

## The Use of Natural Language Processing in the Banjar Mantra as an Effort to Preserve Regional Languages

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**Abstract.** Today, mantras are no longer an integral part of the younger generation's lives, leading to concerns about regional language shifts. This language shift occurred due to migration, industrialization, urbanization, prestige, and the use of Indonesian in schools. This language shift is marked by a decline in the number of young speakers and their preference for languages considered more prestigious. So that mantras as part of the old genre of Banjar Literature in the Banjar people of South Kalimantan using regional languages as a medium began to be rarely used by native speakers. Gradually, these mantras are becoming unknown within the community. The preservation of the Banjar language through mantras should be done to take care of regional languages as the nation's cultural heritage. We can preserve the Banjar language by utilizing language technology, such as Natural Language Processing. The purpose of this research is to preserve regional languages.

**Keywords:** mantra, *NLP*, preservation of the Banjar language

### 1 Introduction

The city of Banjarbaru is synonymous with the city of Education because of various public and private universities. This also causes many visitors to live to study science. Then the determination of Banjarbaru as the capital city of South Kalimantan Province made an increase in the number of population migration to Banjarbaru City.

Based on the population census of the city of Banjarbaru in 2021 as many as 258,753 people (Bappeda Banjarbaru, 2024). The high growth in the population in this city is due to the high migration to the city of Banjarbaru. This large population holds significant potential for development if its quality is optimized. This situation is in line with the Human Development Index (HDI) report in 2023 which reached 74.66. Based on the BPS South Kalimantan report, the city of Banjarbaru topped the HDI growth value of 81.25 with the category of "very high." HDI is an important indicator to measure the success of the government in its efforts to build the quality of life of humans or residents in an area.

Banjarbaru is home to a diverse population, comprising Banjar (56.17%), Javanese (32.78%), Sundanese (1.71%), Madurese (1.36%), Batak (1.27%), Dayak (1.15%), Bugis (0.84%), and other ethnicities (4.72%) (Wikipedia Free Encyclopedia, 2024). Based on these facts, the people of Banjarbaru City have a high possibility of making a language shift. The diversity of people who inhabit the city of Banjarbaru affects the language used in communicating. The language in this community will survive (Chaer, 2010) if speakers use language in their daily life or there is a shift in language because residents begin to change or leave their language.

Today's mantras are no longer an important part of the younger generation. So that this situation leads to a polemic of regional language shifts. This language shift is driven by migration, industrialization, urbanization, social prestige, and the widespread use of Indonesian in schools. This language shift is characterized by a decrease in the number of young speakers of the language and they tend to use languages that are considered more prestigious. So that mantras as part of the old genre of Banjar Literature in the Banjar people of South Kalimantan using regional languages as a medium began to be rarely used by native speakers. Gradually this mantra is no longer known by the community.

The preservation of the Banjar language through mantras should be done to take care of regional languages as the nation's cultural heritage. We can preserve the Banjar language by utilizing language technology, such as Natural Language Processing. Several previous studies that applied Natural Language Processing to the creation of translation applications (Hasanuddin, 2016; Dar, 2023) in the creation of an online Malay translation dictionary Riau-Indonesian-English. Then the creation of an Indonesian to Bima translation application (Istiqamah & Soyusiawaty, 2017; Dar, et al: 2023), the creation of a Balinese dictionary for tourists (Dewi, 2021; Dar, 2023) and the creation of a Malay translation application for the Panai-Indonesian Dialect.

Based on the background of the problem that has been described. This research aims to make a Banjar-Indonesian translation application by applying Natural Language Processing. Development of a sentence parsing application for the synthesis process of sentences in Banjar literature in the form of mantras. This research will be a contribution of Banjar Language and Literature to natural language processing which is useful for preserving regional languages.

## 2. Method

This study applies the sequential Waterfall method (Dar, 2023) .There are 5 stages carried out in this study. Namely: system needs analysis, design, implementation, testing, and system maintenance.

