1. Planning and Analysis

- Understand the features required in the phone directory software such as adding contacts, searching, editing, and deleting contacts.

- Determine the input and output formats for the data.

2. Define Requirements

- Document detailed functional requirements for each feature.

- Establish the constraints and system specifications.

3. Design

- Define the overall architecture of the software, including modules for input/output, data storage, and functionality.

- Design data structures to store contact information efficiently, considering factors like search speed and memory usage.

- Plan the user interface, including command-line or graphical interface options.

4. Development

- Write the code for each module based on the design, following coding standards and best practices.

- Implement functionalities like adding, searching, editing, and deleting contacts.

- Test each module as it is developed to ensure correctness and functionality.

5. Testing

- Perform unit tests to verify the correctness of individual modules.

- Conduct integration tests to ensure that different modules work together seamlessly.

- Test the software with different inputs, including edge cases and invalid inputs, to check robustness.

- Fix any bugs or issues identified during testing.

6. Deployment

- Package the software for distribution, ensuring that all necessary files and dependencies are included.

- Create documentation, including user guides and installation instructions.

- Distribute the software to users or deploy it on the intended platform.

7. Maintenance

- Monitor user feedback and address any reported issues or feature requests.

- Perform regular maintenance tasks such as updating dependencies and optimizing performance.

- Plan for future enhancements or updates based on user needs and technological advancements.

