SQL Server Database Creation and Management – Set of Actions

Objective:

To apply **database management skills** by creating tables, defining relationships, inserting data, and running queries using **Microsoft SQL Server**.

Actions to Perform:

1. Install Microsoft SQL Server

- **Download and Install SQL Server:**
  - Visit SQL Server Download and download the **Developer edition**.
  - Install **SQL Server Management Studio (SSMS)** by following the on-screen instructions.
  - Launch SSMS and connect to the server using the authentication method chosen during installation.

2. Create a New Database

- Open **SSMS** and connect to the server.
- In **Object Explorer**, right-click on `Databases` → Select `New Database`.
- Enter the **database name**: `YourDatabaseName`.
- Click `OK` to create the database.

3. Design Tables

- In **Object Explorer**, expand the newly created database.
- Right-click on `Tables` → Select `New Table`.
- **Create Table 1:**
  - Add columns with appropriate data types and constraints:
    - `ID` → `INT` → Primary Key
    - `Name` → `VARCHAR(100)`
    - `Description` → `TEXT`
    - `CreatedDate` → `DATE`
  - Save the table as `Items`.
- **Create Table 2:**
  - Add the following columns:
    - `ID` → `INT` → Primary Key
    - `ItemID` → `INT` → Foreign Key (linked to `Items.ID`)
    - `Quantity` → `INT`
    - `Price` → `DECIMAL(10,2)`
  - Save the table as `Inventory`.
- **Create Table 3:**
  - Add the following columns:

        - `ID` → `INT` → Primary Key
        - `InventoryID` → `INT` → Foreign Key (linked to `Inventory.ID`)
        - `TransactionDate` → `DATE`
        - `TotalAmount` → `DECIMAL(10,2)`
    - Save the table as `Transactions`.

4. Define Relationships

- Go to **Database Diagrams** → Right-click → Select `New Database Diagram`.
- Add the three tables you created.
- **Define Relationships:**
    - Link `Items.ID` → `Inventory.ItemID`.
    - Link `Inventory.ID` → `Transactions.InventoryID`.
- Save the diagram.

5. Insert Sample Data

- Insert **at least 5 records** into each table:
- **Items Table:**
    - Add sample products (e.g., Laptop, Mouse, Keyboard).
- **Inventory Table:**
    - Insert quantities and prices for the items.
- **Transactions Table:**
    - Add transaction dates and total amounts.

6. Run Queries

- **Query 1:** Retrieve all items with their quantity and price.
- **Query 2:** Display transactions with total amounts above a specific value.
- **Query 3:** Identify the most recent transaction.
- **Query 4:** Calculate the **total inventory value** by multiplying quantity by price.
- **Query 5:** Find the highest-priced item in the inventory.

Deliverable:

Students should submit the following:

- **SQL Server script file** containing:
    - Database and table creation commands.
    - Sample data insertion statements.
    - Queries.
- **Screenshots** of:

    - Tables with data.
    - Query results.
- **Short explanation** of the queries used and their purpose.

SQL Server Database Activity – Score Sheet

Student Name: _____

Date: _____

Database Title: _____

Score Sheet Criteria

Criteria	Description	Points	Score
Database Creation	Successfully created the database in SQL Server.	10 points	
Table Design	Created all required tables with proper attributes.	30 points	
Relationships Defined	Established correct relationships (primary & foreign keys).	20 points	
Data Insertion	Inserted sample data into each table.	15 points	
Queries Executed	Ran at least 3 valid queries with correct results.	15 points	
Documentation & Screenshots	Submitted screenshots of tables and query results.	10 points	

Total Score: _____ / 100 points

Instructor's Feedback:
