PROJECT DOCUMENTATION

FOR SOFTWARE ENGINEERING CLASS

“Chat Bot Helpdesk DTE FTUI”

Made By:

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PREFACE

All praise to Allah Almighty so we can be able to make this progress report. We documented our works in our project for Software Engineering course. We have been doing the project "Chat Bot Helpdesk DTE FTUI" for our project in the course and we have a purpose to make a useful autonomous answer giver to the student to make them easy to face the procedure for internships, thesis, and academic leave.

The paper is made to give a progress report about our project in software engineering course. We made this to show how far we get in the project and what things we see that we need to do to make it better for the project's sake. We tried to cover everything necessary from our work into this document.

Many college students, especially on the final semesters, have difficulty in contacting the Faculty's Administrations in applying for academic leave, internships, or even thesis. These occurrences happened because the students didn't have enough time or didn't know the basic requirements before applying them. Those basics requirements including the minimal taken semesters, minimal attained GDA, permissions from faculty's staff, and many more.

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CHAPTER I

PRELIMINARY

1.1 Background

Many college students, especially on the final semesters, have difficulty in contacting the Faculty's Administrations or Department's Administration in applying for academic leave, internships, or even thesis. These occurrences happened because the students didn't have enough time or didn't know the basic requirements before applying them. Those basics requirements including the minimal taken semesters, minimal attained GDA, permissions from faculty's staff, and many more.

In this era where everything is connected, there is no excuse that the students don't have access to the information about internships, thesis, and academic leave, even if they are away from the campus. If the students have to access the procedure manual, or the students have some specific questions that are not in the manual but can't communicate the Department's employee, sometimes those cases can be burdening the student's way to accomplish the procedure.

In order to make the students have unlimited access to the procedures and questions answered, a chat bot is needed to satisfy those requirements.

1.2 Problem Formulation

1. How can chat bot answers all the user's questions correctly?
2. How to make chat bot understand the procedure of internships, thesis, and academic leave?
3. What has to be done to bring the chat bot as a tool to overcome student's problem about administration process of internships, thesis, and academic leave?

4. How to provide a chat bot in a good-looking way so the users can be more attracted to use/recommend this?

1.3 Purposes

The purpose of we made this project is to make the chat bot properly so that it can be implemented to help the problem in the campus environment and in the Software Engineering course project.

1.4 Used Tools

1.4.1 Hardware

The hardware we used to build this project is computer or laptop.

1.4.2 Software

The software we used in this project are the Engati chatbot platform from website, Notepad++, and internet browsers (IE, Edge, Chrome, Mozilla). Engati is a chat bot platform provided by Coviam to provide the developers the building materials to develop an editable and usable chat bot according to its field and usages. We used this software by inserting the FAQ and its responses in the theme of academic leave/internships/thesis appliances.

Notepad++ is used to build some primary and additional features in our project such as: the chat bot’s design, connection checking to internet, and unanswered questions’ database. Whereas internet browsers are used to test and evaluate the project’s development and progress.

1.5 Risks Analysis

Future risks we have found during the planning until the developing this project's program are availability and functionality.

From the availability aspect, the program would be accessed only by the students who reached the final semesters, who didn't have enough time to make an appointment to the Faculty's Administration or Faculty's staff, and who didn't have any information about fulfilling the requirements in applying for academic leave, internships, or thesis.

On the other hand, from the functionality aspect, the program still needs a lot of improvements and reparations. For example, the GUI (Graphic User Interface) and the design is too simple and not attractive enough for the users to use it.

Next, the chat bot is only available online since we synchronized its function with the Engati platform website. In other words, the ChatBot is very dependant on the Internet connections. So the message exchange wouldn't work functionally when offline.

CHAPTER II

PROJECT MANAGEMENT

2.1 4P

2.1.1 People

People that contributed in this project alongside their roles are: Muhammad Hamzah as the supervisor and programmer for connection checking; Luthfi Rahman Hardy as the website designer, whereas Ahmad Adri an-Nabaa as the programmer for database for questions and answers.

Other people involved in this program's development are the users themselves. in this case, the users are Prof. Ruki and Prof. Riri. The users' roles are to test the program's functionality and also to provide some feedback and advice to improve the program better and more usable to anyone.

In addition, the people who are involved in this project are the Faculty Secretariat's Employees who granted the permission and access of their procedures to the developers in providing the answers to be more effective, helpful, and clear.

2.1.2 Project

This program's projects are creating the ChatBot that connected to Engati Platform via Internet that provides the users to get some information about the procedures in applying for academic leave, internship, and/or thesis.

Some additional features that we would like to include in this program are qualification checking and a database that provides the answers for new inputted questions. Qualification checking works by checking the users' requirements before applying for those services (academic leave, internship, and thesis). Whereas an additional database is used to receive a new questions inputted by users (including error-checking) then the program's administrators will provide sufficient answers for it.

Since this program is only accessible in "Academic Leave" topic only, we would like to add the rest of the topics and enhance its answering quality in the future.

2.1.3 Process

First, we learn how to pick tools to make such a chat bot. Then, we decide in which field the chat bot will be useful to. After finding the use of the chat bot, we start making the rough design of the software (in the form of website). Then, we find the engine for the chat bot, start coding, and integrate the chatbot engine into the web. Then, we do the test of the website. After seeing the result of the test, we repeat the process of coding and configuring the engine.

2.1.4 Product

The final product we expected would be a complete ChatBot with an attractive design and improved quality in answering questions needed by the students, especially in their final semesters. The ChatBot will explain the procedures and detailed information to help the users and making it less prone to errors by updating the databases in providing its responses.

2.2 Project Planning

To build our website, we use Code Editor to configure our website. In our website, we use the HTML for markup language, Javascript for web programming, and Python programming which is embedded in the Engati engine.

We use several services that are provided by service providers. For the chat bot, we use chatbot service that is provided by Engati. We also use the service from 000webhost for the repository of the project's website.

We share our works through Google Drive and do the report in parallel using Google Docs. We communicate using LINE messenger to make coordination between members.

2.3 CMM Level

CMM (Capability Maturity Model) level we are currently belong is at Level 2 (Repeatable). We managed to find how to make the chat bot reaches the requirement, that is to answer every user's question accurately and handle the questions considered as 'error'. We estimate the project will have zero cost of budget until the end and the functionality parameter is estimated to give information about administrative issues of the student in the department. Currently, our actual progress is estimated as 35% of the total progress. We have the software standard that is the chat bot has the question handling capability to 95%.

2.4 Software Costs

We use the tools and domain of the website which are free. It has zero cost. The costs that feasible to be simplified is Lines of Codes.

2.5 Waterfall Cycle Model & CASE Tools

2.5.1 Waterfall Cycle Model

2.5.1.1 Requirements

The requirements to be built in this project are the ability to answer and to explain clearly about the chosen topics (academic leave, internship, and thesis) to help and guide the senior students in applying them without questioning the Faculty's Administration about its requirements again.

This program also must be able to store the new questions and updated the answers to ease the users in getting their necessary information clearly and effectively.

