МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ
федеральное государственное автономное образовательное учреждение высшего образования
«САНКТ-ПЕТЕРБУРГСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ АЭРОКОСМИЧЕСКОГО ПРИБОРОСТРОЕНИЯ»

ИНСТИТУТ ВЫЧИСЛИТЕЛЬНЫХ СИСТЕМ И ПРОГРАММИРОВАНИЯ

КАФЕДРА компьютерных технологий и программной инженерии

ОТЧЕТ
ЗАЩИЩЕН С ОЦЕНКОЙ

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ОТЧЕТ О ЛАБОРАТОРНОЙ РАБОТЕ №3

«Разработка простого AJAX приложения Spring»

по курсу: Технологии разработки серверных информационных систем

РАБОТУ ВЫПОЛНИЛ

СТУДЕНТ ГР. №	4932	02.11.21	Н.С. Иванов
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Санкт-Петербург 2021

Цель работы

Познакомится с основами написания форм для приложений.

Задание:

1. Создайте один или несколько форм и контроллеров для страниц приложения. Подключите библиотеку angularJS.
2. Реализуйте задачи из лабораторной работы 1 средствами AJAX и REST-сервисов, разработанных в предыдущей лабораторной работе

Вариант: 8. Учет трат в бюджете семьи.

Описание разрабатываемого продукта:

Веб-приложение для учета трат в бюджете семьи.

Функционал: добавление, удаление, просмотр информации.

Controllers

addCost

```
@PostMapping("add")
public ResponseEntity<String> addCost(@RequestBody CostEntity cost){
    try {
        if(costService.addCost(cost)) {
            return ResponseEntity.status(HttpStatus.CREATED).body(gson.toJson("Cost added successfully"));
        }
        throw new CostNotFoundException(gson.toJson("Cost don't found"));
    } catch (CostNotFoundException e){
        return ResponseEntity.status(HttpStatus.NOT_FOUND).body(gson.toJson(e.getMessage()));
    } catch (Exception e){
        e.printStackTrace();
        return ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body("CostController error -> " + e.getMessage() +
                "\n\n" + Arrays.toString(e.getStackTrace()));
    }
}
```

deleteCost

```
@DeleteMapping("delete/{id}")
public ResponseEntity<String> deleteCost(@PathVariable Long id){
    try {
        if (costService.deleteCost(id)){
            return ResponseEntity.status(HttpStatus.OK).body(gson.toJson("Cost delete successfully"));
        }
        throw new CostNotFoundException("Cost don't found");
    } catch (CostNotFoundException e){
        return ResponseEntity.status(HttpStatus.NOT_FOUND).body(gson.toJson(e.getMessage()));
    }catch (Exception e){
        return ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body(gson.toJson("CostController error"));
    }
}
```

putCost

```
@PutMapping("put/{id}")
public ResponseEntity<String> putCost(@RequestBody CostEntity cost){
    try {
        if(costService.putCost(cost)) {
            return ResponseEntity.status(HttpStatus.ACCEPTED).body(gson.toJson("Cost updated successfully"));
        }
        throw new CostNotFoundException(gson.toJson("Cost don't found"));
    } catch (CostNotFoundException e){
        return ResponseEntity.status(HttpStatus.NOT_FOUND).body(gson.toJson(e.getMessage()));
    }catch (Exception e){
        return ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body(gson.toJson("CostController error"));
    }
}
```

getCostList

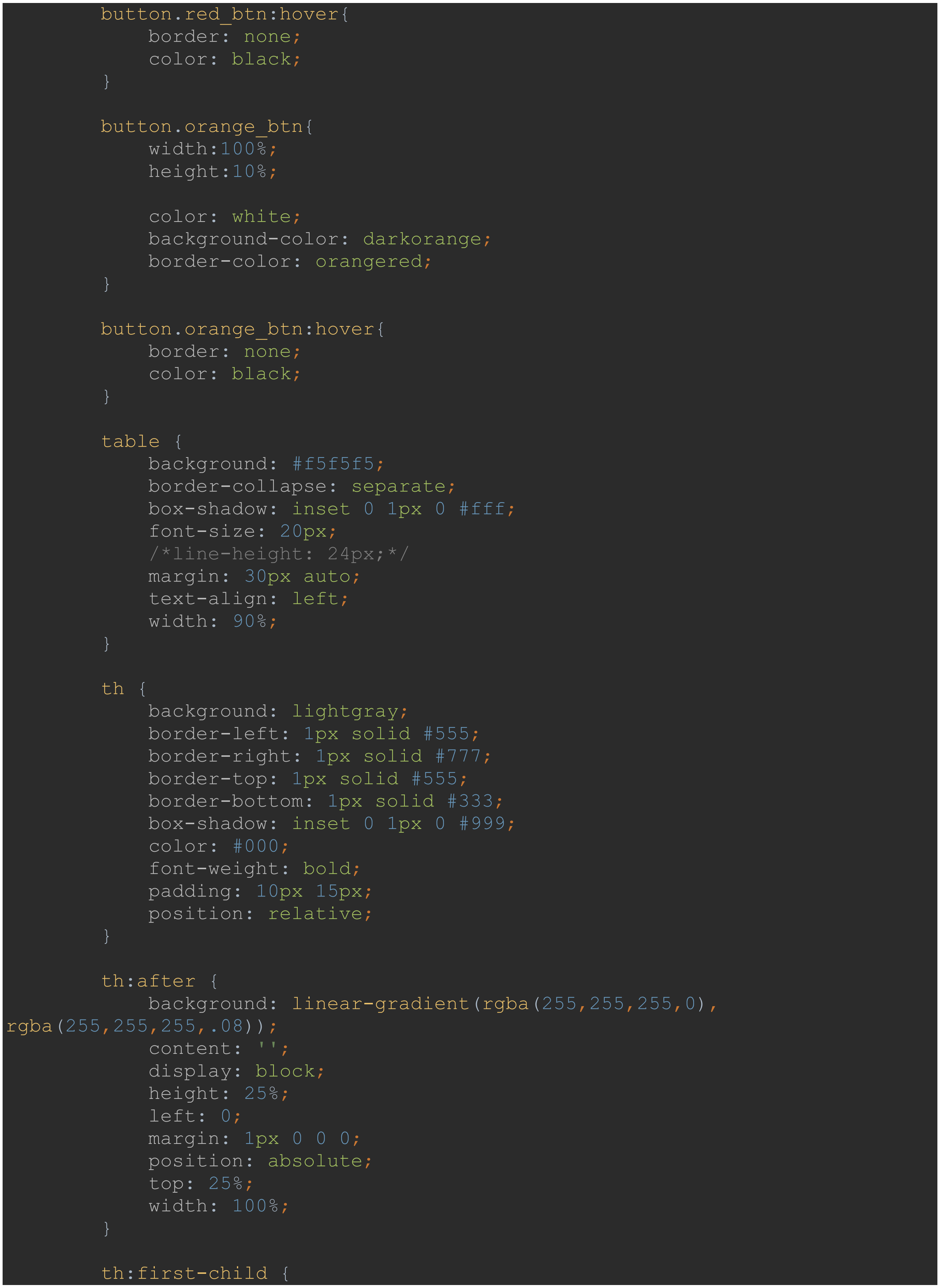
```
@GetMapping("get/all")
public ResponseEntity<Object> getCostList(){
    try {
        return ResponseEntity.status(HttpStatus.OK).body(costService.getCosts());
    }catch (Exception e){
        return ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body(gson.toJson("CostController error"));
    }
}
```

