

Final Project Proposal

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Company Name: CodeX Computing Co.

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1. Project Title

File Transfer Assistant – A Smart Desktop App for Seamless File Transfers

2. Overview

The File Transfer Assistant is a Python-based desktop application designed to simplify and automate the process of transferring files from a computer to external storage devices like USB drives, SD cards, or external hard disks. The app aims to reduce manual errors, save time, and improve the user experience with a clean GUI and intelligent features such as file filtering, automatic device detection, transfer logging, and undo functionality.

This project has been chosen to demonstrate practical applications of Python in GUI development, file handling, multithreading, and real-world automation.

3. Purpose

The main objectives of this project are:

- To develop a user-friendly desktop tool for safe and efficient file transfers
- To automate detection of external devices and streamline file selection
- To implement multithreading for a responsive user interface
- To ensure safe file handling with overwrite protection, error messages, and optional undo functionality

Through this project, I aim to enhance my skills in Python GUI development (PyQt5), threading, file system operations, and user-focused design.

4. Tools and Technologies

- **Programming Language:** Python
 - **GUI Framework:** PyQt5
 - **Libraries/Modules:**
 - os, shutil, pathlib for file operations
 - threading, concurrent.futures for background tasks
 - psutil, watchdog for device monitoring
 - json or ini files for storing user preferences
 - pandas or .csv for logging and history
 - **Development Platform:** Visual Studio Code
 - **Operating System Target:** Windows
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5. Expected Output

The final output will be a Python desktop application that:

- Detects USB/external drives automatically
- Let's users select files and folders through a GUI
- Supports file transfer with overwrite protection and progress tracking
- Provides filters (e.g., by file type or size)
- Maintains a transfer history log
- Offers retry, undo, and error handling features
- Includes a settings panel for storing preferences
- Saves user actions in session-based logs or reports

This tool will be packaged for easy installation on Windows and documented with a user guide.