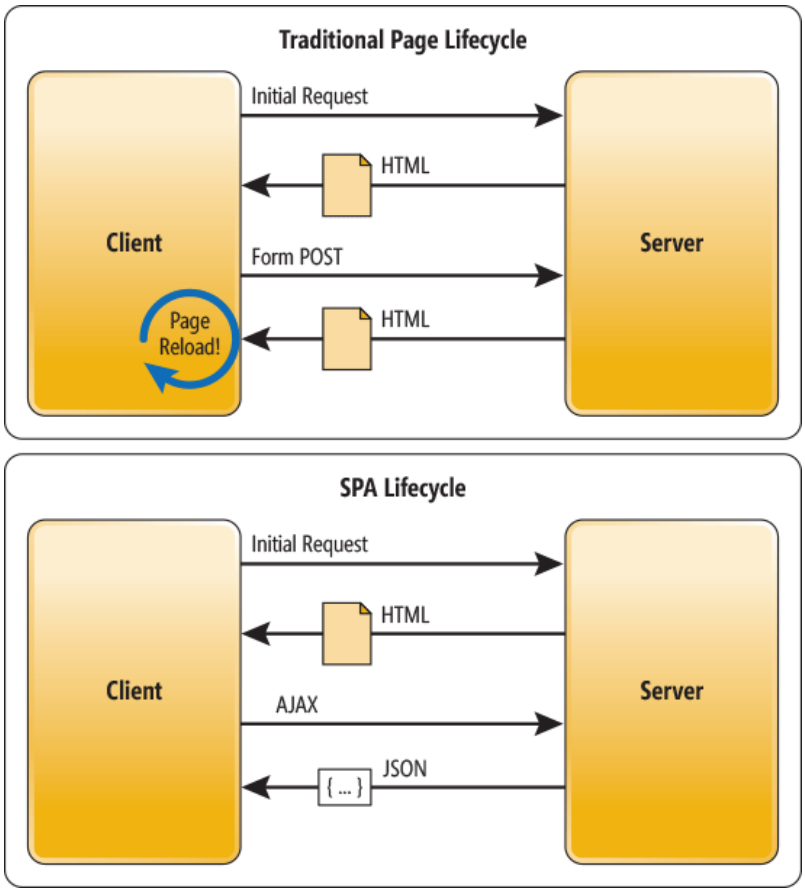
Agenda: SPA and Routing

- What is Single Page Application
- Creating SPA Application using AngularJS routing.

What is Single Page Application (SPA)

- A single-page application (SPA), is a web application or web site that fits on a single web page with the goal of providing a more fluid user experience which is like a desktop or native app like application.
- In a SPA, either all necessary code i.e. HTML, JavaScript, and CSS is retrieved with a single trip to server or based on user action, appropriate resources are dynamically loaded and added to the page.
- The page does not reload at any point in the process, nor does control transfer to another page.
- Interaction with the single page application often involves dynamic communication with the web server behind the scenes using JavaScript and AJAX.



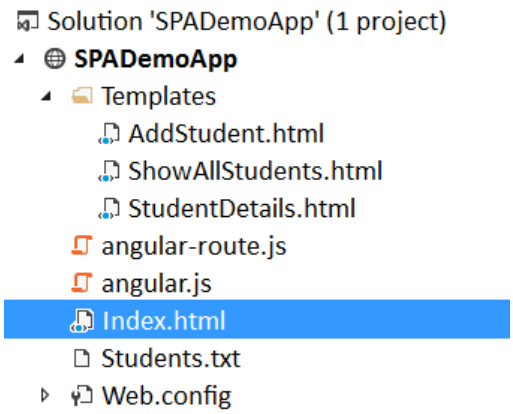
SPA using AngularJS

- As we add more and more logic to an app, it grows and soon become difficult to manage. Dividing it in Views and using Routing to load different part of app helps in logically dividing the app and making it more manageable.