2.5.1.2 Design

This program is designed to check the users basic requirements first. After fulfilling the basic requirements, users can ask several things according to the topic they had chosen. As they inputted the questions, the ChatBot will generate the answers for them. If a question is new and doesn't have its answers yet, those questions will be inputted into the database and the Administrator will update the answers' database and provide the similar question in the future.

To build this program, we are using several programming languages, which are HTML/CSS for the interface and JavaScript for the connection indicator. For the responses databases, we integrated our program with Engati Chatbot Platform via Internet connection.

2.5.1.3 Implementation and Integration

This program is divided into three sections of work. They are design, connection indicator, and the database. All three of them will be integrated into a complete program.

The design was built in HTML/CSS programming language. To architect the basic design's placements, we used the HTML file named index.html. Whereas to build more detailed designs' aspects and styles, we used the CSS file named style.css.

For indicating that the program is connected to the Internet, we used the JavaScript file named connection_test.js. Once there is an Internet connection, the program will indicate it as on and the chatbot could be used later.

Lastly, for providing the database that we will use to save new questions and updated their answers, we currently used a ChatBot platform/generator named Engati. With Engati, user can input the questions' patterns and its pathways (mostly its answers) manually and store it into the provided database.

2.5.1.4 Testing

After we tested the program's modules and programming, we still found that this program was far from complete. There are several errors and deficiencies found in this program.

Some of those deficiencies are the design's appearance, the error-handling when the user mistakenly inserted the questions, and still manually updated questions and answers.

2.5.2 CASE Tools

- Upper-CASE Tools: draw.io (requirement & design)
- Lower-CASE Tools: notepad++ (programming), Engati App (Unit Implementation)

