# Patient Appointment Application Project

Owner: IMartinez

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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 | 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 |
| Primary Key Constraint | pkObjectName | pkClinics | A constraint to enforce Primary Key functionality |
| Foreign Key Constraint | fkObjectNameToObjectName | pkClinicID | A constraint to enforce Foreign Key functionality |
| Check Constraint | ckObjectNamePurpose | ckClinicZipCode | A constraint to enforce Domain integrity |
| Unique Constraint | uqObjectName | uqClinicName | 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 | PK, Identity (1,1) |
| ClinicName | nvarchar(100) | Purple | Unique |
| ClinicPhoneNumber | nvarchar(100) | 123-456-7890 | CK |
| ClinicAddress | nvarchar(100) | 123 Main St |  |
| ClinicCity | nvarchar(100) | Seattle |  |
| ClinicState | nchar(2) | WA |  |
| ClinicZipCode | nvarchar(100) | 98105 | CK |

### 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 |
| 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 | PK, Identity (1,1) |
| PatientFirstName | nvarchar(100) | Bob | Unique |
| PatientLastName | nvarchar(100) | Smith |  |
| PatientPhoneNumber | nvarchar(100) | 123-456-7890 | CK |
| PatientAddress | nvarchar(100) | 123 Main St |  |
| PatientCity | nvarchar(100) | Seattle |  |
| PatientState | nchar(2) | WA |  |
| PatientZipCode | nvarchar(100) | 98105 | CK |

### Constraints

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Column Name | Primary Key | Foreign Key | Not Null | Check | Unique | Default |
| PatientID | Yes | No | Yes | No | Yes | 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 the doctor data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Example | Notes |
| DoctorID | int | 1 | PK, Identity (1,1) |
| DoctorFirstName | nvarchar(100) | Bob | Unique |
| DoctorLastName | nvarchar(100) | Smith |  |
| DoctorPhoneNumber | nvarchar(100) | 123-456-7890 | CK |
| DoctorAddress | nvarchar(100) | 123 Main St |  |
| DoctorCity | nvarchar(100) | Seattle |  |
| DoctorState | nchar(2) | WA |  |
| DoctorZipCode | nvarchar(100) | 98105 | CK |

### 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 | 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 | PK, Identity (1,1) |
| AppointmentDateTime | datetime | 05/24/20 9:00 |  |
| AppointmentPatientID | int | 1 | FK |
| AppointmentDoctorID | int | 1 | FK |
| AppointmentClinicID | int | 1 | FK |

### 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 | Purple |  |
| ClinicPhoneNumber | Clinics.ClinicPhoneNumber | 123-456-7890 |  |
| ClinicAddress | Clinics.ClinicAddress | 123 Main St |  |
| ClinicCity | Clinics.ClinicCity | Seattle |  |
| ClinicState | Clinics.ClinicState | WA |  |
| ClinicZipCode | Clinics.ClinicZipCode | 98105 |  |

## View Name: vPatients

Description: Selects product data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Source | Example | Notes |
| PatientID | Patients.PatientID | 1 |  |
| PatientFirstName | Patients.PatientFirstName | Bob |  |
| PatientLastName | Patients.PatientLastName | Smith |  |
| PatientPhoneNumber | Patients.PatientPhoneNumber | 123-456-7890 |  |
| PatientAddress | Patients.PatientAddress | 123 Main St |  |
| 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 | Bob |  |
| DoctorLastName | Doctors.DoctorLastName | Smith |  |
| DoctorPhoneNumber | Doctors.DoctorPhoneNumber | 123-456-7890 |  |
| DoctorAddress | Doctors.DoctorAddress | 123 Main St |  |
| 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 | Join Column |
| AppointmentDateTime | Appointments.AppointmentDateTime | 05/24/20 9:00 |  |
| AppointmentPatientID | Appointments.AppointmentPatientID | 1 |  |
| AppointmentDoctorID | Appointments.AppointmentDoctorID | 1 |  |
| AppointmentClinicID | Appointments.AppointmentClinicID | 1 |  |

