



AMERICAN INTERNATIONAL UNIVERSITY–BANGLADESH (AIUB)

Dept. of Computer Science
Faculty of Science and Technology

CSC2210: OBJECT ORIENTED PROGRAMMING 2

Summer 2024-2025

Section: [Q]

Group No: 01

Project Report On

Project Name [Electric Shop Management System/

Supervised By

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Submitted By:

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Obtained Marks for CO2 and CO3 (Description given in the following page)					
Assessment Criteria	Not Attended/ Incorrect (0)	Inadequate (1-2)	Average (3)	Good (4)	Excellent (5)
Evaluation Criteria (CO2)	Total =		Evaluation Criteria (CO3)		Total =
Requirement fulfillment			Organization of the application		
Validation			Representation and Integration of Database		
Verification			Graphical User Interface		

CO2: Display and verify the mean of a real-life Project using the concepts of C# Graphical User Interface based environment with database integration to depict a desktop-based application.

Assessment Criteria	Not Attended/ Incorrect (0)	Inadequate (1-2)	Average (3)	Good (4)	Excellent (5)
Evaluation Criteria	Evaluation Definition				
Requirement fulfillment	Fails to demonstrate any understanding of real-life scenario-based project development or functional requirement identification. There is no attempt to depict a project or identify functional requirements accurately.	Demonstrates limited understanding of real-life scenario-based project development and functional requirement identification. The project depicted lacks coherence or relevance to real-life scenarios, and functional requirements are inaccurately identified or insufficiently described.	Presents a basic depiction of a real-life scenario-based project and identifies some functional requirements. However, the project lacks depth or complexity, and some functional requirements may be vaguely defined or missing key details.	Effectively demonstrates a realistic scenario-based project and accurately identifies most functional requirements. The project is well-developed with appropriate complexity, and functional requirements are clearly articulated with relevant details.	Exhibits an exceptional understanding of real-life scenario-based project development and accurately identifies all functional requirements. The project is meticulously developed with thorough attention to detail, reflecting a comprehensive understanding of Object-Oriented Programming project development activities.
Validation	Fails to demonstrate any understanding or implementation of validation forms in their system. There is no attempt to deal with data validation, and validation requirements are completely ignored or incorrectly applied.	Demonstrates limited understanding of validation forms and data validation techniques. While some attempt may be made to implement validation, it is incomplete or poorly executed, leading to inadequate handling of data validation.	Shows a basic understanding of validation forms and data validation techniques. They attempt to implement validation, but some aspects may be missing or incorrectly implemented, resulting in partial or inconsistent handling of data validation.	Effectively demonstrates the use of validation forms and implements data validation techniques. Validation is mostly accurate and comprehensive, ensuring the proper handling of data input and verification in the system.	Exhibits an exceptional understanding and implementation of validation forms and data validation techniques. Validation is meticulously implemented with thorough attention to detail, ensuring robust data validation procedures and contributing to the overall reliability and integrity of the system.
Verification	Fails to demonstrate any attempt to verify the system data or functional requirements. There is no evidence of understanding or implementation	Demonstrates limited understanding of verification processes and data flow in the system. Verification attempts are incomplete or	Shows a basic understanding of verification processes and attempts to verify system data. However, verification efforts may be inconsistent or	Identifies and verifies system data, ensuring proper functional requirements are met. Verification efforts are mostly accurate and thorough, with attention to	Exhibits an exceptional understanding of verification processes and meticulously verifies system data. Verification efforts are comprehensive

	of verification processes, and data flow is not considered.	inaccurate, and there is insufficient consideration given to ensuring data integrity and functionality.	lack thoroughness, and there may be gaps in ensuring proper functional requirements and data flow.	ensuring data integrity and appropriate data flow within the system.	and precise, with a keen focus on ensuring all functional requirements are met and maintaining proper data flow throughout the system.
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CO3: Prepare and Explain a real life desktop based application synthesizing several component of C# along with development tools to adhere the given requirements.

