

Angular JS: Simple calculator, Component, Controller, Service and Filters

Name:	M Badri Narayanan
Reg No:	185002018
Semester:	VI
Exercise Number:	3
Date:	March 9, 2021

Aim

To write an Angular program to

- Implement Simple Calculator.
- Implement Components, Service, and Controllers.
- Implement search to filter items.

Procedure for Calculator

- Import the angular script.
- Get operand 1 and operand 2 as input from the user using input tag.
- Get the operation to be performed from the user using select tag.
- The div enclosing the calculator is directed to the respective ng-app and ng-controller.
- Inside the angular controller, define function result() and using \$scope, get the operation required.
- Using if statements perform the necessary operation on the operands a and b which are linked by ng-model and return it.
- Result is invoked in the calculator which will give the required output.

Procedure for Components, Service and Controllers

- Components can be registered using the .component() method of an AngularJS module (returned by angular.module()).
- The method takes two arguments
 - The name of the Component (as string).
 - The Component config object.
- We will display the URL of the HTML file.
- We will also use the Time service to display the current time.
- AngularJS applications are controlled by controllers.
- The ng-controller directive defines the application controller.

- A controller is a JavaScript Object, created by a standard JavaScript object constructor.
 - AngularJS will invoke the controller with a \$scope object.
-

Procedure for Filters

- We write a script query using Angular JS.
 - To display the different items we Loop through all list items, and hide those who don't match the search query.
-

Experiment Name: Simple Calculator Using Angular JS
Exercise Number: 3A
Date: March 9, 2021

HTML Code

```
<!DOCTYPE html>
<html ng-app>

<head>
  <script data-require="angular.js@1.0.7" data-semver="1.0.7"
    ↪ src="https://ajax.googleapis.com/ajax/libs/angularjs/1.0.7/angular.js"></script>
  <title>Angular JS Calculator</title>
  <link rel="stylesheet" href="style.css"/>
  <script src="script.js"></script>
</head>

<body>
  <h1>Angular JS Calculator</h1>
  <div ng-controller="CalculatorCtrl">
    <table>
      <tr>
        <td>Value 1 :</td>
        <td><input ng-model="a"></td>
      </tr>
      <tr>
        <td>Value 2 :</td>
        <td><input ng-model="b"></td>
      </tr>
      <tr>
        <td>Operator :</td>
        <td>
          <select ng-model="operation">
            <option value="+">+</option>
            <option value="-">-</option>
            <option value="*">*</option>
            <option value="/">/</option>
            <option value="%">%</option>
          </select>
        </td>
      </tr>
    </table>
    <p class="result">Result : {{na()}} {{operation}} {{nb()}} = {{calculate()}}</p>
  </div>
</body>
</html>
```

```
    </div>
</body>

</html>
```

CSS Code

```
.result
{
    font-size : 20px;
    font-weight: bold;
}

td
{
    font-size: 20px;
}
```

Java Script Code

```
function CalculatorCtrl($scope)
{

    $scope.a = 0;
    $scope.b = 0;
    $scope.operation = '+';

    $scope.na = function()
    {
        return $scope.a - 0;
    }

    $scope.nb = function()
    {
        return $scope.b - 0;
    }

    $scope.calculate = function()
    {
        if($scope.operation == '+')
        {
            return $scope.na() + $scope.nb();
        }
        if($scope.operation == '-')
        {
            return $scope.a - $scope.b;
        }
        if($scope.operation == '*')
        {
            return $scope.a * $scope.b;
        }
        if($scope.operation == '/')
        {
            return $scope.a / $scope.b;
        }
        if($scope.operation == '%')
        {
            return $scope.a % $scope.b;
        }
    }
}
```

```
    }  
    return "undef";  
  }  
}
```