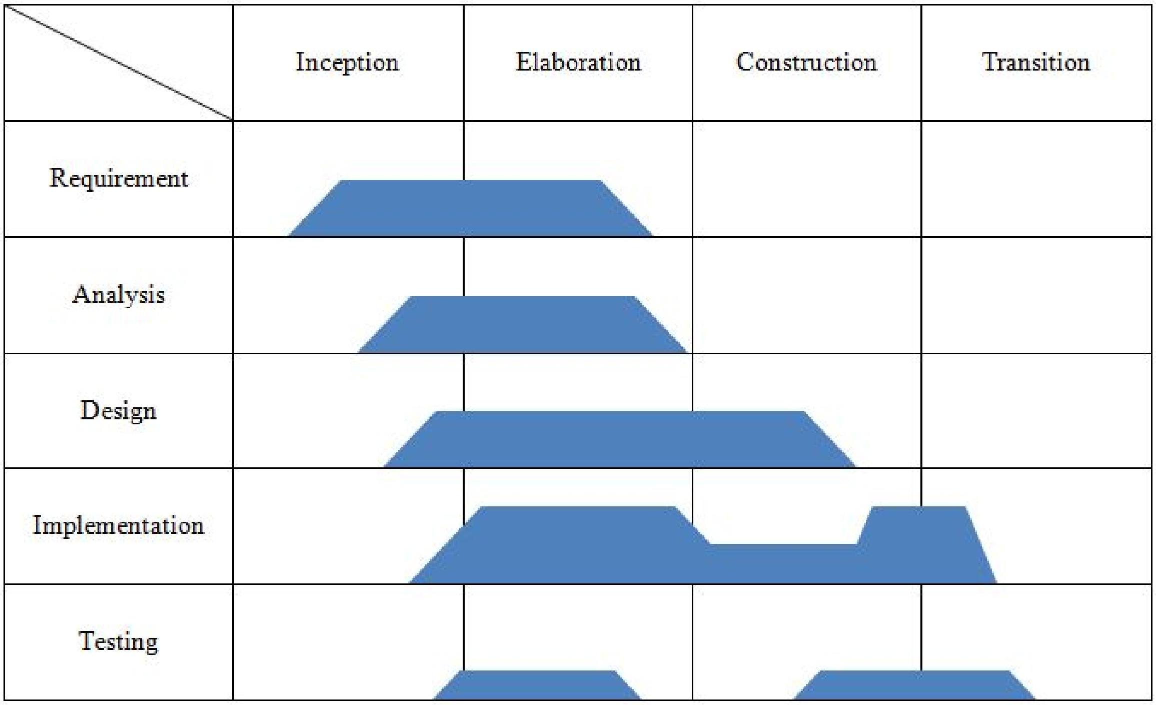
2.6 Documentation Management

The documentation is not currently complete but estimated

A. Configuration (SCMP)
B. Requirement (SRS)
C. Design (SDD) and Code (Source Code)

2.7 Unified Process Matrix

Table 2.1. Unified Process Matrix



CHAPTER III

DESIGN AND ANALYSIS

3.1 Software Model

3.1.1 UML Diagram

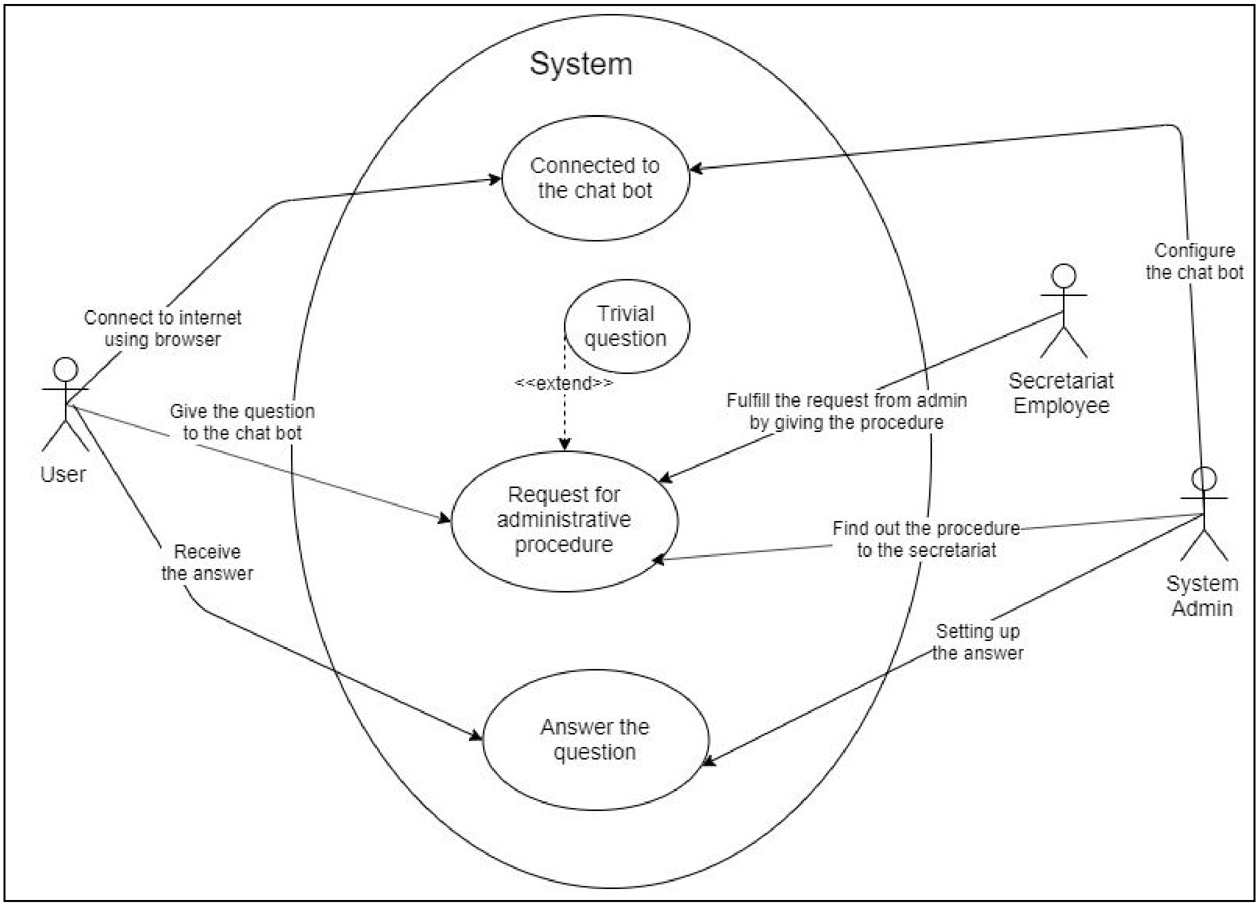

System
Connected to the chat bot
Trivial question
<<extend>>
Request for administrative procedure
Answer the question
User
Connect to internet using browser
Give the question to the chat bot
Receive the answer
Secretariat Employee
Fulfill the request from admin by giving the procedure
System Admin
Configure the chat bot
Find out the procedure to the secretariat
Setting up the answer

Figure 3.1. Use Case Diagram

Use case diagram describes the behavior of the system using actors and use cases. The actors are involved to the system by interacting with use cases that are in the system.

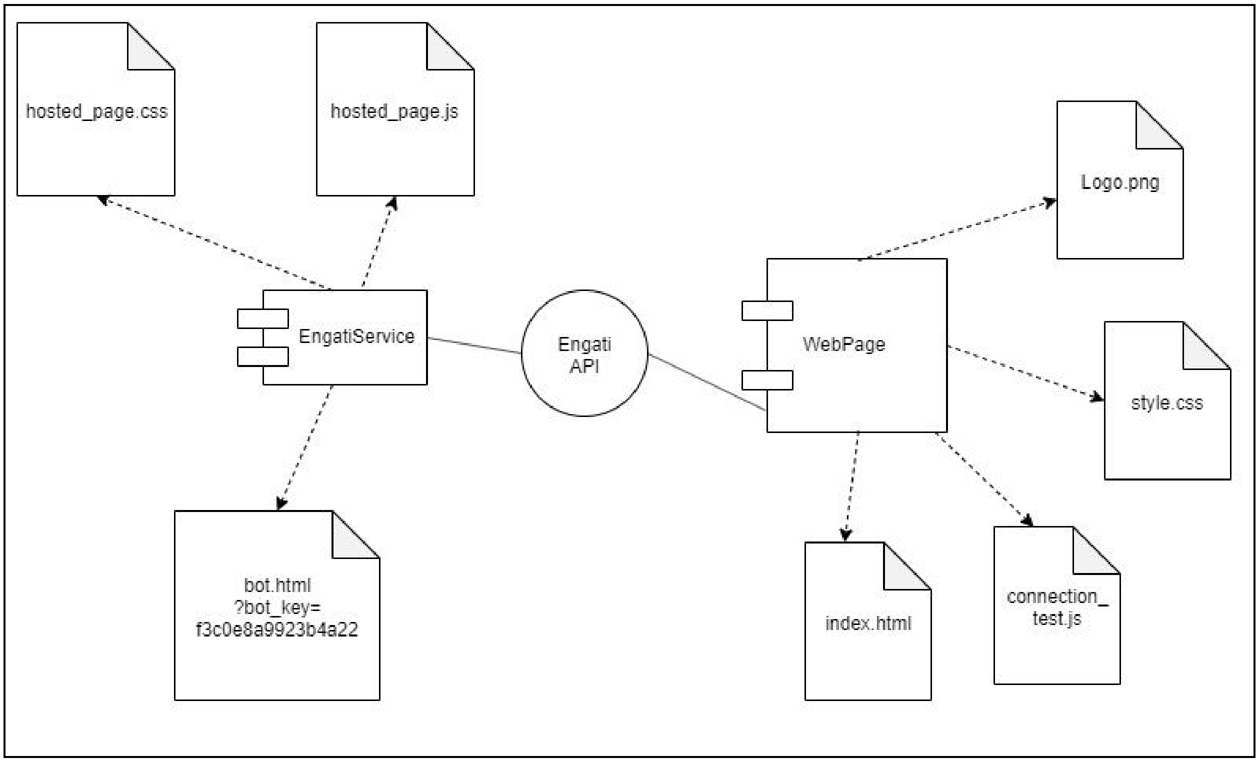


Figure 3.2. Component Diagram

The component diagram uses components which build the system and show the relationship between one to others.

