Project ID	**1**
Title	**Importing data and applying constraints module**
Description	This module is responsible for Importing data from .txt file (split the columns and rows with any delimiter entered by the user) and store this data in an XML file after applying some constraints on the data.
Minimum requirements	1) Read data from .txt file and split the columns and rows with any delimiter entered by the user. 2) The user can add some constraints on the data like: ● NOT NULL: Indicate that a certain column should not contain null values. ● Default: Provide a default value for a certain column if no value exists. ● Unique: Indicates that a certain column should contain unique values (no repetition allowed). ● Check: Designed to ensure that all values within a specific column meet a certain condition (example: salary > 500). 3) The system should check the data read from the file against all the constraints and store them in an XML file only if the data satisfies all constraints. If not, an error message is shown to the user with the specific error that occurred.
Bonus	The module can import data also from an excel file.

Project ID	**2**
Title	**Scalar Functions Generation Module**
Description	This module is responsible for generating scalar functions and these functions will be applied on the stored data.
Minimum requirements	1. Set of scalar functions (minimum 5) should be defined in a XML file. 2. For each function define: name, number of arguments with their data type. 3. The expected output is a wizard displayed to the user to specify: a. The table name where the function will be applied to its column/s. b. The Column/s that the function will be applied on. c. The function to be used. (the functions defined in the xml file). d. Finally the results will be shown to the user. 4. These Functions should be executed on a saved tables data. 5. The table data and structure should also be stored in a xml file (i.e. columns names, their datatype and the data itself) te: Scalar function is a function that returns a single value (e.g. assume we have a function “fn” that takes two int arguments and returns the summation of them) te: scalar functions in sql for example: “sum” of a certain column, “Count” of rows in a certain table
Bonus	Adding the creation of in-line table-valued functions (i.e. a function that returns as a result a table not a single value)

Project ID	**3**
Title	**Stored Procedure Module**
Description	This module is responsible for creating stored procedures that takes input parameter and generates an output data from two different XML files.
Minimum requirements	1. Set of different stored procedures (at least 5) should be stored in the application. 2. The expected output is a wizard displayed to the user to specify the input parameters through filling certain fields: a. The table name to apply the stored procedure on. b. The Column/s that the stored procedure will be applied on. c. Finally, the results will be shown to the user. 3. The stored procedure would be applied to the saved data and the results would be shown to the user. 4. The module should allow the relationship between tables (i.e. enforce the user to enter an existing data in the original table). 5. The data stored in the table should be kept in XML files.
Bonus	Create a stored procedure that makes any process on the results of another stored procedure (Nested Stored Procedure)

Project ID	**4**
Title	**Table Creation Module**
Description	This module is intended to simulate the creation of database tables. The module should allow the user to create columns and specify constraints on the table. The project should also enforce the specified constraints.
Minimum requirements	1) **Table creation:** it should allow for the following features: ● Creating a new table. ● Adding/ deleting columns from a table. ● Specifying a primary key for the table. ● Specifying check constraints on certain columns. 2) **Data entry:** it should allow the user to enter data in the table. On data entry the module should check that all constraints are met (example: check that the value entered in the primary key is unique). [Table description as well as the data stored in the table should be kept in XML files]
Bonus	**Foreign Key constraints:** The module should allow for the specification of a relation between tables and it should enforce this relation on data entry (i.e. check that the value of the foreign key exists in the original table)

Project ID	**5**
Title	**Movies Guide module**
Description	In this module you are going to implement a menu-driven program to manipulate XML file that contains movies rating.
Minimum requirements	Develop a user-friendly menu that has five options: 1-Create an XML file for movie rating records: ❖ To create an XML file, you will be given the name of the movie rating file. ❖ Each record consists of 7 fields: ● Movie ID ● Movie Title ● Movie Director ● Movie Year ● Movie Genres (Action-Comedy-horror-…etc.) ● Movie Rating [1-10] ● Movie Poster (store the Poster relative path) 2-Add a movie to the file. 3-Remove/Update a movie by its Title. 4-Search movies in the file: ❖ Search by movie (Title-Year-above or below specific rating) and view all its Info. 5-Joining movie rating records with director name records: ❖ For each record in directors_name file Search for corresponding records in the movie rating file (the records with the same Director_name) merge these records and write them into a new file. **te:** ✓ The application is C# windows form application. ✓ The records must be kept in XML files.
Bonus Opportunity	● **Recommend movies to the user who entered one or more movie genres (the recommended movies must be sorted by rating)** **Note:** ✓ **a movie can have more than one genre (Action | Adventure | Fantasy)**

Project ID	**6**
Title	**Files Search Engine System**
Description	● This project will be like search engine at the end user text files. ● The end user will add his own text files ● The end user will define set of categories he is interested in for example: sports, music, Islamic...etc. ● For every category the end user will define a set of keywords represents every category example sports: football, swimming , basketball …etc ● The end user searches with a specific category then display all files that contain content about any keyword under this category.
Minimum requirements	1. Add new file, where file name, path and categories covered by this file are all saved in XML file 2. Display current files information. 3. Add new category with its keywords in XML file 4. Display the categories covered by a specific file. 5. Display specific category keywords. 6. For specific category, display for every keyword all files that contain it with the line number and for each file display how many times each keyword exists.
Bonus	For a specific category and file name, display to user file content and highlight every keyword.