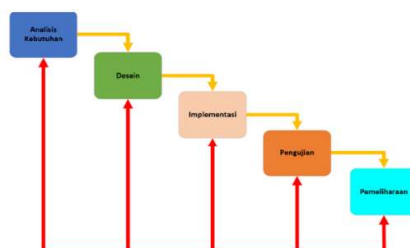


Figure 1 Waterfall Method

## 3. Results and Discussion

### Protection of Regional Language

Indonesia has 718 regional languages with different conditions of vitality (survival ability). Dozens of languages are endangered due to the continuous decrease in the number of speakers. This situation will result in the loss of the nation's heritage wealth. Because language as a medium is no longer able to be an intermediary in the process of inheriting cultural values in it.

In the early middle of the twentieth century, efforts to protect endangered languages became an important focus of study among linguists, even becoming a United Nations Action Plan through UNESCO. Language protection efforts are crucial because language is an inseparable aspect of cultural and social identity.

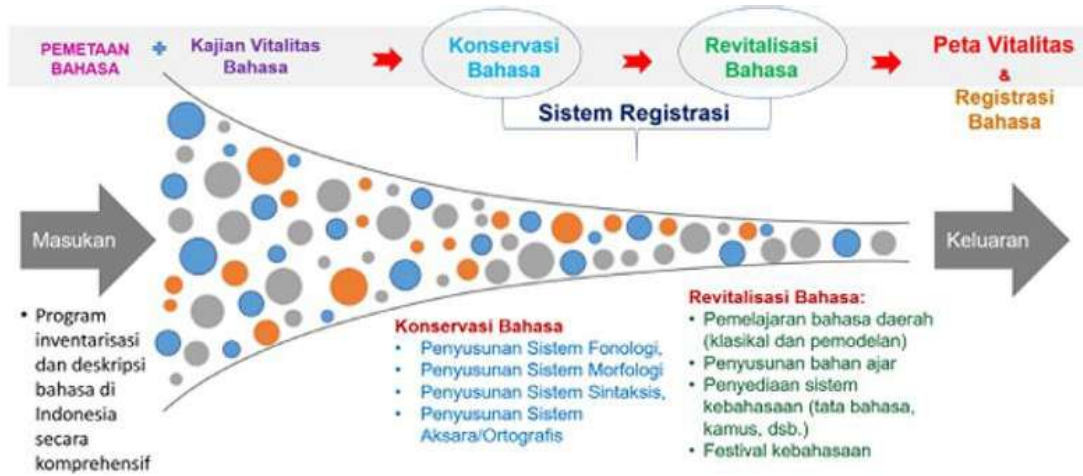
This study has also developed rapidly and spread widely in the framework of conservation and revitalization with the core goal of developing, creating new domains and functions, and even saving languages.

In the last three years, there have been 11 regional languages in the archipelago extinct (Caecilia M, 2020). This extinct regional language comes from the provinces of West Papua, Papua, Maluku, and North Maluku. This situation is our common concern so that regional languages remain sustainable.

According to Law Number 24 of 2009, regional languages are those passed down through generations and used by Indonesian citizens in various regions across the nation. Regional languages are the backbone of Indonesian culture in which there are regional cultural values and characters. So that regional languages must be maintained, maintained, and preserved.

Efforts to protect regional languages are handled seriously and systematically by the (Ministry of Finance of the Republic of Indonesia, n.d.). We can see this from the Outline of the Language Protection Program.

Figure 2 Outline of the Language Protection Program



Based on the language map by the Language Development and Development Agency, it is hoped that the protection of regional languages will be maximized, vitality, conservation, and language revitalization. Likewise with the Banjar language as part of the regional language, through this language protection program, it is hoped that the Banjar language will be well protected. So that the Banjar language remains sustainable.

### Banjar Language and Mantra

The Banjar language is spoken by the Banjar tribe originating from South Kalimantan. Some experts state that the Banjar language belongs to the Malay language group, East Borneo. The Banjar language is divided into two dialects, namely Banjar Kuala and Banjar Hulu. The Banjar language functions as a lingua franca.

In its development, the Banjar language is suspected of experiencing contamination from the intervention of Indonesian and Foreign Languages (Wikipedia Free Encyclopedia, 2024). Language retention, language shift, and language extinction are symptoms of language that continue to take place in an area with a heterogeneous population. The city of Banjarbaru has a heterogeneous population, consisting of the Banjar tribe, the Javanese tribe, the Sundanese tribe, the Madura tribe, the Batak tribe, the Dayak tribe, the Bugis tribe, and other tribes. Based on this fact, the people of Banjarbaru City have a high possibility of making a language shift.

