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Software Construction LAB

LAB REPORT 10

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B21F0353SE040

SOFTWARE ENGINEERING

6TH SEMESTER

LAB TASK:

Develop a Spring Boot application allowing users to upload CSV files, parse them, and perform basic data operations.

Requirements:

- Implement file upload functionality for CSV files.
- Parse uploaded CSV files using a library like OpenCSV.
- Display parsed data or perform basic manipulations (e.g., statistics, filtering)

Firstly to achieve the task we need to create the controller class:

Controller class:

```
@Controller
public class FileUploadController {

    @PostMapping("/upload")
    public String uploadCSVFile(@RequestParam("file") MultipartFile file, Model model) {
        if (file.isEmpty()) {
            model.addAttribute("message", "Please select a file to upload.");
            return "uploadForm"; // Corrected view name
        }

        try (CSVReader reader = new CSVReader(new InputStreamReader(file.getInputStream()))) {
            List<String[]> records = reader.readAll();
            model.addAttribute("records", records);
        } catch (IOException | CsvException e) {
            e.printStackTrace();
            model.addAttribute("message", "Error parsing CSV file: " + e.getMessage());
            return "uploadForm";
        }

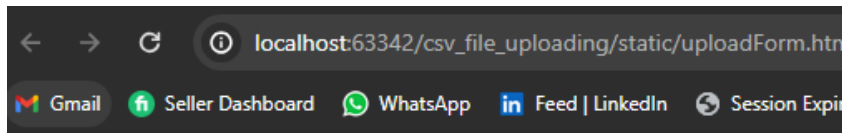
        return "displayData";
    }
}
```

The FileUploadController class serves as the entry point for handling file upload requests. It contains a method annotated with `@PostMapping("/upload")`, which means it will handle POST requests to the /upload endpoint.

Upload Form:

Then we have an HTML file to upload CSV files. This will be used to send HTTP POST requests to the controller class.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Upload CSV File</title>
</head>
<body>
<h2>Upload CSV File</h2>
<form action="/upload" method="post" enctype="multipart/form-data">
  <input type="file" name="file" accept=".csv">
  <button type="submit">Upload</button>
</form>
</body>
</html>
```



Upload CSV File

Choose File No file chosen

Upload

Display Data:

This html file will display the parsed data from the uploaded CSV file.

```
<!DOCTYPE html>
<html lang="en" xmlns:th="http://www.thymeleaf.org">
<head>
  <meta charset="UTF-8">
  <title>Parsed Data</title>
</head>
<body>
<h2>Parsed Data</h2>
<table border="1">
  <tr>
    <th>Column 1</th>
    <th>Column 2</th>
    <!-- Add more columns if needed -->
  </tr>
  <tr th:each="record : ${records}">
    <td th:each="value : ${record}" th:text="${value}"></td>
  </tr>
</table>
</body>
</html>
```

Parsed Data

Column 1	Column 2
----------	----------

Running spring boot application:

```
:: Spring Boot :: (v3.2.5)

2024-05-11T13:00:03.132+05:00 INFO 6484 --- [csv_file_uploading] [ restartedMain] c.c.CsvFileUploadingApplication : Starting CsvFileUploadingAp
2024-05-11T13:00:03.141+05:00 INFO 6484 --- [csv_file_uploading] [ restartedMain] c.c.CsvFileUploadingApplication : No active profile set, fall
2024-05-11T13:00:03.345+05:00 INFO 6484 --- [csv_file_uploading] [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : Devtools property defaults i
2024-05-11T13:00:03.346+05:00 INFO 6484 --- [csv_file_uploading] [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : For additional web related
2024-05-11T13:00:06.164+05:00 INFO 6484 --- [csv_file_uploading] [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with por
2024-05-11T13:00:06.207+05:00 INFO 6484 --- [csv_file_uploading] [ restartedMain] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2024-05-11T13:00:06.208+05:00 INFO 6484 --- [csv_file_uploading] [ restartedMain] o.apache.catalina.core.StandardEngine : Starting Servlet engine: [Ap
2024-05-11T13:00:06.321+05:00 INFO 6484 --- [csv_file_uploading] [ restartedMain] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedde
2024-05-11T13:00:06.325+05:00 INFO 6484 --- [csv_file_uploading] [ restartedMain] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext:
Standard Commons Logging discovery in action with spring-jcl: please remove commons-logging.jar from classpath in order to avoid potential conflicts
2024-05-11T13:00:07.108+05:00 INFO 6484 --- [csv_file_uploading] [ restartedMain] o.s.b.d.a.OptionalLiveReloadServer : LiveReload server is runnin
2024-05-11T13:00:07.174+05:00 INFO 6484 --- [csv_file_uploading] [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 8080
2024-05-11T13:00:07.190+05:00 INFO 6484 --- [csv_file_uploading] [ restartedMain] c.c.CsvFileUploadingApplication : Started CsvFileUploadingApp
2024-05-11T13:00:28.154+05:00 INFO 6484 --- [nio-8080-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring Dispatc
2024-05-11T13:00:28.154+05:00 INFO 6484 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet : Initializing Servlet 'dispa
2024-05-11T13:00:28.155+05:00 INFO 6484 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet : Completed initialization in

Process finished with exit code -1
```

CONCLUSION:

This lab will play the vital role for us in our upcoming semester project as we have to work with the databases for our project and it really is important for us to know how to connect upload files using the spring boot. Our Mam Anum taught us well during the lab and was with us the whole time