Output

Figure 1: Calculator Output Pic1

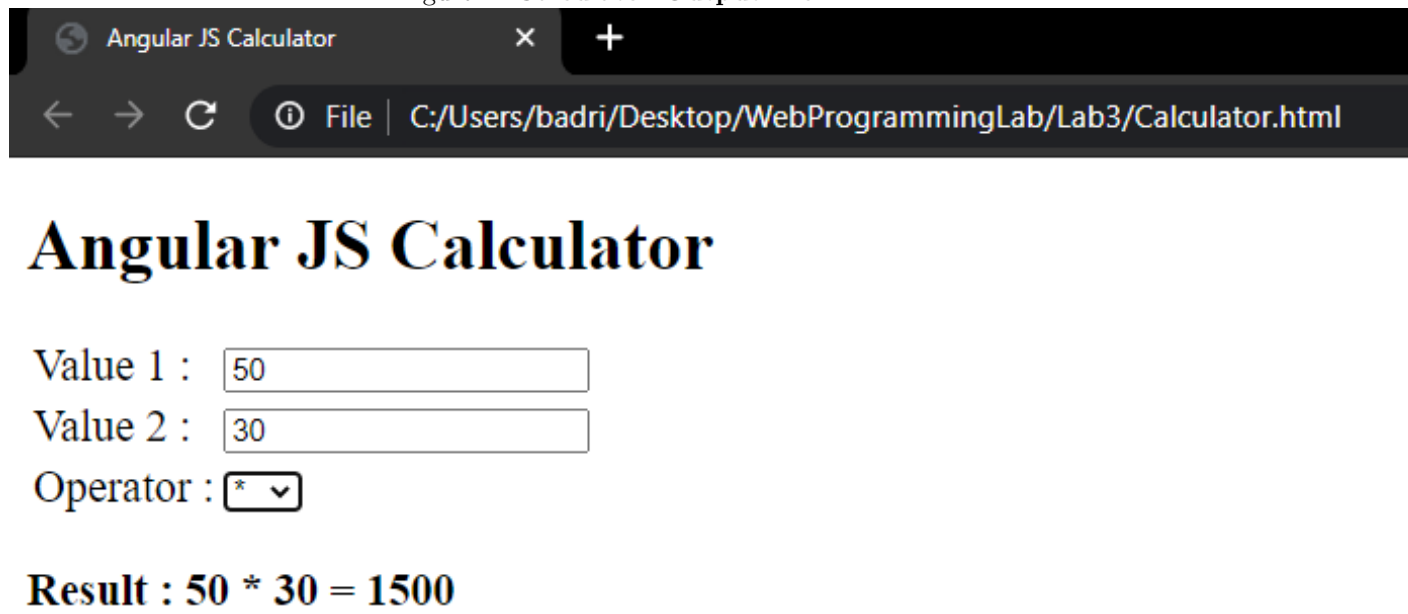
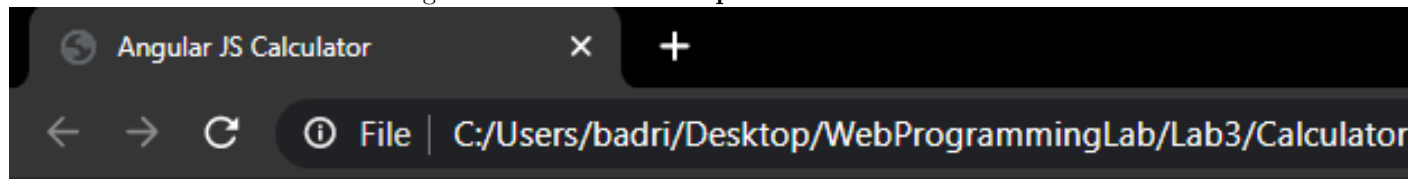


Figure 2: Calculator Output Pic2



Angular JS Calculator

Value 1 :

Value 2 :

Operator :

Result : 50 - 30 = 20

Experiment Name: Angular program to implement Components, Service, and Controllers

Exercise Number: 3B

Date: March 9, 2021

HTML Code

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <title>Components and Services</title>
  <script
    ↪ src="http://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
  <script src="App.js"></script>
  <script src="Service.js"></script>
  <script src="MathController.js"></script>
  <script src="Interval.js"></script>
  <script src="FileLocation.js"></script>
  <script src="Component.js"></script>
</head>

<body ng-app="myApp" align="center">

  <div align="center" class="box">
    <h2>
      <mycomp></mycomp>
```

```

</h2>

<div ng-controller="mathController">
  <table>
    <tr>
      <td><label>Value 1 :</label></td>
      <td></td>
      <td>
        <div class="inputBox">
          <input type="text" ng-model="x" />
        </div>
      </td>
      <td></td>
    </tr>

    <tr>
      <td><label>Value 2 :</label></td>
      <td></td>
      <td>
        <div class="inputBox">
          <input type="text" ng-model="y" />
        </div>
      </td>
      <td></td>
    </tr>

    <tr>
      <td>Result : </td>
      <td></td>
      <td><b>{{result}}</b></td>
      <td></td>
    </tr>
  </table>

  <input type="button" ng-click="calcAdd()" value="Addition" id="myBtn" />
  <input type="button" ng-click="calcSub()" value="Subtraction" id="myBtn"/>
  <input type="button" ng-click="calcMul()" value="Multiply" id="myBtn" />
  <input type="button" ng-click="calcDiv()" value="Division" id="myBtn" />
  <br>
</div>
</div>