Project ID	**7**
Title	**RESTURANT**
Description	The restaurant maintains the catalog for the list of food and beverage items that it provides. Apart from providing food facility at their own premises, the restaurant takes orders online through their site. Orders on the phone are also entertained. To deliver the orders, we have delivery boys. Each delivery boy is assigned to the specific area code. The delivery boy cannot deliver outside the area which is not assigned to the delivery boy (for every delivery boy there can be single area assigned to that delivery boy). The customer record is maintained so that premium customer can be awarded discounts.
Minimum requirements	● Customer enter details: ▪ Phone number ▪ Address ▪ List of food, each with 1) ID 2) Quantity ● The program should generate the bill and apply discount if any. ● The order assigned to delivery boy based on the area of order, and available boys. ● Display chart for deliveries in specific area in a specified period ● Display best delivery boy in a specified period, based on number of orders. ● Customers xml file should be generated/updated after each order for customers ▪ If customer first time, then new record added. ▪ If premium customer, then the enter customer_phone should be matched with the already exist record. ▪ Record attributes should be: customer_phone, number of last orders, Total purchased amount, discount if any. ● Delivery file should be manipulated with Area, Code, List of delivery boys' IDs ● Delivery boys file will be existing with all the delivery boys' details (Name, Phone, Assigned Area Code) ● Menu file should be available, each item will have ID, Price, available quantity, discount if found. ▪ ID. ▪ Price

Project ID	**8**
Title	**Querying Module**
Description	This module is intended to select data from an already existing table and display results to the user.
Minimum requirements	1) The expected output is a wizard displayed to the user to specify the query through filling certain fields (example: what table to apply the query on, what fields you need to put conditions on, etc.) 2) The specified query would be applied to the saved data and the results would be shown to the user. 3) Types of queries to be covered: ● Comparison queries (=, !=, >, < , in) ● Aggregate functions (sum, average, etc.) ● Queries using Boolean operators (And, Or) Notes: ● The data stored in the table should be kept in XML files ● The module should accept any file (i.e. it should not be specific for a single table)
Bonus	**SQL Query Processing:** in addition to the wizard the module could accept simple SQL queries, process them and return the result.

Project No.	9
Title	Task Manager
Description	This windows form application is responsible for managing the projects tasks and assign tasks to each employee in project. this project has various small parts like commenting on task, upload and download files, task forwarding editing existing and creating new (project, task, employee, user)

Minimum requirements

1. Every project has some number of tasks and employees. All tasks under a project can only be handled by these employees.
2. A task is assigned to only one employee at a time. Task can be forwarded to other employee of that project.
3. An employee can comment on his task, attach file with task, forward the task to other employee of its project and also can download attachment of his task.
4. There are two types of employee, named Admin and User. Both of the type must be an employee.
5. A user can only comment on his task, attach file with task, forward the task to other employee of its project and also can download attachment of his task.
6. An Admin user has some extra privilege including all privilege of a user.
    A. Admin can create project, edit project information, add / remove employee to a project and can close a project.
    B. Admin can create task, edit task information and close task.
    C. Admin can create employee, edit employee information.
    D. Admin can view project, task , task history
7. All types of user must log in by user ID and password. According to their type there will be different privilege, as discussed

Notes: i. The application is a windows forms application.

ii. The application data should be kept in XML files.

Bonus Opportunities	Add the option to generate report (Crystal Report) for each project including the project (name, tasks with its information and assigned employees)

Project Title	**10 Real-Estate Management System**
Responsible by	
Description	A Real-Estate company has many tasks to do, both for its clients and for its generic announcements. Such companies now handle their customers manually, by phone or face-to-face. Another smart solution for such a company is to develop a system that handles all its tasks.
Required XML Files	1-Flats (FlatID, CustomerID, EmpID, FlatDesc, Price, FlatLocation, FlatStatus" rental or sell", Customer-Reviews). 2- Customers (CustomerID, CustomerName, Address, phoneNO) 3- Employee (EmpID, No-AssignedFlats, Rate"0-10") 5-Admin(ID, Name)

Minimum requirements	The system functionalities are: · Admin can do: 1-Update and delete information about Customers, flats and employees. 3-Distribute flats to the employees (each employee can be responsible for 5 flats at the same time) 4-Unassigned employee from the flat after the sell or the rental. · Employee can do: 1- View all assigned flats. 2-Update the description of the flats. 3-Check case status and update any important info as and when needed. 4- View all information about involved people in the past crimes (the crimes of the same types or in the same area).1 · Customer can do: 1-add an ads for his own flat. 2-View all available flats. 3-add specific flats in favorite list/ view the favorite list. 4-confirm buying or rental the flat. 5-Rate the employee. 6-Add a review to a specific the flat/ view all reviews to a specific flat. · System should do 1-Based on the location of the customer the system will recommend flats by the location. 2- Admin and Officer sign in with name and ID.
Bonus	The system include a financial section that calculates – for example – the company's commission after selling a flat/house, and generates invoices.