Westminster International University in Tashkent (WIUT) has employed you to develop Students Records System to support students’ academic progress tracking. Your current task is to implement module history management.

You are given an MS Access file with module database of the university. tb\_Module table contains the following information about the modules:

* Id – unique identifier of the record
* ModuleCode – code of the module
* ModuleName – name of the module
* ModuleYear – the year of the module run stored as a number (e.g. 2013 for 2013-2014 academic year)
* ModuleType– reference to module type table, see below

tb\_ModuleType table contains types of modules and has the following structure:

* Id – unique identifier of the record
* ModuleTypeName– name of the module type

Your task is to develop a C# application with the following functionality:

1. Show module information – the application should load data about the modules stored in the database and display it in appropriate controls. **[15 marks]**
2. Add new module – the application should provide set of controls to add information on new module. **[15 marks]**
3. Update existing module information – the application should allow editing existing information. Additional points will be given for validation of the information entered (e.g. empty name or code, invalid year etc.) **[15 marks]**
4. Delete records – the application should allow deletion of records. **[15 marks]**
5. Persist changes – the user should be able to save changes to the database. Additionally whenthe user closes the application, you should check if there are any pending changes and prompt user if he/she wants to save it. **[15 marks]**
6. Navigation – user should be able to navigate through records sequentially (next, forward, first, last). The application should not allow illegal navigation i.e. going before the first record or after the last one **[10 marks]**
7. Search/filter – the application should allow searching through records e.g. by module name **[10 marks]**

Note: you should explain the code you produce with comments. Give your variables meaningful names. Naming of variables and thoroughness of comments will be assessed. **[5 marks]**

|  |
| --- |
| CW Assessment Criteria |

|  |  |
| --- | --- |
| Component | Weight (marks) |
| Comments are present, variables are named correctly | 5 |
|  |  |
| **Show all modules** | **15** |
| Application compiles without errors | 5 |
| Data is loaded on application startup | 10 |
|  |  |
| **Add new module** | **15** |
| Separate set of controls is present | 2 |
| User input is validated | 3 |
| User input is grabbed from the controls and saved to in-memory dataset | 5 |
| Combobox for related table is present and functioning | 5 |
|  |  |
| **Update existing modules information** | **15** |
| Data binding is set up correctly | 5 |
| Validation is implemented | 5 |
| Combobox for related table is present and functioning | 5 |
|  |  |
| **Delete records** | **15** |
| Confirmation dialog is shown before deletion | 5 |
| Currently selected record can be deleted | 10 |
|  |  |
| **Persist changes** | **15** |
| Persistence logic is present and correct | 10 |
| Save of pending changes on exit | 5 |
|  |  |
| **Navigation** | **10** |
| First, last, next, previous buttons are present and working | 5 |
| Navigation problems are handled or prevented | 5 |
|  |  |
| **Search/filter** | **10** |
| User can filter data displayed | 10 |