CHAPTER IV

Analysis and Design

4.1. Analysis

#### 4.1.1. Use Case Diagram
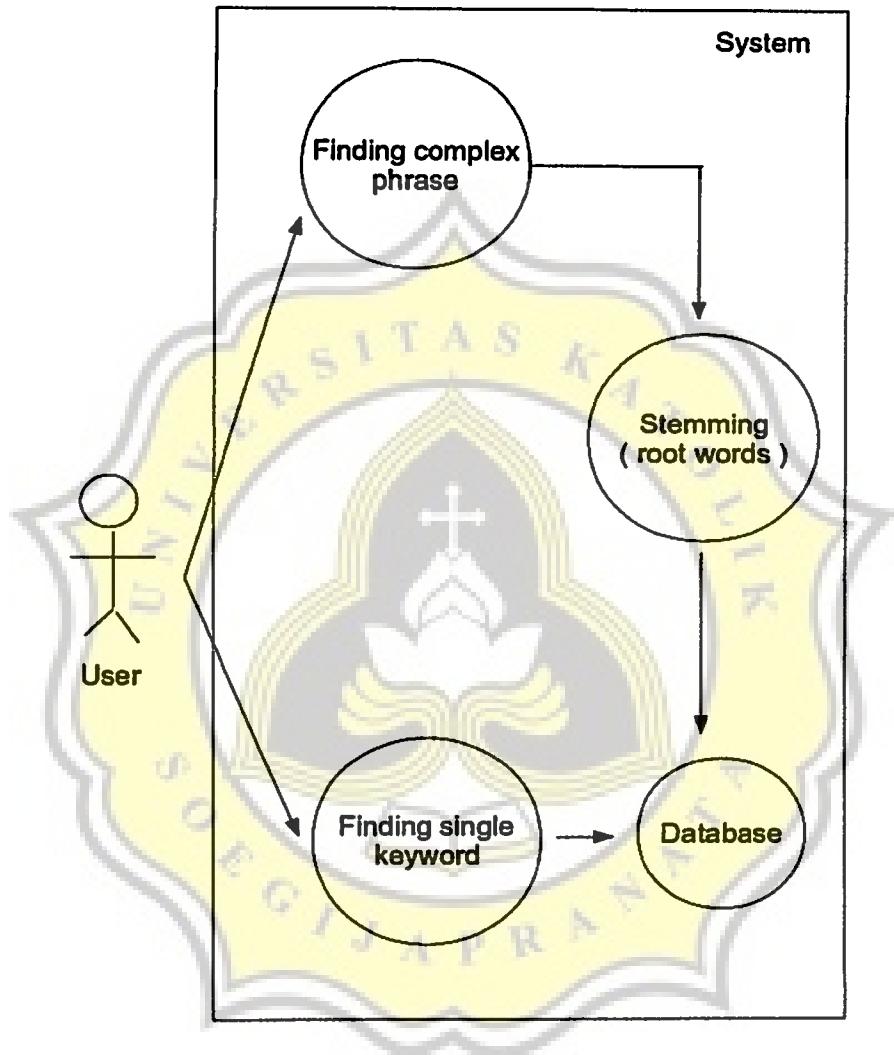
Figure 4.1 Use Case Diagram

## 4.1.2. Flow Chart Diagram
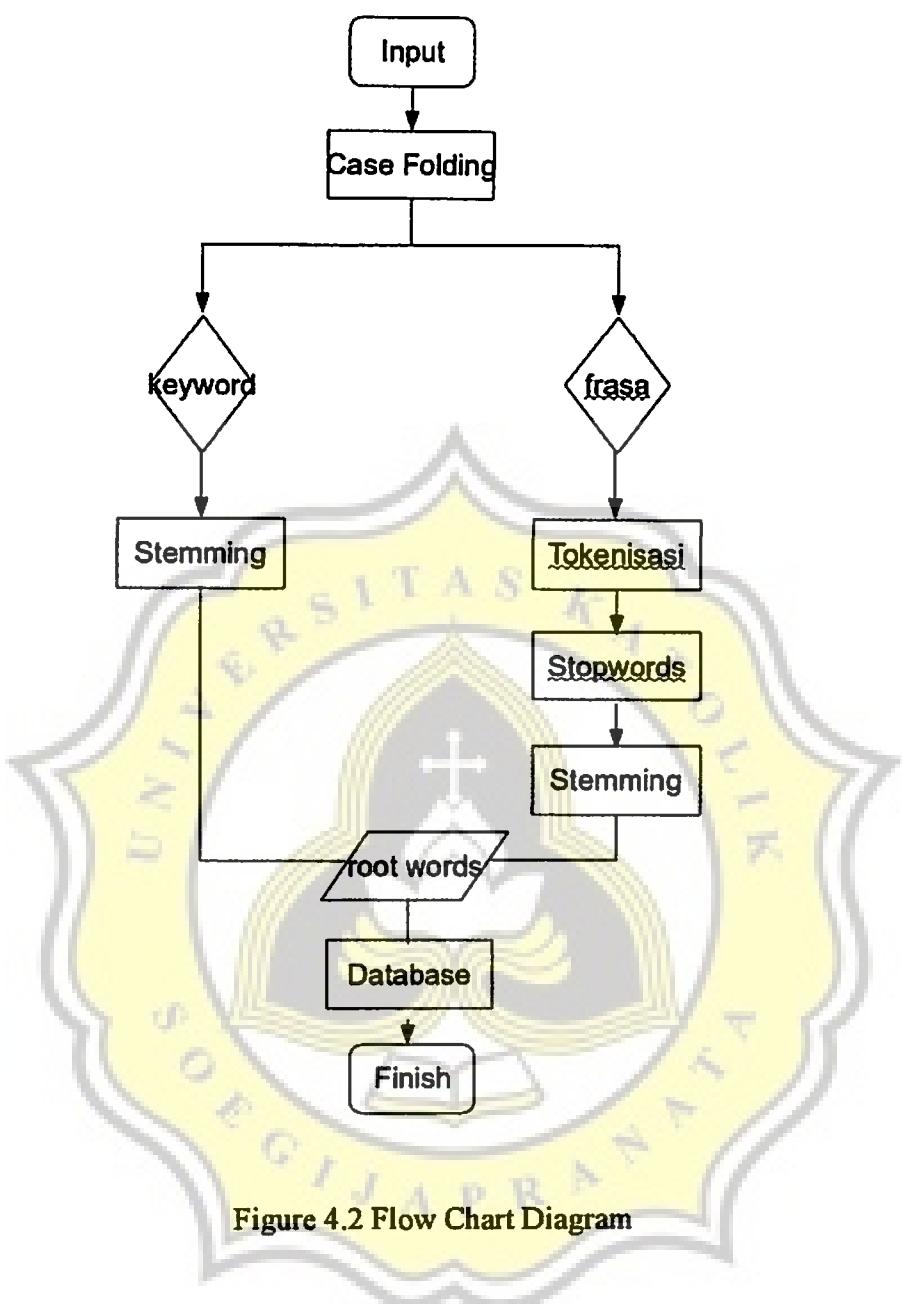
Figure 4.2 Flow Chart Diagram

4.1.3. Class Diagram
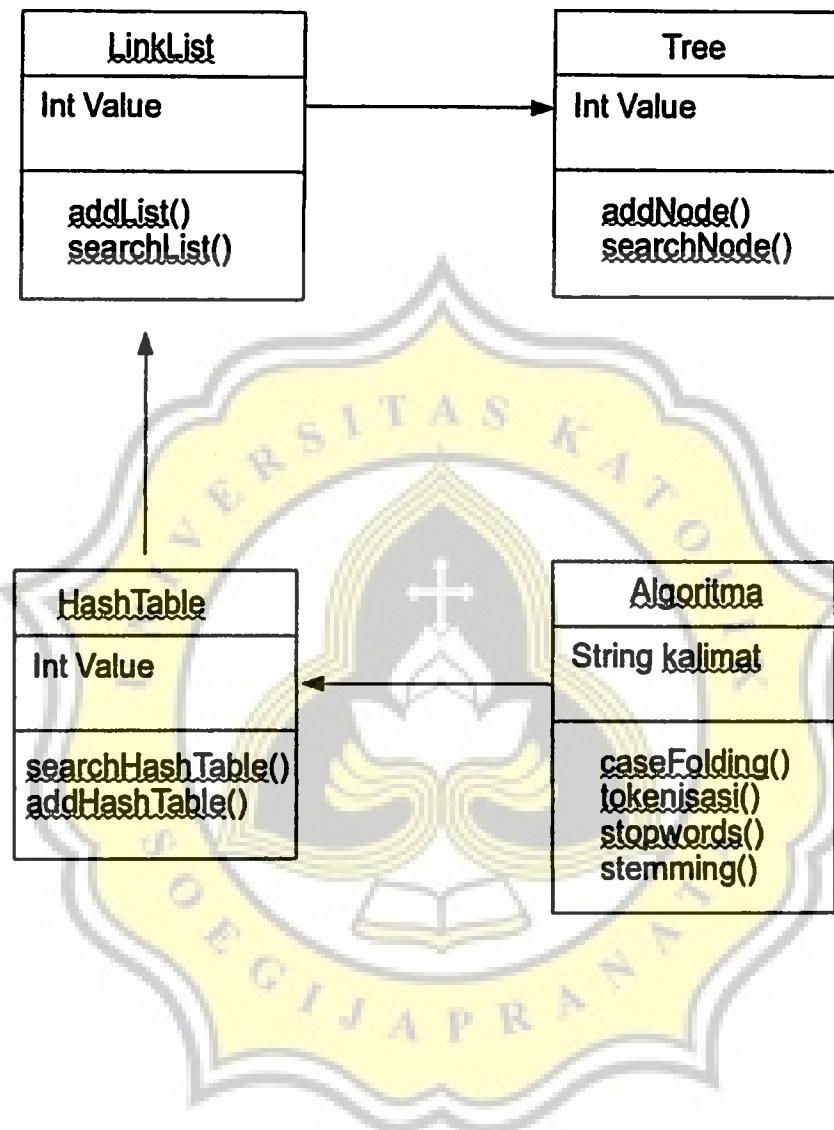
Figure 4.3 Class Diagram

10

4.1.3.1. Class Diagram Details

Tree
Int Value
addNode() searchNode()
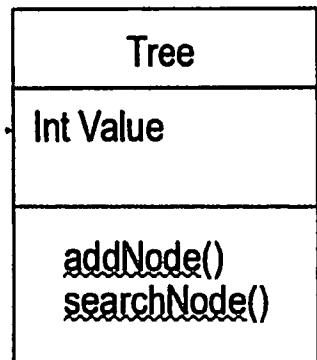
This is class tree to make hierarcy tree which has nodes containing data from the bible.

LinkList
Int Value
addList() searchList()

This is class linklist to make a linked list which containes the nodes.

HashTable
Int Value
searchHashTable() addHashTable()
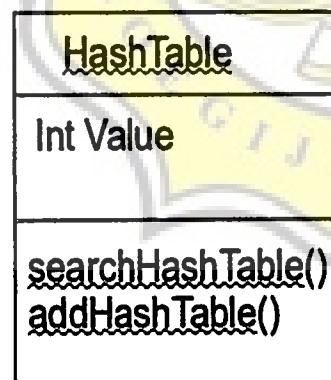
Hash Table class is to make table containing a linked list which containes the nodes of tree.

11

Algoritma
String kalimat
caseFolding() tokenisasi() stopwords() stemming()

