

CHAPTER 4

ANALYSIS AND DESIGN

4.1 Analysis

This stage of analysis is used to help solve problems in making the application, so it can know the needs and work processes of the application. Problems encountered in making this application is how to save data, searching data and delete data on hashtable data structures. The results of the process of the data structure will be displayed in the form of 2D graphical visualization.

To help solve this problem we need a design process which is usecase diagram and flowchart. Later from design usecase diagram and flowchart will be implemented into application.

The initial process of the application is to determine the size of the array, this process serves to determine the amount of initial space to store value. The process of set size of array, insert value, search value and delete value each have an initial user interface in the form of input text editing and button, the value of the initial interface input is processed by hashtable data structure and displayed into a 2D graphical visualization using drawRect feature on android .

4.2 Desain

4.2.1 Usecase Diagram

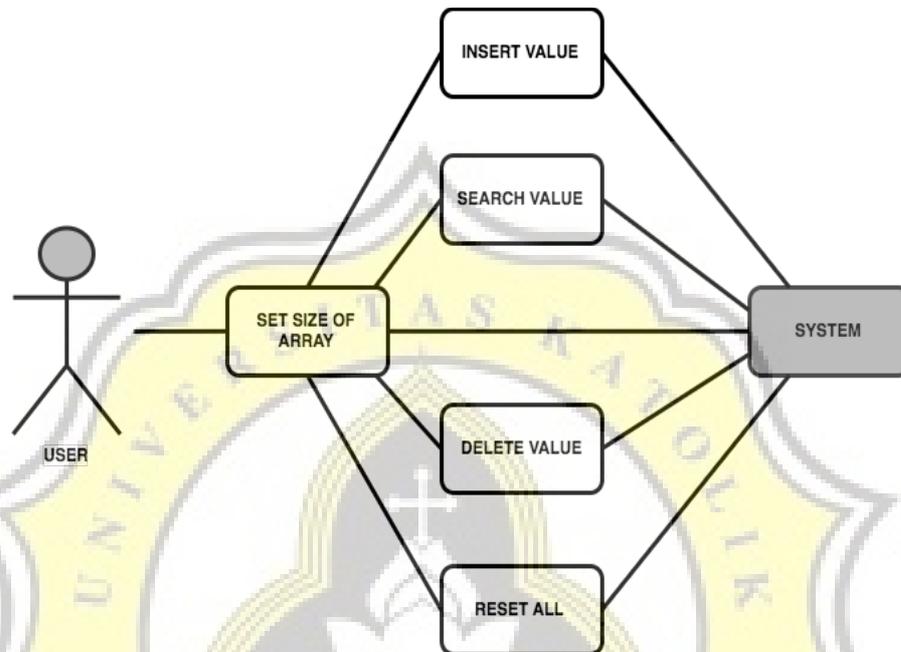


Illustration 4.1: Use Case Diagram process

To run this application the user is required to specify the size of the array. Set size of array is used to create initial storage space on hashtable. After set size of array user can perform insert value process, value will be processed by data structure and saved. Users can also perform the searching and delete process.

4.2.2 Flowchart

4.2.2.1 Set Size of Array

Set size of arrays to determine the length of an array at position x. Draw shape rectangle according to number of input array.