<br>
<br>

<div ng-controller="sample">
  <h2>Time : {{theTime}}</h2>
</div>

<br>
<br>

<div ng-app="myApp" ng-controller="myCtrl" >
  <h2>File URL : {{myUrl}}</h2>
</div>

</body>
</html>

```

Component Code

```
myApp.component("mycomp", {
  template: " {{$ctrl.name}}{{$ctrl.myName}}",
  bindings: { name: "@" },
  controller: function () {
    this.myName = "AngularJs Arithmetic Calculator";
  },
});
```

File Location Code

```
myApp.controller("myCtrl", function ($scope, $location)
{
  $scope.myUrl = $location.absUrl();
});
```

Interval Code

```
myApp.controller("sample", function ($scope, $interval)
{
  $interval(function ()
  {
    $scope.theTime = new Date().toLocaleTimeString();
  }, 1000);
});
```

Controller Code

```
myApp.controller("mathController", function ($scope, mathService)
{
  $scope.x = 10;
  $scope.y = 30;
  $scope.result = 0;
  $scope.calcAdd = function ()
  {
    $scope.result = mathService.add($scope.x, $scope.y);
  };
  $scope.calcSub = function ()
  {
    $scope.result = mathService.sub($scope.x, $scope.y);
  };
  $scope.calcMul = function ()
  {
    $scope.result = mathService.mul($scope.x, $scope.y);
  };
  $scope.calcDiv = function ()
  {
    $scope.result = mathService.div($scope.x, $scope.y);
  };
});
```

Service Code

```
myApp.service("mathService", function ()
{
  this.add = function (x, y)
  {
    return parseInt(x) + parseInt(y);
  };
  this.sub = function (x, y)
  {
    return parseInt(x) - parseInt(y);
  };
  this.mul = function (x, y)
  {
    return parseInt(x) * parseInt(y);
  };
  this.div = function (x, y)
  {
    return parseInt(x) / parseInt(y);
  };
});
```

Output

Figure 3: Components, Services and Controllers Output Pic1

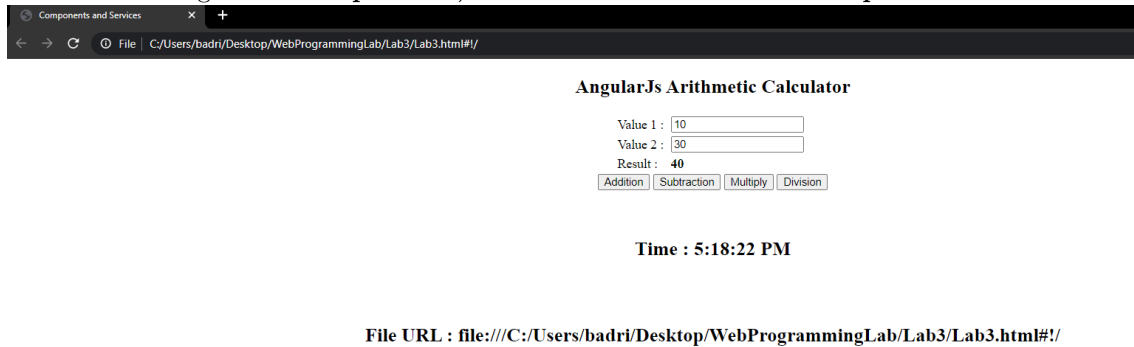
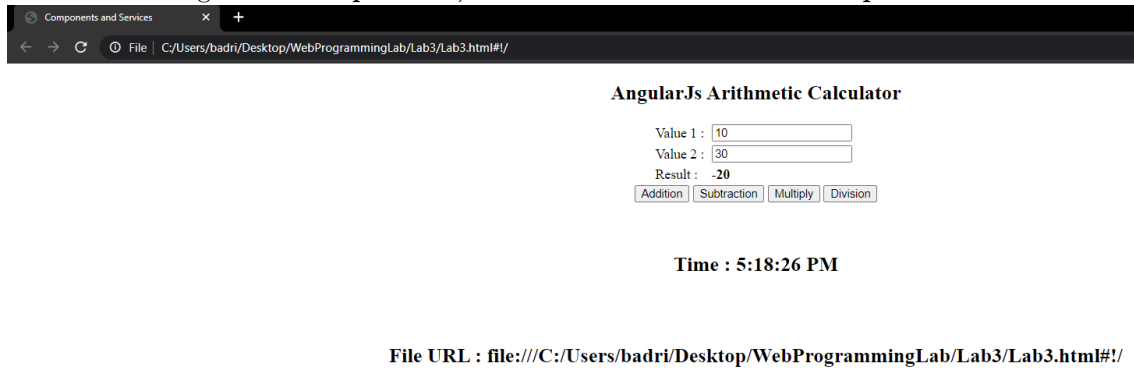


Figure 4: Components, Services and Controllers Output Pic2



Experiment Name: Implement Search to filter items
Exercise Number: 3C
Date: March 9, 2021

Filter Code

