

**IBAN ENGLISH DICTIONARY  
WITH LOGIC PROGRAMMING APPROACH**

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UNIVERSITI TEKNIKAL MALAYSIA MELAKA

**BORANG PENGESAHAN STATUS TESIS\***

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APPROACH**

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IBAN ENGLISH DICTIONARY  
WITH LOGIC PROGRAMMING APPROACH

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This report is submitted in partial fulfillment of the requirements for the Bachelor of  
Computer Science (Artificial Intelligence)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY  
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2010

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(DR. BURAIRAH BIN HUSSIN)

## **DEDICATION**

To my beloved parents, Janang anak Takip and Rose anak Michael Unji, my lovely sisters, my aunties and uncles and my grandmother.

To my kind supervisor, DR Burairah bin Hussin

To my lecturers and friends

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## ABSTRACT

Iban-English dictionary, this is an electronic dictionary developed to benefit the teachers, and students to learn the deeper meaning of words in the Iban language. This dictionary uses the logic programming language in its development. Logic programming is a programming language is a branch of artificial intelligence in the field. This is a programming language, programming language is easy to understand and not difficult to develop. This dictionary provides many benefits to students who are in Sarawak and also the students who want to learn this language, this is because before the dictionary was developed, there is no longer an electronic dictionary for the language of the Iban and yes they are difficult to determine the use of language. In addition, it is difficult to obtain a copy of the print dictionary; Bahasa Iban for publication is limited and difficult to understand. Systems development life cycle is selected as the method for this project and it is implemented throughout the system development process to ensure achievement of objectives. There is no doubt that the proposed system has additional problems.

## ABSTRAK

Kamus Iban-English ini adalah kamus elektronik yang dibangunkan untuk memberi manfaat kepada pendidik, dan juga pelajar untuk mendalami dengan lebih dalam maksud perkataan dalam bahasa Iban. Kamus ini juga menggunakan bahasa pengaturcaraan logik dalam pembangunannya. Pengaturcaraan logik adalah merupakan salah satu cabang bahasa pengaturcaraan dalam bidang kepintaran buatan. Bahasa pengaturcaraan ini merupakan, bahasa pengaturcaraan yang mudah difahami dan juga tidak susah untuk dibangunkan. Kamus ini memberi banyak manfaat kepada pelajar-pelajar yang berada di Sarawak dan juga para pelajar yang ingin mendalami bahasa ini, ini adalah kerana sebelum kamus ini dibangunkan belum ada lagi kamus elektronik untuk bahasa Iban dan iya menyukarkan mereka untuk mengetahui penggunaan bahasa ini. Selain itu, amat sukar untuk mendapatkan naskah cetak sebuah kamus Iban-English kerana penerbitannya terhad dan sukar untuk difahami. Kitar hidup pembangunan sistem dipilih sebagai kaedah bagi projek ini dan ia dilaksanakan sepanjang proses pembangunan sistem untuk memastikan pencapaian objektif. Memang tidak dapat dinafikan bahawa cadangan sistem ini mempunyai tambahan dalam menyelesaikan masalah



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## CHAPTER I

### INTRODUCTION

#### 1.1 Project Background

This system will help user to learn about Iban language easier than normal dictionary. To get the meaning of the Iban words, users only need to type the Iban words in the text box given and the meaning will be pop out under the text box and also how to use the words in some simple sentences. This system also can help the users who are student in some university or campus in Sarawak to know more about the language and it is easy for them to catch up by the people there. Beside that school student that taking this subject in school also can studying using this dictionary

## 1.2 Problem Statement

- i. There is no electronic dictionary for Iban words to English words.
- ii. Some of the words are difficult to understand.
- iii. No user friendly dictionaries have been developing.

## 1.3 Objective

- i. To investigate the need of Iban-English translator
- ii. To develop a Iban-Engliah translator
- iii. To applied logic programming technique while developing the translator

## 1.4 Scope

In this descriptive system, user only can search words and view the meanings of the words. This system can be use by any user but this system develops for student to understand how to use the words in English when it being translates from Iban words. This dictionary only can change one word.



## 1.5 Project Significance

This language dictionary will help user to understand the words they search for. Beside that user also can interact very well with the interface that have been created so that it will easy for user and make user pleased.

## 1.6 Expected Output

From this system, hope that the systems become a useful system for user and student can gain more knowledge about this language.

## 1.7 Conclusion

In the nutshell, the system will give a user friendly interface and also can interact with user. This project will develop a very useful language dictionary that gives benefit not only for student and also other user. Three objectives need to be achieved as this project end.