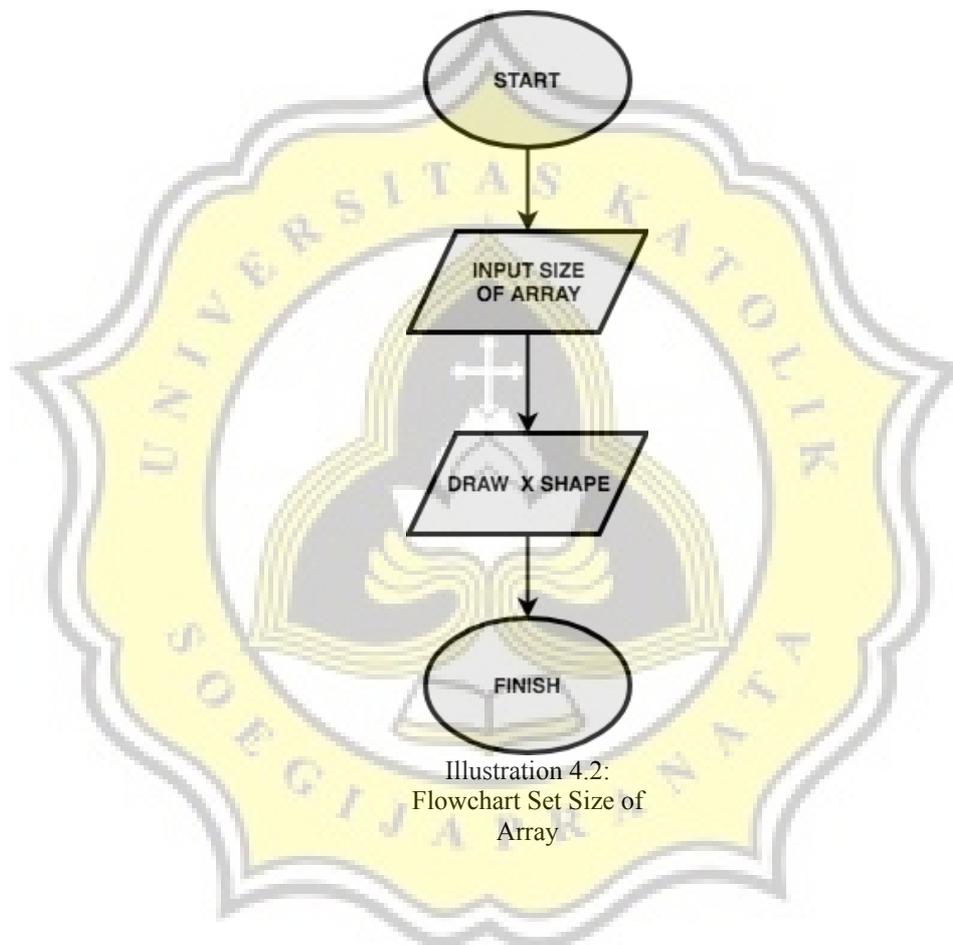


Illustration 4.2:
Flowchart Set Size of
Array

4.2.2.2 Insert value

After setting the array size, the data structure will get the key. Value in input will dimodulo with key. Module results will determine the location of the draw value. If the location of the array $x == \text{null}$ then the value will be drawn in the location of the array x and list 0, else value will be drawn in the location of array x and list.next.