## View Name: vAppointmentsByPatientsDoctorsAndClinics

Description: Selects joined appointment, clinic, patient, and doctor data

### Columns

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Source | Example | Notes |
| AppointmentID | a.AppointmentID | 1 | a = Appointments |
| AppointmentDate | a.AppointmentDateTime | 01/01/20 |  |
| AppointmentTime | a.AppointmentTimeTime | 9:00 |  |
| PatientID | p.PatientID | 1 | Join column p = Patients |
| PatientName | p.PatientFirstName + p.PatientLastName | Bob Smith |  |
| PatientPhoneNumber | p.PatientPhoneNumber | 123-456-7890 |  |
| PatientAddress | p.PatientAddress | 123 Main St |  |
| PatientCity | p.PatientCity | Seattle |  |
| PatientState | p.PatientState | WA |  |
| PatientZipCode | p.PatientZipCode | 98105 |  |
| DoctorID | d.DoctorID | 1 | Join column d = Doctors |
| DoctorName | d.DoctorFirstName + d.DoctorLastName | Bob Smith |  |
| DoctorCity | d.DoctorCity | Seattle |  |
| DoctorState | d.DoctorState | WA |  |
| DoctorZipCode | d.DoctorZipCode | 98105 |  |
| ClinicID | c.ClinicID | 1 | Join column c = Clinics |
| ClinicName | c.ClinicName | Purple |  |
| ClinicPhoneNumber | c.ClinicPhoneNumber | 123-456-7890 |  |
| ClinicAddress | c.ClinicAddress | 123 Main St |  |
| ClinicState | c.ClinicState | Seattle |  |
| ClinicZipCode | c.ClinicZipCode | WA |  |

# **OLTP Database Functions**

## 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: pInsClinics

Description: Validates a value is greater than zero

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @ClinicName | nvarchar(100) | Input | Purple |  |
| @ClinicPhoneNumber | nvarchar(100) | Input | 123-456-7890 |  |
| @ClinicAddress | nvarchar(100) | Input | 123 Main St |  |
| @ClinicCity | nvarchar(100) | Input | Seattle |  |
| @ClinicState | nchar(2) | Input | WA |  |
| @ClinicZipCode | nvarchar(100) | Input | 98105 |  |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA | float | Return | 100 | 100 = No error  -100 = Validation error  -200 = Clinic Name not unique |
| ClinicID | int | Output | 1 | Returns Inserted ID using @@Identity |

## Stored Procedure Name: pInsPatients

Description: Validates a value is greater than zero

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @PatientFirstName | nvarchar(100) | Input | Bob |  |
| @PatientLastName | nvarchar(100) | Input | Smith |  |
| @PatientPhoneNumber | nvarchar(100) | Input | 123-456-7890 |  |
| @PatientAddress | nvarchar(100) | Input | 123 Main St |  |
| @PatientCity | nvarchar(100) | Input | Seattle |  |
| @PatientState | nchar(2) | Input | WA |  |
| @PatientZipCode | nvarchar(100) | Input | 98105 |  |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA | float | Return | 100 | 100 = No error  -100 = Validation error |
| PatientID | int | Output | 1 | Returns Inserted ID using @@Identity |

## Stored Procedure Name: pInsDoctors

Description: Validates a value is greater than zero

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @DoctorFirstName | nvarchar(100) | Input | Bob |  |
| @DoctorLastName | nvarchar(100) | Input | Smith |  |
| @DoctorPhoneNumber | nvarchar(100) | Input | 123-456-7890 |  |
| @DoctorAddress | nvarchar(100) | Input | 123 Main St |  |
| @DoctorCity | nvarchar(100) | Input | Seattle |  |
| @DoctorState | nchar(2) | Input | WA |  |
| @DoctorZipCode | nvarchar(100) | Input | 98105 |  |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA | float | Return | 100 | 100 = No error  -100 = Validation error |
| DoctorID | int | Output | 1 | Returns Inserted ID using @@Identity |