Algoritma class has four methods, such as casefolding, tokenisasi, stopwords and stemming to find the root words to search on the hash table.

## 4.2. Design

Pseudocode HashTable :

Insert hashTable(value)
    for(i=0;i<=m;i++)
        If H[i] == null
            H[i] = value // make tree
        else
            addLink(value) // make linklist

i=0

i=m
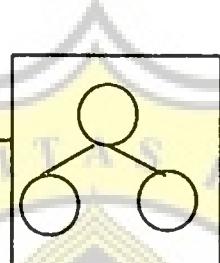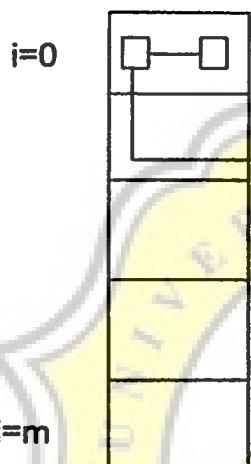
Figure 4.4 Pseudocode Hash Table

13

```
Pseudocode Case Folding : // 'A-Z' to 'a-z'

Function listCaseFolding()
    For each casefolding
        Casefoldinglist += casefolding;
    End for
End function


Pseudocode Tokenisasi // Split sentence into words

Function tokenisasi()
    For eachword in kalimat
        if(isword) (word)
            WordNew += word
        End if
    End for
End function
```

Figure 4.5 Pseudocode Casefolding and Tokenization

```
Pseudocode Stopwords // throw stopwords

Function listStopwords()
    Stopwordlist = insertfromfile(stopwords.txt)
Endfunction

Function filter(words,liststopwords)
    For each word in words
        For each stopword in liststopword
            If word != stopword
                Filter += word
            End if
        End for
    End for
End function




Pseudocode Stemming // throw infix suffix

Function stem(file)
    Kalimat kalimat = new KalimatHash(kalimatpath)
    Stemmer = new NaziefandAdriani stemmer(kalimat)
    For each word in kalimat
        if(isparticles)
            Remove particles()
        Rootword += stemmer stem(word)
    End for
End function
```

Figure 4.5 Pseudocode Stopwords and Stemming

15

```
Pseudocode Search HashTable :

Search hash Table(value)
    for(i=0;i<=m;i++)
        For each nodelist[i]
            If nodelist[i] == value
                Return value
            End if
    End for
```

Figure 4.5 Pseudocode Search Hash Table