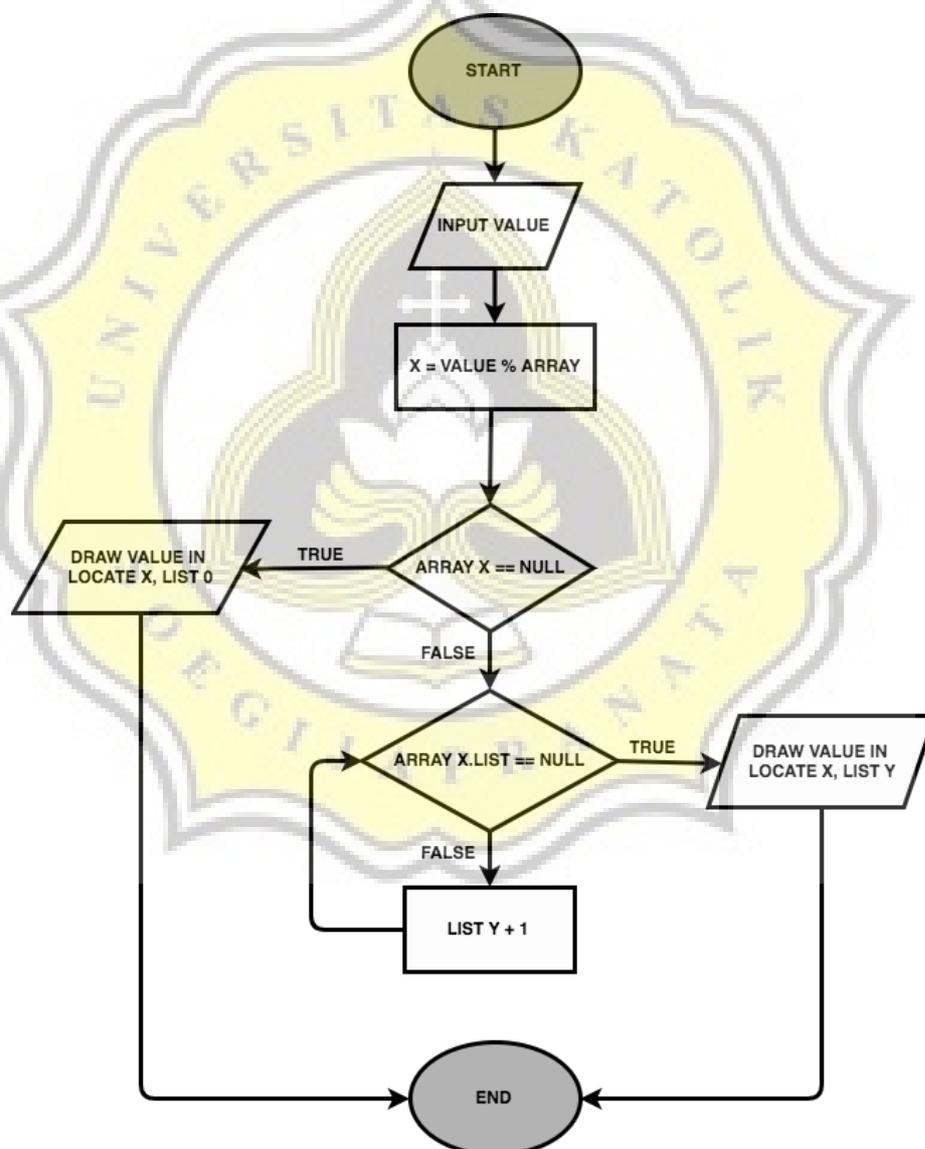


Illustration 4.3: Flowchart Insert Value

4.2.2.3 Search Value

Input search value, search value will be checked, if search value == value list it will berljut to next process, else it will appear message "value not found". After the value check then the search value will dimodulo by key to get the location value. If the search value == value list then the value will be drawn in the array location x and list y = 0, else the value will be drawn at the location of the array x and the location of y + 1.

