Nvarchar(100) | (206)-111-1234 | CHECK LIKE '([0-9][0-9][0-9])-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]') |
| DoctorAddress | Nvarchar(100) | 123 Main St. | NA |
| DoctorCity | Nvarchar(100) | Seattle | NA |
| DoctorState | Nchar(100) | WA | NA |
| DoctorZipCode | Nvarchar(100) | 98105 | CHECK LIKE '([0-9][0-9][0-9])-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]' or ([0-9][0-9][0-9])-[0-9][0-9][0-9]) |

### Constraints

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Primary Key | Foreign Key | Not Null | Check | Unique | Default |
| DoctorID | Yes | No | Yes | No | Yes | No |
| DoctorPhoneNumber | No | No | Yes | Yes | No | NO |
| DoctorZipCode | No | No | Yes | No | No | No |

## Table Name: Appointments

Description: Contains category data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Example | Notes |
| AppointmentID | int | 1 | PK, Identity (1,1) |
| AppointmentDateTime | Datetime | 03/15/2020 1:30:00 | NA |
| AppointmentPatientID | Int | 2 | FK |
| AppointmentDoctorID | Int | 3 | FK |
| AppointmentClinicID | int | 4 | FK |

### Constraints

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Primary Key | Foreign Key | Not Null | Check | Unique | Default |
| AppointmentID | Yes | No | Yes | No | Yes | 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: vPatients

Description: Selects product data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Source | Example | Notes |
| PatientID | Patients.PatientID | 1 | PK, Identity (1,1) |
| PatientFirstName | Patients.PatientFirstName | Bob | NA |
| PatientLastName | Patients.PatientLastName | Smith | NA |
| PatientPhoneNumber | Patients.PatientPhoneNumber | (206)-111-1234 | CHECK LIKE '([0-9][0-9][0-9])-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]') |
| PatientAddress | Patients.PatientAddress | 123 Main St. | NA |
| PatientCity | Patients.PatientCity | Seattle | NA |
| PatientState | Patients.PatientState | WA | NA |
| PatientZipCode | Patients.PatientZipCode | 98105 | CHECK LIKE '([0-9][0-9][0-9])-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]' or ([0-9][0-9][0-9])-[0-9][0-9][0-9]) |

## View Name: vClinics

Description: Selects product data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Source | Example | Notes |
| ClinicID | Clinic.ClinicID | 1 | PK, Identity (1,1) |
| ClinicName | Clinic.ClinicName | ClinicA | NA |
| ClinicPhoneNumber | Clinic.ClinicPhoneNumber | (206)-111-1234 | CHECK LIKE '([0-9][0-9][0-9])-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]') |
| ClinicAddress | Clinic.ClinicAddress | 123 Main St. |  |
| ClinicCity | Clinic.ClinicCity | Seattle | NA |
| ClinicState | Clinic.ClinicState | WA | NA |
| ClinicZipCode | Clinic.ClinicZipCode | 98105 | CHECK LIKE '([0-9][0-9][0-9])-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]' or ([0-9][0-9][0-9])-[0-9][0-9][0-9]) |

## View Name: vDoctors

Description: Selects joined category and product data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Source | Example | Notes |
| DoctorID | Doctors.DoctorID | 1 | PK, Identity (1,1) |
| DoctorFirstName | Doctors.DoctorFirstName | Bob | NA |
| DoctorLastName | Doctors.DoctorLastName | Smith | NA |
| DoctorPhoneNumber | Doctors.DoctorPhoneNumber | (206)-111-1234 | CHECK LIKE '([0-9][0-9][0-9])-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]') |
| DoctorAddress | Doctors.DoctorAddress | 123 Main St. | NA |
| DoctorCity | Doctors.DoctorCity | Seattle | NA |
| DoctorState | Doctors.DoctorState | WA | NA |
| DoctorZipCode | Doctors.DoctorZipCode | 98105 | CHECK LIKE '([0-9][0-9][0-9])-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]' or ([0-9][0-9][0-9])-[0-9][0-9][0-9]) |

## View Name: vAppointments

Description: Selects joined category and product data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Source | Example | Notes |
| AppointmentID | AppointmentID | 1 | PK, Identity (1,1) |
| AppointmentDateTime | AppointmentDateTime | 03/15/2020 1:30:00 | NA |
| AppointmentPatientID | AppointmentPatientID | 2 | FK |
| AppointmentDoctorID | AppointmentDoctorID | 3 | FK |
| AppointmentClinicID | AppointmentClinicID | 4 | FK |

