# Patient Appointment Application Project

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Date: 06/05/17

# **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 |
| Kyle Porter | 05/26/17 | Added table names. |
| Kyle Porter | 05/29/17 | Finalize tables, constraints, and views. Start sprocs and functions |

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

# **OLTP Database Tables**

## Table Name: Patients

Description: Contains patient data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Example | Notes |
| PatientID | int | 1 | PK, Identity (1,1) |
| FirstName | nvarchar(50) | Bob | Not Null |
| LastName | nvarchar(50) | Smith | Not Null |
| PhoneNumber | nvarchar(20) | 253-241-3421 | Not Null |
| Email | nvarchar(50) | imail@email.com | Not Null |
| Address | nvarchar(50) | Times Square 25 | Not Null |
| City | nvarchar(50) | New York | Not Null |
| State | char(2) | WA | Not Null |
| Zip | nvarchar(10) | 98303 | Not Null |

### Constraints

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Primary Key | Foreign Key | Not Null | Check | Unique | Default |
| PatientID | Yes | No | Yes | No | Yes | Yes |
| FirstName | No | No | Yes | No | No | No |
| LastName | No | No | Yes | No | No | No |
| PhoneNumber | No | No | Yes | No | No | No |
| Email | No | No | Yes | No | No | No |
| Address | No | No | Yes | No | No | No |
| City | No | No | Yes | No | No | No |
| State | No | No | Yes | No | No | No |
| Zip | No | No | Yes | No | No | No |

## Table Name: Doctors

Description: Contains doctor data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Example | Notes |
| DoctorID | int | 1 | PK, Identity (1,1) |
| DoctorFirstName | nvarchar(50) | Bob | Not Null |
| DoctorLastName | nvarchar(50) | Smith | Not Null |
| DoctorPhoneNumber | nvarchar(20) | 253-241-3421 | Not Null |
| DoctorEmail | nvarchar(50) | imail@email.com | Not Null |

### Constraints

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Primary Key | Foreign Key | Not Null | Check | Unique | Default |
| DoctorID | Yes | No | Yes | No | Yes | Yes |
| DoctorFirstName | No | No | Yes | No | No | No |
| DoctorLastName | No | No | Yes | No | No | No |
| DoctorPhoneNumber | No | No | Yes | No | No | No |
| DoctorEmail | No | No | Yes | No | No | No |

## Table Name: Appointments

Description: Contains patient data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Example | Notes |
| AppointmentID | int | 1 | PK, Identity (1,1) |
| PatientID | int | 2 | FK References dbo.Patients.PatientID |
| DoctorID | int | 3 | FK References dbo.Doctors.DoctorID |
| AppointmentDatetime | datetime | 1/13/2014 12:00:00 AM | Not Null |

### Constraints

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Primary Key | Foreign Key | Not Null | Check | Unique | Default |
| AppointmentID | Yes | No | Yes | No | Yes | Yes |
| PatientID | No | Yes | Yes | No | Yes | No |
| DoctorID | No | Yes | Yes | No | Yes | No |
| AppointmentDatetime | No | No | Yes | No | No | No |

## Table Name: Clinics

Description: Contains clinic data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Example | Notes |
| ClinicID | int | 1 | PK, Identity (1,1) |
| ClinicName | nvarchar(50) | Billy Joe Clinic | Unique |
| ClinicPhone | nvarchar(20) | 253-241-3421 | Not Null |
| ClinicEmail | nvarchar(50) | imail@email.com | Not Null |
| ClinicAddress | nvarchar(50) | Times Square 25 | Not Null |
| ClinicCity | nvarchar(50) | New York | Not Null |
| ClinicState | char(2) | WA | Not Null |
| ClinicZip | nvarchar(10) | 98303 | Not Null |

### Constraints

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Primary Key | Foreign Key | Not Null | Check | Unique | Default |
| ClinicID | Yes | No | Yes | No | Yes | Yes |
| ClinicName | No | No | Yes | No | Yes | No |
| ClinicPhone | No | No | Yes | No | No | No |
| ClinicEmail | No | No | Yes | No | No | No |
| ClinicAddress | No | No | Yes | No | No | No |
| ClinicCity | No | No | Yes | No | No | No |
| ClinicState | No | No | Yes | No | No | No |
| ClinicZip | No | No | Yes | No | No | No |

## Table Name: PatientAppointments

Description: Contains patient and appointment data.

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Example | Notes |
| PatientAppointmentID | int | 1 | PK, Identity (1,1) |
| PatientID | int | 2 | FK References dbo.Patients.PatientID |
| AppointmentID | int | 3 | FK References dbo.Appointments.AppointmentID |

### Constraints

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Primary Key | Foreign Key | Not Null | Check | Unique | Default |
| PatientAppointmentID | Yes | No | Yes | No | Yes | Yes |
| PatientID | No | Yes | Yes | No | Yes | No |
| AppointmentID | No | Yes | Yes | No | Yes | No |

## Table Name: DoctorClinics

Description: Contains patient and appointment data.

