

Design Decisions:

1. Text Extraction: PDF text is extracted using the `pdfplumber` library, combining the text from all pages into a single string.
2. Summary Generation: The OpenAI GPT-3.5 engine (text-davinci-003 model) is used to generate summaries by providing a prompt with a portion of the extracted text.
3. Question Generation: The same OpenAI GPT-3.5 engine is used to generate initial questions by providing the extracted text as context.
4. User Interaction: Users are prompted to input additional questions, which are stored in a list.
5. Error Handling: Exceptions are caught and appropriate error messages are displayed.

Performance of the System:

1. - The system's performance depends on PDF complexity, text extraction quality, and the OpenAI GPT-3.5 engine's capabilities.
2. - Summary and question quality may vary based on PDF content and context.
3. - Temperature and token limits control randomness and output length.
4. - Accuracy and relevance depend on the engine and extracted text quality.

Limitations:

1. Language Support: Limited support for less common or low-resource languages.
2. Text Extraction: Only processes extractable text, not scanned images or non-extractable formats.
3. Model Limitations: Generated outputs may lack context or contain factual inaccuracies.
4. User Input Validation: Lack of extensive validation for user questions.
5. Dependency on OpenAI API: Relies on API availability and stability.
6. Resource Intensive: Large or numerous PDFs may increase processing time and resource usage.
7. Lack of Iterative Learning: No incorporation of user feedback for system improvement.
8. Accuracy of Extracted Text: Extracted text accuracy depends on PDF quality and may contain errors.
9. Security and Privacy: No specific handling of security and privacy concerns.

Consider these factors when implementing and deploying the system, and evaluate its suitability for specific use cases and requirements.