This linguistic shift has led to the gradual erosion of cultural heritage. For example, mantra as one of the Banjar oral literatures that is spread from word of mouth. Nowadays, it is no longer an important part of the younger generation. Because the younger generation does not directly intersect with the Banjar mantra. In fact, the mantra contains cultural heritage values. So that this situation leads to a polemic of regional language shifts.

This language shift occurred due to migration, industrialization, urbanization, prestige, and the use of Indonesian in schools. This language shift is characterized by a decrease in the number of young speakers of the language and they tend to use languages that are considered more prestigious. So that mantras as part of the old genre of Banjar Literature in the Banjar people of South Kalimantan using regional languages as a medium began to be rarely used by native speakers. Gradually this mantra is no longer known by the community.

Mantras are a form of traditional literature categorized as oral literature. The general feature of the spread of oral literature through mouth, born in a society that is still rural, describes the culture, a local community, anonymous, many versions, spoken orally and with the use of local dialects. Mantras in the Banjar community reflect socio-cultural values and the traditional way of life in the region. Through mantras, cultural values about beliefs or religions can be explored ( Y a y u k , 2 0 0 6 )

Mantras according to Koentjaraningrat (Ganie, 2009) are part of occult techniques in the form of

words and voices that are often meaningless, but are considered to contain magic or the power of damnation. Medan states that it is possible to name a mantra as a form of literature (old) because the conditions of a literary form are fulfilled in the mantra. (Jalil, 2001) argue that mantras are the beginning of traditional forms of poetry. According to Waluyo (1995) there are several main characteristics of mantras, namely: (1) very careful selection of words; (2) sounds are tried repeatedly with the intention of strengthening the suggestion of words; and (3) many words that are less commonly used in daily life with the intention of strengthening the suggestion power of words. If recited aloud, the mantra creates a magical sound effect, the sound is amplified by rhythm and rhythm that is usually only perfectly understood by expert handlers.

Based on the opinions of some of the above experts, spells can be concluded to be old literature and have magical effects. Mantras are believed by certain circles for various needs of life. Based on several previous studies, mantras are divided into several parts. There are 7 mantras researched by the (Banjarmasin Language Center, 2006), namely: treatment and maintenance mantras, mantras to conquer wild/wild animals, immunity mantras or mantras to repel reinforcements, compassion mantras, mantras to seek sustenance, mantras to play, and *tutulak*. Then Ganie (Ramadania & Jamilah) argues that there are 14 types or varieties of Banjar mantras, namely the call (*kariau*), the power (*kasumbi*), the compassion (*pakasih*), the source of hatred (*pambanci*), the call of the ancestral spirit (*kasumbi*), the silencer (*pambukkam*), the deterrent (*panangkal*), the rejection (*panulak*), the antidote (*panawar*), the buffer (*buffer*), the lure (*papikat*), the conqueror (*pirunduk*), affirming (*pikaras*), and the oath of *serapah* (oath of *serapah*). Here is an example of a mantra:

#### 1. Mantras for harvesting rice

##### ***Bacaan Batampung Tawar Banih***

*“Allahumma shalli alaa Muhammad  
Allahumma shalli alaa Sayyidina Muhammad  
Allahumma shalli alaa rasulika sayyidina waa nabiyina wahabibina wasyafi'ina waa maulana  
Muhammad.  
Awal-awal, awal shalawat.  
Awal Nur, Nur Muhammad.*

#### 2. Mantras for beauty

<i>Pur sinupur Bapupur di piring karang Bismillah aku bapupur Manyambut cahaya si bulan tarang</i>	<i>Pur sinupur Berbedak di piring karang Bismillah aku berbeda Menyambut cahaya si bulan tarang</i>
<i>Pur sinupur Kaladi tampuyangan Bismillah aku bapupur Banyak urang karindangan Pupurku si ulam-ulam Tunggangan burung kandarsih Aku bapupur saparti bulan Barang siapa mamandang aku berhati kasih Tunduk kasih sayang umat Nabi Muhammad Samuanya mamandang kapada aku</i>	<i>Pur sinupur Kaladi tampuyangan Bismillah aku berbedak Banyak orang jatuh cinta Bedakku si ulam-ulam Kendaraan burung kandarsi Aku berbedak seperti bulan Barang siapa memandang aku berhati kasih Tunduk kasih sayang umat Nabi Muhammad Semuanya memandang kepada aku Berkat La ilaha illallah Muhammad rasul Allah Mantra ini dibaca dengan tata cara yang kurang lebih saat membaca mantra bapupur (berbedak) pada mantra sebelumnya</i>