## View Name: vAppointments

Description: Selects joined category and product data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| ColumnName | Source | Example | Notes |
| AppointmentID | Appointments.AppointmentID | 1 | PK |
| AppointmentDate | Appointments.AppointmentDateTime | 3/15/2020 |  |
| AppointmentTime | Appointments.AppointmentDateTime | 1:30:00 |  |
| PatientID | Patients.PatientID | 2 | FK |
| PatientName | Patients.PatientName | Bob Smith |  |
| PatientPhoneNumber | PatientPhoneNumber | (206) -123 -1111 | Check |
| PatientAddress | Patients.PatientAddress | 123 Main St. |  |
| PatientCity | Patients.PatientCity | Seattle |  |
| PatientState | Patients.PatientState | WA |  |
| PatientZipCode | Patients.PatientZipCode | 98105 | Check |
| DoctorID | Doctors.DoctorID | 3 | FK |
| DoctorName | DoctorName | Jackson Avery |  |
| DoctorPhoneNumber | Doctors.DoctorPhoneNumber | (206) -123 -1112 | Check |
| DoctorAddress | Doctors.DoctorAddress | 124 Main St. |  |
| DoctorCity | Doctors.DoctorCity | Seattle |  |
| DoctorState | Doctors.DoctorState | WA |  |
| DoctorZipCode | Doctors.DoctorZipCode | 98105 | Check |
| ClinicID | Clinics.ClinicID | 4 | FK |
| ClinicName | Clinics.ClinicName | Seattle Clinic |  |
| ClinicPhoneNumber | Clinics.ClinicPhoneNumber | (206) -124 -1111 | Check |
| ClinicAddress | Clinics.ClinicAddress | 126 Main St. |  |
| ClinicCity | Clinics.ClinicCity | Seattle |  |
| ClinicState | Clinics.ClinicState | WA |  |
| ClinicZipCode | Clinics.ClinicZipCode | 98105 | Check |

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Source | Example | Notes |
| AppointmentID | AppointmentID | 1 | PK, Identity (1,1) |
| AppointmentDateTime | AppointmentDateTime | 03/15/2020 1:30:00 | NA |
| AppointmentPatientID | AppointmentPatientID | 2 | FK |
| AppointmentDoctorID | AppointmentDoctorID | 3 | FK |
| AppointmentClinicID | AppointmentClinicID | 4 | FK |

# **OLTP Database Stored Procedures**

## Stored Procedure Name: pInsClinics

Description: Inserts clinics data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @ClinicID | Int | Output | 1 | Returns Inserted ID using @@Identity |
| @ClinicName | Nvarchar(100) | Input | ClinicA |  |
| @ClinicPhoneNumber | nvarchar(100) | Input | (206)-111-1234 | Validated by chClinicPhoneNumber |
| @ClinicAddress | Nvarchar(100) | Input | 123 Main St. |  |
| @ClinicCity | Nvarchar(100) | Input | Seattle |  |
| @ClinicState | Nchar(100) | Input | WA |  |
| @ClinicZipCode | Nvarchar(100) | Input | 98105 | Validated by chClinicZipCode |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| Status | int | Return | 100 | 100 = No error  -100 = General error  -200 = Product Name not unique  -300 = Price not greater than zero  -400 = Category ID not found |
| @ProductID | int | Output | 1 | Returns Inserted ID using @@Identity |

## Stored Procedure Name: pUpdClinics

Description: Updates product data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @ClinicID | Int | Output | 1 | Returns Inserted ID using @@Identity |
| @ClinicName | Nvarchar(100) | Input | ClinicA |  |
| @ClinicPhoneNumber | nvarchar(100) | Input | (206)-111-1234 | Validated by chClinicPhoneNumber |
| @ClinicAddress | Nvarchar(100) | Input | 123 Main St. |  |
| @ClinicCity | Nvarchar(100) | Input | Seattle |  |
| @ClinicState | Nchar(100) | Input | WA |  |
| @ClinicZipCode | Nvarchar(100) | Input | 98105 | Validated by chClinicZipCode |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA | int | Return | 100 | 100 = No error  -100 = General error  -200 = Product Name not unique  -300 = Price not greater than zero  -400 = Category ID not found |
| @ProductID | int | Output | 1 | Returns Inserted ID using @@Identity |

## Stored Procedure Name: pDelClinics

Description: Updates product data

### Parameters

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

### Results

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Type | Example | Notes |
| NA | Return Code | 100 | 100 = No error  -100 = General error |

## Stored Procedure Name: pInsPatients

Description: Inserts patients data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @PatientID | Int | Output | 1 | Returns Inserted ID using @@Identity |
| @PatientFirstName | Nvarchar | Input | Bob |  |
| @PatientLastName | Nvarchar(100) | Input | Smith |  |
| @PatientPhoneNumber | nvarchar(100) | Input | (206)-111-1234 | Validated by chPatientPhoneNumber |
| @PatientAddress | Nvarchar(100) | Input | 123 Main St. |  |
| @PatientCity | Nvarchar(100) | Input | Seattle |  |
| @PatientState | Nchar(100) | Input | WA |  |
| @PatientZipCode | Nvarchar(100) | Input | 98105 | Validated by chPatientZipCode |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| Status | int | Return | 100 | 100 = No error  -100 = General error  -200 = Product Name not unique  -300 = Price not greater than zero  -400 = Category ID not found |
| @PatientID | int | Output | 1 | Returns Inserted ID using @@Identity |