getCost

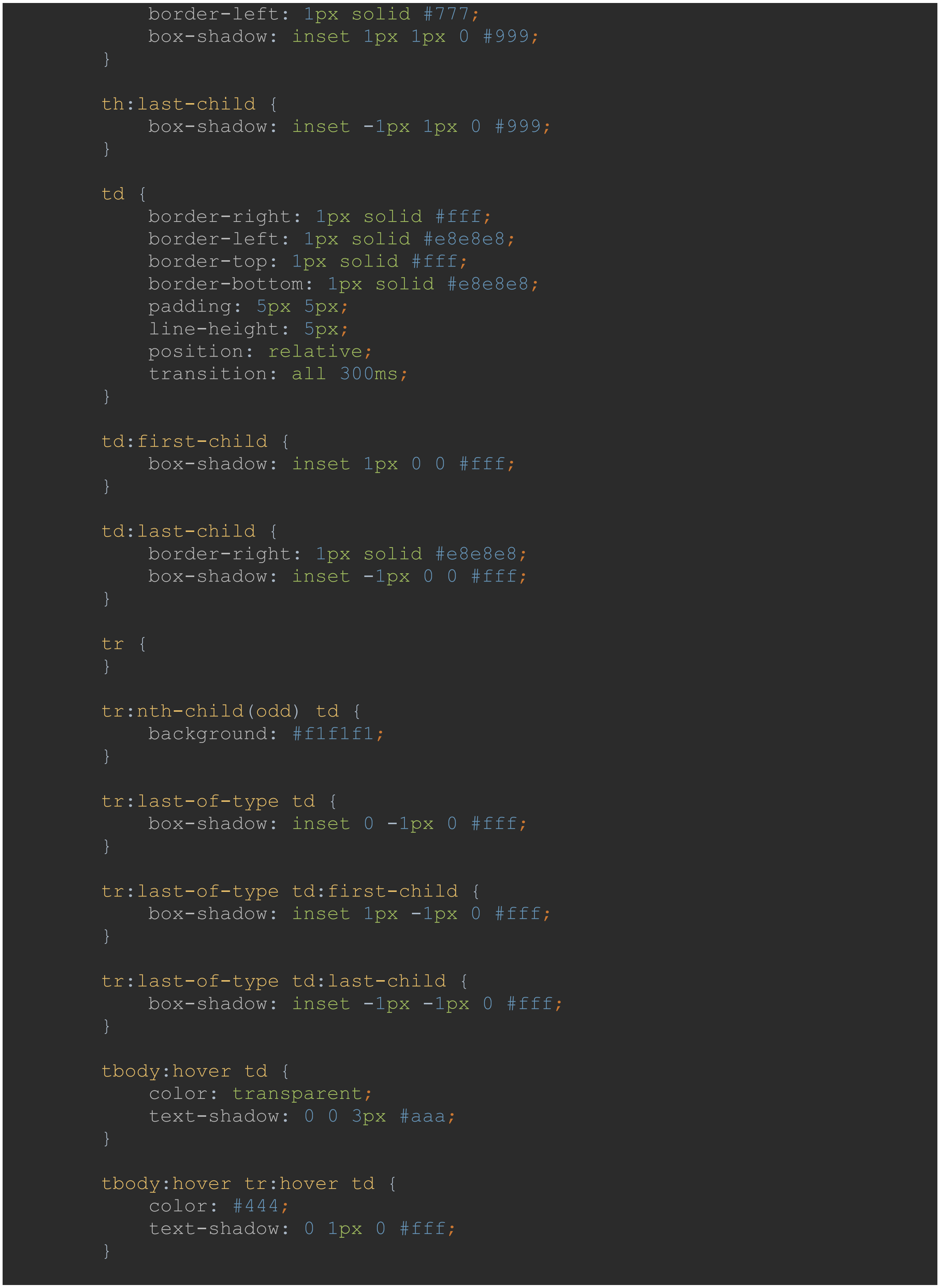
```
@GetMapping("get/{id}")
public ResponseEntity<String> getCost(@PathVariable Long id){
    try {
        return ResponseEntity.status(HttpStatus.FOUND).body(gson.toJson(costService.getCost(id)));
    }catch (CostNotFoundException e){
        return ResponseEntity.status(HttpStatus.NOT_FOUND).body(gson.toJson(e.getMessage()));
    }catch (Exception e){
        return ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body("CostController error");
    }
}
```