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Example | Notes |
| DoctorClinicID | int | 1 | PK, Identity (1,1) |
| DoctorID | int | 2 | FK References dbo.Doctors.DoctorID |
| ClinicID | int | 3 | FK References dbo.Clinics.ClinicID |

### Constraints

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Primary Key | Foreign Key | Not Null | Check | Unique | Default |
| DoctorClinicID | Yes | No | Yes | No | Yes | Yes |
| DoctorID | No | Yes | Yes | No | Yes | No |
| ClinicID | No | Yes | Yes | No | Yes | 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 | Not Null |
| PatientLastName | Patients.PatientLastName | Smith | Not Null |
| PatientPhoneNumber | Patients.PatientPhoneNumber | 253-241-3421 | Not Null |
| PatientEmail | Patients.PatientEmail | imail@email.com | Not Null |
| PatientAddress | Patients.PatientAddress | Times Square 25 | Not Null |
| PatientCity | Patients.PatientCity | New York | Not Null |
| PatientState | Patients.PatientState | WA | Not Null |
| PatientZip | Patients.PatientZip | 98303 | Not Null |

## View Name: vDoctors

Description: Selects product data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Source | Example | Notes |
| DoctorID | Doctors.DoctorID | 1 | PK, Identity (1,1) |
| DoctorFirstName | Doctors.DoctorFirstName | Bob | Not Null |
| DoctorLastName | Doctors.DoctorLastName | Smith | Not Null |
| DoctorPhoneNumber | Doctors.DoctorPhoneNumber | 253-241-3421 | Not Null |
| DoctorEmail | Doctors.DoctorEmail | imail@email.com | Not Null |

## View Name: vAppointments

Description: Selects joined category and product data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Source | Example | Notes |
| AppointmentID | Appointments.AppointmentID | 1 | PK, Identity (1,1) |
| PatientID | Patients.PatientID | 2 | FK |
| DoctorID | Doctors.DoctorID | 3 | FK |
| AppointmentDatetime | Appointments.AppointmentDateTime | 1/13/2014 12:00:00 AM | Not Null |

## View Name: vClinics

Description: Selects joined category and product data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Source | Example | Notes |
| ClinicID | Clinics.ClinicID | 1 | PK, Identity (1,1) |
| ClinicName | Clinics.ClinicName | Billy Joe Clinic | Unique |
| ClinicPhone | Clinics.ClinicPhone | 253-241-3421 | Not Null |
| ClinicEmail | Clinics.ClinicEmail | imail@email.com | Not Null |
| ClinicAddress | Clinics.ClinicAddress | Times Square 25 | Not Null |
| ClinicCity | Clinics.ClinicCity | New York | Not Null |
| ClinicState | Clinics.ClinicState | WA | Not Null |
| ClinicZip | Clinics.ClinicZip | 98303 | Not Null |

## View Name: vPatientAppointments

Description: Selects joined category and product data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Source | Example | Notes |
| PatientAppointmentID | PatientAppointments.PatientAppointmentID | 1 | PK, Identity (1,1) |
| PatientID | Patients.PatientID | 2 | FK |
| AppointmentID | Appointments.AppointmentID | 3 | FK |

## View Name: vDoctorClinics

Description: Selects joined category and product data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Source | Example | Notes |
| DoctorClinicID | DoctorClinics.DoctorClinicID | 1 | PK, Identity (1,1) |
| DoctorID | Doctors.DoctorID | 2 | FK |
| ClinicID | Clinics.ClinicID | 3 | FK |

# **OLTP Database Functions**

## View Name: fSelPatientID

Description: Selects category ID based on category name

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @CategoryName | nvarchar(100) | Input | Cat1 |  |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| CategoryID | int | Result | 1 |  |

## View Name: fSelCategoryID

Description: Selects category ID based on category name

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @CategoryName | nvarchar(100) | Input | Cat1 |  |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| CategoryID | int | Result | 1 |  |

# **OLTP Database Stored Procedures**

## Stored Procedure Name: pInsClinic

Description: Validates a value is greater than zero

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @Value | float | Input | 1 |  |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA | float | Return | 100 | 100 = No error  -100 = Validation error |

## Stored Procedure Name: pUpdClinic

Description: Selects product data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @ProductID | int | Input | 1 | Defaults to All |
| @ProductName | nvarchar(100) | Input | ProdA | Defaults to All |
| @ProductStandardPrice | money | Input | 9.99 | Defaults to All |
| @CategoryID | int | Input | 1 | Defaults to All |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA |  | Return | 100 | 100 = No error  -100 = General error |
| ProductID | int | Column | 1 | From vProducts.ProductID |
| ProductName | nvarchar(100) | Column | ProdA | From vProducts.ProductName |
| ProductStandardPrice | money | Column | 9.99 | From vProducts.ProductStandardPrice |
| CategoryID | int | Column | 1 | From vProducts.CategoryID |

## Stored Procedure Name: pInsProducts

Description: Inserts product data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @ProductID | int | Output | @ProdID | Returns Inserted ID using @@Identity |
| @ProductName | nvarchar(100) | Input | ProdA | Validated by uProductName |
| @ProductStandardPrice | money | Input | 9.99 | Validated by pValGreaterThanZero |
| @CategoryID | int | Input | 1 | Validated by fSelCategoryID |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA |  | 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: pUpdProducts

Description: Updates product data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @ProductID | int | Input | @ProdID |  |
| @ProductName | nvarchar(100) | Input | ProdA | Validated by uProductName |
| @ProductStandardPrice | money | Input | 9.99 | Validated by pValueGreaterThanZero |
| @CategoryID | int | Input | 1 | Validated by fSelCategoryID |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA |  | Return | 100 | 100 = No error  -100 = General error  -200 = Product Name not unique  -300 = Price not greater than zero  -400 = Category ID not found |

## Stored Procedure Name: pDelProducts

Description: Updates product data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @ProductID | int | Input | @ProdID |  |

### Results

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