### **Natural Language Processing (NLP)**

The industrial revolution 5.0 focuses on the integration of advanced technologies such as AI Iot, and technological robot technology with human expertise and innovation that can drive the development of production systems that are more efficient, flexible, sustainable, and improve welfare. This aims to

create a production system that is more adaptive to changes in market demand, focuses more on customer experience, and optimizes the use of limited natural resources. Overall, the Industrial Revolution 5.0 is expected to provide many benefits to the industry, customers, workers and society in general, such as increasing productivity, quality, and production safety, improving occupational safety, creating new job opportunities and reducing negative environmental impacts.

Natural Language Processing is part of AI which is artificial intelligence that allows computers to process natural language as used by humans (Istiqamah, 2017 in Dar, 2023)). The goal of NLP is to create computational models from languages. So that there is interaction between humans and computers through natural language equipment, namely through machine translation (Resmawan, et al, 2015: Sholikhatin, et al, 2021: Dar et al, 2023). This translation machine functions to translate syntax from the origin language to the destination language, namely Banjar to Indonesian. This translation machine component is made to facilitate natural language processing (Ridwan et al., 2016: Dar et al., 2023).

### NLP on Banjar Mantras

The analysis of system needs was carried out to obtain the functional needs of the system in the form of Banjar vocabulary. We can see in the following table.

Table 1 System Functional Requirements

<b>Banjar Words</b>	<b>Indonesian Words</b>
<i>Pur sinupur</i>	Pur sinupur
<i>Kaladi tampuyangan</i>	Kaladi tampuyangan
<i>Bismillah aku bapupur</i>	Bismillah aku berbedak
<i>Banyak nang karindangan</i>	Banyak orang jatuh cinta
<i>Pupurku si ulam-ulam</i>	Bedakku si ulam-ulam
<i>Tunggangan burung kandarsih</i>	Kendaraan burung kandarsi
<i>Aku bapupur saparti bulan</i>	Aku berbedak seperti bulan
<i>Barang siapa mamandang akau akan berhati kasih</i>	Barang siapa memandang aku berhati kasih

We can see in table 1 that there are several words from the Banjar language that are different from Indonesian. So, it is necessary to carry out a language translation process. There are several stages in the processing of this natural language, namely:

- 1) Developing the program flow of the translator application  
In the flow of the translator application program. On the menu display, users can choose the language, Banjar or Indonesian. On the translation display, users can enter Indonesian which will be translated into Banjar. Then press the translate button into Banjar. If an error occurs, an error message will appear.
- 2) Activity diagrams  
In this section, the user will input the Indonesian sentence to be translated Then press the translate button to get the translation result. If the saved sentence does not match the database, then a message will appear that the word entered is incorrect.
- 3) Designing the diagram class  
Diagram classes are designed for the structure of language classes on a translator application system. This class of diagrams is the final part of the natural language learning stage.

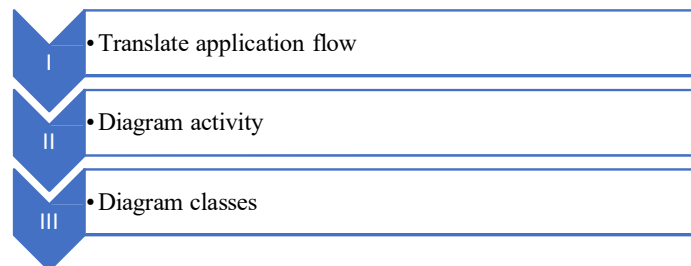


Figure 3 stages of NLP

#### 4. Conclusion and Sugestion

System design, implementation, and testing have been carried out. From the results of the stages of the Waterfall method, it can be concluded that the Natural Language Processing (NLP) method can be implemented in a command line interface-based word translator dictionary application. The dictionary application serves as a valuable tool for preserving the Banjar language. This language translation application can be further developed for web-based, Android, and iOS platforms.

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