Form

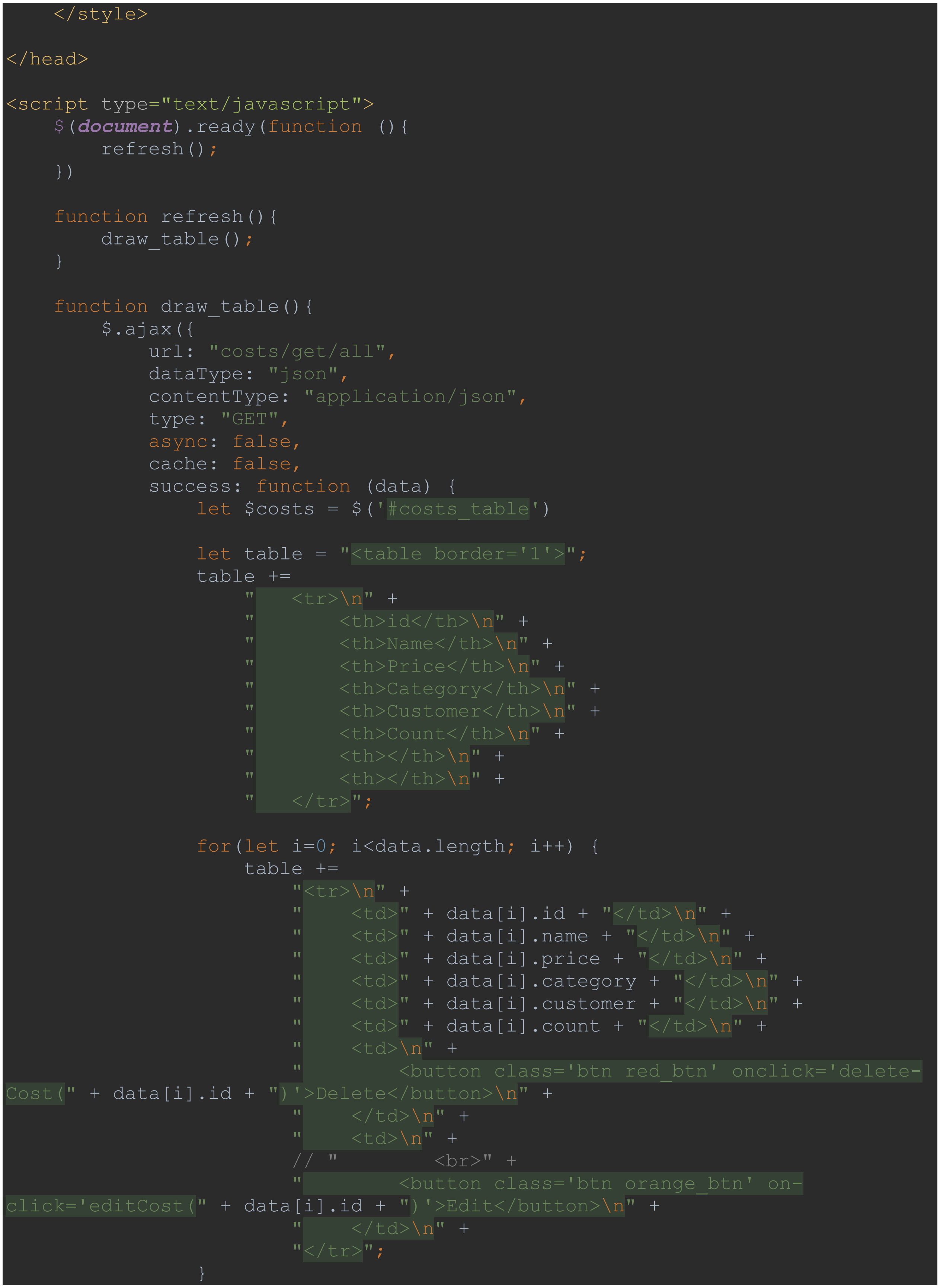
```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Costs Management (lab3)</title>
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.4.1/jquery.min.js"></script>

    <style>
        .input_form{
            width: 40%;
        }

        input{
            width: 97%;
        }

        button.btn{
            width:100%;
            height:100%;
            min-width:30px;
            max-width:200px;
            min-height:30px;
            max-height:30px;

            color: black;
            background-color: white;
            border-color: black;
            border-width: 1px;
            border-radius: 7px;
            font-size: 20px;
        }

        button.green_btn{
            width: 10%;
            height: 10%;
            color: black;
            background-color: palegreen;
            border-color: seagreen;
        }

        button.green_btn:hover{
            border: none;
            color: gray;
        }

        button.red_btn{
            width:100%;
            height:10%;

            color: white;
            background-color: palevioletred;
            border-color: darkred;
        }
```