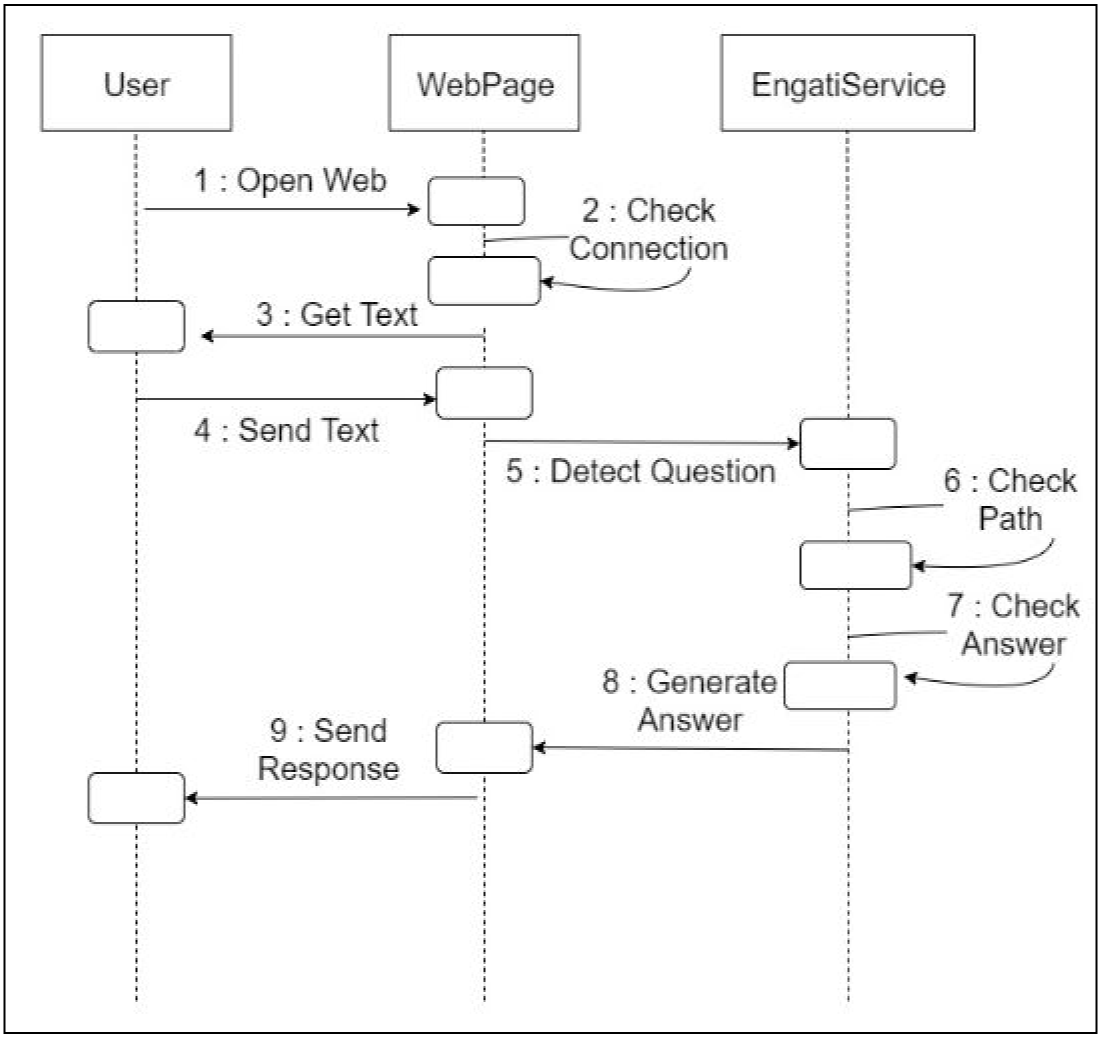


Figure 3.3. Sequence Diagram

The sequence diagram shows the interaction between object in sequential view. It depicts the scenario that happened to the system and how objects get involved to the system.

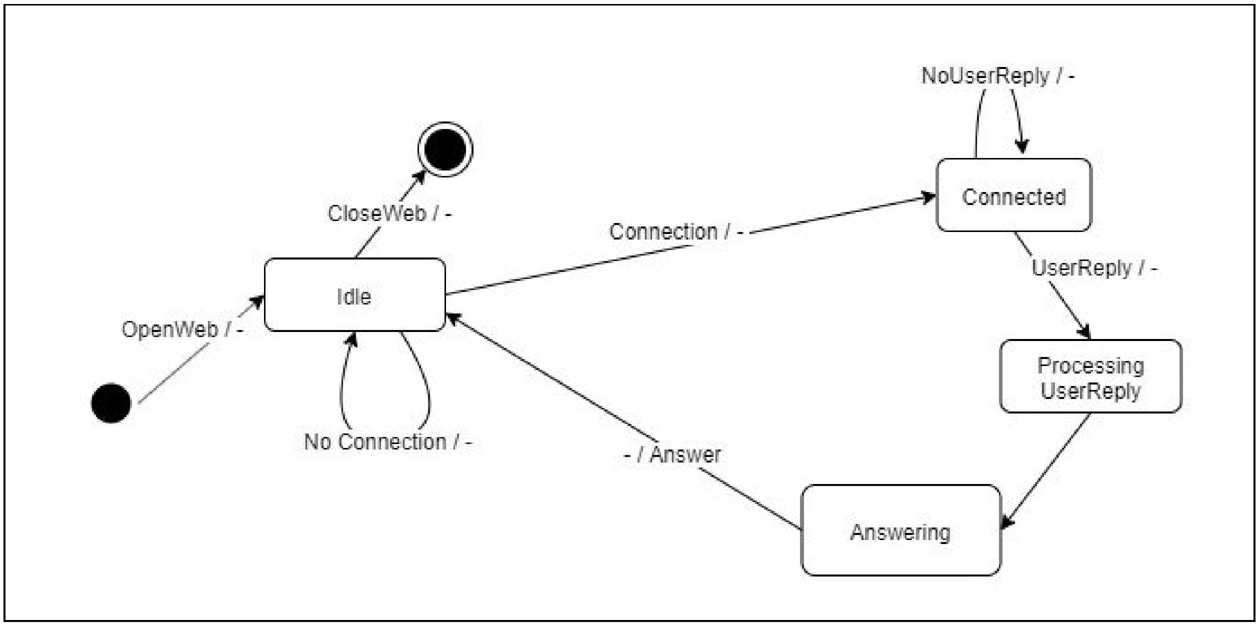


Figure 3.4. State Transition Diagram

The state transition diagram shows how the events occurring to the system can change the state of the system or subsystem and what the reaction of the system/subsystem when an event occurs.

