Objectives (ETL & Script)

(OLTP)+(OLTP) ---> (OLAP)

1). Make the original data in Flat Files Read Only (Preserve Original Data).

2). Create Folders/Files for validation and distributions of data.

3). Copy the all the data from the original CSV files to other CSV files (avoids contamination).

4). Check to see if the New Patient data files exist to validate the emails.

5). Validate the Emails while splitting them into a valid and invalid folder with files.

6). Integrate the validated Patient's information into the Patients (OLTP) database.

7). Merge today's date with time in the visits files for Bellevue, Kirkland, and Redmond CSV files new CSV files and a Newly Created OLAP Data Warehouse.

8). Import the Visits Data directly into the Patients Visits table with Clinic identified NULL's as 0. Handle all NULL values and convert datatypes as needed.

9). Finally, move the data from the Patients tables into the DWCorporateReports (OLAP) Database.

***Please see "VConnSettings" button on the website (Visits Connection Settings).

Problems encountered:

Client column missing on Bellevue CSV file though other CSV files had Client, converted Null's to 0 from using a derived column for distribution into the OLTP database. Email in CSV files needed validating, split files into Valid and In-Valid CSV files using C# Regex. Datatypes in OLTP database were set to money, converted them to decimal. Set up an OLAP Data Warehouse modeling structure with constraints based on the OLTP criteria and converted datatypes as needed.

Created a calculated column in the OLAP database for hours worked and calculated the time values from the OLTP database.

**Procedures**

| | Column Name | Condensed Type | Nullable |
|---|---|---|---|
| 🔑 | ID | int | No |
| | Name | varchar(100) | Yes |
| | [Desc] | varchar(1000) | Yes |
| | Charge | money | Yes |
| | | | |

**Visits**

| | Column Name | Condensed Type | Nullable |
|---|---|---|---|
| 🔑 | ID | int | No |
| | Date | datetime | Yes |
| | Clinic | int | Yes |
| | Patient | int | Yes |
| | Doctor | int | Yes |
| | [Procedure] | int | Yes |
| | Charge | money | Yes |
| | | | |

**Doctors**

| | Column Name | Condensed Type | Nullable |
|---|---|---|---|
| 🔑 | ID | int | No |
| | FName | varchar(28) | Yes |
| | LName | varchar(19) | Yes |
| | | | |

**Clinics**

| | Column Name | Condensed Type | Nullable |
|---|---|---|---|
| 🔑 | ID | int | No |
| | Name | varchar(50) | Yes |
| | Address | varchar(100) | Yes |
| | City | varchar(50) | Yes |
| | | | |

**Patients**

| | Column Name | Condensed Type | Nullable |
|---|---|---|---|
| 🔑 | ID | int | No |
| | FName | varchar(28) | Yes |
| | LName | varchar(29) | Yes |
| | Email | varchar(100) | Yes |
| | Address | varchar(97) | Yes |
| | City | varchar(72) | Yes |
| | State | varchar(50) | Yes |
| | ZipCode | int | Yes |
| | | | |

```sql
1  ⊟select * from [dbo].[Clinics]
2   select * from [dbo].[Doctors]
3   select * from [dbo].[Patients]
4   select * from [dbo].[Procedures]
5   select * from [dbo].[Visits]
```

**Patients Database Tables**

**(Populated)**

100 %  ▾

☐ Results  ☐ Messages

| | ID | Name | Address | City |
|---|---|---|---|---|
| 1 | 100 | Bellevue | 123 Main Street | Bellevue |
| 2 | 200 | Kirkland | 789 Lake Street | Kirkland |
| 3 | 300 | Redmond | 999 Availability Ave | Redmond |

| | ID | FName | LName |
|---|---|---|---|
| 1 | 1 | Robert | Hodges |
| 2 | 2 | Ben | Goldstein |
| 3 | 3 | George | Abercrombie |
| 4 | 4 | Kevin | Mitchell |
| 5 | 5 | Rudolph | Ison |
| 6 | 6 | Elizabeth | Berndt |

| | ID | FName | LName | Email | Address | City | State | ZipCode |
|---|---|---|---|---|---|---|---|---|
| 232 | 232 | John | Amland | JAmland@YayYou.com | 3 Rocky Mountain Ave. | Redmond | WA | 98008 |
| 233 | 233 | Margaret | Miller | MMiller@YayYou.com | 647 Free Street | Bellevue | WA | 98004 |
| 234 | 234 | Lawrence | Cooper | LCooper@WarmMail.com | 538 Plaza | Lynnwood | WA | 98036 |
| 235 | 235 | A. | Liu | ALiu@MyCo.com | 329 Grossmont Center Drive | Lynnwood | WA | 98036 |
| 236 | 236 | Michael | Jacobson | MJacobson@MyCo.com | 761 Mall | Lynnwood | WA | 98036 |
| 237 | 237 | Marjorie | Heaney | MHeaney@YayYou.com | 233 Clearing Green | Lynnwood | WA | 98036 |
| 238 | 238 | Janaina Barreiro Gambaro | Suess | JSuess@WarmMail.com | 535 W Washington Ave Ste D | Lynnwood | WA | 98036 |