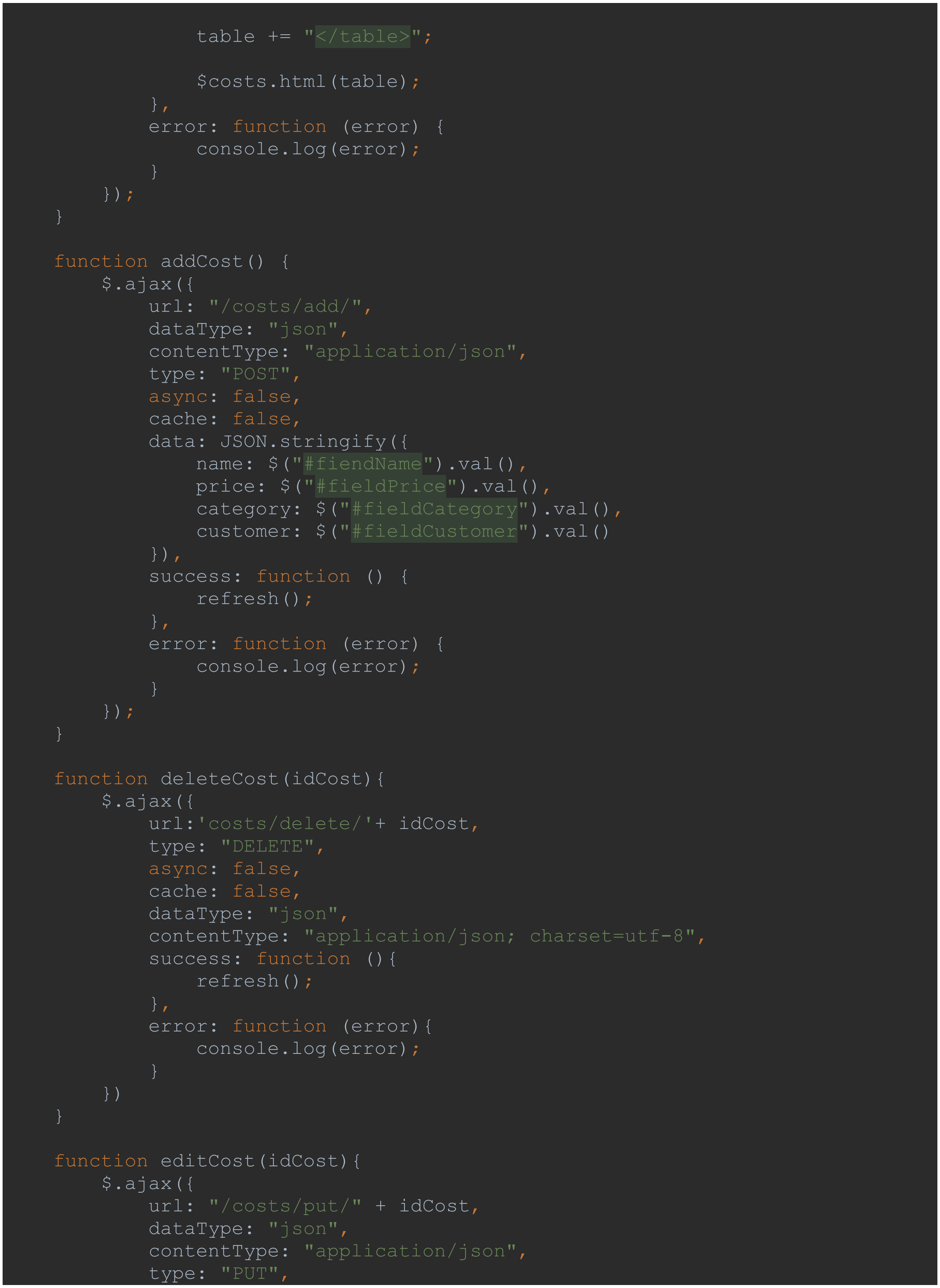
```
        button.red_btn:hover{
            border: none;
            color: black;
        }

        button.orange_btn{
            width:100%;
            height:10%;

            color: white;
            background-color: darkorange;
            border-color: orangered;
        }

        button.orange_btn:hover{
            border: none;
            color: black;
        }

        table {
            background: #f5f5f5;
            border-collapse: separate;
            box-shadow: inset 0 1px 0 #fff;
            font-size: 20px;
            /*line-height: 24px;*/
            margin: 30px auto;
            text-align: left;
            width: 90%;
        }

        th {
            background: lightgray;
            border-left: 1px solid #555;
            border-right: 1px solid #777;
            border-top: 1px solid #555;
            border-bottom: 1px solid #333;
            box-shadow: inset 0 1px 0 #999;
            color: #000;
            font-weight: bold;
            padding: 10px 15px;
            position: relative;
        }

        th:after {
            background: linear-gradient(rgba(255,255,255,0),
rgba(255,255,255,.08));
            content: '';
            display: block;
            height: 25%;
            left: 0;
            margin: 1px 0 0 0;
            position: absolute;
            top: 25%;
            width: 100%;
        }

        th:first-child {
```