Assessment Criteria	Not Attended/ Incorrect (0)	Inadequate (1-2)	Average (3)	Good (4)	Excellent (5)
Evaluation Criteria	Evaluation Definition				
Organization of the application	Fails to identify any suitable real time application or requirements for project development activities related to OOP.	Limited understanding about the project scopes and scenarios or identification of functional requirements.	Lacks depth or relevance to OOP project development activities and may contain inaccuracies. Real-life scenarios are mentioned, but the discussion lacks depth or clarity.	Consider and integrate the idea of several core aspects of the project along with relevance to real-life scenarios. Demonstrating a solid understanding of the application presentation.	Generalize and exhibits an exceptional understanding of project preparation according to a to real-life scenarios. Also contains proper and insightful identification of the system which is comprehensive and precise.
Representation and Integration of Database	Fails to identify and present any understanding or implementation of database. Also failed to integrate the data with the project itself.	Limited understanding of the database concepts or their proper way of using in a real time project. While some attempt may be made to implement but it is incomplete or poorly executed, leading to inadequate design.	Lacks depth or relevance to database integration with the application. Shows a basic understanding but some aspects may be missing or incorrectly implemented, resulting in partial or inconsistency. May lack proper normalization.	Integrate the database with the forms properly and implements it with proper validation which is mostly accurate and comprehensive, ensuring the proper handling of data input and verification along with general normalization.	Exhibits an exceptional understanding and implementation of database ensuring attention to detail, and robust data manipulation procedures and contributing to the overall clarity.
Graphical User Interface	Fails to present or prepare GUI based application interfaces. There is no evidence of creating or integrating such things according to their usefulness.	Limited understanding of graphical user interfaces. Lack of design knowledge. Very poor attempt to make such things which are currently obsolete or can't be identified as coherent.	Shows a basic understanding of creating user interfaces. Most of them are interconnected but maybe some of them lack it. However, most of it can be described as user friendly.	Effectively identifies and meet the consider the simplicity. Design related works are mostly accurate and taken proper attention to ensuring a user-friendly coherent system.	Exhibits an exceptional work design following a high standard of simple and elegant work. Several controls and mechanism has been organized in a preferred way according to the coherent usage .

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Introduction:

The Electric Shop Management System is a desktop application designed to automate product inventory, billing, and sales record management for an electric retail shop. The system focuses on internal shop operations without customer sign-up features. It supports two types of users: Administrator, who manages products, stock, users, and reports; and Salesman, who mainly handles sales and stock viewing. By replacing manual processes, the system reduces paperwork, minimizes errors, and ensures accurate, real-time inventory tracking, thereby improving efficiency and reliability.

User Story:

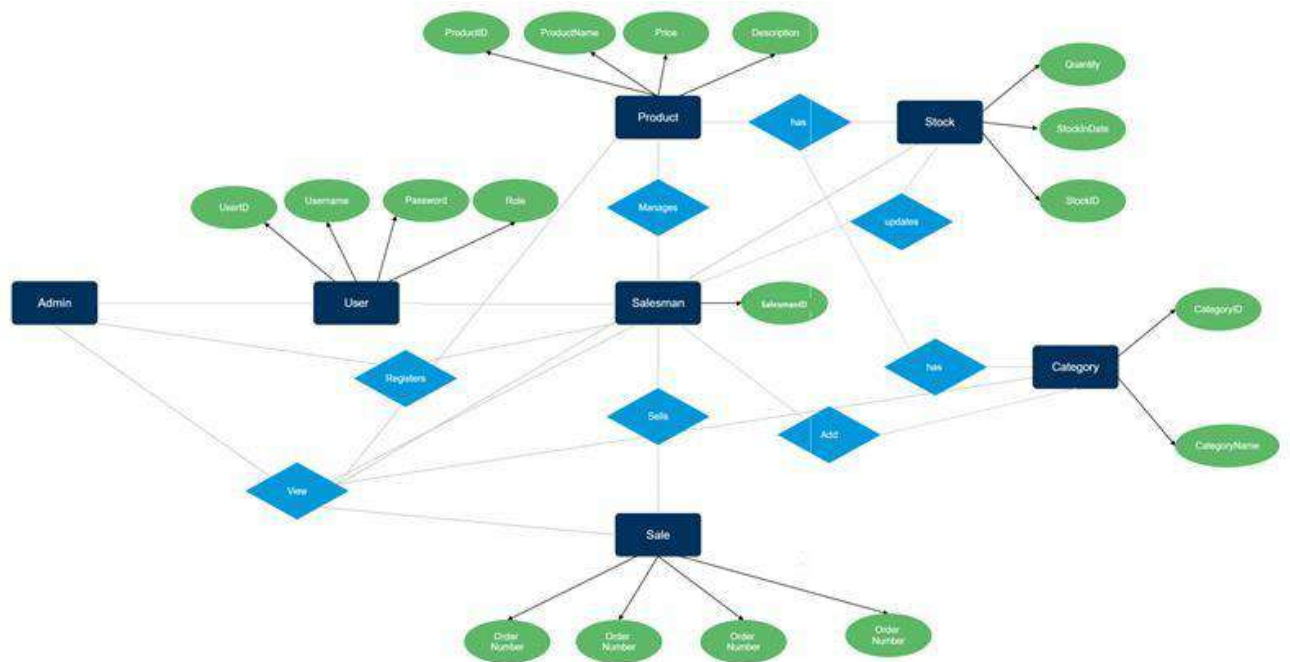
Administrator's Story

The Administrator securely logs in to manage the system. They can add, update, or delete products and categories, manage stock levels, and create user accounts with role assignments. The Administrator also reviews sales records and generates reports to monitor shop performance and support decision-making.

Salesman's Story

The Salesman logs in to handle daily sales. They search products, prepare invoices, and generate bills for customers. After each sale, stock is automatically updated, ensuring accurate inventory. The Salesman can also check product availability instantly, providing reliable service to customers.