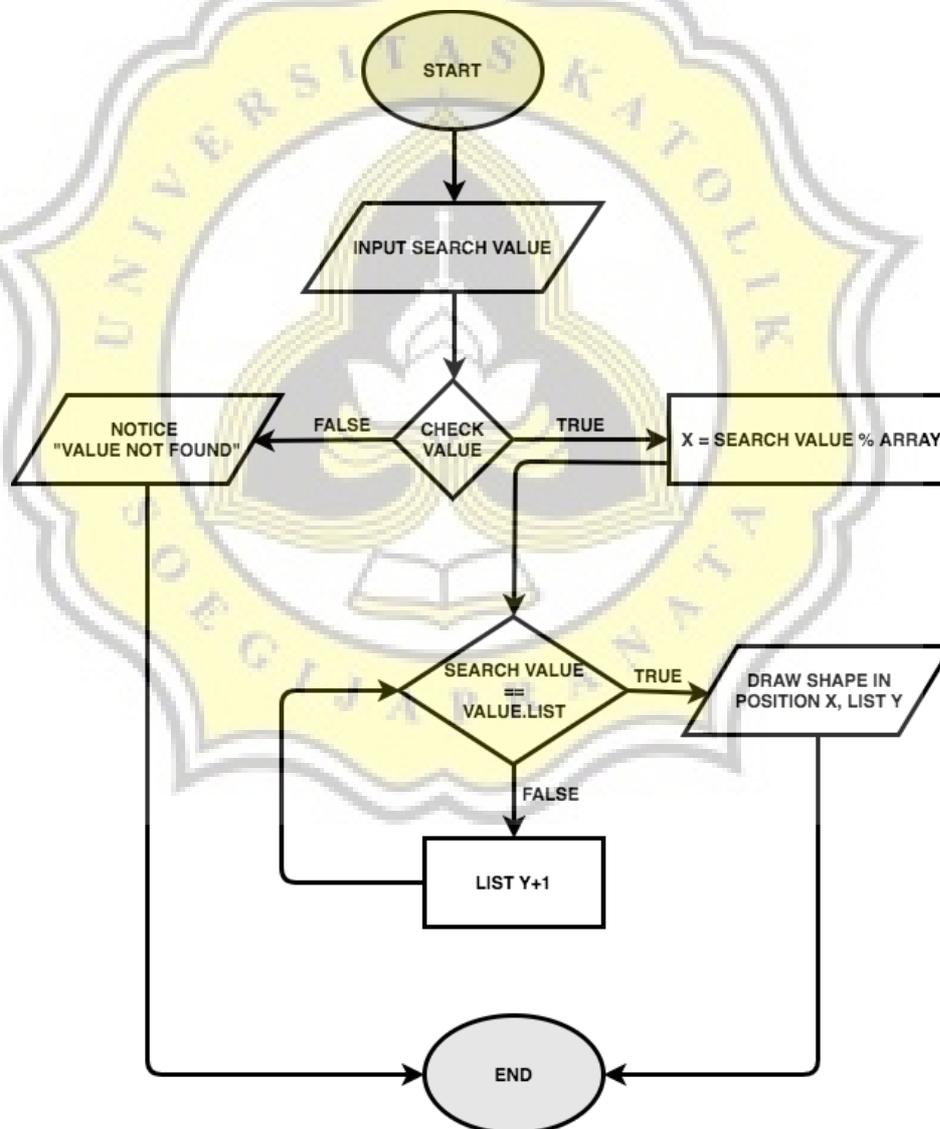


Illustration 4.4: Flowchart Searching Value

4.2.2.4 Delete Value

Input delete value. delete value akan di cek, if delete value == value list maka akan berlanjut ke proses selanjutnya, else maka akan muncul pesan “ value not found”. Setelah cek value maka delete value akan dimodulo oleh key untuk mendapatkan lokasi value. Jika delete value == value list maka value akan di delete dan shape akan di delete pada lokasi array x dan list y=0, else maka value akan di delete pada lokasi array x dan lokasi y+1.