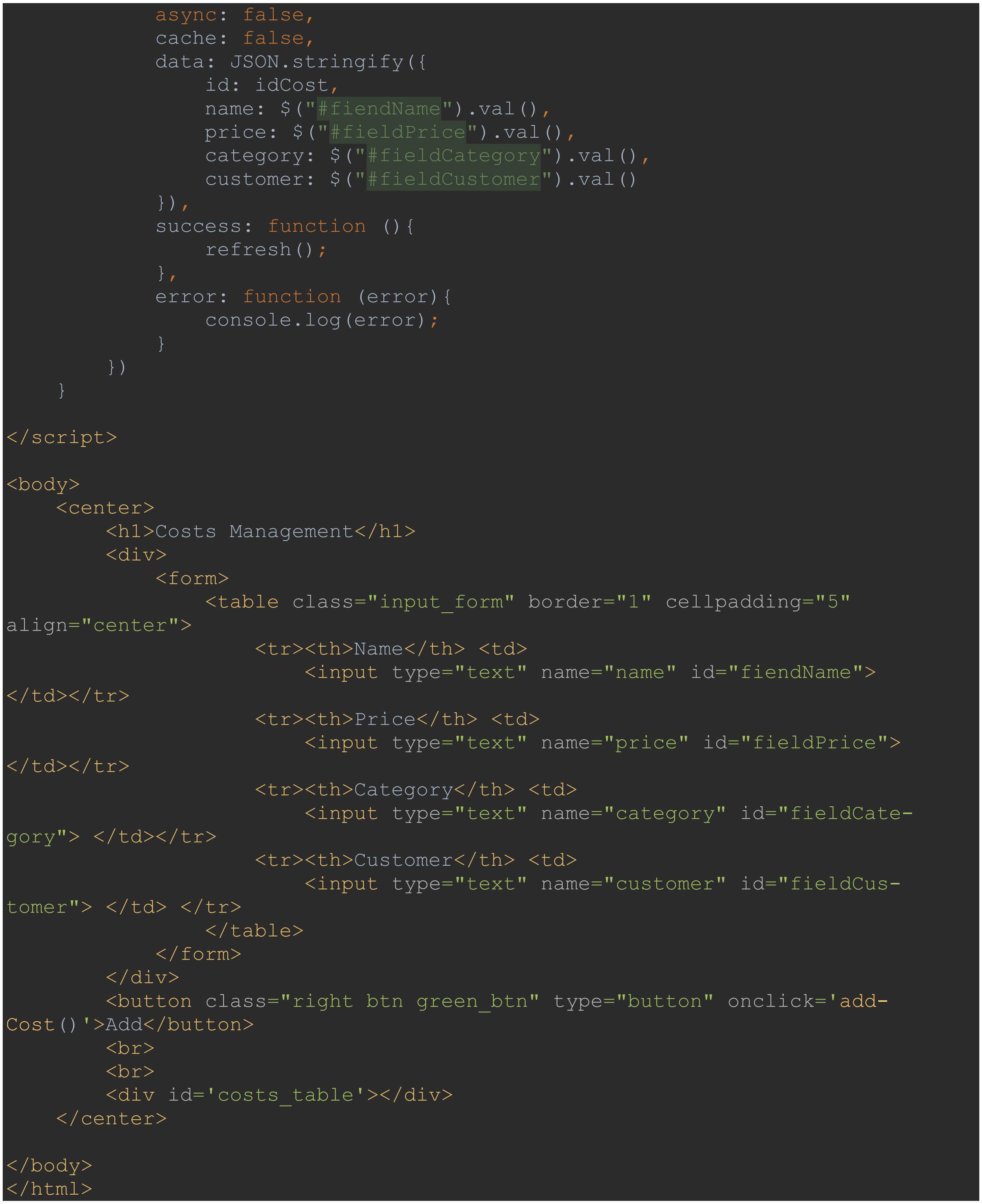
```
        border-left: 1px solid #777;
        box-shadow: inset 1px 1px 0 #999;
    }

    th:last-child {
        box-shadow: inset -1px 1px 0 #999;
    }

    td {
        border-right: 1px solid #fff;
        border-left: 1px solid #e8e8e8;
        border-top: 1px solid #fff;
        border-bottom: 1px solid #e8e8e8;
        padding: 5px 5px;
        line-height: 5px;
        position: relative;
        transition: all 300ms;
    }

    td:first-child {
        box-shadow: inset 1px 0 0 #fff;
    }

    td:last-child {
        border-right: 1px solid #e8e8e8;
        box-shadow: inset -1px 0 0 #fff;
    }

    tr {
    }

    tr:nth-child(odd) td {
        background: #f1f1f1;
    }

    tr:last-of-type td {
        box-shadow: inset 0 -1px 0 #fff;
    }

    tr:last-of-type td:first-child {
        box-shadow: inset 1px -1px 0 #fff;
    }

    tr:last-of-type td:last-child {
        box-shadow: inset -1px -1px 0 #fff;
    }

    tbody:hover td {
        color: transparent;
        text-shadow: 0 0 3px #aaa;
    }

    tbody:hover tr:hover td {
        color: #444;
        text-shadow: 0 1px 0 #fff;
    }
```



```
    </style>

</head>

<script type="text/javascript">
    $(document).ready(function (){
        refresh();
    })

    function refresh(){
        draw_table();
    }

    function draw_table(){
        $.ajax({
            url: "costs/get/all",
            dataType: "json",
            contentType: "application/json",
            type: "GET",
            async: false,
            cache: false,
            success: function (data) {
                let $costs = $('#costs_table')

                let table = "<table border='1'>";
                table +=
                    "   <tr>\n" +
                    "       <th>id</th>\n" +
                    "       <th>Name</th>\n" +
                    "       <th>Price</th>\n" +
                    "       <th>Category</th>\n" +
                    "       <th>Customer</th>\n" +
                    "       <th>Count</th>\n" +
                    "       <th></th>\n" +
                    "       <th></th>\n" +
                    "   </tr>";

                for(let i=0; i<data.length; i++) {
                    table +=
                        "<tr>\n" +
                        "    <td>" + data[i].id + "</td>\n" +
                        "    <td>" + data[i].name + "</td>\n" +
                        "    <td>" + data[i].price + "</td>\n" +
                        "    <td>" + data[i].category + "</td>\n" +
                        "    <td>" + data[i].customer + "</td>\n" +
                        "    <td>" + data[i].count + "</td>\n" +
                        "    <td>\n" +
                        "        <button class='btn red_btn' onclick='deleteCost(" + data[i].id + ")'>Delete</button>\n" +
                        "    </td>\n" +
                        "    <td>\n" +
                        // "        <br>" +
                        "        <button class='btn orange_btn' onclick='editCost(" + data[i].id + ")'>Edit</button>\n" +
                        "    </td>\n" +
                        "</tr>";
                }
```



```
            table += "</table>";

            $costs.html(table);
        },
        error: function (error) {
            console.log(error);
        }
    });
}

function addCost() {
    $.ajax({
        url: "/costs/add/",
        dataType: "json",
        contentType: "application/json",
        type: "POST",
        async: false,
        cache: false,
        data: JSON.stringify({
            name: $("#fiendName").val(),
            price: $("#fieldPrice").val(),
            category: $("#fieldCategory").val(),
            customer: $("#fieldCustomer").val()
        }),
        success: function () {
            refresh();
        },
        error: function (error) {
            console.log(error);
        }
    });
}

function deleteCost(idCost){
    $.ajax({
        url:'costs/delete/'+ idCost,
        type: "DELETE",
        async: false,
        cache: false,
        dataType: "json",
        contentType: "application/json; charset=utf-8",
        success: function (){
            refresh();
        },
        error: function (error){
            console.log(error);
        }
    })
}

function editCost(idCost){
    $.ajax({
        url: "/costs/put/" + idCost,
        dataType: "json",
        contentType: "application/json",
        type: "PUT",
```



```
            async: false,
            cache: false,
            data: JSON.stringify({
                id: idCost,
                name: $("#fiendName").val(),
                price: $("#fieldPrice").val(),
                category: $("#fieldCategory").val(),
                customer: $("#fieldCustomer").val()
            }),
            success: function (){
                refresh();
            },
            error: function (error){
                console.log(error);
            }
        })
    }

</script>

<body>
    <center>
        <h1>Costs Management</h1>
        <div>
            <form>
                <table class="input_form" border="1" cellpadding="5"
align="center">
                    <tr><th>Name</th> <td>
                        <input type="text" name="name" id="fiendName">
</td></tr>
                    <tr><th>Price</th> <td>
                        <input type="text" name="price" id="fieldPrice">
</td></tr>
                    <tr><th>Category</th> <td>
                        <input type="text" name="category" id="fieldCate-
gory"> </td></tr>
                    <tr><th>Customer</th> <td>
                        <input type="text" name="customer" id="fieldCus-
tomer"> </td> </tr>
                </table>
            </form>
        </div>
        <button class="right btn green_btn" type="button" onclick='add-
Cost()'>Add</button>
        <br>
        <br>
        <div id='costs_table'></div>
    </center>

</body>
</html>
```

Выводы

- JQuery упрощает написание кода на javascript.

