**Project plan, design and implementation**

**Database**  
As we know the scope of the application and DB schema is already explained, then let’s start with DB design

* First Create the Database and then tables in SQL Server
* I have used SSMS tool for creating and database and tables and attached the script at   
  "~\Assignment\Database Scripts\1. Create DB and Tables.sql"
* Then inserted the data into both tables. Script at   
  "~\Assignment\Database Scripts\2. Insert Script for Universities.sql"  
  "~\Assignment\Database Scripts\3. Insert Script for Courses.sql"
* **Database Script:** “~\Assignment\Database Scripts”

**Backend API**  
Now the Database is ready with sample data. Now write APIs to Get the data based on filter on search page (at frontend). Here I have used ASP.NET Web API to develop the RESTful API for fetching the data based on the search criteria

* Courses API will return the data based on the search criteria and all business requirement is mentioned at "~\Assignment\Sr.SE-ASP.Net-Take\_Home\_Assignment.docx"
* Countries API will return the unique country names from universities table to bind data to countries dropdown list
* **Backend Code:** "~\Assignment\University\University.sln"
* **Note:** We have not implemented the authentication as it is not a part of requirement

**Frontend React Application**  
Now we can design the frontend application, for user interaction purpose. This application is developed in ReactJS

* I have created the react application using **create react app** command and application is at  
  “~\Assignment\University.FrontendApp\university”
* Here I have created two components. First is for searching (or filter) and another one is to display the data based on search
* I have used “semantic-ui-react” library for input controls and easy design
* In Search component we have 5 fields/components. They are **GPA** (only numeric and required), **GRE** (only numeric and required), **Country** (required and select only one at a time), **Courses** (supports fizzy search or contains search. Not mandatory field) and **Search** button
* When user clicks on the Search button, then onclick event calls API using fetch function and returns the data. I am maintaining these data in state variable
* Then for displaying the data, I am using Table component form “semantic-ui-react”
* Also, implemented unit testing using jest framework
* Config.js file in src folder is to replace the backend API URL. In my case it is localhost url and it should be changed as per your needs
* **Front Code:** “~\Assignment\University.FrontendApp\university”