Natural Language Processing of a Low-Resource Language (Igbo, one of African Languages)

NLP Of Low Resource Language

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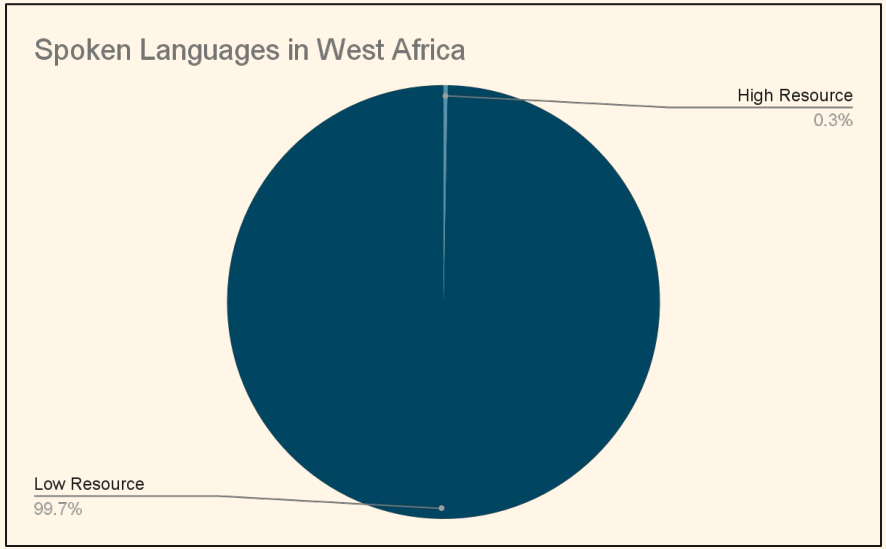
NLP Of Low Resource Language

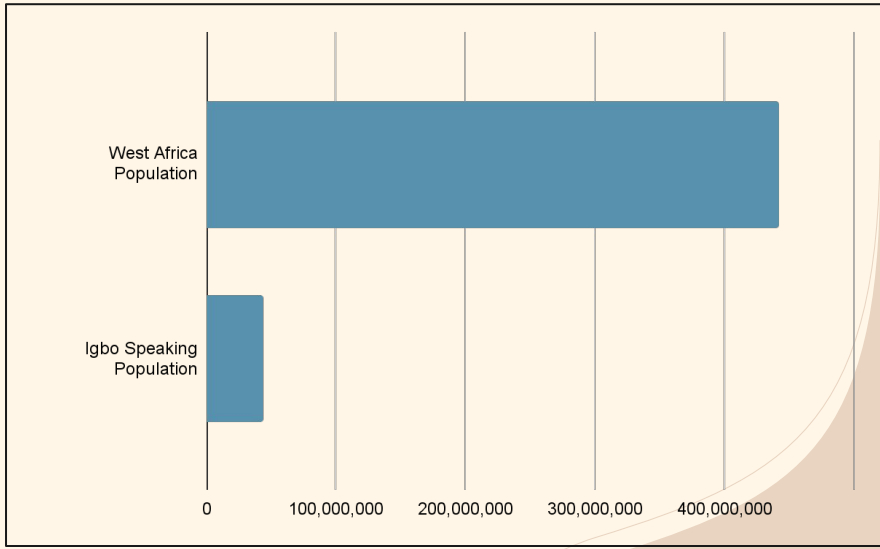
Problem

Though there are only 20 languages that fall into the high-resource category, most natural language processing (NLP) advancements have been accomplished in these 20 languages, excluding thousands of the low-resource languages spoken by millions of people in the world.
Our goal is to narrow down the NLP gap for Igbo a low-resource category language.

