



Internship Program

Objective:

- Introduce the interns to new technologies (JavaScript, HTML5, CSS, Bootstrap, AngularJs, C# and MSSQL).
- Develop interns' analytic and problem-solving skills.
- Help interns develop newly acquired skills using challenging tasks and very a compact program.
- Introduce the interns to layering architecture with its benefits and implementation.
- Use all acquired skills and knowledge to transform real requirements into a fully functional product.

Program:

❖ Install VS 2022 and MS SQL Server 2014

❖ First Phase:

➤ Objective: Implement a full stack flow.

- First Task:
 - Develop a grid with a search and add button using **Javascript**.
 - ◆ On the **search button press**, the grid data must be filtered according to the contents of the search textbox. (Filter on button press not while typing)
 - ◆ On the add button press, the input textbox content must be appended to the grid.
 - ◆ First Page is the Devices Page: ID (int), Name (text).
- Second Task:
 - Get familiar with CSS3
 - ◆ Implement styles on your page.
 - Get familiar with Bootstrap
 - Get familiar with **AngularJs 1.4.8**
 - ◆ Develop all the requirements with AngularJs instead of JS.
 - ◆ Use UI-Bootstrap to implement a modal on the add button press. (The latest version that is compatible with **Angular JS 1.4.8**)
 - ◆ Develop an Edit button that will use the same modal.
- Third Task:
 - Get familiar with ASP.Net and C# (**.NET Framework 4.7.2, MVC project with WebAPI**)
 - ◆ Get familiar with static members.
 - ◆ Distinguish between MVC controllers and API controllers.
 - Get familiar with REST API.
 - ◆ Store Static Data at the server side level.
 - ◆ Get familiar with \$http.
 - ◆ Develop an ApiController layer that will implement a GetAllDevices Method.
- Fourth Task:
 - Develop the GetFilteredDevices Method using HTTP get.
 - Develop the remaining API methods (AddDevice and UpdateDevice).
- Fifth Task:
 - Create the Device Table on the database.
 - Establish connection with the database at the server side level.
 - Develop the get, add, and update methods as inline SQL queries. (ADO .net)
 - Get Familiar with delegates, Func, and params. (C#)
 - Develop Stored Procedures

❖ Second Phase:

➤ Objective: Develop all the project data entry pages.

- First Task:
 - Develop the Client page (ID, Name, Type, BirthDate).
 - ◆ Type is a 2 valued enum (Individual, Organization).
 - ◆ BirthDate (Nullable Date Time) appears only in case of Individual Client.
 - ◆ The page will have a Name filter and Type filter (selector).
- Second Task:
 - Develop the Phone Number Page (ID, Number, Device)
 - ◆ The page will have a Number filter, a Device filter (selector).
- Third Task:
 - Get familiar with directives.
 - ◆ Know that a directive is used to design reusable custom html components.
 - ◆ Develop a client Type and device selectors using directive.
 - ◆ Selector shall have getData function to get the selected ID/s.
 - ◆ Use these directives in the previously implemented pages, (client type filter, in the client editor the client type selector will be using the directive, in the phone numbers page the device filter will be using the device selector directive, also in the editor).
- Fourth Task:
 - Develop the Phone Number Reservation Page (ID, Client, PhoneNumber, BED, EED).
 - ◆ Develop Phone Number Selector Directive.
 - ◆ BED is Date. (Begin Effective Date / from)
 - ◆ EED is nullable Date (null value meaning no end date) (End Effective Date / to).
 - ◆ The page will have a Client filter (selector) and a PhoneNumber filter (selector).
 - ◆ This page will not have an Add button, nor the records will have an edit button.
- Fifth Task:
 - Manage the clients phone number reservation.
 - ◆ Each client will have an action of reserve phone number and/or unreserve phone number (unreserve only if client has active phone number reservation).
 - ◆ Phone number reservation is effective (active) in a specific date x iff $x > BED$ and $(x < EED \mid \mid EED \text{ is null})$
 - ◆ When pressing reserve, the editor modal will only contain a phone number selector, when pressing save, a record will be added to the PhoneNumberReservation table in DB, with ClientID = ID of the client the action was done on, PhoneNumberID, BED = DateTime.Now and EED as null)
 - ◆ When pressing the unreserve button, the editor modal will only contain a phone number selector containing the phone numbers reserved by the client, when pressing yes, the system will get the effective phone number reservation of the client and set the EED as DateTime.Now.

❖ Third Phase:

➤ Objective: Develop the reports pages.

- First Task:
 - Create the first report page
 - ◆ The first report is the number of clients per type
 - The page will have a type selector to filter.
 - The grid will display the 2 columns: Type, No of Clients.
- Second Task:
 - Develop the Number of Reserved/Unreserved Phone Numbers per device report.
 - ◆ The report will have a device filter and a Phone Number Status filter (the status is reserved or unreserved, it will be determined by a query if there is an effective reservation on this phone number => reserved and vice versa).
 - ◆ The report will have 3 columns: Device, Phone Numbers Status and # of phone Numbers.

Fourth Phase:

➤ Objective: Optimize and present the finalized product.

- First Task:
 - Develop a Login page.
 - ◆ The login page will have a username and password fields.
 - ◆ The username and password are to be defined on database level.
 - ◆ Encrypt passwords
- Second Task:
 - Add validation on all inputs (required fields, age > 18 etc.).
- Third Task:
 - Add response messages on all actions (on add, update and delete)
 - ◆ In case of a failed operation, the message must show the reason.
- Fourth Task:
 - Finish any pending features.
 - Optimize all the developed pages.
 - Test all the product.
 - ◆ Prepare real data for testing real case scenarios.
 - ◆ Review all the requirements to check for missing features.
- Fifth Task:
 - Review all the work.
 - **Prepare a report for the internship.**

❖ Extra Tasks:

- Drill down
- Promises
- Loader