| | ID | Name | Desc | Charge |
|---|---|---|---|---|
| 1 | 1 | Brief interview & evalua | Interview and evaluation, described as brief | 188.00 |
| 2 | 2 | Limited interview/evalua | Interview and evaluation, described as limited | 188.00 |
| 3 | 3 | Comprehen interview/eval | Interview and evaluation, described as com... | 188.00 |
| 4 | 4 | Interview & evaluat NEC | Other interview and evaluation | 188.00 |
| 5 | 5 | Interview & evaluat NOS | Diagnostic interview and evaluation, not ot... | 188.00 |
| 6 | 6 | Limited consultation | Consultation, described as limited | 288.00 |
| 7 | 7 | Comprehensive consultattation | Consultation, described as comprehensive | 288.00 |
| 8 | 8 | Consultation NEC | Other consultation | 288.00 |

| | ID | Date | Clinic | Patient | Doctor | Procedure | Charge |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 2005-01-01 09:00:00.000 | 200 | 507 | NULL | 14 | 568.00 |
| 2 | 2 | 2005-01-01 09:00:00.000 | 300 | 130 | NULL | 1 | 188.00 |
| 3 | 3 | 2005-01-01 13:45:00.000 | 200 | 162 | 2 | 31 | 342.00 |
| 4 | 4 | 2005-01-01 14:45:00.000 | 200 | 909 | 2 | 33 | 388.00 |
| 5 | 5 | 2005-01-01 10:45:00.000 | 300 | 310 | 13 | 11 | 438.00 |

**DoctorsSchedules Database**

**(OLTP)**

**Shifts**

| Column Name | Condensed Type | Nullable |
|---|---|---|
| ShiftID | int | No |
| ShiftStart | time(0) | Yes |
| ShiftEnd | time(0) | Yes |
| | | |

**Doctors**

| Column Name | Condensed Type | Nullable |
|---|---|---|
| DoctorID | int | No |
| FirstName | nvarchar(100) | Yes |
| LastName | nvarchar(100) | Yes |
| EmailAddress | nvarchar(100) | Yes |
| Address | nvarchar(100) | Yes |
| City | nvarchar(100) | Yes |
| State | nvarchar(100) | Yes |
| Zip | nvarchar(5) | Yes |
| | | |

**DoctorShifts**

| Column Name | Condensed Type | Nullable |
|---|---|---|
| DoctorsShiftID | int | No |
| ShiftDate | datetime | Yes |
| ClinicID | int | Yes |
| ShiftID | int | Yes |
| DoctorID | int | Yes |
| | | |

**Clinics**

| Column Name | Condensed Type | Nullable |
|---|---|---|
| ClinicID | int | No |
| ClinicName | nvarchar(100) | Yes |
| Address | nvarchar(100) | Yes |
| City | nvarchar(100) | Yes |
| State | nvarchar(100) | Yes |
| Zip | nvarchar(5) | Yes |
| | | |

```sql
1  select * from [dbo].[Clinics]
2  select * from [dbo].[Doctors]
3  select * from [dbo].[DoctorShifts]
4  select * from [dbo].[Shifts]
```

**DoctorsSchedules Database (OLTP)**

100 %

Results | Messages

| | ClinicID | ClinicName | Address | City | State | Zip |
|---|---|---|---|---|---|---|
| 1 | 1 | Bellevue | 123 Main Street | Bellevue | WA | 98004 |
| 2 | 2 | Kirkland | 789 Lake Street | Kirkland | WA | 98033 |
| 3 | 3 | Redmond | 999 Availability Ave | Redmond | WA | 98008 |

| | DoctorID | FirstName | LastName | EmailAddress | Address | City | State | Zip |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | Robert | Hodges | RHodges@WarmMail.com | 268 Green Valley Crescent | Redmond | WA | 98008 |
| 2 | 2 | Ben | Goldstein | BGoldstein@YayYou.com | 987 Mall | Redmond | WA | 98008 |
| 3 | 3 | George | Abercrombie | GAbercrombie@WarmMail.com | 804 W Las Positas Blvd | Lynnwood | WA | 98036 |
| 4 | 4 | Kevin | Mitchell | KMitchell@GSale.com | 908 W Las Positas Blvd | Lynnwood | WA | 98036 |
| 5 | 5 | Rudolph | Ison | RIson@YayYou.com | 881 99354 300 Union Street | Bellevue | WA | 98004 |
| 6 | 6 | Elizabeth | Berndt | EBerndt@WarmMail.com | 877 Box 8259024 | Lynnwood | WA | 98036 |
| 7 | 7 | Michael John | Greer | MGreer@GSale.com | 136 East Main Avenue | Woodnville | WA | 98072 |
| 8 | 8 | Johnny | Kogan | JKogan@WarmMail.com | 983 Three Rivers Drive | Lynnwood | WA | 98036 |
| 9 | 9 | Alan | Frintu | AFrintu@MyCo.com | 374 E St Andrews Pl | Lynnwood | WA | 98036 |
| 10 | 10 | Kelly | Steiner | KSteiner@MyCo.com | 221 E. Newlands Dr | Bellevue | WA | 98004 |
| 11 | 11 | Mihail | Kim | MKim@GSale.com | 44 Kingsbridge Garden Cir... | Lynnwood | WA | 98036 |
| 12 | 12 | Laura | German | LGerman@GSale.com | 988 W. Lake Ave. | Bellevue | WA | 98004 |
| 13 | 13 | Lee | Casts | LCasts@YayYou.com | 616 Beech Ind. | Bellevue | WA | 98004 |

