Java & DSA

Semester-IV (Batch-2023)

PDF Converter System



# Supervised by: Submitted By:

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**PDF CONVERTOR**

**Purpose:**

The aim of this project is to create a console-based smart PDF converter using Java and core DSA concepts.  
The system enables users to perform essential PDF operations like creating, merging, splitting, extracting text, and password protection, with efficient task and action management using Stack and Queue data structures.

**Objectives:**

* To implement essential PDF tasks (convert, merge, split, extract, secure) using Java.
* To apply DSA concepts like Stack (Undo operations) and Queue (Task management).
* To simulate a real-world file handling system without any frontend dependency.
* To build a lightweight, offline, resume-worthy console project.

**Scope:**

* **Console-Based Application:** Lightweight, easy to run without external UI.
* **DSA Integration:** Real-world file operations optimized using DSA logic.
* **Modular Design:** Proper separation of functionalities (Task Manager, PDF Service, Undo Manager).
* **Extensible System:** Future scalability for advanced operations like watermarking, annotation, etc.

**Features and Functionality:**

* Convert Text to PDF
* Merge multiple PDFs
* Split PDFs into separate pages
* Extract text from a PDF file
* Apply password protection to PDFs
* Undo last file operation using Stack
* Manage tasks using Queue

**Technology and Tools:**

| **Component** | **Details** |
| --- | --- |
| Backend | Java |
| Libraries Used | Apache PDFBox |
| DSA Concepts | Stack, Queue |
| Development Environment | VS Code / IntelliJ |
| Java Version | JDK 17 |

**Modules Breakdown:**

➤ 1. **Console Menu:**  
Simple menu-based navigation for all operations.

➤ 2. **PDF Operations (PDFService):**  
Handles all PDF creation, merging, splitting, extraction, and password protection.

➤ 3. **Undo Manager (Stack):**  
Supports undoing the last successful operation.

➤ 4. **Task Manager (Queue):**  
Tracks all operations performed during the session.

**Expected Outcome:**

The project results in a smart, efficient, console-based PDF converter application.  
It demonstrates a strong understanding of Java programming, real-world DSA applications, and basic file handling operations.  
This project is lightweight, offline-friendly, and an excellent portfolio addition.

**✅ DONE**