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**Department of Computer Science & Engineering
(Artificial Intelligence & Machine Learning)**

Natural language Models

SEMESTER – VI

Course Code: 22AM3610

Review 1:

Title: AI-based PDF and Document Summary Generator

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SDG GOALS

Key contributions to sustainable development goal 4

- **Enhancing educational accessibility**

Utilizes technology to ensure education is reachable for all learners

- **Real-time transcriptions**

Facilitates language learning by providing immediate text translations.

- **Support for hearing impairments**

Automated captions and subtitles assist students with hearing challenges.

- **Inclusive learning environments**

Promotes an inclusive atmosphere where every student can thrive.

- **Bridging language barriers**

Addresses language differences, enhancing communication among students.,

INTRODUCTION

Exploring the role and impact of NLMs

- **What are Natural Language Models (NLMs)?**

NLMs are computational models for processing and understanding human language.

- **Importance of NLMs in technology**

NLMs power applications like machine translation, speech recognition and sentiment analysis.

- **Enhancing accessibility**

NLMs improve accessibility and interaction, making technology user-friendly for everyone.

- **Project relevance**

The project addressed challenges in education using NLMs to enhance learning support.

- **Aiming for better communication**

The goal is to enhance in educational settings through NLMs.

Literature Survey

Author(s)	Title	Year	Methodology	Key Findings	Limitations
Chen et al.	"End-to-End Speech Recognition for Educational Videos"	2020	Transformer-based model with attention mechanisms for speech-to-text conversion	Achieved 95% accuracy on English educational content; reduced transcription time by 50%	Limited to English; struggles with jargon
Vaswani et al.	"Attention is All You Need"	2017	Introduced the Transformer model	Outperformed prior models in translation tasks with parallel processing	Requires large datasets; computationally expensive
Devlin et al.	"BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding"	2018	Developed BERT, a pre-trained bidirectional model	Set new benchmarks in tasks like question answering	Needs fine-tuning; resource-intensive

PROBLEM DEFINITION

- **Problem Statement**

Lack of real-time transcription tools for multilingual classrooms.

- **Gap in current solutions**

Existing tools lack accuracy or support for multiple languages.

- **Why it matters?**

Essential for inclusive education and breaking language barriers.

KEY OBJECTIVES

Setting SMART goals for effective learning tools

- **Develop NLM-based system**

Aim for real-time transcription accuracy of 90% by date.

- **Automated subtitle generation**

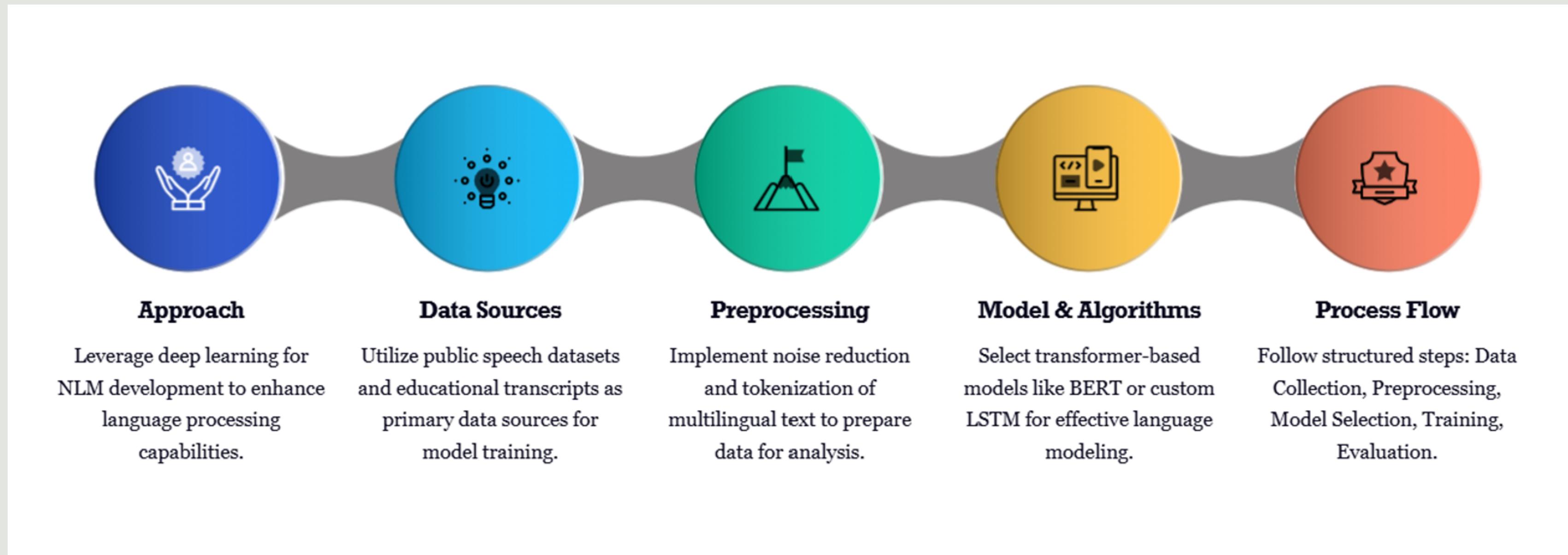
Implement for educational videos within timeframe

