**Implementing the Client-Side logic**

We will use Angular.js and Bootstrap for client-side logic and UI design respectively. We will also make use of HTML 5 **sessionStorage** object to maintain the Token on the client-side. To install angular and bootstrap, we will use NuGet Package manager.

**Step 1:**Right click on the project and select **Manage NuGet Packages..**option. This will open the NuGet Package manager window. Search for Angular.js and Bootstrap from this window. Alternatively, execute the following commands from Tools > NuGet Package Manager > Package Manager Console:

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| Install-Package angularjs    Install-Package bootstrap -Version 3.3.5 |

This will add Scripts folder in the project with required Angular.js, jQuery and Bootstrap scripts.

**Step 2:**In the Scripts folder, add a new folder of name **MyScripts.**In this folder we will add scripts for our client-side logic.

Module.js

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| var app;    app = angular.module('appmodule',[]); |

This is an Angular module of name ‘appmodule’.

LoginLogic.js

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| --- |
| //1.  app.service('loginservice', function ($http) {        this.register = function (userInfo) {          var resp = $http({              url: "/api/Account/Register",              method: "POST",              data: userInfo,          });          return resp;      };        this.login = function (userlogin) {            var resp = $http({              url: "/TOKEN",              method: "POST",              data: $.param({ grant\_type: 'password', username: userlogin.username, password: userlogin.password }),              headers: { 'Content-Type': 'application/x-www-form-urlencoded' },          });          return resp;      };  });  //2.  app.controller('logincontroller', function ($scope, loginservice) {        //Scope Declaration      $scope.responseData = "";        $scope.userName = "";        $scope.userRegistrationEmail = "";      $scope.userRegistrationPassword = "";      $scope.userRegistrationConfirmPassword = "";        $scope.userLoginEmail = "";      $scope.userLoginPassword = "";        $scope.accessToken = "";      $scope.refreshToken = "";      //Ends Here        //Function to register user      $scope.registerUser = function () {            $scope.responseData = "";            //The User Registration Information          var userRegistrationInfo = {              Email: $scope.userRegistrationEmail,              Password: $scope.userRegistrationPassword,              ConfirmPassword: $scope.userRegistrationConfirmPassword          };            var promiseregister = loginservice.register(userRegistrationInfo);            promiseregister.then(function (resp) {              $scope.responseData = "User is Successfully";              $scope.userRegistrationEmail="";              $scope.userRegistrationPassword="";              $scope.userRegistrationConfirmPassword="";          }, function (err) {              $scope.responseData="Error " + err.status;          });      };          $scope.redirect = function () {          window.location.href = '/Employee/Index';      };        //Function to Login. This will generate Token      $scope.login = function () {          //This is the information to pass for token based authentication          var userLogin = {              grant\_type: 'password',              username: $scope.userLoginEmail,              password: $scope.userLoginPassword          };            var promiselogin = loginservice.login(userLogin);            promiselogin.then(function (resp) {                $scope.userName = resp.data.userName;              //Store the token information in the SessionStorage              //So that it can be accessed for other views              sessionStorage.setItem('userName', resp.data.userName);              sessionStorage.setItem('accessToken', resp.data.access\_token);              sessionStorage.setItem('refreshToken', resp.data.refresh\_token);              window.location.href = '/Employee/Index';          }, function (err) {                $scope.responseData="Error " + err.status;          });        };  }); |

The above JavaScript logic is the center for our complete application. This contains the following specifications:

1. The **logicservice** is an Angular.js service. This service contains the following functions:

a. register() calls the **Account** Web API and its **Register**action method. This is the POST call to register new application user based on **userInfo**passed to it.

b. login() calls **/TOKEN**url and passes the user information. This return the **access\_token**when the call is complete. Here it uses **grant\_type**as password to get the access token using password grant when the user logs in.

2. The **logincontroller** is the angular controller used to define scope objects with data-binding. This has the following specifications:

a. Defines scope declarations for user registration information like Email, Password, confirm password along with LoginEmail and LoginPassword which will be used during the login process. This also defines scope objects for Access token and refresh token.

b. The **registerUser()**function contains logic for user registration. This defines userRegistrationInfo object which will be passed to the **register ()**function of the **loginservice.**

c. The **login()**function is used to call **login()**function of the **loginservice.**This passes the **userLogin**object containing LoginEmail, LoginPassword and grant\_type as password to the login() function. Once the call is successfully completed, the access token will be returned which will be stored in the **sessionStorage** along with the user name on the client side. This is the HTML 5 API used to store data on the client side till the session is active. Once the token is generated, the Employee details is displayed by transferring control to the Index view of the Employee controller.

**EmpService.js**

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| //1.  app.service('empservice', function ($http) {      this.get = function () {            var accesstoken = sessionStorage.getItem('accessToken');            var authHeaders = {};          if (accesstoken) {              authHeaders.Authorization = 'Bearer ' + accesstoken;          }            var response = $http({              url: "/api/EmployeeAPI",              method: "GET",              headers: authHeaders          });          return response;      };  }); |

This is the Angular service. This contains the **get ()**function which reads the access token from the sessionStorage. This token is passed in the request header to the EmployeeAPI service using the Authorization header of the $http. This means that the call to the Web API are secure based on the Token based authentication.