Приложение:

```
// @filename \src\main\java\suai\trsis2021\lab3\Lab3Application.java
package suai.trsis2021.lab3;

import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;
import org.springframework.context.annotation.Configuration;
import org.springframework.web.servlet.config.annotation.ResourceHandlerRegistry;
import org.springframework.web.servlet.config.annotation.WebMvcConfigurer;

@SpringBootApplication
public class Lab3Application {

        public static void main(String[] args) {
                SpringApplication.run(Lab3Application.class, args);
        }
}


// @filename \src\main\java\suai\trsis2021\lab3\controller\CostController.java
package suai.trsis2021.lab3.controller;

import com.google.gson.Gson;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.http.HttpStatus;
import org.springframework.http.ResponseEntity;
import org.springframework.web.bind.annotation.*;
import suai.trsis2021.lab3.entity.CostEntity;
import suai.trsis2021.lab3.exceptions.CostNotFoundException;
import suai.trsis2021.lab3.service.CostService;

import javax.swing.text.html.parser.Entity;
import java.util.Arrays;

@RestController
@RequestMapping("/costs")
public class CostController {

  @Autowired
  private CostService costService;
  private static final Gson gson = new Gson();

  @PostMapping("add")
  public ResponseEntity<String> addCost(@RequestBody CostEntity cost){
    try {
      if(costService.addCost(cost)) {
        return ResponseEntity.status(HttpStatus.CREATED).body(gson.toJson("Cost added
successfully"));
      }
      throw new CostNotFoundException(gson.toJson("Cost don't found"));
    } catch (CostNotFoundException e){
      return
ResponseEntity.status(HttpStatus.NOT_FOUND).body(gson.toJson(e.getMessage()));
    } catch (Exception e){
      e.printStackTrace();
      return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body("CostController error
-> " + e.getMessage() +
          "\n\n" + Arrays.toString(e.getStackTrace()));
    }
  }

  @DeleteMapping("delete/{id}")
  public ResponseEntity<String> deleteCost(@PathVariable Long id){
    try {
      if (costService.deleteCost(id)){
        return ResponseEntity.status(HttpStatus.OK).body(gson.toJson("Cost delete
successfully"));
      }
      throw new CostNotFoundException("Cost don't found");
    } catch (CostNotFoundException e){
      return
ResponseEntity.status(HttpStatus.NOT_FOUND).body(gson.toJson(e.getMessage()));
    }catch (Exception e){
      return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body(gson.toJson("CostCon
troller error"));
    }
  }

  @PutMapping("put/{id}")
  public ResponseEntity<String> putCost(@RequestBody CostEntity cost){
    try {
      if(costService.putCost(cost)) {
        return ResponseEntity.status(HttpStatus.ACCEPTED).body(gson.toJson("Cost
updated successfully"));
      }
      throw new CostNotFoundException(gson.toJson("Cost don't found"));
    } catch (CostNotFoundException e){
      return
ResponseEntity.status(HttpStatus.NOT_FOUND).body(gson.toJson(e.getMessage()));
```

```
    }catch (Exception e){
      return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body(gson.toJson("CostCon
troller error"));
    }
  }

  @GetMapping("get/all")
  public ResponseEntity<Object> getCostList(){
    try {
      return ResponseEntity.status(HttpStatus.OK).body(costService.getCosts());
    }catch (Exception e){
      return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body(gson.toJson("CostCon
troller error"));
    }
  }

  @GetMapping("get/{id}")
  public ResponseEntity<String> getCost(@PathVariable Long id){
    try {
      return
ResponseEntity.status(HttpStatus.FOUND).body(gson.toJson(costService.getCost(id)));
    }catch (CostNotFoundException e){
      return
ResponseEntity.status(HttpStatus.NOT_FOUND).body(gson.toJson(e.getMessage()));
    }catch (Exception e){
      return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body("CostController
error");
    }
  }
}


// @filename \src\main\java\suai\trsis2021\lab3\controller\WebController.java
package suai.trsis2021.lab3.controller;

import lombok.extern.slf4j.Slf4j;
import org.springframework.http.ResponseEntity;
import org.springframework.stereotype.Controller;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.ResponseBody;
import org.springframework.web.bind.annotation.RestController;
import org.springframework.web.servlet.view.RedirectView;
import java.io.File;
import java.nio.charset.StandardCharsets;
import java.nio.file.Files;
import java.nio.file.Path;

@Controller
public class WebController {

  @GetMapping("")
  public RedirectView redirect(){
    return new RedirectView("/home-page");
  }


  @GetMapping("/home-page")
  public String homePage() {
    return "HomePage";
  }

  @GetMapping("/table-view")
  public String getList(){
    return "TableView";
  }
}


// @filename \src\main\java\suai\trsis2021\lab3\entity\CostEntity.java
package suai.trsis2021.lab3.entity;

import lombok.*;
import org.hibernate.Hibernate;

import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.GenerationType;
import javax.persistence.Id;
import java.util.Objects;

@Entity(name = "cost_entity")
public class CostEntity {
  @Id
  @GeneratedValue(strategy = GenerationType.IDENTITY)
  @Getter @Setter private Long id;
  @Getter @Setter private String name;
  @Getter @Setter private Integer price;
```

```
   @Getter @Setter private String category;
   @Getter @Setter private String customer;
   @Getter @Setter private Integer count;

   public CostEntity() {
      count = 1;
   }

   public void countUp(){
      count += 1;
   }

   public void countDown(){
      count -= 1;
   }
}


// @filename
\src\main\java\suai\trsis2021\lab3\exceptions\CostNotFoundException.java
package suai.trsis2021.lab3.exceptions;

public class CostNotFoundException extends Exception{
   public CostNotFoundException(String message) {
      super(message);
   }
}


// @filename \src\main\java\suai\trsis2021\lab3\model\Cost.java
package suai.trsis2021.lab3.model;

import lombok.*;
import suai.trsis2021.lab3.entity.CostEntity;

public class Cost {

   public static Cost toModel(CostEntity entity){
      Cost cost = new Cost();
      cost.id = entity.getId();
      cost.name = entity.getName();
      cost.price = entity.getPrice();
