UIT 1611 WEB PROGRAMMING LABORATORY

Exercise 12

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Aim:

To create a RESTful web service for Calculator Application.

Procedure:

- Initialise our Angular JS applications using ‘ng-app’ and use ‘ng-controller’ directive to control the the data (operand and operator) of angular application
- REST- represents the architectural styles for implementing web service using http protocol
- We identify each RESTful web service using an unique URL
- We cache the result of particular operation using the GET method - app.get("/add", (req, res) {}
- We use HTTP methods like get,post,put to implement the concept of rest architecture.
- Use URI- uniform resource identifier which provides resource representation such as JSON and set of HTTP methods.
- Use JSON.stringify() method to convert a JavaScript object or value to a JSON string.

Code:

calcHost.js

```
const express = require("express");
const app = express();
app.use(express.static("public"));
app.get("/", (req, res) => {
  res.sendFile(__dirname + "/calc.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);
```

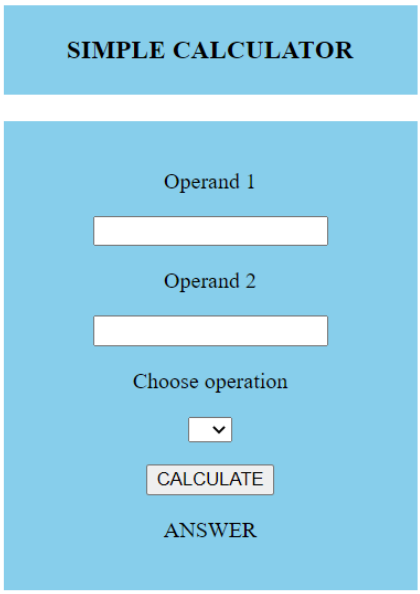
calc.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <title>Calculator</title>
    <link rel="stylesheet" href="styles.css" />
  </head>
```

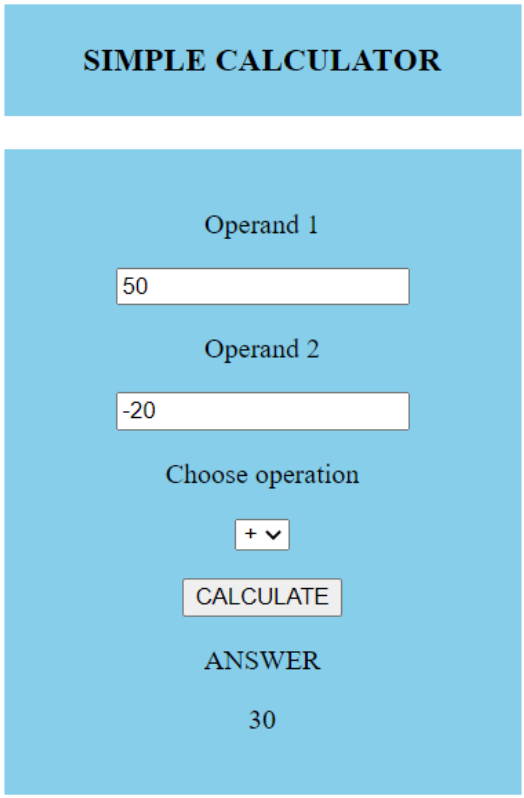
```
  <body>
    <script
src="https://ajax.googleapis.com/ajax/libs/angularjs/1.3.14/angular.min.js"></script>
    <center>
      <h3 id="bordering" style="background-color: #87ceeb; width: 300px">
        <br />
        SIMPLE CALCULATOR<br /><br />
      </h3>
      <div
        ng-app="CalculatorApp"
        ng-controller="CalculatorController"
        id="bordering"
        style="background-color: #87ceeb; width: 300px"
      >
        <br />
        <p>Operand 1</p>
        <p><input type="number" ng-model="first" /></p>
        <p>Operand 2</p>
        <p><input type="number" ng-model="second" /></p>
        <p>Choose operation</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>ANSWER</p>
        <p ng-model="answer">{{answer}}</p>
        <br />
```