## Stored Procedure Name: pInsAppointments

Description: Validates a value is greater than zero

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @AppointmentDateTime | Datetime | Input | 01/01/20 9:00 |  |
| @AppointmentPatientID | int | Input | 1 |  |
| @AppointmentDoctorID | Int | Input | 1 |  |
| @AppointmentClinicID | int | Input | 1 |  |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA | float | Return | 100 | 100 = No error  -100 = Validation error |
| AppointmentID | int | Output | 1 | Returns Inserted ID using @@Identity |

## Stored Procedure Name: pUpdClinics

Description: Updates clinic data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @ClinicID | int | Input | 1 |  |
| @ClinicName | nvarchar(100) | Input | Purple |  |
| @ClinicPhoneNumber | nvarchar(100) | Input | 123-456-7890 |  |
| @ClinicAddress | nvarchar(100) | Input | 123 Main St |  |
| @ClinicCity | nvarchar(100) |  | Seattle |  |
| @ClinicState | nchar(2) |  | WA |  |
| @ClinicZipCode | nvarchar(100) |  | 98105 |  |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA |  | Return | 100 | 100 = No error  -100 = General error  -200 = Clinic Name not unique  -300 = Clinic ID not found |

## Stored Procedure Name: pUpdPatients

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 | Smith |  |
| @PatientPhoneNumber | nvarchar(100) | Input | 123-456-7890 |  |
| @PatientAddress | nvarchar(100) | Input | 123 Main St |  |
| @PatientCity | nvarchar(100) | Input | Seattle |  |
| @PatientState | nchar(2) | Input | WA |  |
| @PatientZipCode | nvarchar(100) | Input | 98105 |  |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA |  | Return | 100 | 100 = No error  -100 = General error  -200 = Patient ID not found |

## Stored Procedure Name: pUpdDoctors

Description: Updates doctor data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @DoctorID | int | Input | 1 |  |
| @DoctorFirstName | nvarchar(100) | Input | Bob |  |
| @DoctorLastName | nvarchar(100) | Input | Smith |  |
| @DoctorPhoneNumber | nvarchar(100) | Input | 123-456-7890 |  |
| @DoctorAddress | nvarchar(100) | Input | 123 Main St |  |
| @DoctorCity | nvarchar(100) | Input | Seattle |  |
| @DoctorState | nchar(2) | Input | WA |  |
| @DoctorZipCode | nvarchar(100) | Input | 98105 |  |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA |  | Return | 100 | 100 = No error  -100 = General error  -200 = Doctor ID not found |

## Stored Procedure Name: pUpdAppointments

Description: Updates appointment data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @DoctorID | int | Input | 1 |  |
| @AppointmentDateTime | nvarchar(100) | Input | 01/01/20 9:00 |  |
| @AppointmentPatientID | nvarchar(100) | Input | 1 |  |
| @AppointmentDoctorID | nvarchar(100) | Input | 1 |  |
| @AppointmentClinicID | nvarchar(100) | Input | 1 |  |

### Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column Name | Data Type | Type | Example | Notes |
| NA |  | Return | 100 | 100 = No error  -100 = General error  -200 = Appointment ID not found |

## Stored Procedure Name: pDelClinics

Description: Updates clinic data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @ClinicID | int | Input | 1 |  |

### Results

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

## Stored Procedure Name: pDelPatients

Description: Updates patient data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @PatientID | int | Input | 1 |  |

### Results

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

## Stored Procedure Name: pDelDoctors

Description: Updates doctor data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @DoctortID | int | Input | 1 |  |

### Results

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

## Stored Procedure Name: pDelAppointments

Description: Updates appointment data

### Parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter Name | Data Type | Type | Example | Notes |
| @AppointmentID | int | Input | 1 |  |

### Results

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