# Bytexl’s Guided Project - Students’ User Guide

## Project Title:

Image to PDF Converter Application

## Objective:

This project is designed to help you gain hands-on experience in developing a simple yet functional desktop application using Python and Tkinter. The application converts selected images into a single PDF file, integrating several fundamental functionalities like image preview, reordering images, and PDF creation.

## Instructions for Students

### Project-Based Learning Course Overview

About the Project: This project involves creating a GUI application using Python's Tkinter library to convert selected images into a PDF document. It covers key skills such as file handling, GUI design, and basic image processing in Python.

### Prerequisites

- Basic knowledge of Python programming.  
- Familiarity with Tkinter for GUI applications and Pillow library for handling images.  
- Knowledge of file I/O and event handling in Python is helpful.

### What Will You Learn?

- GUI development with Tkinter.  
- File management techniques, such as selecting files from a directory.  
- Image processing with the PIL (Pillow) library.  
- PDF generation using the ReportLab library.

### Skills You Will Practice

- Tkinter for creating a desktop GUI application.  
- Working with external libraries like Pillow for image processing and ReportLab for PDF generation.  
- Error handling and basic file operations in Python.

### How to Execute Your Project?

1. Project Access: Ensure you have Python installed, and import the necessary libraries (Tkinter, Pillow, ReportLab).  
2. Device Requirements: Use a desktop or laptop to execute this project.  
3. Setup Instructions: Install required libraries using:  
  
 pip install pillow reportlab  
  
 Ensure all dependencies are correctly installed to avoid errors.

### Course Objectives and Structure

#### Course Objectives:

1. Develop a GUI application with Tkinter.  
2. Enable users to select multiple images.  
3. Implement preview, reorder, and convert functionalities for image files.  
4. Create a PDF file from the selected images.

#### Course Structure:

The course is divided into three parts:  
  
1. Course Overview: Introductory reading material.  
  
2. Project Structure:  
 - Task 1: Implement image selection, clearing, and preview functionalities.  
 - Task 2: Enable reordering of images in the selection list.  
 - Task 3: Develop the PDF conversion functionality.  
  
3. Meet Your Educator:  
 - Educator: Gitesh Kund, an experienced instructor in Python development and GUI applications.

### Expected Outcomes

Upon completing this project, you will be able to:  
  
- Create and style a Tkinter GUI.  
- Select images and preview them within the application.  
- Enable basic image management within a list (reordering, clearing).  
- Convert images to a PDF format and save them.

### Quiz Questions

(5 MCQs with Answers Highlighted)  
  
1. Which library is used for image handling in this project?  
 - A) NumPy  
 - B) PIL (Pillow) ✅  
 - C) Matplotlib  
 - D) OpenCV  
  
2. What type of user interface toolkit is used in this project?  
 - A) Kivy  
 - B) Qt  
 - C) Tkinter ✅  
 - D) Django  
  
3. What does the `ReportLab` library do in this project?  
 - A) Image filtering  
 - B) PDF generation ✅  
 - C) Database management  
 - D) Networking  
  
4. Which function is responsible for showing image previews?  
 - A) show\_preview ✅  
 - B) create\_image\_list  
 - C) main  
 - D) update\_listbox  
  
5. What file format is created as output?  
 - A) JPG  
 - B) PNG  
 - C) GIF  
 - D) PDF ✅