```
    </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>
```

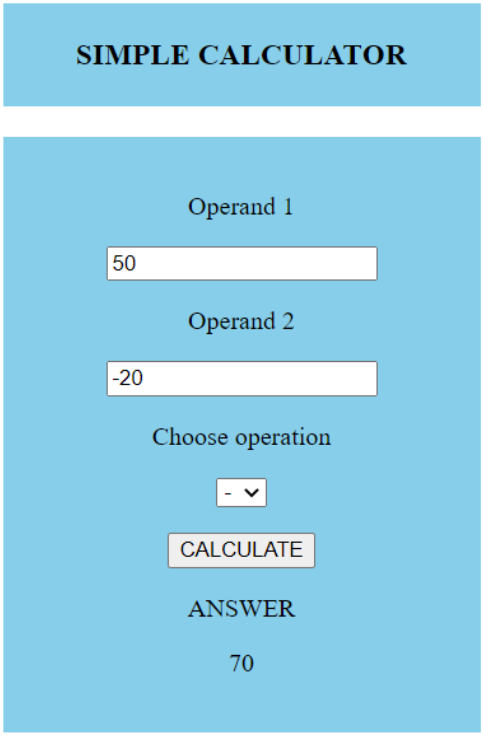
Output:



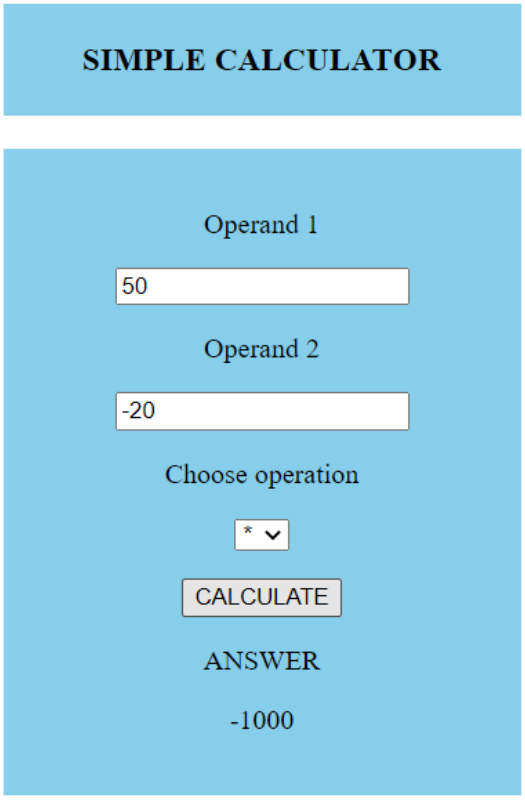
Addition:



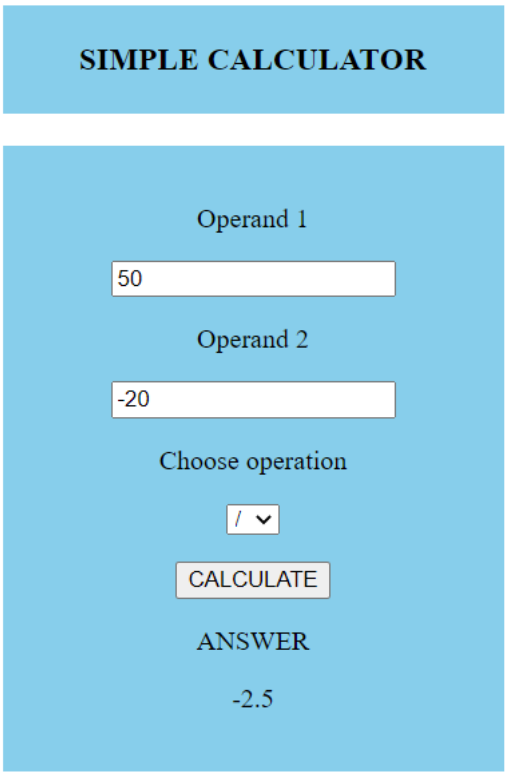
Subtraction:



Multiplication:



Division:



Result:

Thus above code was successfully executed to implement simple calculator using RESTFUL web services .