The next chapter will discuss about literature review and project methodology as a successor for the following chapter.

## CHAPTER II

### LITERATURE REVIEW AND PROJECT METHODOLOGY

#### 2.1 Introduction

In previous chapter, the project being proposed and being argue about it scope and objectives. In this chapter all the objectives and scopes have been approved. This chapter will review all the research and existing system and also will give view to user about the system that will be developed.

## 2.2 Facts and Finding

For this project, facts and findings have been done by research, reading and also survey from books and internet.

### 2.2.1 Domain

The domain for this project is the language dictionary. The language dictionary is being program using Logical programming language and this system is one type of expert system. Language translator actually a machine where it translate one words to another meaning of the words in different type of language, in this system the language that will be translate is English to Iban or Iban to English. Logical programming language is one of AI programming using WIN Prolog 4500 tools. Expert system is a system where we teach the system to be intelligent and it will answer our question my matching the data with data in database.

### 2.2.2 Existing System

From the research that have been done, this language translator have been done by using PCCT/ C++ programming. In this project, I as the developer using Logical programming language to develop the language translator. Here I also want to compare either C++ programming as we know functional programming or Logical programming language as we know descriptive programming which programming can become better language translator.

Beside that I also compare my system with the resource that using Iban dictionary which the dictionary hard to find and hard to understand the word because of the color of the paper and the design of the word that bored and unclear.

Language Translator using functional programming	Iban-English using descriptive programming	Current Iban Dictionary
<ul style="list-style-type: none"> <li>➤ Using C++/PCCT programming language</li> <li>➤ Using functional programming</li> <li>➤ Using relational database</li> <li>➤ The programming line more than two line.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Using Logical programming language</li> <li>➤ The algorithms are forming when I doing some research and try and errors.</li> <li>➤ Using descriptive programming</li> <li>➤ Using flat file database</li> <li>➤ Only two line of rule to represent the engine of the system.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Hard to search for the words</li> <li>➤ Need to search 1 by 1 for a word</li> <li>➤ Manual search not automatic search</li> </ul>

Table 1.0 Comparison of the system

### 2.2.3 Technique

#### a. Algorithms

Based on the rule based techniques by using logical programming in WIN PROLOG 4500, I doing some research and also experiment, I come out with my own algorithm as I state below:

User input = a

If a = word in rule then it will write b

Else it will error.

User output = b

## b. Rule-based Technique

The technique that being use in this project is rule based technique. The diagram for rule-based as follows :

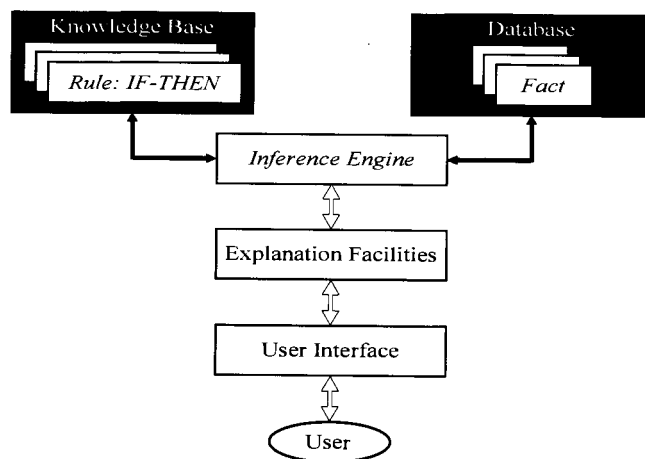


Figure 1.0 Rule based Architecture

The architecture has been divided into six steps or six phase. The explanations of the architecture are written as below:

### i. Knowledge based

- Knowledge is represented as a set of rules. Each rule specifies a relation, recommendation, directive, strategy or heuristic and has the IF (condition) THEN (action) structure. .

- It contains the main knowledge for solving the problems. In this project, knowledge is the engine of the program where the rule is derived to solve the words matching with the meaning of the words.

#### ii. Fact

- Include a set of facts used to match against the IF (condition) parts of rules stored in the knowledge base.
- It been stored in flat database for this project. Where the head is the searching words and the tail is the meaning of the words.

#### iii. Inference Facilities

- It carries out the reasoning whereby the expert system reaches a solution.
- It links the rules given in the knowledge base with the facts provided in the database.
- This is the process where the user input will effect the answer for the user. The process of matching the words and it come out with the answer.

#### iv. User Interface

- The means of communication between a user seek for the words by searching the words.
- User interface will provide button that easy for user to understand.

#### v. User

- The person who using this dictionary.