```
<!DOCTYPE>
<html lang = "en">
<head>
  <title>Filters</title>
  <script
    ↪ src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
</head>
<body>

  <h2>Filters</h2>

  <div ng-app="myApp" ng-controller="namesCtrl">
```

```

<h4>My technical skills</h4>
<p>Type a letter in the input field to filter accordingly</p>

<p><input type="text" ng-model="test"></p>

<ul>
  <li ng-repeat="x in names | filter:test">
    {{ x }}
  </li>
</ul>

</div>

<script>
angular.module('myApp', []).controller('namesCtrl', function($scope)
{
  $scope.names = [
    'Python',
    'Tensorflow',
    'Keras',
    'PyTorch',
    'NLTK',
    'spaCy',
    'OpenCV',
    'C',
    'C++',
    'Java',
    'Git',
    'HTML5',
    'CSS3',
    'JavaScript',
    'R',
    'LaTeX',
    'MASM',
    'GNU Octave'
  ];
});
</script>
</body>
</html>

```

Output

Figure 5: Filters Output Pic1

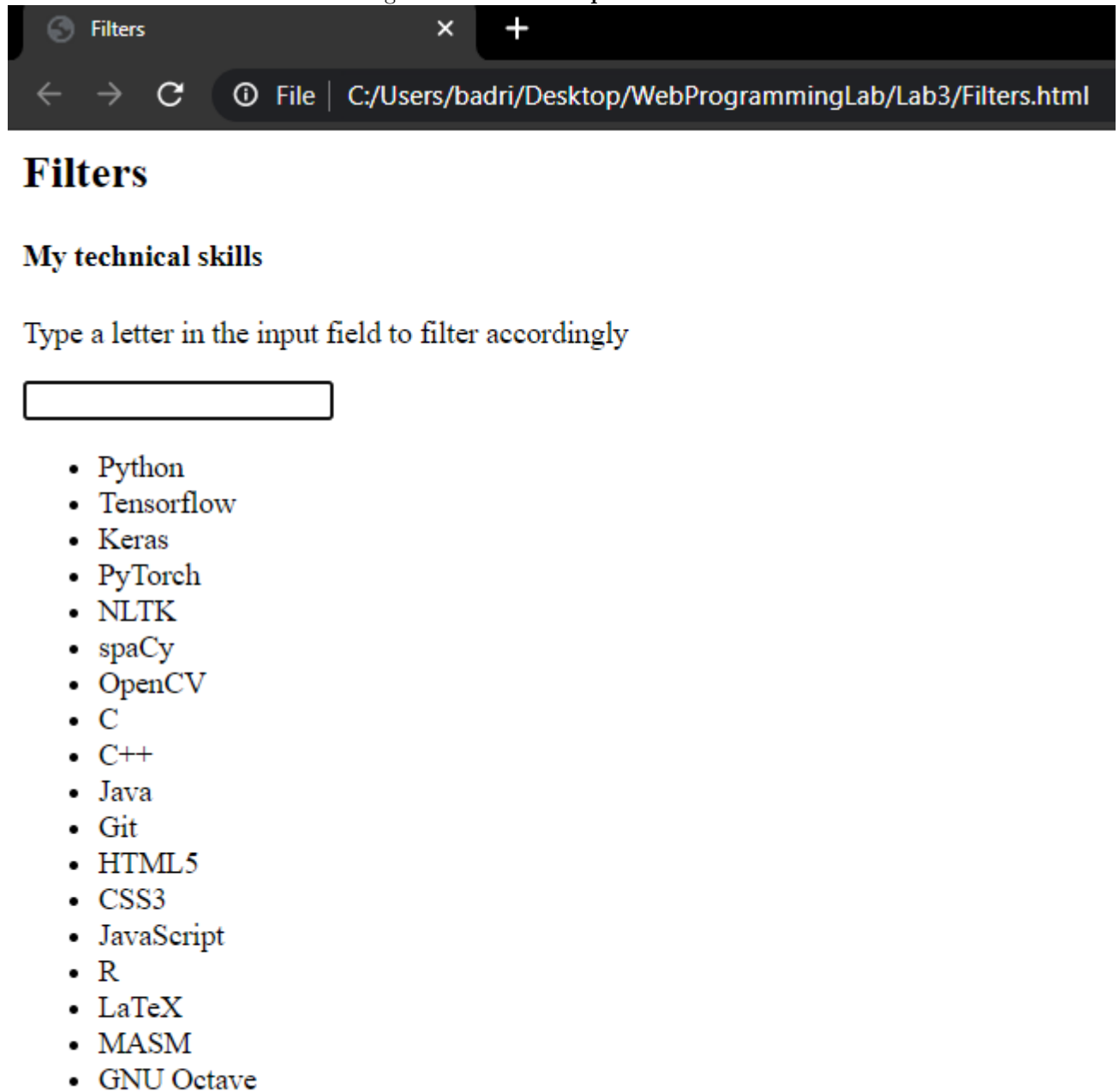
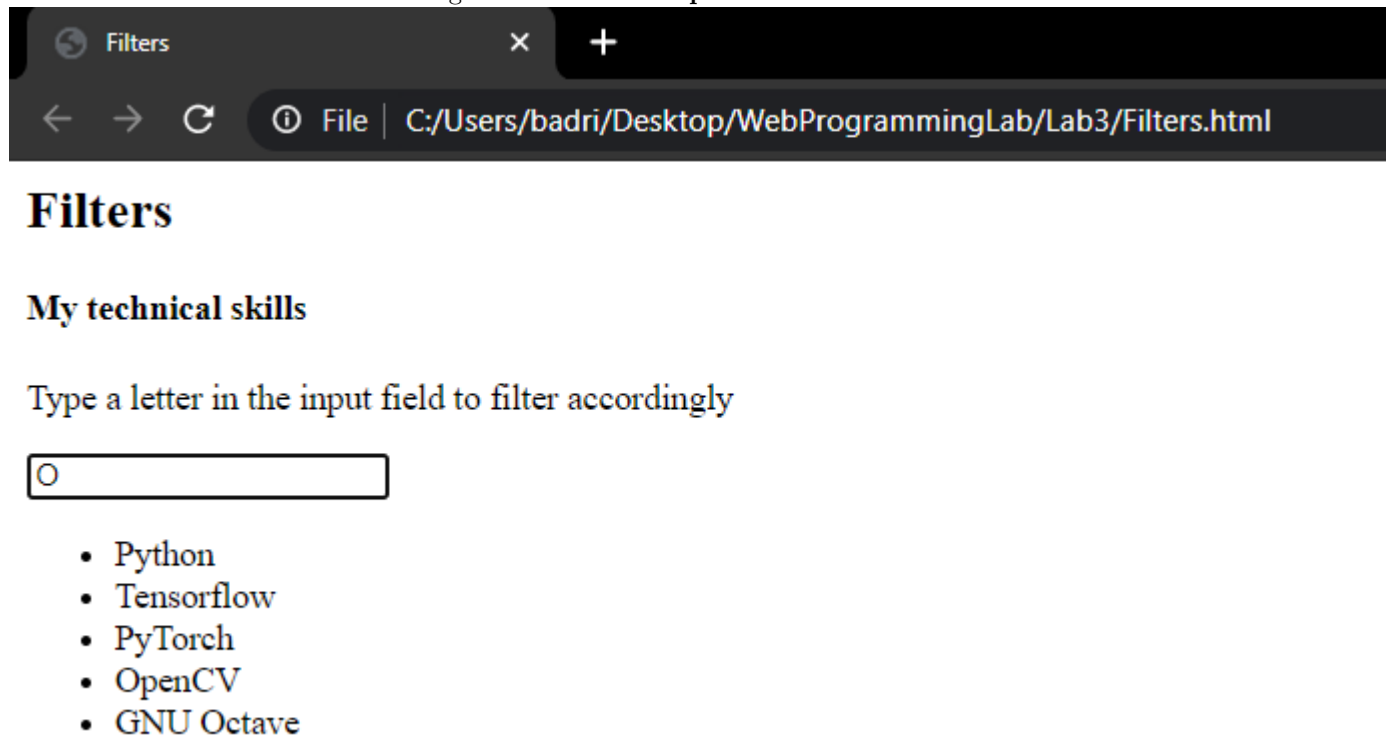


Figure 6: Filters Output Pic2



Result

The programs to implement Simple Calculator, Components, Service, Controllers and search to filter items were created successfully using AngularJS.