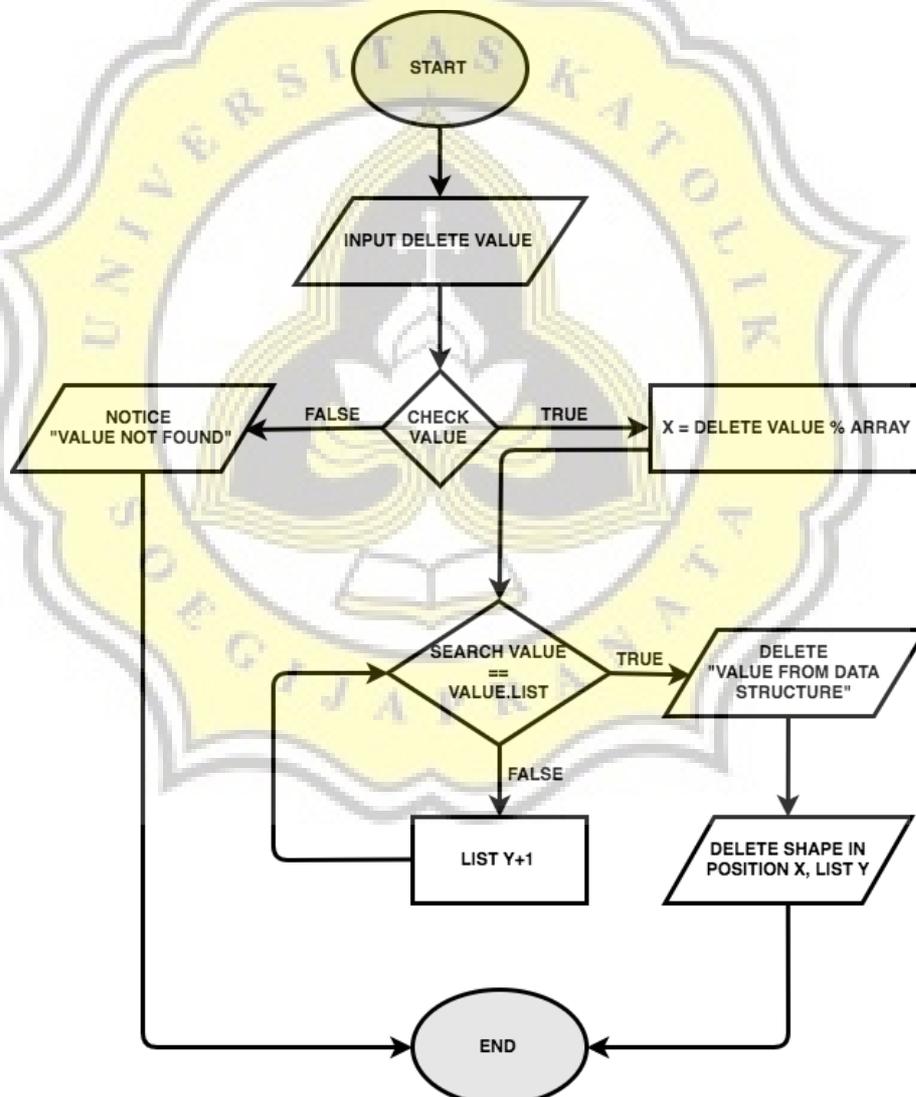


Illustration 4.5: Flowchart Delete Value

4.3 User Interface Design

4.3.1 Splash Screen

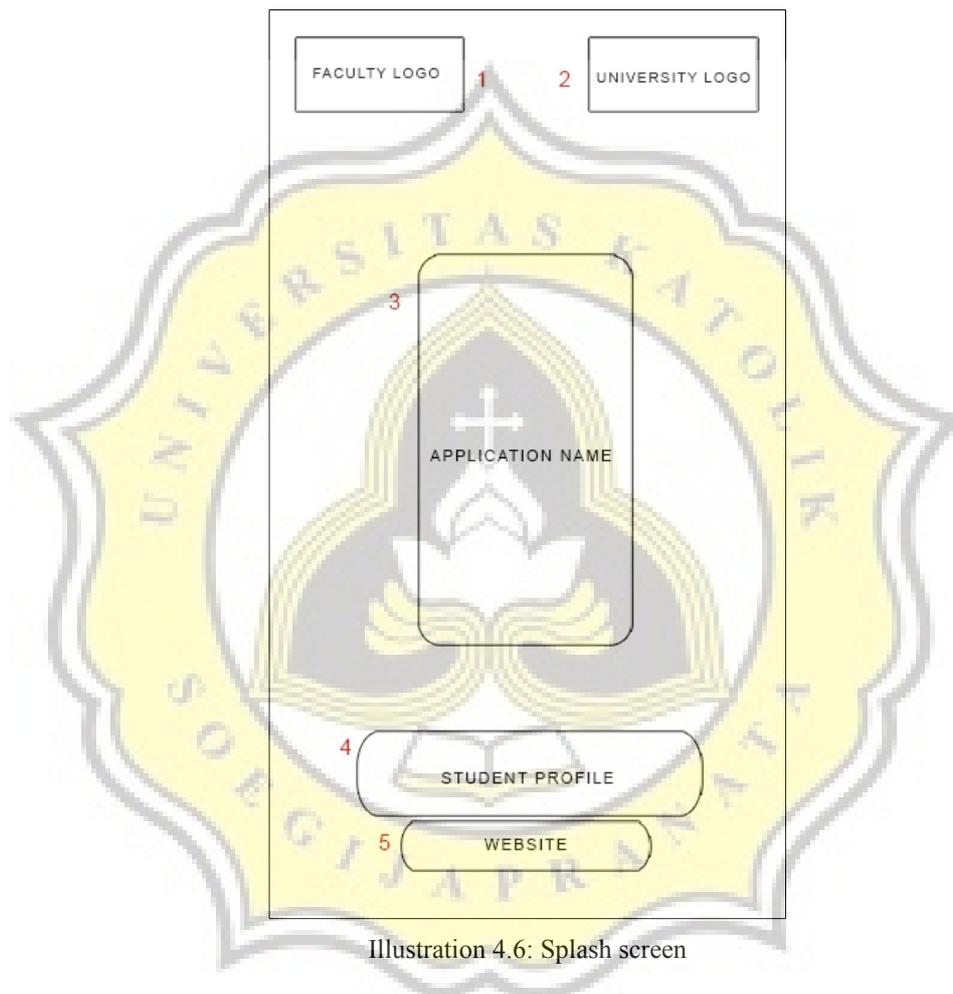


Illustration 4.6: Splash screen

[Content 1] is the logo of Informatic Engineering Department. [Content 2] is the Soegijapranata logo of Catholic University. [Content 3] is the logo or name of the app. [Content 4] contains a student profile. [Content 5] contains the website unika.ac.id.

