Simple web application using MEAN Stack

Name:	M Badri Narayanan
Reg No:	185002018
Semester:	VI
Exercise Number:	12
Date:	April 27, 2021

Aim

To write a program to implement RESTful web service for calculator application.

Procedure

- Get the operands using input tag and the operator using option tag.
- The div enclosing the calculator is directed to the corresponding ng-app and ng-controller.
- Have a calculate button whose ng-click is directed to the calculate function in the controller.
- Have a tag for answer which is linked to the result passed by the controller.
- Inside the controller get the operator and pass it to the $http.get function and pass the first and second operands as query params in the get function.
- Store the result in $scope.answer.

For the Server

- Connect to express.
- Based on different paths, route app.get and perform the respective operations.
- Store query first and query second in two variables.
- Convert the variables to numbers.
- Perform the required operation using the two numbers and send the result.

Java Script Code (Calc.js)

```
const express = require("express");
const app = express();
app.use(express.static("public"));
app.get("/", (req, res) => {
    res.sendFile(__dirname + "/RESTCalc.html");
});
app.get("/add", (req, res) => {
    var first = req.query.first;
    var second = req.query.second;
    var value = Number(first) + Number(second);
    var result = {result: value};
    res.send(result);
});
app.get("/subtract", (req, res) => {
    var first = req.query.first;
    var second = req.query.second;
    var value = Number(first) - Number(second);
    var result = {result: value};
    res.send(result);
});
app.get("/multiply", (req, res) => {
    var first = req.query.first;
    var second = req.query.second;
    var value = Number(first) * Number(second);
    var result = {result: value};
    res.send(result);
});
app.get("/divide", (req, res) => {
    var first = req.query.first;
    var second = req.query.second;
    var value = Number(first) / Number(second);
    var result = {result: value};
    res.send(result);
});
app.listen(7000);
```

HTML Code (RESTCalc.html)

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Calculator</title>
    <style>
        body{
        }
    </style>
</head>
<body>
<script
↪  src="https://ajax.googleapis.com/ajax/libs/angularjs/1.3.14/angular.min.js"></script>
<center><h3>CALCULATOR</h3>
    <div ng-app="CalculatorApp" ng-controller="CalculatorController">
        <p><b>Operand 1</b></p>
        <p><input type="number" ng-model="first"></p>
```