| | DoctorsShiftID | ShiftDate | ClinicID | ShiftID | DoctorID |
|---|---|---|---|---|---|
| 1 | 1 | 2005-01-01 00:00:00.000 | 1 | 1 | 3 |
| 2 | 2 | 2005-01-01 00:00:00.000 | 1 | 2 | 7 |
| 3 | 3 | 2005-01-01 00:00:00.000 | 2 | 1 | 12 |
| 4 | 4 | 2005-01-01 00:00:00.000 | 2 | 2 | 2 |
| 5 | 5 | 2005-01-01 00:00:00.000 | 3 | 1 | 13 |
| 6 | 6 | 2005-01-01 00:00:00.000 | 3 | 2 | 2 |
| 7 | 7 | 2005-01-02 00:00:00.000 | 1 | 1 | 6 |
| 8 | 8 | 2005-01-02 00:00:00.000 | 1 | 2 | 4 |
| 9 | 9 | 2005-01-02 00:00:00.000 | 2 | 1 | 6 |
| 10 | 10 | 2005-01-02 00:00:00.000 | 2 | 2 | 4 |
| 11 | 11 | 2005-01-02 00:00:00.000 | 3 | 1 | 13 |

| | ShiftID | ShiftStart | ShiftEnd |
|---|---|---|---|
| 1 | 1 | 09:00:00 | 05:00:00 |
| 2 | 2 | 01:00:00 | 21:00:00 |
| 3 | 3 | 21:00:00 | 09:00:00 |

**DimDate**

| Column Name | Condensed Type | Nullable |
|---|---|---|
| DateKey | int | No |
| FullDate | datetime | No |
| FullDateName | nvarchar(50) | No |
| MonthID | int | No |
| MonthName | nvarchar(50) | No |
| YearID | int | No |
| YearName | nvarchar(50) | No |

**FactDoctorShift**

| Column Name | Condensed Type | Nullable |
|---|---|---|
| DoctorsShift... | int | No |
| DoctorsShiftID | int | No |
| ShiftDateKey | int | No |
| ClinicKey | int | No |
| ShiftKey | int | No |
| DoctorKey | int | No |
| HoursWorked | decimal(18, 4) | Yes |

**DimDoctor**

| Column Name | Condensed Type | Nullable |
|---|---|---|
| DoctorKey | int | No |
| DoctorID | int | No |
| DoctorFullName | nvarchar(100) | No |
| DoctorEmailAddress | nvarchar(50) | No |
| DoctorAddress | nvarchar(50) | No |
| DoctorCity | nvarchar(50) | No |
| DoctorState | char(2) | No |
| DoctorZip | char(10) | No |

**FactVisit**

| Column Name | Condensed Type | Nullable |
|---|---|---|
| VisitKey | int | No |
| DateKey | int | No |
| ClinicKey | int | No |
| PatientKey | int | No |
| DoctorKey | int | No |
| ProcedureKey | int | No |
| Charge | decimal(18, 4) | No |

**DimClinic**

| Column Name | Condensed Type | Nullable |
|---|---|---|
| ClinicKey | int | No |
| ClinicID | int | No |
| ClinicName | nvarchar(50) | No |
| ClinicAddress | nvarchar(50) | No |
| ClinicCity | nvarchar(50) | No |
| ClinicState | char(2) | No |
| ClinicZip | char(10) | No |

**DimShift**

| Column Name | Condensed Type | Nullable |
|---|---|---|
| ShiftKey | int | No |
| ShiftID | int | No |
| ShiftStart | time(0) | No |
| ShiftEnd | time(0) | No |

**DimPatient**

| Column Name | Condensed Type | Nullable |
|---|---|---|
| PatientKey | int | No |
| PatientID | int | No |
| PatientFullName | varchar(100) | No |
| PatientEmail | varchar(50) | No |
| PatientAddress | varchar(50) | No |
| PatientCity | varchar(50) | No |
| PatientState | char(2) | No |
| PatientZipCode | char(10) | No |

**DimProcedure**

| Column Name | Condensed Type | Nullable |
|---|---|---|
| ProcedureKey | int | No |
| ProcedureID | int | No |
| ProcedureName | varchar(100) | No |
| ProcedureDesc | varchar(1000) | No |
| ProcedureCharge | decimal(18, 4) | No |

DWCorporateReports Database (OLAP)