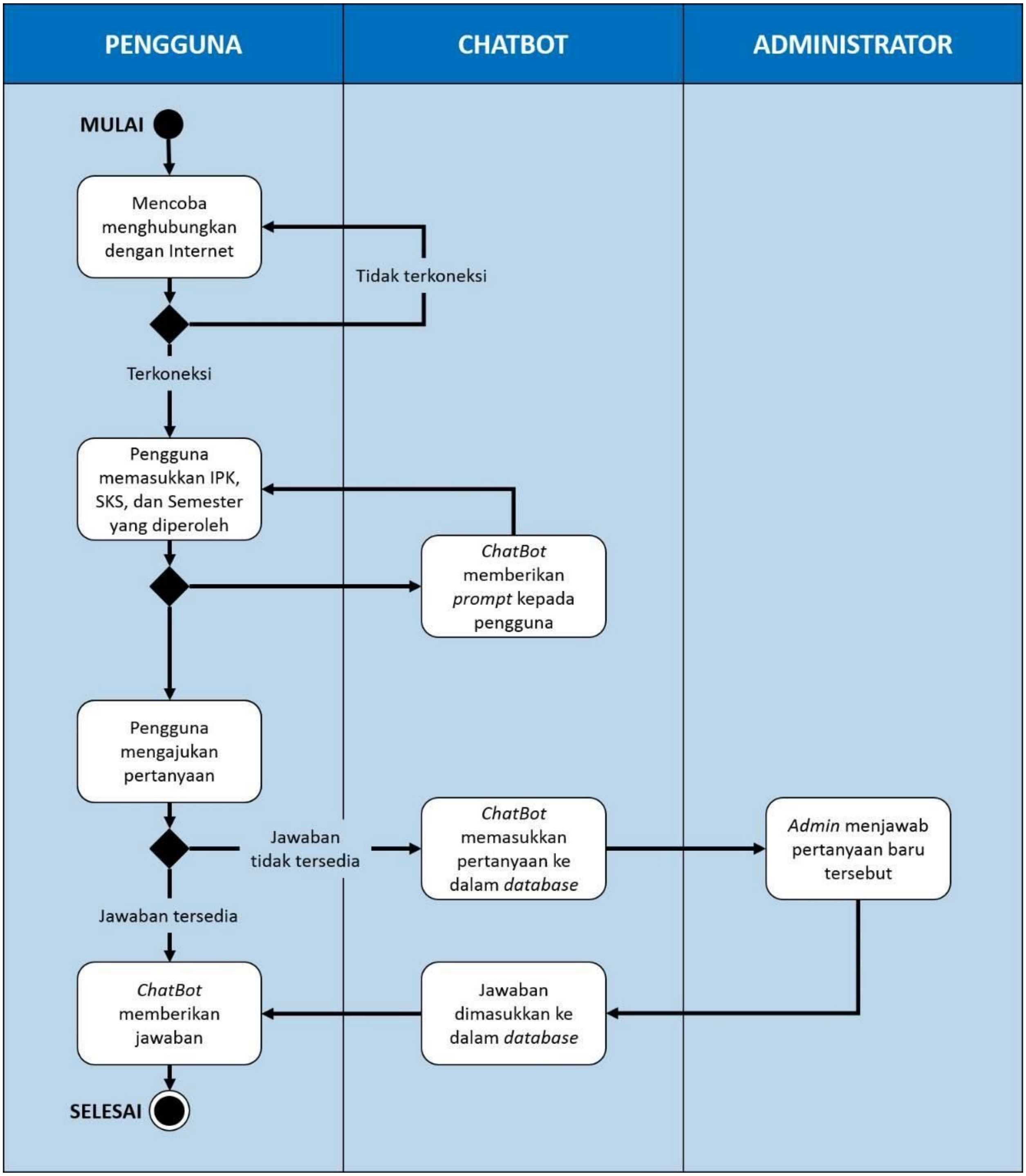

PENGGUNA
CHATBOT
ADMINISTRATOR
MULAI
Mencoba menghubungkan dengan Internet
Tidak terkoneksi
Terkoneksi
Pengguna memasukkan IPK, SKS, dan Semester yang diperoleh
ChatBot memberikan *prompt* kepada pengguna
Pengguna mengajukan pertanyaan
Jawaban tidak tersedia
ChatBot memasukkan pertanyaan ke dalam *database*
Admin menjawab pertanyaan baru tersebut
Jawaban tersedia
ChatBot memberikan jawaban
Jawaban dimasukkan ke dalam *database*
SELESAI

Figure 3.5. Activity Diagram

Activity diagram represents the flow of the system so the readers can know what’s next after a condition.

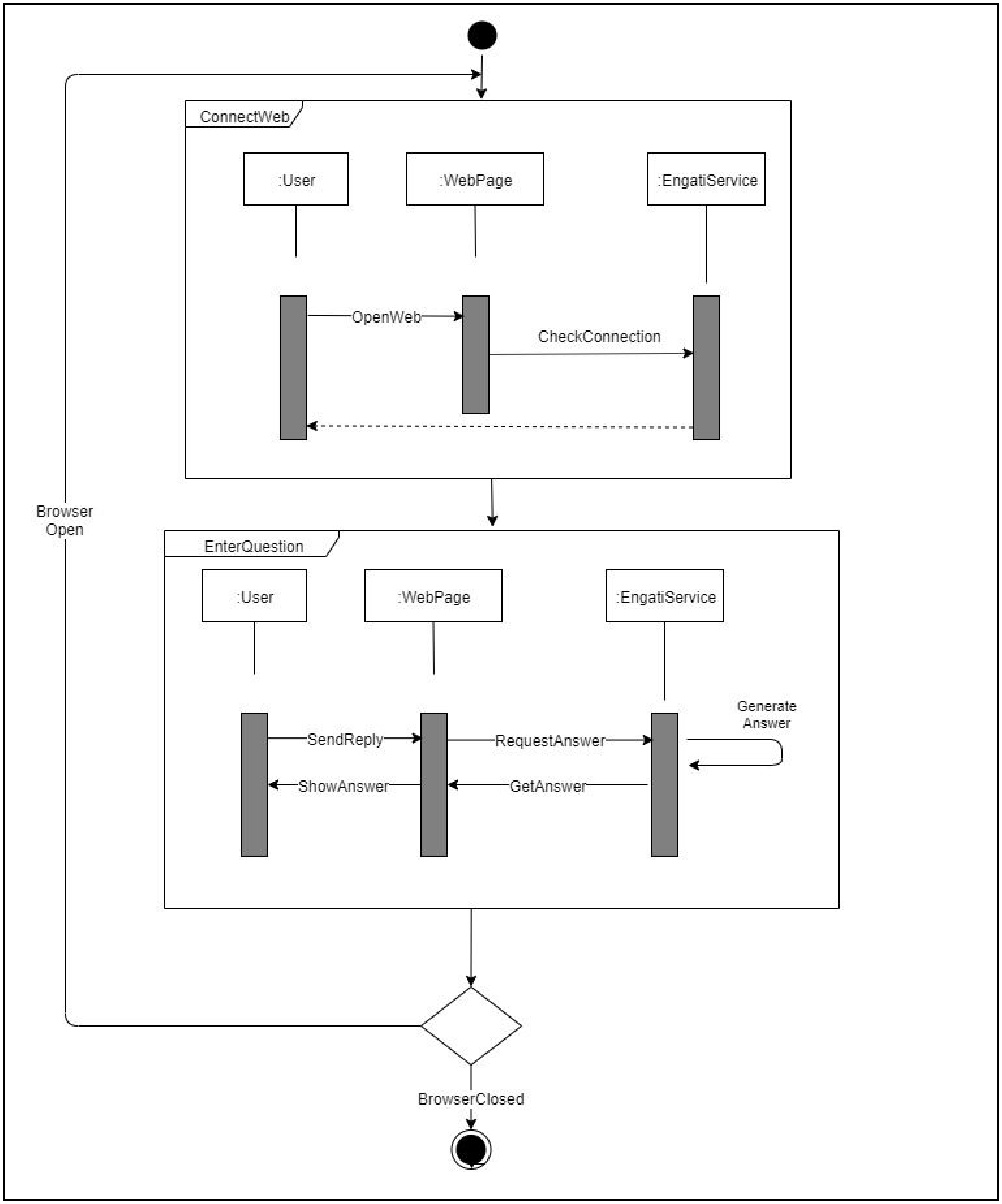
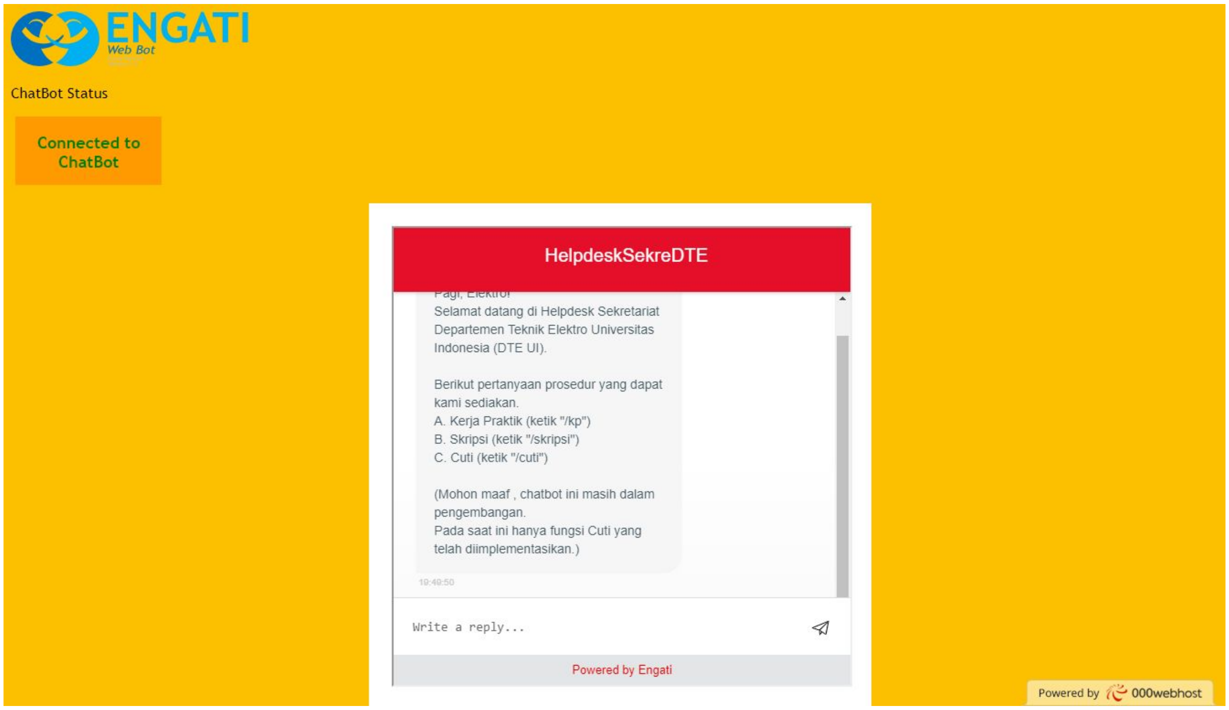