```
        <p><b>Operand 2</b></p>
        <p><input type="number" ng-model="second"></p>
        <p><b>Choose operation</b></p>
        <p><select ng-model="operator">
            <option value="add">+</option>
            <option value="subtract">-</option>
            <option value="multiply">*</option>
            <option value="divide">/</option>
        </select></p>
        <button ng-click="calculate()">CALCULATE</button>
        <p><b>ANSWER</b></p>
        <p ng-model="answer">{{answer}}</p>
    </div>
</center>
<script>
    angular.module('CalculatorApp', [])
        .controller('CalculatorController', function ($scope, $http) {
            $scope.calculate = function () {
                ops = $scope.operator;
                $http.get(ops,
                    {
                        params: {
                            first: $scope.first,
                            second: $scope.second
                        }
                    }).success(function (res) {
                    console.log('Exit status ' + JSON.stringify(res));
                    $scope.answer = res.result;
                });
            };
        });
</script>
</body>
</html>
```

Output

Figure 1: **Output Pic1**

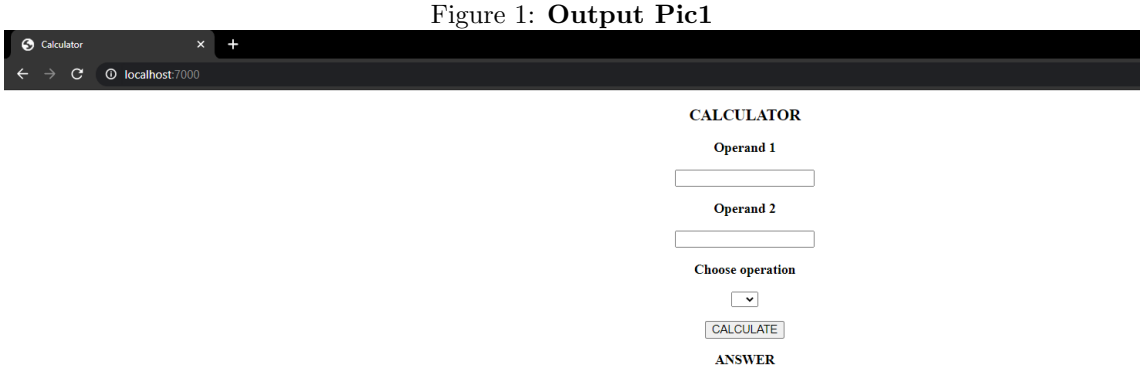


Figure 2: **Output Pic2**

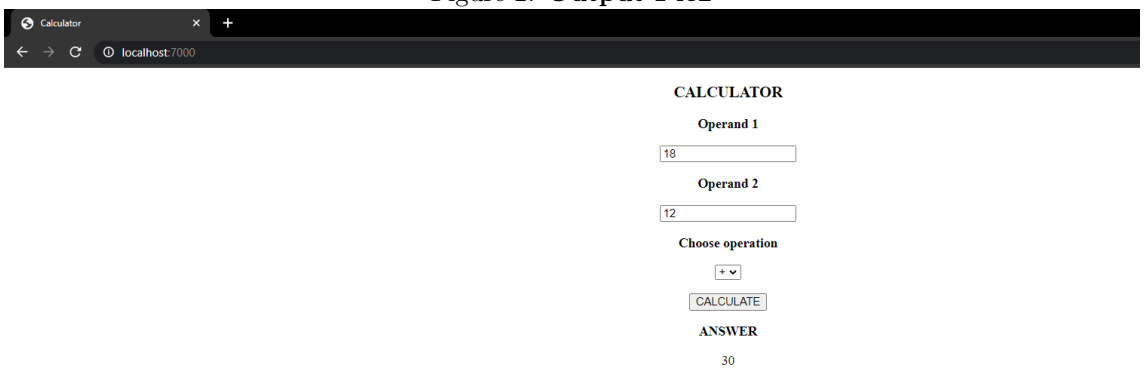
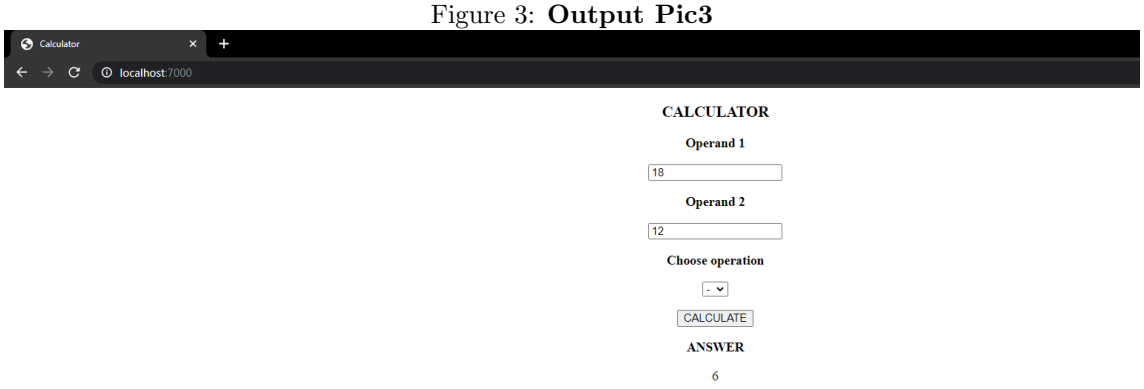


Figure 3: **Output Pic3**



Result

A RESTful web service for calculator application was implemented successfully using node and express.