4.3.2 Input and Button Content

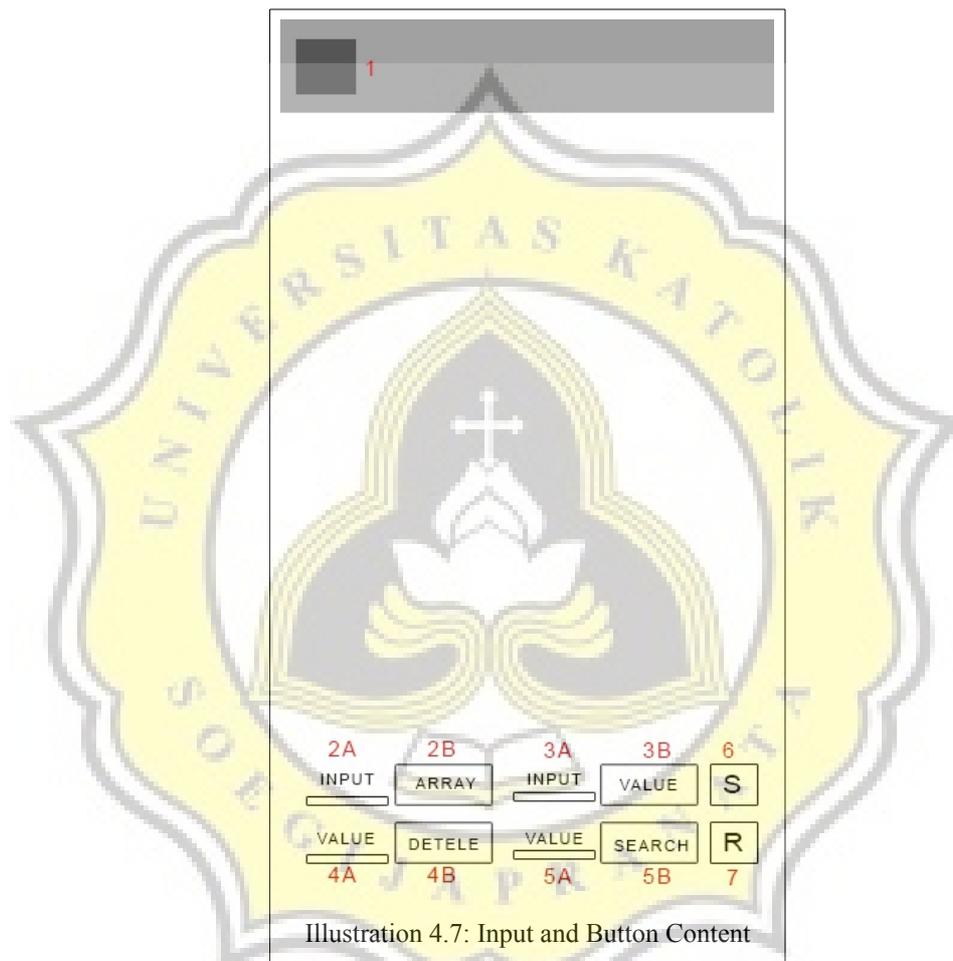


Illustration 4.7: Input and Button Content

[Content 1] is the menu tab logo. [Content 2A] is edit text for input size of array. [Content 2B] is the button of set size of array. [Content 3A] is an edit text for insert value. [Content 3B] is a button of insert value. [Content 4A] is edit text for delete value. [Content 4B] is the button of delete value. [Content 5A] is edit text for searching value. [Content 5B] is the button of the searching value. [Content 6] is the button to display data on the terminal to check the data structure process. [Content 7] is a button to reset data and reset canvas.

