

Core Functionality

1. Library (DLL) Creation:

- Create a dynamic link library (DLL) containing all the class definitions.
- Ensure the classes are instantiated and used polymorphically to output attributes.

2. Inheritance Hierarchy:

- Create abstract class **Analyzer**: Base class for all analyzers.
- Create **PrintAnalyzer**: Subclass that finds fingerprints ('@') in a grid.
- Create **SampleAnalyzer**: Subclass that collects DNA/hair/fiber samples in a grid.
- Create **ThirdAnalyzer**: Inherit from **SampleAnalyzer**, with distinct methods or data.
- **Polymorphism**: Implement methods to ensure all analyzers can be used polymorphically.

User Input & File Handling

1. File Selection:

- Allow the user to enter/select the crime scene data file.
- Design the input format and structure of the file (e.g., text, CSV).
- Implement file reading functionality (use provided sample code from D2L as a reference).
- Ensure proper error handling for file input issues (invalid format, file not found).

2. Data Storage in Object Variables:

- Parse the file data and store it in the appropriate class variables of the analyzers.

UI Design (Labels, Text Boxes, Buttons)

1. Form UI:

- Design the form interface with labels, text boxes, and buttons.

2. User Inputs:

- Text box for entering the filename (case number or name).
- Buttons for selecting the type of evidence to examine (fingerprints, DNA, etc.).

Evidence Collection & Display

1. Result of Evidence Collection:

- Display the results of the fingerprint collection as a string (number of '@' symbols found).
- Display the results of other evidence collected as a dynamically created 2D array of picture boxes (using **.png** files for visualization).
- Optional: Make boundary lines of the 2D array visible or invisible based on the design.

2. Display Messages:

- Display a success message when evidence collection is complete.
- Display the number of fingerprints or samples collected.

3. Image Handling:

- Find or create appropriate **.png** files for the evidence and display them in the picture boxes.

Exception Handling

1. **Handle Input Errors:**

- Use a message box to handle exceptions (e.g., file not found, file format errors).
- Ensure proper validation and error handling at each step.

Additional Features

1. **Switch Statement:**

- Implement a `switch` statement to handle the different types of analyzers based on user input.