- **Multilingual support**

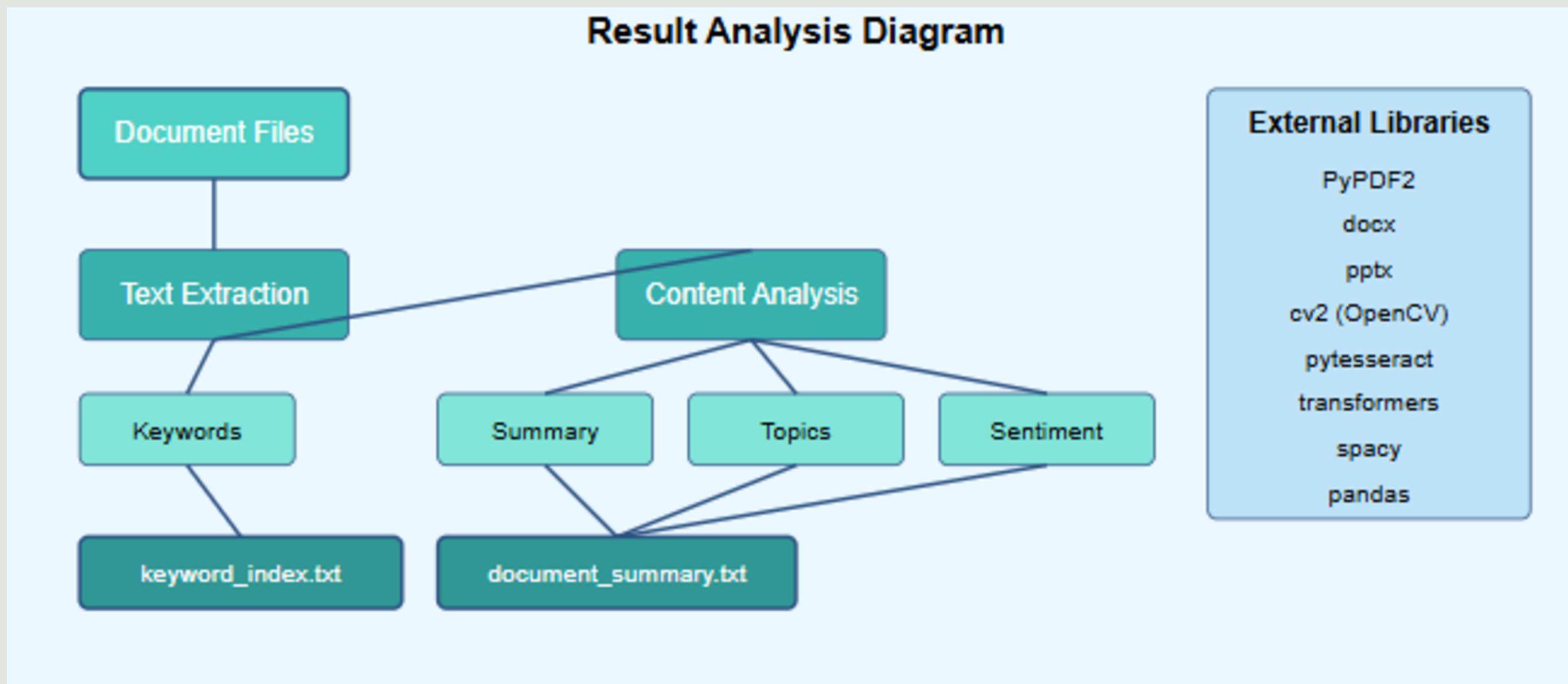
Ensure compatibility with at least 3 languages for diverse learners.

METHODOLOGY

Strategic steps for NLM development



RESULT AND ANALYSIS



CONCLUSION

- **NLMs enable transformative applications**

Natural Language Models can enhance education and accessibility, helping bridge gaps for diverse learners.

- **Project addresses key challenges**

The project focuses on solving problems through effective approaches and solutions.

- **Promoting inclusive education**

Aligned with SDG 4, the project advocates for inclusive and equitable education for all.

- **Expected outcomes of the project**

A functional system for real-time transcription and subtitling is expected by the project's conclusion.

- **Transformative impact on learners**

The project aims to improve learning experiences and outcomes for students with different needs.

REFERENCES

- **Image Processing Reference Overview**

References focus on image processing techniques and may diverge from NLMs.

- **Ledig et al. (2017) Study**

Explores photo-realistic single image super-resolution using GANs.

- **Zhang & Patel (2019) Research**

Introduces D3SR for deep single image super-resolution with advanced connections.

Thank You