4.3.3 Main Content

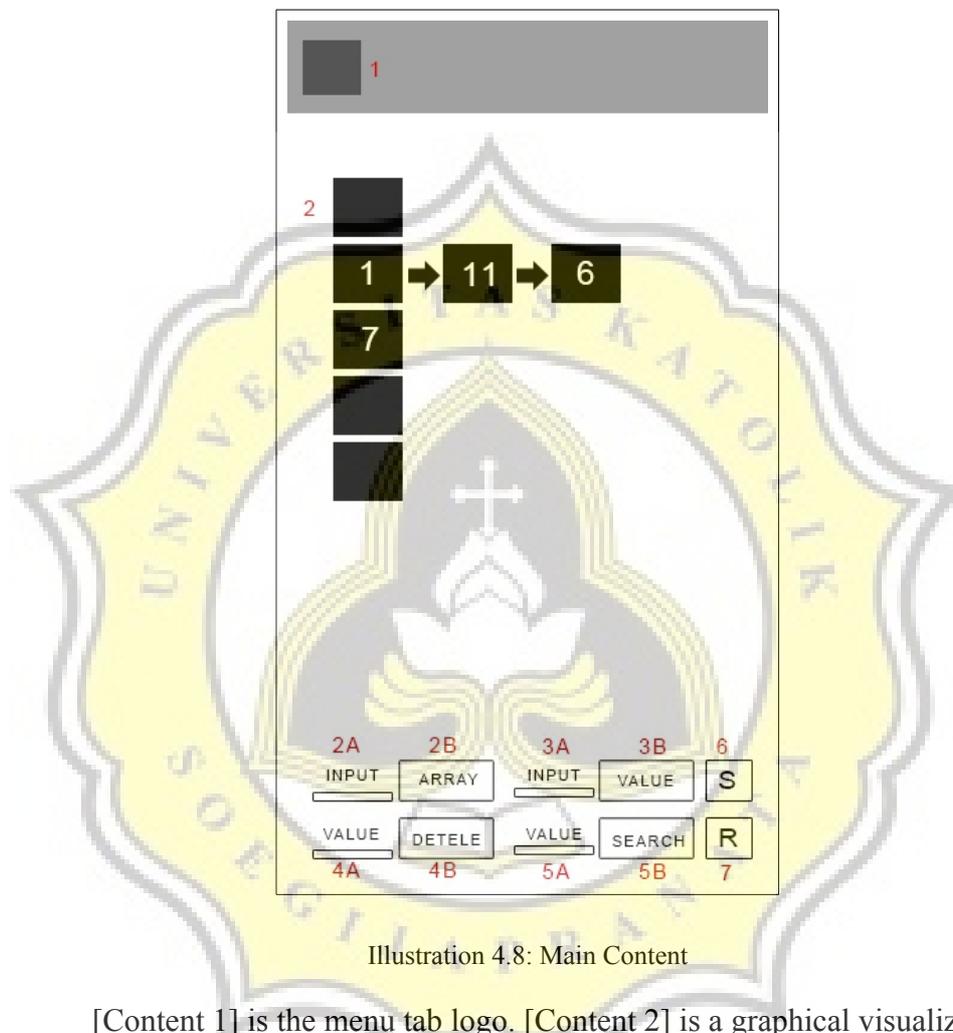
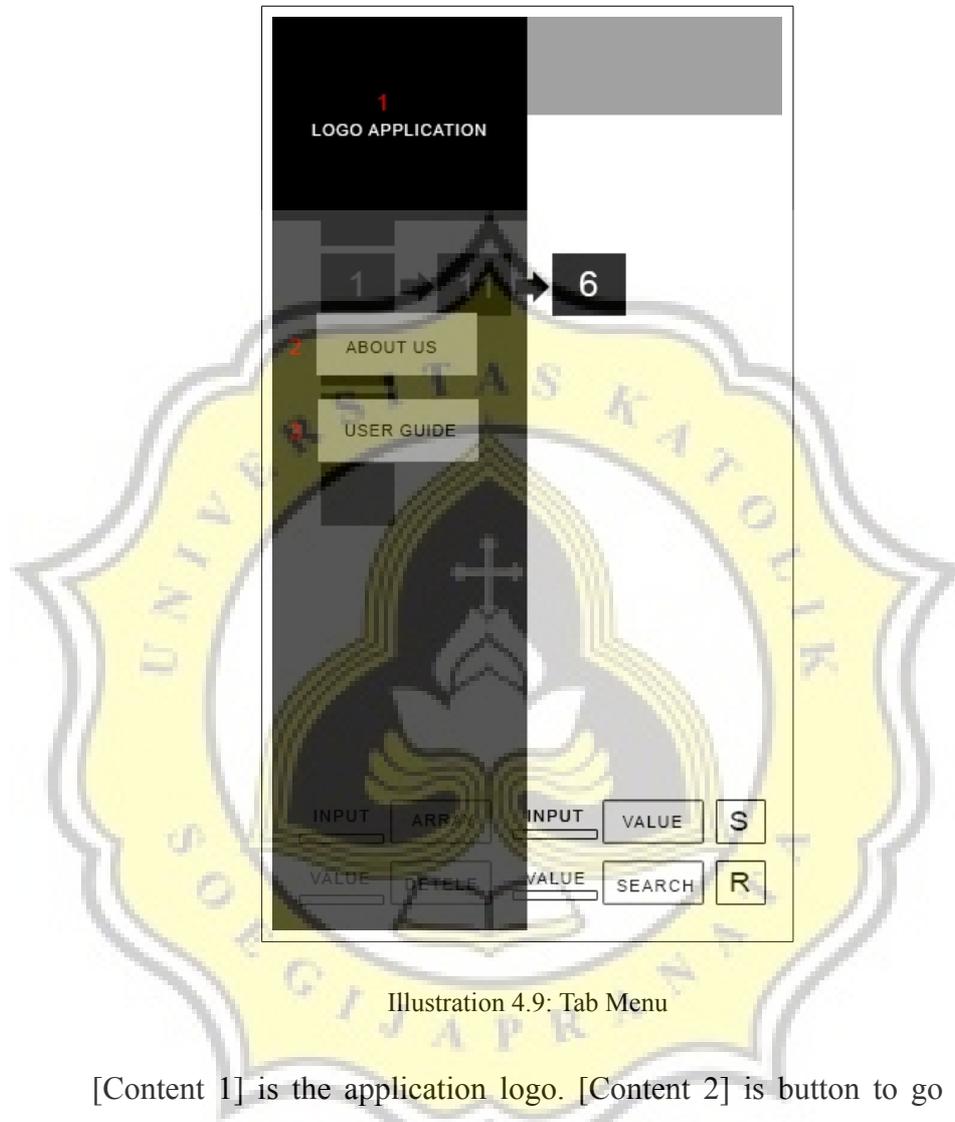