## Stored Procedure Name: pUpdPatients

Description: Updates patient data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @PatientID | Int | Output | 1 | Returns Inserted ID using @@Identity |
| @PatientFirstName | Nvarchar | Input | Bob |  |
| @PatientLastName | Nvarchar(100) | Input | Smith |  |
| @PatientPhoneNumber | nvarchar(100) | Input | (206)-111-1234 | Validated by chPatientPhoneNumber |
| @PatientAddress | Nvarchar(100) | Input | 123 Main St. |  |
| @PatientCity | Nvarchar(100) | Input | Seattle |  |
| @PatientState | Nchar(100) | Input | WA |  |
| @PatientZipCode | Nvarchar(100) | Input | 98105 | Validated by chPatientZipCode |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| Status | int | Return | 100 | 100 = No error  -100 = General error  -200 = Product Name not unique  -300 = Price not greater than zero  -400 = Category ID not found |
| @PatientID | int | Output | 1 | Returns Inserted ID using @@Identity |

## Stored Procedure Name: pDelPatients

Description: Deletes patient data

### Parameters

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

### Results

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Type | Example | Notes |
| NA | Return Code | 100 | 100 = No error  -100 = General error |

## Stored Procedure Name: pInsDoctors

Description: Inserts doctors data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @DoctorID | Int | Output | 1 | Returns Inserted ID using @@Identity |
| @DoctorFirstName | Nvarchar | Input | Bob |  |
| @DoctorLastName, | Nvarchar(100) | Input | Smith |  |
| @DoctorPhoneNumber | nvarchar(100) | Input | (206)-111-1234 | Validated by chDoctorPhoneNumber |
| @DoctorAddress | Nvarchar(100) | Input | 123 Main St. |  |
| @DoctorCity | Nvarchar(100) | Input | Seattle |  |
| @DoctorState | Nchar(100) | Input | WA |  |
| @DoctorZipCode | Nvarchar(100) | Input | 98105 | Validated by chDoctorZipCode |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| Status | int | Return | 100 | 100 = No error  -100 = General error  -200 = Product Name not unique  -300 = Price not greater than zero  -400 = Category ID not found |
| @DoctorID | int | Output | 1 | Returns Inserted ID using @@Identity |

## Stored Procedure Name: pUpdDoctors

Description: Updates doctors data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @DoctorID | Int | Output | 1 | Returns Inserted ID using @@Identity |
| @DoctorFirstName | Nvarchar | Input | Bob |  |
| @DoctorLastName, | Nvarchar(100) | Input | Smith |  |
| @DoctorPhoneNumber | nvarchar(100) | Input | (206)-111-1234 | Validated by chDoctorPhoneNumber |
| @DoctorAddress | Nvarchar(100) | Input | 123 Main St. |  |
| @DoctorCity | Nvarchar(100) | Input | Seattle |  |
| @DoctorState | Nchar(100) | Input | WA |  |
| @DoctorZipCode | Nvarchar(100) | Input | 98105 | Validated by chDoctorZipCode |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| Status | int | Return | 100 | 100 = No error  -100 = General error  -200 = Product Name not unique  -300 = Price not greater than zero  -400 = Category ID not found |
| @DoctorID | int | Output | 1 | Returns Inserted ID using @@Identity |

## Stored Procedure Name: pDelDoctors

Description: Deletes doctors data

### Parameters

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

### Results

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Type | Example | Notes |
| NA | Return Code | 100 | 100 = No error  -100 = General error |

## Stored Procedure Name: pInsAppointments

Description: Inserts appointments data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| AppointmentID | Int | output | 1 | Returns Inserted ID using @@Identity |
| AppointmentDateTime | Datetime | Input | 03/15/2020 1:30:00 |  |
| AppointmentPatientID | Nvarchar(100) | Input | 2 | FK |
| AppointmentDoctorID | nvarchar(100) | Input | 3 | FK |
| AppointmentClinicID | Nvarchar(100) | Input | 4 | FK |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| Status | int | Return | 100 | 100 = No error  -100 = General error  -200 = Product Name not unique  -300 = Price not greater than zero  -400 = Category ID not found |
| @AppointmentID | int | Output | 1 | Returns Inserted ID using @@Identity |

## Stored Procedure Name: pUpdAppointments

Description: Updates appointments data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| AppointmentID | Int | output | 1 | Returns Inserted ID using @@Identity |
| AppointmentDateTime | Datetime | Input | 03/15/2020 1:30:00 |  |
| AppointmentPatientID | Nvarchar(100) | Input | 2 | FK |
| AppointmentDoctorID | nvarchar(100) | Input | 3 | FK |
| AppointmentClinicID | Nvarchar(100) | Input | 4 | FK |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| Status | int | Return | 100 | 100 = No error  -100 = General error  -200 = Product Name not unique  -300 = Price not greater than zero  -400 = Category ID not found |
| @AppointmentID | int | Output | 1 | Returns Inserted ID using @@Identity |

## Stored Procedure Name: pDelAppointments

Description: Deletes doctors data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @AppointmentID | int | Input | @AppointmentD |  |

### Results

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Type | Example | Notes |
| NA | Return Code | 100 | 100 = No error  -100 = General error |