      cost.category = entity.getCategory();
      cost.customer = entity.getCustomer();
      cost.count = entity.getCount();
      return cost;
```

```
    }

    @Getter @Setter private Long id;
    @Getter @Setter private String name;
    @Getter @Setter private Integer price;
    @Getter @Setter private String category;
    @Getter @Setter private String customer;
    @Getter @Setter private Integer count;

    public Cost() {
        count = 1;
    }

    public void countUp(){
        count += 1;
    }

    public void countDown(){
        count -= 1;
    }

}


// @filename \src\main\java\suai\trsis2021\lab3\repository\CostRepository.java
package suai.trsis2021.lab3.repository;

import org.springframework.data.jpa.repository.Modifying;
import org.springframework.data.jpa.repository.Query;
import org.springframework.data.repository.CrudRepository;
import org.springframework.stereotype.Repository;
import suai.trsis2021.lab3.entity.CostEntity;

import java.util.List;
import java.util.Optional;

@Repository
public interface CostRepository extends CrudRepository<CostEntity, Long> {

    @Modifying
    @Query("update cost_entity c " +
            "set c.name = ?1, " +
            "   c.price = ?2," +
            "   c.category = ?3," +
            "   c.customer = ?4," +
            "   c.count = ?5 " +
      "where c.id = ?6")
  void updateCostById(String name,
          Integer price,
          String category,
          String customer,
          Integer count,
          Long id);

  List<CostEntity> findByName(String name);
  Optional<CostEntity> findById(Long id);
}


// @filename \src\main\java\suai\trsis2021\lab3\service\CostService.java
package suai.trsis2021.lab3.service;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Service;
import org.springframework.transaction.annotation.Transactional;
import suai.trsis2021.lab3.entity.CostEntity;
import suai.trsis2021.lab3.exceptions.CostNotFoundException;
import suai.trsis2021.lab3.model.Cost;
import suai.trsis2021.lab3.repository.CostRepository;

import java.util.LinkedList;
import java.util.List;
import java.util.Optional;

@Service
@Transactional
public class CostService {

  @Autowired
  private CostRepository costRepository;

  public boolean addCost(CostEntity cost){
    if(cost.getName() == null ||
        cost.getPrice() == null ||
        cost.getCustomer() == null ||
        cost.getCategory() == null) {
      return false;
    }

    try {
      CostEntity c = findCostEntity(cost);
      if(c == null){
            costRepository.save(cost);
        }
        else{
            c.countUp();
            updateCostById(c);
        }
        return true;
    }
    catch (Exception e){
        e.printStackTrace();
        return false;
    }
}

public boolean deleteCost(Long id){
    try {
        Optional<CostEntity> c = costRepository.findById(id);
        if(c.isEmpty()){
            return false;
        }

        CostEntity cost = c.get();
        if(cost.getCount() > 1){
            cost.countDown();
            updateCostById(cost);
        }
        else{
            costRepository.deleteById(id);
        }
        return true;

    }catch (Exception e){
        return false;
    }
}

public boolean putCost(CostEntity cost){
    if(cost.getName() == null ||
            cost.getPrice() == null ||
            cost.getCustomer() == null ||
            cost.getCategory() == null) {
        return false;
    }

    Optional<CostEntity> c = costRepository.findById(cost.getId());
    if(c.isEmpty()){
      return false;
    }

    CostEntity costEntity = c.get();
    costEntity.setName(cost.getName());
    costEntity.setPrice(cost.getPrice());
    costEntity.setCategory(cost.getCategory());
    costEntity.setCustomer(cost.getCustomer());
    updateCostById(costEntity);
    return true;
  }

  public List<Cost> getCosts(){
    List<Cost> costs = new LinkedList<>();
    costRepository.findAll().forEach(e -> costs.add(Cost.toModel(e)));
    return costs;
  }

  public Cost getCost(Long id) throws CostNotFoundException {
    var cost = costRepository.findById(id);
    if(cost.isEmpty()){
      throw new CostNotFoundException("Cost don't found");
    }
    return Cost.toModel(cost.get());
  }

  private boolean equalsCosts(CostEntity e1, CostEntity e2){
    return e1.getName().equals(e2.getName()) &&
        e1.getCustomer().equals(e2.getCustomer()) &&
        e1.getPrice().equals(e2.getPrice()) &&
        e1.getCategory().equals(e2.getCategory());
  }

  public CostEntity findCostEntity(CostEntity cost) {
    for (var c : costRepository.findByName(cost.getName())) {
      if (equalsCosts(c, cost)) {
        return c;
      }
    }
    return null;
  }

  private void updateCostById(CostEntity cost){
    costRepository.updateCostById(
        cost.getName(),
        cost.getPrice(),
        cost.getCategory(),
        cost.getCustomer(),
        cost.getCount(),
        cost.getId()
    );
  }
}
```

```
// @filename \src\main\resources\templates\HomePage.html
<div id="particles-js">
  <div class="container" style="padding-left: 60px;">
   <div class="row top">
    <div class="twelve column">
     <h1>Family costs</h1>
     <h3>lab3</h3>
    </div>
   </div>

   <div class="row">
    <div class="one-half column">
     <div class="pens pulled">
      <h1>Pages</h1>
      <ul>
       <li><a href="table-view">Table costs </a></li>
      </ul>
     </div>
    </div>
   </div>
  </div>
 </div>
```

```
// @filename \src\main\resources\templates\TableView.html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Costs Management (lab3)</title>
  <script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.4.1/jquery.min.js"></script>

  <style>
    .input_form{
      width: 40%;
    }
```

```
input{
   width: 97%;
}

button.btn{
   width:100%;
   height:100%;
   min-width:30px;
   max-width:200px;
   min-height:30px;
   max-height:30px;

   color: black;
   background-color: white;
   border-color: black;
   border-width: 1px;
   border-radius: 7px;
   font-size: 20px;
}

button.green_btn{
   width: 10%;
   height: 10%;
   color: black;
   background-color: palegreen;
   border-color: seagreen;
}

button.green_btn:hover{
   border: none;
   color: gray;
}

button.red_btn{
   width:100%;
