Final Design Document

Purpose: A flashcard app that lets the user create flashcard sets from images and allows them to shuffle through them while removing ones they feel they have learned.

Overview: The user has two options, adding a new flashcard set, and studying a current one. When adding a new set, the user can browse for a folder containing their images and create a flashcard set of the images in that folder. When studying a current set the user can input the name of the flashcard set to study it. When studying, the user has 3 options: keep, remove, and stop. Keep, keeps the current flashcard in the set and moves onto the next, remove, removes the current flashcard from the set and moves on, stop, closes the study window. Each time all the images in the set has been seen, the set is randomly shuffled.

Pillow is used to process the images, tkinter is used for the graphical user interface, the os is used for file management, and random is used to shuffle the flashcards.

Requirements and Limitations: Python and its Pillow Library must be installed. Only jpg and png images are supported.

External Libraries Used:
Os: Used for file and directory access
Pillow: For image processing
Tkinter: For GUI creation
Random: used to shuffle the flashcards

Algorithm in Pseudocode:

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Import External Libraries

Define function main():
    Create main window
    Create user text input (entry)
    Create radio buttons:
        Option 1: "Study"
        Option 2: "Add A New Flashcard Set to Study"
    Define function get_value():
        If selected option is "Add":
            Call add()
        If selected option is "Study":
            Get text input from entry
            If input is not a flashcard set:
                Show error message: "This Flashcard Set Does Not Exist"
            Else:
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            Call study(input)
    Add a submit button to call get_value()
    Open main window with window.mainloop

Define function add():
    Define function select_folder():
        Open file browser to select folder
        Display selected folder path
    Define function create_flashcard_set():
        Get selected folder path and flashcard set name
        If folder does not exist:
            Show error message: "This folder does not exist"
        Else:
            Create empty list for images
            Create text file using flashcard set name
            Write image file paths to text file if the image format is supported
            If folder contains no valid images:
                Show error message: "This folder contains no supported images"
            Else:
                Show success message: Flashcard set created
                Close add window
    Create add window
    Display input field for flashcard set name
    Create button to call select_folder
    Create button to call create_flashcard_set

Define function load_image_paths(file_path):
    Open text file in read mode
    Read lines, strip whitespace, and return as list of paths

Define function load_images(image_paths):
    Images = []
    For each path in image_paths:
        Try to open each image with pillow and it to the images list
        If error, show error message
    Return list of loaded images

Define class FlashcardApp:
    Initialize with master window and image paths
    Load images from paths
    Copy image list for shuffling
    Shuffle flashcards
    Display first image
    Create "Keep," "Remove," and "Stop" buttons that call their respective functions
    Define shuffle_cards():
        Shuffle current image list
    Define show_image():
        If there are cards left:
            If the list has been exhausted shuffle the cards
        If no cards left:
            Display success message
            Close window
    Define keep_card():
        Remove current image from current shuffled list
        Show next image
    Define remove_card():
        Remove current image from current and original lists
        Show next image
    Define stop():
        Close window

Define function study(flashcard_set_name):
    Append ".txt" to flashcard set name
    If text file does not exist:
        Show error message: Flashcard set does not exist
    Else:
        Image_paths = load_image_paths(textfile)
        Create study window
        Initialize FlashcardApp with image_paths
        Open study window

Call main() to start the program
```