Vivekanand Education Society's Institute of Technology

Department of Computer Engineering

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Project Synopsis (2024-25) - Sem V

AutoSlides: Generative Presentation

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Abstract

Presentation slides are essential for conveying information in academic and professional settings, but creating them manually is often time-consuming. The project aims to automate slide generation, focusing on educational books and content. By leveraging advanced natural language processing and machine learning techniques, slide content is restructured, ensuring key concepts and information are effectively conveyed. This project has the potential to significantly enhance productivity and improve the quality of educational presentations, making it a helpful tool for educators and professionals.

Introduction

Presentation slides are commonly used for conveying information in academic and professional settings. They are often the preferred format for learners to quickly grasp and familiarize themselves with new information. However, creating presentation slides manually can be a hectic process. This project explores the use of automated slide generation to produce presentation drafts from documents, specifically focusing on educational content. Current summarization models are not suitable for automated slide generation due to several limitations. These models primarily generate textual summaries without considering the structural and visual formatting required for presentation slides, which need bullet points, headings, subheadings, and visual aids. Additionally, summarization models condense information without prioritizing content based on its importance or relevance to the educational context, which is crucial for highlighting key points in slides.

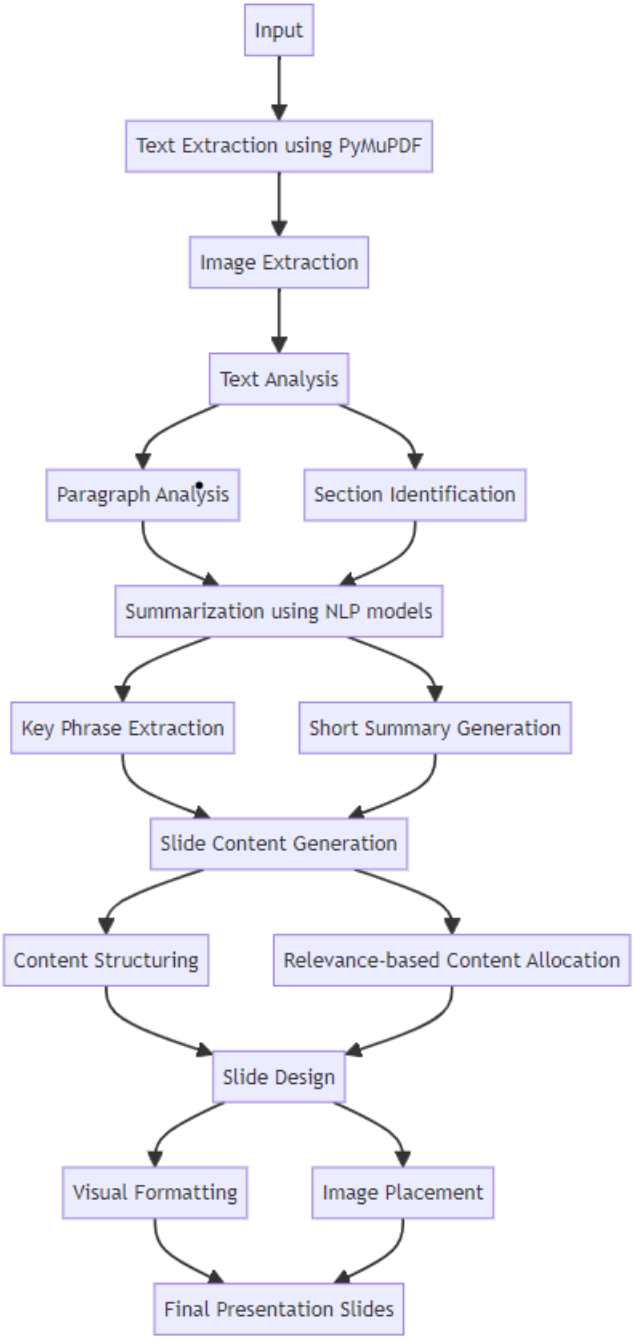
Problem Statement:

While presentation slides are essential for effectively conveying information, the manual process often detracts from productivity and can result in inconsistent quality. Current automated solutions, such as summarization models, fall short in meeting the specific needs of slide creation due to their inability to generate structured and visually formatted content. There is a clear need for an automated slide generation system that leverages advanced natural language processing and machine learning techniques to transform educational books and content into well-structured, visually appealing, and contextually relevant presentation slides. This system aims to enhance productivity, improve the quality of educational presentations, and serve as a valuable tool for educators and professionals.

Proposed Solution:

In summary, the AutoSlides project addresses the challenges associated with manual presentation slide creation by leveraging advanced natural language processing and machine learning techniques. By automating the slide generation process, the model transforms educational content into structured, visually appealing, and contextually relevant slides. This innovation not only enhances productivity but also improves the quality of educational presentations, offering a valuable tool for educators and professionals. This approach ensures that key concepts are effectively communicated, allowing users to focus on content delivery and audience engagement rather than slide preparation.

Methodology / Block Diagram



Requirements:

Hardware Requirements:

- System type: 64-bit operating system
- CPU: Multi core CPU

Software Requirements:

- Programming Language: Python
- Operating System: Windows

Tools Required:

- Packages: NumPy, Pandas, Sci-kit Learn, PyMuPDF
- Code editor: VSCode
- Jupyter Notebook

Proposed Evaluation Measures:

- Text Extraction
- Image Extraction
- Summarization accuracy
- Content relevance with the current slide
- Content arrangement on slides.

Conclusion:

In summary, the Auto-Slides project addresses the challenges associated with manual presentation slide creation by leveraging advanced natural language processing and machine learning techniques. The model transforms educational content into structured, visually appealing, and contextually relevant slides. This innovation not only enhances productivity but also improves the quality of educational presentations, offering a valuable tool for educators and professionals.

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References

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