Figure 3.6. Interaction Overview Diagram

The interaction overview diagram shows the control flow and looks like activity diagram, but show the parts in a node and in a bigger picture..

3.2 Mock-Up Design



Pagi, Elektro!
Selamat datang di Helpdesk Sekretariat Departemen Teknik Elektro Universitas Indonesia (DTE UI).

Berikut pertanyaan prosedur yang dapat kami sediakan.
A. Kerja Praktik (ketik "/kp")
B. Skripsi (ketik "/skripsi")
C. Cuti (ketik "/cuti")

(Mohon maaf , chatbot ini masih dalam pengembangan.
Pada saat ini hanya fungsi Cuti yang telah diimplementasikan.)

19:40:50

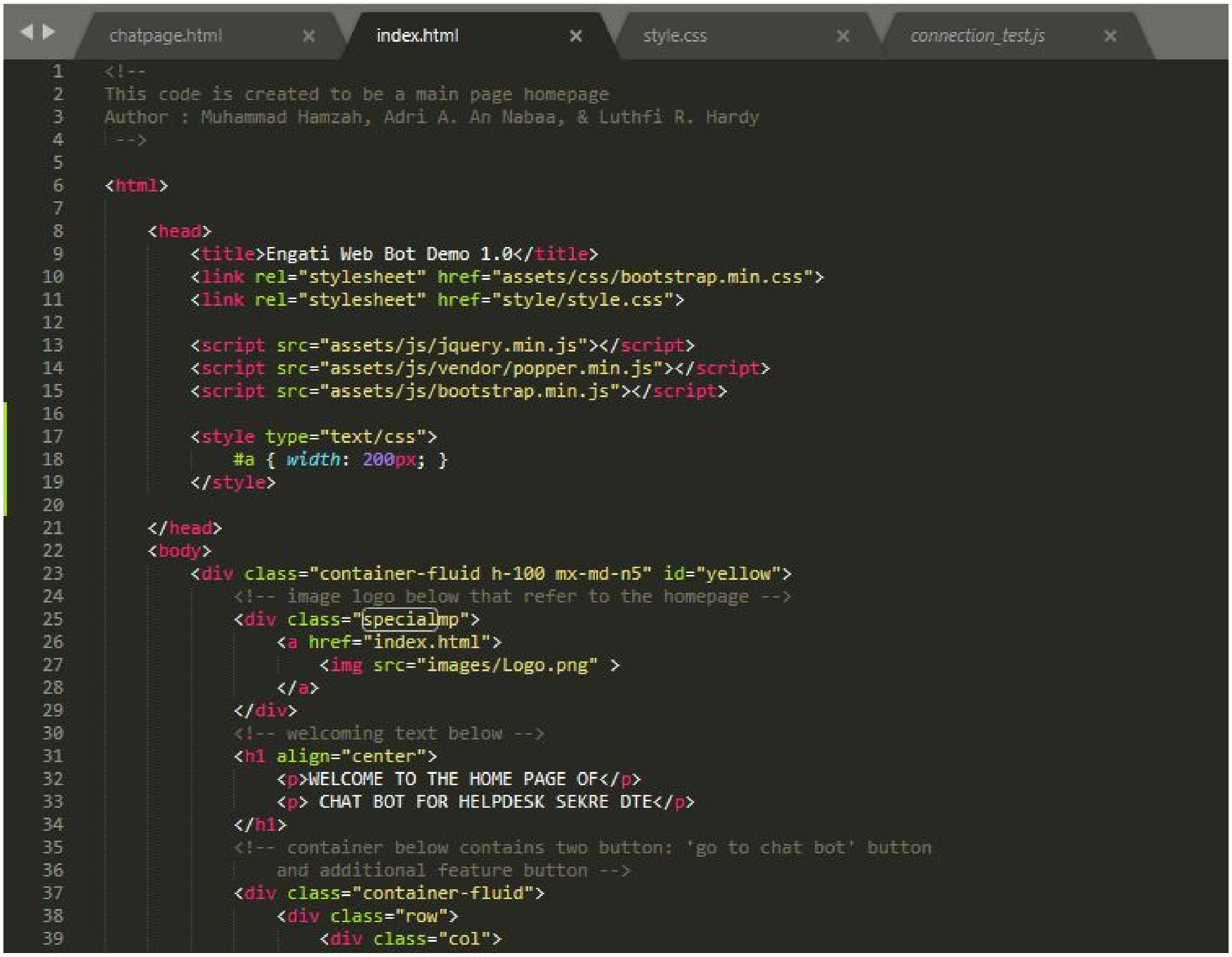
Figure 3.7. Mock-Up Design

CHAPTER IV

CODE IMPLEMENTATION

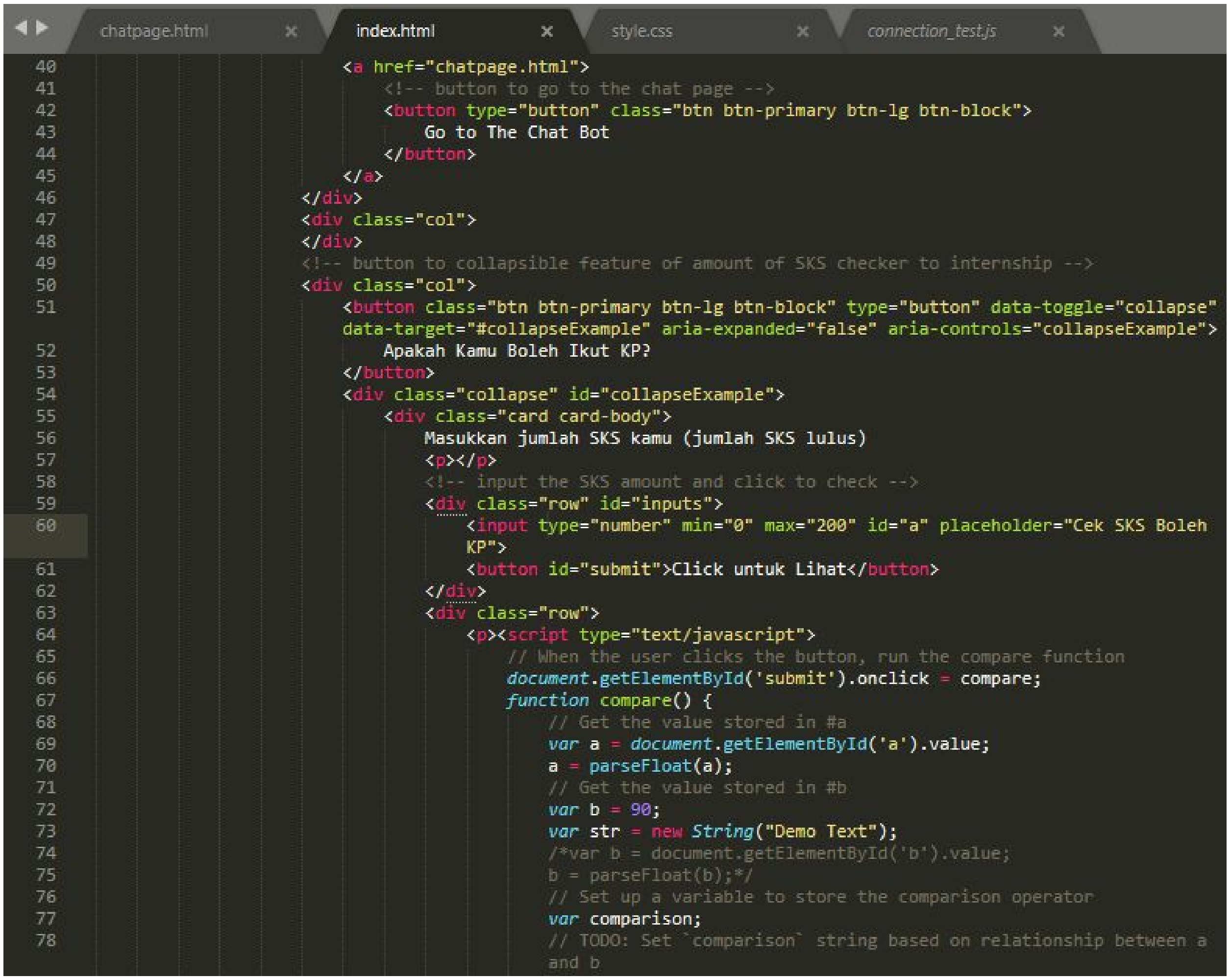
4.1 Code For Web Page

Main page: index.html



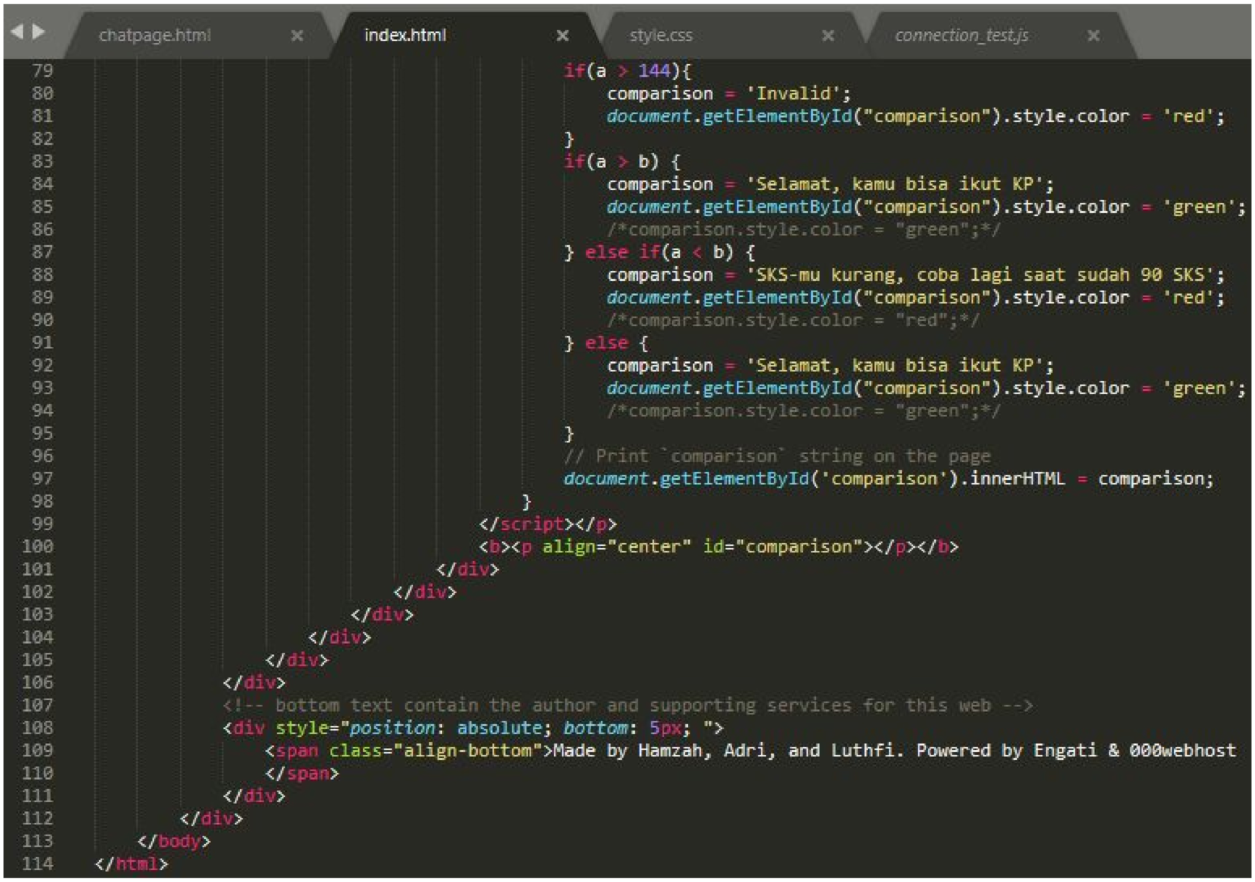
```
<!--
This code is created to be a main page homepage
Author : Muhammad Hamzah, Adri A. An Nabaa, & Luthfi R. Hardy
 -->

<html>

    <head>
        <title>Engati Web Bot Demo 1.0</title>
        <link rel="stylesheet" href="assets/css/bootstrap.min.css">
        <link rel="stylesheet" href="style/style.css">

        <script src="assets/js/jquery.min.js"></script>
        <script src="assets/js/vendor/popper.min.js"></script>
        <script src="assets/js/bootstrap.min.js"></script>

        <style type="text/css">
            #a { width: 200px; }
        </style>

    </head>
    <body>
        <div class="container-fluid h-100 mx-md-n5" id="yellow">
            <!-- image logo below that refer to the homepage -->
            <div class="specialmp">
                <a href="index.html">
                    <img src="images/Logo.png" >
                </a>
            </div>
            <!-- welcoming text below -->
            <h1 align="center">
                <p>WELCOME TO THE HOME PAGE OF</p>
                <p> CHAT BOT FOR HELPDESK SEKRE DTE</p>
            </h1>
            <!-- container below contains two button: 'go to chat bot' button
                and additional feature button -->
            <div class="container-fluid">
                <div class="row">
                    <div class="col">
```

