

# TASKMATRIX

## Introduction & Project Name

The individual project titled “**TaskMatrix – Export to PDF**” is an enhancement of the existing **TaskMatrix** system — a team-based productivity and project management platform that helps users efficiently manage boards, tasks, and deadlines.

While TaskMatrix provided powerful tools for task creation, tracking, and collaboration, it lacked an integrated feature to **export tasks and reports for documentation or offline use**.

To address this limitation, the **Export to PDF** feature was developed.

This new functionality enables users to **generate and download task reports in PDF format** directly from the platform with a single click, ensuring better data sharing, record-keeping, and reporting efficiency.

## Identifying Business Problem from the Group Project

In the group project **TaskMatrix**, users could create, assign, and monitor tasks within project boards effectively. However, exporting and sharing this data was done manually, which introduced several challenges:

- Users couldn’t easily download or share their project tasks in a clean, printable format.
- Managers lacked a quick way to generate task reports for review or documentation.
- Important task details had to be copied manually into external tools or documents.
- The absence of a built-in export function reduced productivity and transparency.

## Objective of the New Feature

The **TaskMatrix – Export to PDF** feature was designed with the following key objectives:

1. **Enable Quick Report Generation:** Allow users to export all tasks from a project board into a professionally formatted PDF.
2. **Simplify Data Sharing:** Help team members and managers share project updates and task summaries easily.
3. **Maintain Data Accuracy:** Ensure the exported data reflects the latest updates from the TaskMatrix database.
4. **Enhance Documentation:** Provide a ready-to-download report for meetings, audits, and progress tracking.

5. **Improve Workflow Efficiency:** Eliminate manual report creation and streamline data presentation.

## Requirements

### Functional Requirements

- Allow users to export project tasks to PDF format with a single button click.
- Include task details such as task name, description, status, priority, and due date.
- Retrieve and format task data from the PostgreSQL database dynamically.
- Generate PDF files using the Flask backend and make them downloadable instantly.
- Maintain proper formatting, table structure, and page layout for clarity.

### Non-Functional Requirements

- Provide a **user-friendly button** integrated into the Task page interface.
- Ensure **fast PDF generation** with minimal delay.
- Support **secure access**, allowing only logged-in users to export tasks.
- Maintain **data consistency** and accuracy in exported reports.
- Ensure the feature works smoothly across browsers and devices.

### Tools & Technologies

- **Frontend:** HTML5, CSS3, JavaScript
- **Backend:** Flask (Python)
- **Database:** PostgreSQL
- **PDF Generation:** ReportLab / Flask library for PDF export

### Technical Work and Analysis

The **Export to PDF** feature was implemented by extending the existing TaskMatrix backend and front-end logic.

Whenever a user clicks the “**Export to PDF**” button:

- The system retrieves all relevant task data (task title, description, status, and due dates) from the **PostgreSQL database**.

- Flask dynamically generates a structured PDF report using **ReportLab**.
- The PDF is formatted with headers, tables, and task details for professional readability.
- Once generated, the PDF is automatically downloaded to the user's system.

Additionally:

- The Flask backend ensures that only authenticated users can access the export feature.
- Data formatting and styling are applied to make the exported PDF visually clear and consistent with the TaskMatrix theme.
- The process is fully automated — no manual input required beyond clicking the export button.

## Solving the Business Problem

The **Export to PDF** feature directly addresses the previous issue of manual and time-consuming task reporting.

It provides a **fast, automated, and reliable** way to generate task summaries and share them within or outside the organization.

With this feature:

- Users can instantly download and share task reports.
- Managers can review progress offline during meetings or evaluations.
- TaskMatrix now supports both **project management and formal reporting** in one place.
- Time and effort spent on preparing reports are significantly reduced.

## Result of the New Feature Update

After integrating the **Export to PDF** feature into TaskMatrix:

- Teams can generate task summaries instantly from the Task page.
- Reports are automatically formatted and ready for presentation.
- Task data remains accurate and synchronized with the database.
- Productivity improved due to reduced manual work.
- Managers and teams now have quick access to offline task documentation.

## Conclusion

The **TaskMatrix – Export to PDF** feature significantly enhances the existing TaskMatrix system by introducing an **efficient reporting mechanism**.

It replaces manual report creation with a **one-click PDF export option**, improving data accessibility, accuracy, and usability.

By leveraging **Flask**, **PostgreSQL**, and **ReportLab**, this feature demonstrates effective full-stack integration and data automation.

Overall, the **Export to PDF** module transforms TaskMatrix into a more complete and professional project management tool — enabling users to manage, monitor, and document their tasks seamlessly within a single platform.