Illustration 4.8: Main Content

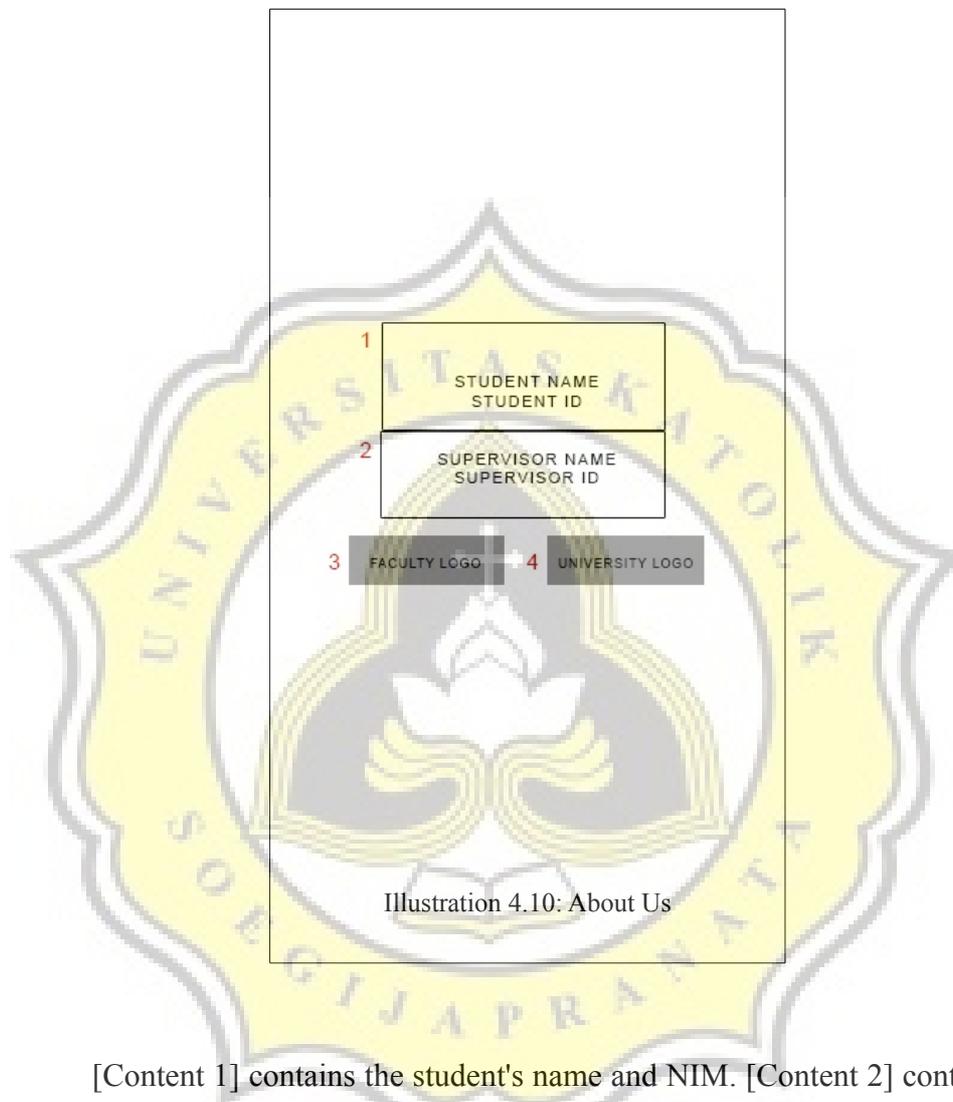
[Content 1] is the menu tab logo. [Content 2] is a graphical visualization of an inserted hashtable value [Content 2A] is an edit text for the input size of an array. [Content 2B] is the button of set size of array. [Content 3A] is an edit text for insert value. [Content 3B] is a button of insert value. [Content 4A] is edit text for delete value. [Content 4B] is the button of delete value. [Content 5A] is edit text for searching value. [Content 5B] is the button of the searching value. [Content 6] is the button to display data on the terminal to check the data structure process. [Content 7] is a button to reset data and reset canvas.

4.3.4 Tab Menu



[Content 1] is the application logo. [Content 2] is button to go to page about us [Content 3] is button to go to user guide page.

4.3.5 About Us



[Content 1] contains the student's name and NIM. [Content 2] contains the name of the supervisor. [Content 3] is the logo of Informatics Engineering Department. [Content 4] is the Soegijapranata logo of Catholic University.

4.3.6 User Guide