**EmployeeController.js**

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| //1.  app.controller('emplcontroller', function ($scope, empservice) {      $scope.Employees = [];        $scope.Message = "";      $scope.userName = sessionStorage.getItem('userName');          loadEmployees();        function loadEmployees() {              var promise = empservice.get();          promise.then(function (resp) {              $scope.Employees = resp.data;              $scope.Message = "Call Completed Successfully";          }, function (err) {              $scope.Message = "Error!!! " + err.status          });      };      $scope.logout = function () {            sessionStorage.removeItem('accessToken');          window.location.href = '/Login/SecurityInfo';      };  }); |

The above code is for the angular controller. This makes call to the **get ()**function of the **empservice**. The controller has the **loadEmployees ()**function which displays all employees received when the call is successfully completed. The controller reads the current login user name from the sessionStorage and displays it on View. The **logout ()**function removes the access token from the sessionStorage and the control is transferred to the login page.

**Step 3:**Open Index.cshtml of the Employees sub-folder of the View folder and add the following markup in it:

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| --- |
| <html ng-app="appmodule">  <head>      <link href="~/Content/bootstrap.min.css" rel="stylesheet" />  </head>  <body ng-controller="emplcontroller">      <h1>Employee Information</h1>        <h2>          <span>{{userName}}</span>          <input type="button" class="btn" value="logoff" ng-click="logout()"/>      </h2>        <table class="table table-striped table-striped table-bordered">          <thead>              <tr>                  <th>EmpNo</th>                  <th>EmpName</th>                  <th>Salary</th>                  <th>DeptName</th>              </tr>          </thead>          <tbody>              <tr ng-repeat="Emp in Employees">                  <td>                      <span>{{Emp.EmpNo}}</span>                  </td>                  <td>                      <span>{{Emp.EmpName}}</span>                  </td>                  <td>                      <span>{{Emp.Salary}}</span>                  </td>                  <td>                      <span>{{Emp.DeptName}}</span>                  </td>              </tr>          </tbody>      </table>      <div><span>{{Message}}</span></div>      <a href="http://~/Scripts/jquery-2.1.4.min.js" rel="nofollow" target="\_blank">http://~/Scripts/jquery-2.1.4.min.js</a>      <a href="http://~/Scripts/bootstrap.min.js" rel="nofollow" target="\_blank">http://~/Scripts/bootstrap.min.js</a>      <a href="http://~/Scripts/angular.min.js" rel="nofollow" target="\_blank">http://~/Scripts/angular.min.js</a>      <a href="http://~/Scripts/MyScripts/Module.js" rel="nofollow" target="\_blank">http://~/Scripts/MyScripts/Module.js</a>      <a href="http://~/Scripts/MyScripts/EmpService.js" rel="nofollow" target="\_blank">http://~/Scripts/MyScripts/EmpService.js</a>      <a href="http://~/Scripts/MyScripts/EmployeeController.js" rel="nofollow" target="\_blank">http://~/Scripts/MyScripts/EmployeeController.js</a>    </body>  </html> |

The above markup loads the angular module, EmpService and EmployeeController to display Employees received from the Web API.

Open SecuirtyInfo.cshtml from the Login Sub-folder of the Views folder and add the following markup:

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| <html ng-app="appmodule">  <head>      <link href="~/Content/bootstrap.min.css" rel="stylesheet" />  </head>  <body ng-controller="logincontroller">      <h1>The Security Information View</h1>      <table class="table table-bordered table-striped table-condensed">          <tr>              <td>                  <table class="table table-bordered table-striped table-condensed">                      <tr>                          <td>Email:</td>                          <td>                              <input type="text" class="form-control"                                    ng-model="userRegistrationEmail" />                          </td>                      </tr>                      <tr>                          <td>Password:</td>                          <td>                              <input type="password" class="form-control"                                     ng-model="userRegistrationPassword" />                          </td>                      </tr>                      <tr>                          <td>Confirm Password:</td>                          <td>                              <input type="password" class="form-control"                                     ng-model="userRegistrationConfirmPassword" />                          </td>                      </tr>                      <tr>                          <td></td>                          <td>                              <input type="button" value="Register"                                     class="form-control btn btn-success"                                     ng-click="registerUser()" />                          </td>                      </tr>                  </table>              </td>              <td></td>              <td></td>              <td>                  <table class="table table-bordered table-striped table-condensed">                      <tr>                          <td>Email:</td>                          <td>                              <input type="text" class="form-control"                                     ng-model="userLoginEmail" />                          </td>                      </tr>                      <tr>                          <td>Password:</td>                          <td>                              <input type="password"                                     class="form-control"                                     ng-model="userLoginPassword" />                          </td>                      </tr>                      <tr>                          <td></td>                          <td></td>                      </tr>                      <tr>                          <td></td>                          <td>                              <input type="button" value="Login" class="form-control btn btn-success"                                     ng-click="login()" />                          </td>                      </tr>                  </table>              </td>          </tr>      </table>        <div> </div>        <a href="http://~/Scripts/jquery-2.1.4.min.js" rel="nofollow" target="\_blank">http://~/Scripts/jquery-2.1.4.min.js</a>      <a href="http://~/Scripts/bootstrap.min.js" rel="nofollow" target="\_blank">http://~/Scripts/bootstrap.min.js</a>      <a href="http://~/Scripts/angular.min.js" rel="nofollow" target="\_blank">http://~/Scripts/angular.min.js</a>      <a href="http://~/Scripts/MyScripts/Module.js" rel="nofollow" target="\_blank">http://~/Scripts/MyScripts/Module.js</a>      <a href="http://~/Scripts/MyScripts/LoginLogic.js" rel="nofollow" target="\_blank">http://~/Scripts/MyScripts/LoginLogic.js</a>  </body>  </html> |

The above markup loads the angular module, LoginLogic JavaScript files. The markup contains data-binding based on the scope defined in the logincontroller.