ER Diagram:



SQL Queries:

Create Table:

```
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[Categories](
    [CategoryID] [int] NOT NULL,
    [CategoryName] [varchar](100) NOT NULL,
    PRIMARY KEY CLUSTERED
(
    [CategoryID] ASC
)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF,
IGNORE_DUP_KEY = OFF, ALLOW_ROW_LOCKS = ON,
ALLOW_PAGE_LOCKS = ON, OPTIMIZE_FOR_SEQUENTIAL_KEY = OFF) ON
[PRIMARY]
) ON [PRIMARY]
GO
```

```
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[Products](
    [ProductID] [int] NOT NULL,
    [ProductName] [varchar](100) NOT NULL,
    [CategoryID] [int] NOT NULL,
    [Price] [decimal](10, 2) NOT NULL,
    [Description] [varchar](255) NULL,
    PRIMARY KEY CLUSTERED
(
    [ProductID] ASC
)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF,
IGNORE_DUP_KEY = OFF, ALLOW_ROW_LOCKS = ON,
ALLOW_PAGE_LOCKS = ON, OPTIMIZE_FOR_SEQUENTIAL_KEY = OFF) ON
[PRIMARY]
) ON [PRIMARY]
GO
```

```
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[Sales](
    [SaleID] [int] NOT NULL,
    [SaleDate] [date] NOT NULL,
    [CustomerName] [varchar](100) NOT NULL,
    PRIMARY KEY CLUSTERED
(
    [SaleID] ASC
)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF,
IGNORE_DUP_KEY = OFF, ALLOW_ROW_LOCKS = ON,
ALLOW_PAGE_LOCKS = ON, OPTIMIZE_FOR_SEQUENTIAL_KEY = OFF) ON
[PRIMARY]
) ON [PRIMARY]
GO
```

```
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[Stock](
    [StockID] [int] NOT NULL,
    [ProductID] [int] NOT NULL,
    [Quantity] [int] NOT NULL,
    [StockInDate] [date] NOT NULL,
    PRIMARY KEY CLUSTERED
(
    [StockID] ASC
)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF,
IGNORE_DUP_KEY = OFF, ALLOW_ROW_LOCKS = ON,
ALLOW_PAGE_LOCKS = ON, OPTIMIZE_FOR_SEQUENTIAL_KEY = OFF) ON
[PRIMARY]
) ON [PRIMARY]
GO
```

```
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[Users](
    [UserID] [int] NOT NULL,
    [Username] [varchar](50) NOT NULL,
    [Password] [varchar](255) NOT NULL,
    [Role] [varchar](20) NOT NULL,
```


PRIMARY KEY CLUSTERED

```
(  
    [UserID] ASC  
)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF,  
IGNORE_DUP_KEY = OFF, ALLOW_ROW_LOCKS = ON,  
ALLOW_PAGE_LOCKS = ON, OPTIMIZE_FOR_SEQUENTIAL_KEY = OFF) ON  
[PRIMARY]  
) ON [PRIMARY]  
GO
```

Insert Data:

```
INSERT [dbo].[Categories] ([CategoryID], [CategoryName]) VALUES (1, N'Mobile  
Phones')
```

```
INSERT [dbo].[Categories] ([CategoryID], [CategoryName]) VALUES (2, N'Laptops')
```

```
INSERT [dbo].[Categories] ([CategoryID], [CategoryName]) VALUES (3,  
N'Accessories')
```

```
INSERT [dbo].[Sales] ([SaleID], [SaleDate], [CustomerName]) VALUES (1,  
CAST(N'2025-09-11' AS Date), N'Alice Rahman')
```

```
INSERT [dbo].[Sales] ([SaleID], [SaleDate], [CustomerName]) VALUES (2,  
CAST(N'2025-09-12' AS Date), N'Mohammad Hasan')
```

```
INSERT [dbo].[Stock] ([StockID], [ProductID], [Quantity], [StockInDate]) VALUES (1,  
1, 10, CAST(N'2025-09-01' AS Date))
```

```
INSERT [dbo].[Stock] ([StockID], [ProductID], [Quantity], [StockInDate]) VALUES (2,  
2, 5, CAST(N'2025-09-05' AS Date))
```

```
INSERT [dbo].[Stock] ([StockID], [ProductID], [Quantity], [StockInDate]) VALUES (3,  
3, 20, CAST(N'2025-09-10' AS Date))
```

```
INSERT [dbo].[Users] ([UserID], [Username], [Password], [Role]) VALUES (1,  
N'admin', N'admin123', N'Admin')
```

```
INSERT [dbo].[Users] ([UserID], [Username], [Password], [Role]) VALUES (2,  
N'john_smith', N'john123', N'Salesman')
```

```
INSERT [dbo].[Users] ([UserID], [Username], [Password], [Role]) VALUES (3,  
N'sara_khan', N'sara123', N'Salesman')
```

Screenshots :

