

ONLINE CLIPBOARD – PROJECT REPORT

Author: Amrit Singh UID: 23BCS12931

1. Introduction The Online Clipboard project is a web-based application developed using Spring Boot. It allows users to store, manage, and share text snippets securely across devices. The project demonstrates a full-stack approach with a focus on modularity, scalability, and user-friendly interface.

Objectives: - Provide a centralized platform for clipboard management. - Ensure secure storage and retrieval of text entries. - Enable cross-device accessibility. - Maintain a simple and responsive UI.

2. System Architecture The application follows a three-tier architecture:

1. Presentation Layer – Thymeleaf templates integrated with Spring Boot controllers. 2. Business Logic Layer – Services handling validations and business rules. 3. Data Access Layer – MySQL database with JPA/Hibernate ORM.

Flow: User → Controller → Service → Repository → Database

3. Implementation

Backend: - Built with Spring Boot. - REST APIs implemented in controllers to handle CRUD operations. - Core components: Model classes (User, ClipboardEntry), Service layer, Repository interfaces.

Example Snippet: `@RestController @RequestMapping("/api/clipboard") public class ClipboardController { @Autowired ClipboardService service;`

```
@PostMapping("/add") public ResponseEntity add(@RequestBody ClipboardEntry entry) {
    service.saveEntry(entry); return ResponseEntity.ok("Added Successfully"); }
```

Frontend: - Uses Thymeleaf, HTML5, CSS3, and Bootstrap. - JavaScript enables clipboard interactions (copy/paste). - Responsive and clean interface for ease of use.

Database: - MySQL database with tables for Users and Clipboard Entries. - Entities mapped via JPA/Hibernate. - Supports structured storage and quick retrieval.

4. Testing and Deployment Testing: - Unit Testing: JUnit - Integration Testing: Postman - Logging and Exception Handling

Deployment: - Hosted on embedded Spring Boot server or Apache Tomcat. - Remote MySQL database connection configured.

Future Scope: - Add cloud synchronization - Implement user collaboration - Mobile app integration

Conclusion: The Online Clipboard project successfully demonstrates a full-stack Spring Boot application that provides secure, accessible, and efficient clipboard management.