## **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]

string AddNewDoor(Door newDoor);

[OperationContract]

string RemoveDoor(string doorID);

[OperationContract]

List<Door> GetListOfAvailableDoors();

[OperationContract]

bool IsDoorOpen(string doorID);

[OperationContract]

bool IsDoorLocked(string doorID);

[OperationContract]

string SetDoorToOpen(string doorID);

[OperationContract]

string SetDoorToClosed(string doorID);

[OperationContract]

string SetDoorToLocked(string doorID);

[OperationContract]

string SetDoorToUnlocked(string doorID);

[OperationContract]

void SaveModificationsToDoors(List<Door> modifiedDoors);

}

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

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

### **Scope for Improvements:**

Client:

* UI can be improved for more user friendliness.
* UI can provide options to choose user type.
* Access restriction to modify doors can be added on UI based on User type.
* We can create / add Tab views for Providing View, Configure and

Server:

* Looping through the doors can be optimized.
* Data can be made persistent by using Database. Current code is Demo with Temporary data
* Operations can be improved if we introduce a real database in place.
* Use of entity framework can improve code quality and maintenance.
* As the System grows and complexity increases as we add more Facilities / Doors into system we can improvise on data handling and Collections part

### **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. *Load Doors : To load all available doors*
   2. *Add Door: To Add a new Door*
      1. *NOTE : Once you add and enter values of a Door Please click on Save to update changes to server.*
      2. *You can also observe server responding with Updated data with ID incremented*
   3. *Remove Door: Click on List item of Door and Then click Remove Door Button*
5. ***Please do read the NOTE: section while doing code walk through for more details.***