## **Facility Door Management System:**

## **High-level design diagram:**

Client 1

Client 2

Facility Door Management System (Server)

Door Management

WCF service

Database

### **Application has Two parts.**

* 1. Sever Application: A WCF service which Managed the Doors in particular facility.
  2. Client Application: Communicates with Server and consumes the services provided.

### **Details of Server Application:**

* Exposes Services to Perform operation as per requirements:

public interface IDoorManagementService

{

[OperationContract]

void AddNewDoor(Door newDoor);

[OperationContract]

void RemoveDoor(int doorID);

[OperationContract]

List<Door> GetListOfAvailableDoors();

[OperationContract]

void SaveModificationsToDoors(List<Door> modifiedDoors);

}

* The Server had Database implementation using Entity Framework making the code more well maintainable.

### **Details of Client Application:**

* WPF application consuming the Service hosted.
* Application has options to View, Add, Remove and Control the Doors

### **Scope for Improvements:**

Client:

* We can add Login Option and Verify users for the App usage.
* Access restriction to modify doors can be added on UI based on User type.

Server:

* Data can be made persistent by using Database. Current code is Demo with Temporary data
* Database can be expanded to have Relation Tables once we have Clear Idea of Requirements and System requirements
* Use of entity framework can improve code quality and maintenance.

### **Pre-Requisites:**

1. Install SSCERuntime\_x64-ENU as we have used SQL server Compact.
2. .Net framework 4.6.1 and above
3. Entity framework
4. If Required Install NuGet Packages for ***EntityFramework*** and ***EntityFramework.SqlServerCompact***
5. ***Admin rights. The Application will create Compact Database file at*** C:\\FacilityDoorManagementDataBase.sdf
6. ***Place the Attached or SDF file from repo into C:\\ drive path for initial data***

### **Steps to Use the Application:**

1. **Make sure you the Solutions in Admin mode as it requires hosting the WCF service on IIS**
2. Launch the ***DoorManagementSystem.sln*** And Host the Server / Service using the ***WCFServiceHost*** Console Application.
3. Launch ***DoorManagementClient.sln*** and Run to launch ***FacilityDoorManagementApp*** WPF app client
4. *Perform operations as per requirements.* 
   1. *View Doors : To view all available doors*
   2. *Control Door: To control existing doors*
      1. *NOTE : Once you add and enter values of a Door Please click on Save to update changes to server.*
   3. *Configure Door: To Add or Remove Doors*