**Draft Plan for architecture**

1. **Data Preparation and Model Training**

* **Data Preprocessing**: Standardize all images to the same size (e.g., 224x224) and normalize them for consistency.
* **Model Selection**: Choose a CNN model like ResNet, VGG, or MobileNet.
* **Model Training**: Train the model and ensure satisfactory accuracy on the validation set.
* **Model Saving**: After training, save the model as a file (e.g., .h5 for TensorFlow) for later loading in the application.

1. **Creating the Local Application Interface**

Using Graphical User Interface (GUI)

To create a more user-friendly application, use Tkinter or PyQt.

1. Design the Interface: Create a window with "Select File" and "Classify" buttons.
2. File Selection and Display: Implement a file selector for users to upload images and preview the uploaded image in the window.
3. Classification and Result Display: When the "Classify" button is clicked, the application processes the image, classifies it, and displays the result on the GUI.

**Tkinter**

* Best for: Simple applications that don’t need advanced features or styling.
* Pros:
  + Built into Python, so there’s no need for additional installations.
  + Easy to learn and great for basic GUIs (e.g., file uploads, buttons, text output).
* Cons:
  + Limited styling options and less modern-looking than other frameworks.

**PyQt or PySide**

* Best for: More advanced, polished applications that need custom styling and multiple components.
* Pros:
  + Highly customizable and provides many widgets (e.g., image preview, progress bars, etc.).
  + Supports complex layouts and sophisticated designs.
* Cons:
  + Has a steeper learning curve than Tkinter.
  + Requires additional installation (PyQt5 or PySide6).

1. **Deployment and Testing**

* Local Testing
  + Run the application locally and test with sample images to ensure the model returns accurate results.
* Application Packaging
  + Use PyInstaller to package the application as an executable file for easy distribution
* User Guide and Documentation
  + Create a short user guide explaining how to upload images, run the application, and interpret results.