   height:10%;

   color: white;
   background-color: palevioletred;
   border-color: darkred;
}

button.red_btn:hover{
   border: none;
   color: black;
```

```
}

button.orange_btn{
   width:100%;
   height:10%;

   color: white;
   background-color: darkorange;
   border-color: orangered;
}

button.orange_btn:hover{
   border: none;
   color: black;
}

table {
   background: #f5f5f5;
   border-collapse: separate;
   box-shadow: inset 0 1px 0 #fff;
   font-size: 20px;
   /*line-height: 24px;*/
   margin: 30px auto;
   text-align: left;
   width: 90%;
}

th {
   background: lightgray;
   border-left: 1px solid #555;
   border-right: 1px solid #777;
   border-top: 1px solid #555;
   border-bottom: 1px solid #333;
   box-shadow: inset 0 1px 0 #999;
   color: #000;
   font-weight: bold;
   padding: 10px 15px;
   position: relative;
}

th:after {
   background: linear-gradient(rgba(255,255,255,0), rgba(255,255,255,.08));
   content: '';
   display: block;
   height: 25%;
   left: 0;
```

```
  margin: 1px 0 0 0;
  position: absolute;
  top: 25%;
  width: 100%;
}

th:first-child {
  border-left: 1px solid #777;
  box-shadow: inset 1px 1px 0 #999;
}

th:last-child {
  box-shadow: inset -1px 1px 0 #999;
}

td {
  border-right: 1px solid #fff;
  border-left: 1px solid #e8e8e8;
  border-top: 1px solid #fff;
  border-bottom: 1px solid #e8e8e8;
  padding: 5px 5px;
  line-height: 5px;
  position: relative;
  transition: all 300ms;
}

td:first-child {
  box-shadow: inset 1px 0 0 #fff;
}

td:last-child {
  border-right: 1px solid #e8e8e8;
  box-shadow: inset -1px 0 0 #fff;
}

tr {
}

tr:nth-child(odd) td {
  background: #f1f1f1;
}

tr:last-of-type td {
  box-shadow: inset 0 -1px 0 #fff;
}
```

```
    tr:last-of-type td:first-child {
      box-shadow: inset 1px -1px 0 #fff;
    }

    tr:last-of-type td:last-child {
      box-shadow: inset -1px -1px 0 #fff;
    }

    tbody:hover td {
      color: transparent;
      text-shadow: 0 0 3px #aaa;
    }

    tbody:hover tr:hover td {
      color: #444;
      text-shadow: 0 1px 0 #fff;
    }

  </style>

</head>

<script type="text/javascript">
  $(document).ready(function (){
    refresh();
  })

  function refresh(){
    draw_table();
  }

  function draw_table(){
    $.ajax({
      url: "costs/get/all",
      dataType: "json",
      contentType: "application/json",
      type: "GET",
      async: false,
      cache: false,
      success: function (data) {
        let $costs = $('#costs_table')

        let table = "<table border='1'>";
        table +=
          "   <tr>\n" +
          "      <th>id</th>\n" +
          "      <th>Name</th>\n" +
          "      <th>Price</th>\n" +
          "      <th>Category</th>\n" +
          "      <th>Customer</th>\n" +
          "      <th>Count</th>\n" +
          "      <th></th>\n" +
          "      <th></th>\n" +
          "   </tr>";

        for(let i=0; i<data.length; i++) {
          table +=
            "<tr>\n" +
            "    <td>" + data[i].id + "</td>\n" +
            "    <td>" + data[i].name + "</td>\n" +
            "    <td>" + data[i].price + "</td>\n" +
            "    <td>" + data[i].category + "</td>\n" +
            "    <td>" + data[i].customer + "</td>\n" +
            "    <td>" + data[i].count + "</td>\n" +
            "    <td>\n" +
            "        <button class='btn red_btn' onclick='deleteCost(" + data[i].id +
")'>Delete</button>\n" +
            "    </td>\n" +
            "    <td>\n" +
            // "        <br>" +
            "        <button class='btn orange_btn' onclick='editCost(" + data[i].id +
")'>Edit</button>\n" +
            "    </td>\n" +
            "</tr>";
        }

        table += "</table>";

        $costs.html(table);
      },
      error: function (error) {
        console.log(error);
      }
    });
  }

  function addCost() {
    $.ajax({
      url: "/costs/add/",
      dataType: "json",
      contentType: "application/json",
      type: "POST",
        async: false,
        cache: false,
        data: JSON.stringify({
            name: $("#fiendName").val(),
            price: $("#fieldPrice").val(),
            category: $("#fieldCategory").val(),
            customer: $("#fieldCustomer").val()
        }),
        success: function () {
            refresh();
        },
        error: function (error) {
            console.log(error);
        }
    });
}

function deleteCost(idCost){
    $.ajax({
        url:'costs/delete/'+ idCost,
        type: "DELETE",
        async: false,
        cache: false,
        dataType: "json",
        contentType: "application/json; charset=utf-8",
        success: function (){
            refresh();
        },
        error: function (error){
            console.log(error);
        }
    })
}

function editCost(idCost){
    $.ajax({
        url: "/costs/put/" + idCost,
        dataType: "json",
        contentType: "application/json",
        type: "PUT",
        async: false,
        cache: false,
        data: JSON.stringify({
            id: idCost,
            name: $("#fiendName").val(),
            price: $("#fieldPrice").val(),
            category: $("#fieldCategory").val(),
            customer: $("#fieldCustomer").val()
         }),
         success: function (){
            refresh();
         },
         error: function (error){
            console.log(error);
         }
      })
   }

</script>

<body>
   <center>
      <h1>Costs Management</h1>
      <div>
         <form>
            <table class="input_form" border="1" cellpadding="5" align="center">
               <tr><th>Name</th> <td>
                  <input type="text" name="name" id="fiendName"> </td></tr>
               <tr><th>Price</th> <td>
                  <input type="text" name="price" id="fieldPrice"> </td></tr>
               <tr><th>Category</th> <td>
                  <input type="text" name="category" id="fieldCategory"> </td></tr>
               <tr><th>Customer</th> <td>
                  <input type="text" name="customer" id="fieldCustomer"> </td> </tr>
            </table>
         </form>
      </div>
      <button class="right btn green_btn" type="button" onclick='addCost()'>Add</button>
      <br>
      <br>
      <div id='costs_table'></div>
   </center>

</body>
</html>
```