NLP Of Low Resource Language

Problem





NLP Of Low Resource Language

Project Significance

Languages
English
French
Arabic
Mandarin

- Sentiment Analysis
- Machine Translation
- Information Extraction
- Named Entity Recognition
- Document Clustering
- Keyword Extraction
- Information Retrieval
- Topic Modeling
- Text Classification
- Text Summarization

X

Language	Language Family	Estimated Speakers
Zulu	Niger–Congo	10,400,000
Akan	Niger–Congo	11,000,000
Berber	Afroasiatic	16,000,000 (estimated)
Somali	Afroasiatic	16,600,000
Malagasy	Austronesian	18,000,000
Fulani	Niger–Congo	25,000,000
Igbo	Niger–Congo	27,000,000
Yoruba	Niger–Congo	28,000,000
Amharic	Afroasiatic	32,400,000
Oromo	Afroasiatic	37,071,900 (2020)
Hausa	Afroasiatic	48,637,300
Swahili	Niger–Congo	50,000,000

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Project Significance

Importance of the project: This project aims to address the lack of Igbo language corpora by creating a comprehensive corpus of text data in the Igbo language. This corpus will be an invaluable resource for researchers, language learners, and developers of NLP applications, enabling them to build more accurate and effective language models that can handle Igbo text.

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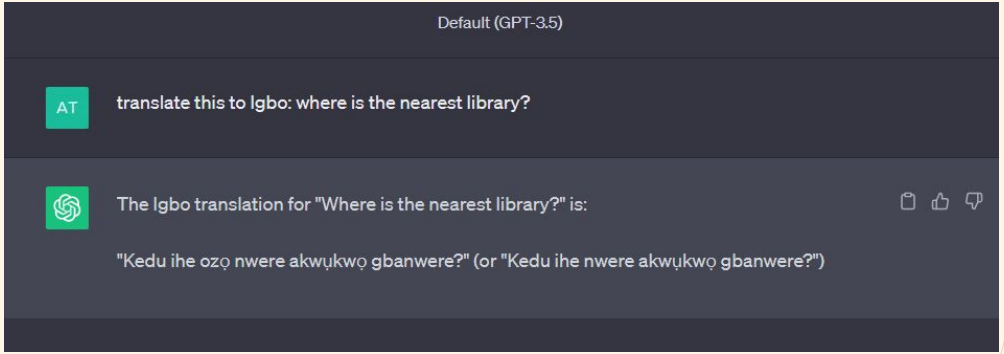
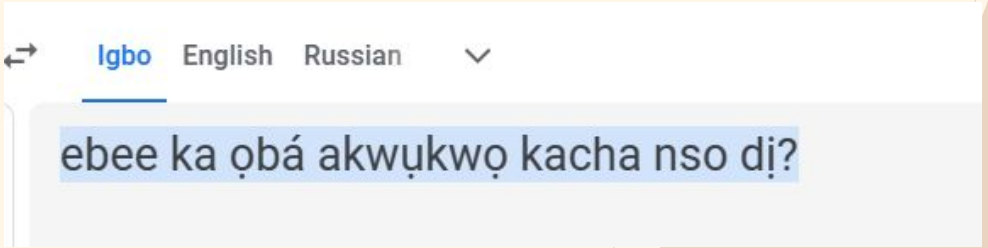
Project Significance

Solution provided by the project: By creating a high-quality corpus of Igbo language data, this project will help to preserve and promote the use of the Igbo language, while also enabling the development of new and innovative NLP applications that can support Igbo speakers and learners. The project will also contribute to the broader goal of promoting linguistic diversity and cultural preservation through the use of technology.





Project Milestones

This project is divided into six milestones.

1. Milestone #1 : Development of the Igbo Corpora consisting of News Content from BBC Igbo, Nigerian Television Authority, etc.
2. Milestone #2 : Cleaning of the Igbo Corpora
3. Milestone #3 : Analysis of the Igbo Corpora using Statistical, Machine Learning, and Deep Learning Models and Techniques
4. Milestone #4 : Text Categorization Using the Igbo Corpora
5. Milestone #5: Information Extraction Using the Igbo Corpora
6. Milestone #6 : Machine Translation Using the Igbo Corpora, Give a Wrap-up presentation and finalize project

NLP Of Low Resource Language

- What I hope to learn
  - NLP Techniques for low resource languages
  - Machine Learning applications
  - Data Management and Storage
  - Understand languages better

- Goals for Next Month
  - Create Scripts to collect text and convert to raw Corpora for IGBO Language
  - Clean the Corpora
  - Attempt initial ML-NLP analyses

- Help needed
  - To be discovered as we dive deeper in the project

Thank you
Any Question?