- To build an SPA using AngularJS which requires us to create a layout template that has multiple views by adding routing, using an Angular module called **'ngRoute'**.
- Application routes in Angular are declared via the **$routeProvider**, which is the provider of the **$route** service. This service makes it easy to wire together controllers, view templates, and the current URL location in the browser. Using this feature we can implement deep linking, which lets us utilize the browser's history (back and forward navigation) and bookmarks.
- If required for each view we can have different controller or all the views can share a common controller.

Example:

1. Download angular-route.js
2. Create Directory structure as below



3. Edit Index.html

```
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
  <title></title>
  <script src="angular.js"></script>
  <script src="angular-route.js"></script>
</head>
<body ng-app="mainApp" ng-controller="StudentController">
  <a href="#AddStudent">Add Student</a>
  <a href="#ShowAllStudents">Student All Students</a>
  <hr />
    <ng-view></ng-view>
  <hr />
  Copyright Sandeep Soni...
  <script>
```

```
var mainApp = angular.module("mainApp", ['ngRoute']);

mainApp.config(['$routeProvider', function ($routeProvider) {
   $routeProvider
      .when('/StudentDetails/:RollNo/:Name', { templateUrl: 'templates/StudentDetails.html', controller:
'StudentController', header:'Student Details' })
      .when('/AddStudent', { templateUrl: 'templates/AddStudent.html', controller: 'StudentController',
header: 'Add Student' })
      .when('/ShowAllStudents', { templateUrl: 'templates/ShowAllStudents.html', controller:
'StudentController', header: 'All Students' })
      .otherwise({ redirectTo: '/ShowAllStudents' })
}])

mainApp.service("StudentService", function ($q, $http) {
   this.getAllStudents = function () {
      var deferred = $q.defer();
      $http.get("Students.txt")
         .success(function (data) { deferred.resolve(data) })
         .error(function (msg) { deferred.reject(msg) })
      return deferred.promise;
   }
})

mainApp.controller("StudentController", function ($scope, $routeParams,$route, $location,
StudentService) {
   $scope.SelectedStudentRollNo = $routeParams.RollNo
   $scope.SelectedStudentName = $routeParams.Name

   $scope.$on('$routeChangeSuccess', function (event, current, next) {
      $scope.header = $route.current.header
   })

   $scope.students = [];
   $scope.notification = "";
   var promise = StudentService.getAllStudents();
   promise.then(function (studs) { $scope.students = studs }, function (msg) { $scope.notification = msg })
```

```
        $scope.SaveStudent = function () {
            alert('student details are saved');
            $location.path('#ShowAllStudents')
        }
    })
  </script>
</body>
</html>
```

4. Edit ShowAllStudents.html

```
<b>{{header}}</b> <br />
<table>
  <tr>
    <th>RollNo</th>
    <th>Name</th>
    <th>Marks</th>
  </tr>
  <tr ng-repeat="stud in students">
    <td>{{stud.RollNo}}</td>
    <td>{{stud.Name}}</td>
    <td>{{stud.Marks}}</td>
    <td><a href="#StudentDetails/{{stud.RollNo}}/{{stud.Name}}">Details</a></td>
  </tr>
</table>
```

5. Edit AddStudent.html

```
<b>{{header}}</b> <br />
Name: <input type="text" name="name" value=" " /><br />
Roll No: <input type="text" name="rollno" value=" " /><br />
Marks: <input type="text" name="marks" value=" " /><br />
<br />
<a href="" ng-click="SaveStudent()" value="Save">Save</a>
<a href="#ShowAllStudents">Cancel</a>
```

6. Edit StudentDetails.html

```
<b>{{header}}</b> <br />
Following are the details of the student: <br />
Roll No: {{ SelectedStudentRollNo }} <br />
Name: {{SelectedStudentName}}
<br />
<a href="#ShowAllStudents">Back</a>
```