**Assignment 01**

**Build a Hotel Management Application with Windows Presentation Foundation (WPF)**

# Introduction

The hotel management application is a software project aimed at optimizing and automating management processes in the hotel industry. This topic includes developing a system to manage core activities such as room, customer, and booking management. The application is designed to offer an efficient solution, reducing labor efforts and enhancing accuracy in information management. This tool is not only beneficial for hotel owners but also contributes to improving the customer experience.

The application has to support adding, viewing, modifying, and removing products—a standardized usage action verbs better known as Create, Read, Update, Delete (CRUD) and Search. This assignment explores creating an application using Windows Presentation Foundation (WPF) with .NET Core, C#, and ADO.NET / Entity Framework Core. The MS SQL Server database will be created to persist the data and it will be used for reading and managing data.

# Assignment Objectives

In this assignment, you will:

* Use the Visual Studio.NET to create Windows Presentation Foundation (WPF) and Class Library (.dll) projects.
* Perform CRUD actions using Entity Framework Core.
* Use LINQ to query and sort data.
* Apply passing data in the WPF application.
* Apply 3-Layers architecture to develop the application.
* Apply MVVM (Model-View ViewModel) pattern in the application.
* Apply Dependency injection (DI) in the application.
* Apply Repository pattern and Singleton pattern in a project.
* Add CRUD and searching actions to the application.
* Apply to validate data type for all fields.
* Run the project and test the WPF application actions.

# Database Design

# 

# Main Functions

# Room Management:

# Adding, deleting, and updating room information.

# Searching for rooms based on criteria such as room type, price, status.

# Customer Management:

# Registering new customer information.

# Updating, deleting, and searching for customer information.

# Booking Management:

# Creating new booking orders.

# Updating or canceling booking orders.

# Calculating and processing payments for bookings.

# Reporting and Analytics:

# Generating reports on booking status and revenue.

# Analyzing customer information and room performance.