20CS2056L Web Technology Lab

Exercise 8

Web Application Development using Angular JS Framework

Objective:
> To develop website using HTML, CSS and Angular JS client side Model View Controller Framework. AngularJS is an open source JavaScript framework developed and maintained by Google. It implements the MVC (Model View Controller) pattern to separate data, presentation and logical components.

Description

AngularJS Architecture
> AngularJS is a Single Page Application (SPA) meta-framework. Angular JS follows the MVC architecture. MVC stands for Model-View-Controller evolved as a way to separate data, logical units and presentation in web application development.

- The model is the driving force of the application. This is generally the data behind the application, usually fetched from the server.
- The view is the UI that the user sees and interacts with. It is dynamic, and generated based on the current model of the application.
- The controller is the business logic and presentation layer, which performs actions such as fetching data and makes decisions such as how to present the model, which parts of it to display, etc.

AngularJS Extends HTML
- AngularJS extends HTML with ng-directives.
    - The ng-app
        - directive defines an AngularJS application
    - The ng-init
        - directive used to create initial value(model) for the angular JS application.
    - The ng-model
        - directive binds the value of HTML controls (input, select, textarea) to application data.
    - The ng-bind
        - directive binds application data to the HTML view

How to integrate AngularJS in HTML

```html
<!DOCTYPE html>
<html lang="en">
  <head>
    <script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
    <script>
      var app = angular.module("myApp", []);
      app.controller("control", function ($scope) {
          //logic
      });
    </script>
  </head>
  <body ng-app="myApp" ng-controller="control">

  </body>
```

```
</html>
```

Other directives
- ng-click
  - used to trigger Angular JS function when the button is clicked
- ng-repeat
  - used to repeat the view data. Example; used for generating table rows, list items, etc

Example Program

```html
<!DOCTYPE html>
<html lang="en">
  <head>
    <script
src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min
.js"></script>
    <script>
      var app = angular.module("myApp", []);
      app.controller("control1", function ($scope) {
        $scope.add = function(){
          var n1 = parseInt($scope.n1);
          var n2 = parseInt($scope.n2);
          var sum = n1 + n2;
          $scope.view = "Sum: " + sum;
        }
      });
    </script>
  </head>
  <body ng-app="myApp" ng-controller="control1">
      Number1:<input type="text" ng-model="n1"><br><br>
      Number2:<input type="text" ng-model="n2"><br><br>
      <button ng-click="add()">Addition</button><br><br>
      <div ng-bind="view"></div>
  </body>
</html>
```
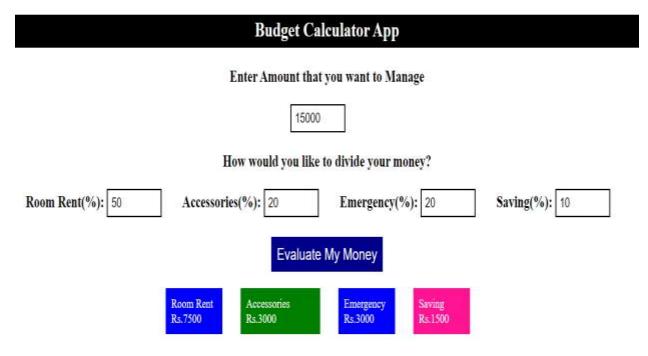
Here, the ng-bind can also be implemented using Angular JS expression {{ }}

```html
<div ng-bind="view"></div>
```
Can be written as
```html
<div>{{view}}</div>
```

You are expected to complete TWO Question Sets (A & B)

Question Set A – Working with Angular JS Directives

Select your Question Number as given below
Question Number = (regno%3) + 1

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1. Create a web application to develop the following Budget Calculator using **Angular JS** as given below. Here, the room rent, accessories, emergency and saving get as percentage (%), then divide the given amount based on the percentage and display each value in the place provided when the "Evaluate My Money" button is clicked(use ng-click directive). If the amount is not able to divide by the given percentage values, then show an error message.

2. Create a web application for Employee Payroll calculation. Your application should have the interface for getting the Basic Salary, HRA, DA, and other allowances as per the following design using HTML and CSS. Include **Angular JS** scripting to calculate the Employee payroll as given below when Calculate Salary button is clicked (Use ng-click directive)

    a.   Calculate the gross salary = Basic Salary + HRA + DA+Incentive
    b.   Calculate the net salary = gross salary – tax amount
        Apply tax rate as follows
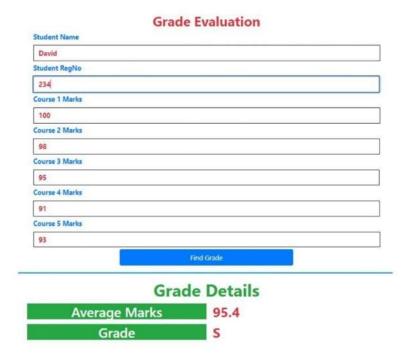   for gross salary >20000 then tax rate is 5% of gross salary,

for gross salary >40000 then tax rate is 10% of gross salary,

for gross salary >60000 then tax rate is 15% of gross salary,

for above 80000 then tax rate is 20% of gross salary,

c.   Finally display the Gross Salary, Net Salary and Tax Amount as per the design

Employee Payroll Calculator

Employee Name:

John Varghese

Emp.ID:

812

Salary Date:

03/01/2021

Basic Salary:

25000

House Rent Allowance(HRA):

5000

Dearness Allowance(DA):

20000

Calculate Salary

Salary Details

Employee Name	John Varghese
Emp.ID	812
Salary Date	03/01/2021
Gross Salary	Rs.50000
Net Salary	Rs.45000
Tax Deducted	Rs.5000

3. Create a Web Application using HTML, CSS and Angular JS to demonstrate the following web page for Student Marks Grade Calculation. When a user clicks the "Find Grade" button (use ng-click directive), calculate the average marks and grade as per the following condition given below and display the same as given in the design.

- if average is above 95, the grade is "S"
- if average is above 85 and below 95 , the grade is "A"
- if average is above 75 and below 85, the grade is "B"
- if average is above 65 and below 75, the grade is "C"
- if average is above 50 and 65, the grade is "P"
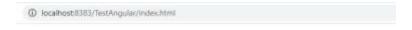- if average is below 50, the grade is "F"

My College

Grade Evaluation

Student Name

David

Student RegNo

234

Course 1 Marks

100

Course 2 Marks

98

Course 3 Marks

95

Course 4 Marks

91

Course 5 Marks

93

Find Grade

Grade Details

Average Marks	95.4
Grade	S

Question Set B – Working with Arrays in Angular JS

Create a HTML single page web application to develop product inventory system as per your choice using Angular JS Framework. The sample design is given below.

- Create interface for storing the name and price of a product and save it in **Angular JS Array** and bind in the HTML table using ng-repeat.
- Provide a "delete" link for every item in the table row, when it is clicked remove the item from the array also it should update the UI.

Design

① localhost:8383/TestAngular/index.html

Product Inventory System

Enter the Product Name:

enter product name

Enter the Product Price:

enter product price

Add Product

Name	Price	Remove

Product Inventory System

Enter the Product Name:

Pineapple

Enter the Product Price:

80

Add Product

Name	Price	Remove
Apple	Rs.200	[delete]
Mango	Rs.80	[delete]
Orange	Rs.70	[delete]
Pineapple	Rs.80	[delete]