### 2.3 Project Methodology

The method use in this project is System Development Life Cycle (SDLC) that involve four phase in the method. The phases are:

- a) Planning and User Requirement
- b) Software Requirement Analysis
- c) System Analysis and Design
- d) Code Generation
- e) Testing
- f) Maintenance and Development

SDLC is a common methodology for system development in many organizations. It marks the phases or steps of information systems development.

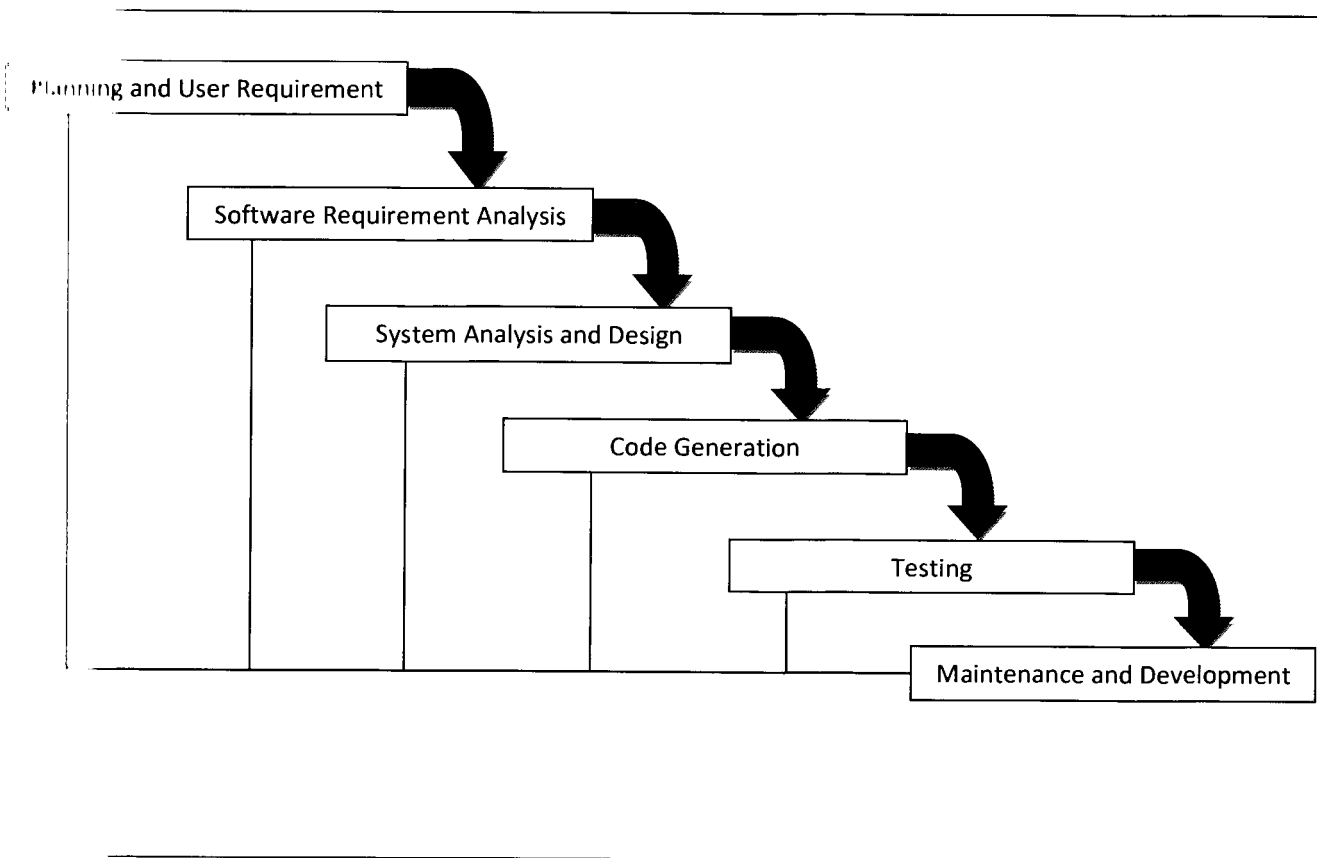


Figure 2.0 SDLC

Figure above shows that, every process must be complete first before proceed to the next stage. This is because the 2<sup>nd</sup> steps need some of the requirement needed in the 1<sup>st</sup> step to be fulfill so that the other stage. The activities that involve inside each stage will be explain below:

i. Planning and User Requirement

In this stage, the entire requirement by research and reading from user will be collect and will be considered to fulfill the system requirement in the next stage. The project objectives and scope will be explains throughout this stage. After this stage, developer will continue studying on the software requirement for the system.