Figure 4.1. index.html source code (part 1)



```
                        <a href="chatpage.html">
                            <!-- button to go to the chat page -->
                            <button type="button" class="btn btn-primary btn-lg btn-block">
                                Go to The Chat Bot
                            </button>
                        </a>
                    </div>
                    <div class="col">
                    </div>
                    <!-- button to collapsible feature of amount of SKS checker to internship -->
                    <div class="col">
                        <button class="btn btn-primary btn-lg btn-block" type="button" data-toggle="collapse" data-target="#collapseExample" aria-expanded="false" aria-controls="collapseExample">
                            Apakah Kamu Boleh Ikut KP?
                        </button>
                        <div class="collapse" id="collapseExample">
                            <div class="card card-body">
                                Masukkan jumlah SKS kamu (jumlah SKS lulus)
                                <p></p>
                                <!-- input the SKS amount and click to check -->
                                <div class="row" id="inputs">
                                    <input type="number" min="0" max="200" id="a" placeholder="Cek SKS Boleh KP">
                                    <button id="submit">Click untuk Lihat</button>
                                </div>
                                <div class="row">
                                    <p><script type="text/javascript">
                                        // When the user clicks the button, run the compare function
                                        document.getElementById('submit').onclick = compare;
                                        function compare() {
                                            // Get the value stored in #a
                                            var a = document.getElementById('a').value;
                                            a = parseFloat(a);
                                            // Get the value stored in #b
                                            var b = 90;
                                            var str = new String("Demo Text");
                                            /*var b = document.getElementById('b').value;
                                            b = parseFloat(b);*/
                                            // Set up a variable to store the comparison operator
                                            var comparison;
                                            // TODO: Set `comparison` string based on relationship between a and b
```

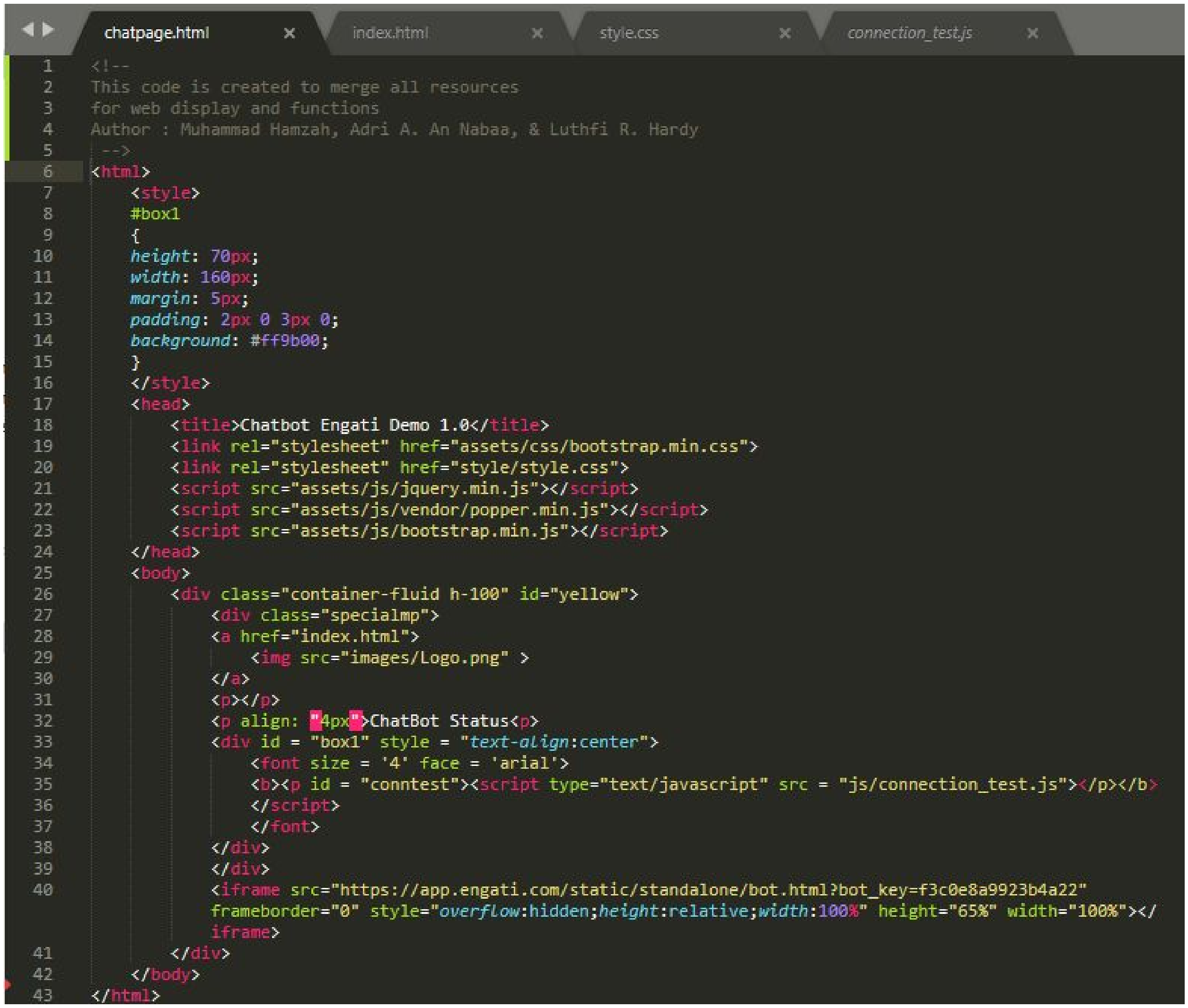
Figure 4.2. index.html source code (part 2)



```
                                            if(a > 144){
                                                comparison = 'Invalid';
                                                document.getElementById("comparison").style.color = 'red';
                                            }
                                            if(a > b) {
                                                comparison = 'Selamat, kamu bisa ikut KP';
                                                document.getElementById("comparison").style.color = 'green';
                                                /*comparison.style.color = "green";*/
                                            } else if(a < b) {
                                                comparison = 'SKS-mu kurang, coba lagi saat sudah 90 SKS';
                                                document.getElementById("comparison").style.color = 'red';
                                                /*comparison.style.color = "red";*/
                                            } else {
                                                comparison = 'Selamat, kamu bisa ikut KP';
                                                document.getElementById("comparison").style.color = 'green';
                                                /*comparison.style.color = "green";*/
                                            }
                                            // Print `comparison` string on the page
                                            document.getElementById('comparison').innerHTML = comparison;
                                        }
                                    </script></p>
                                    <b><p align="center" id="comparison"></p></b>
                                </div>
                            </div>
                        </div>
                    </div>
                </div>
            </div>
            <!-- bottom text contain the author and supporting services for this web -->
            <div style="position: absolute; bottom: 5px; ">
                <span class="align-bottom">Made by Hamzah, Adri, and Luthfi. Powered by Engati & 000webhost
                </span>
            </div>
        </div>
    </body>
</html>
```

Figure 4.3. index.html source code (part 3)

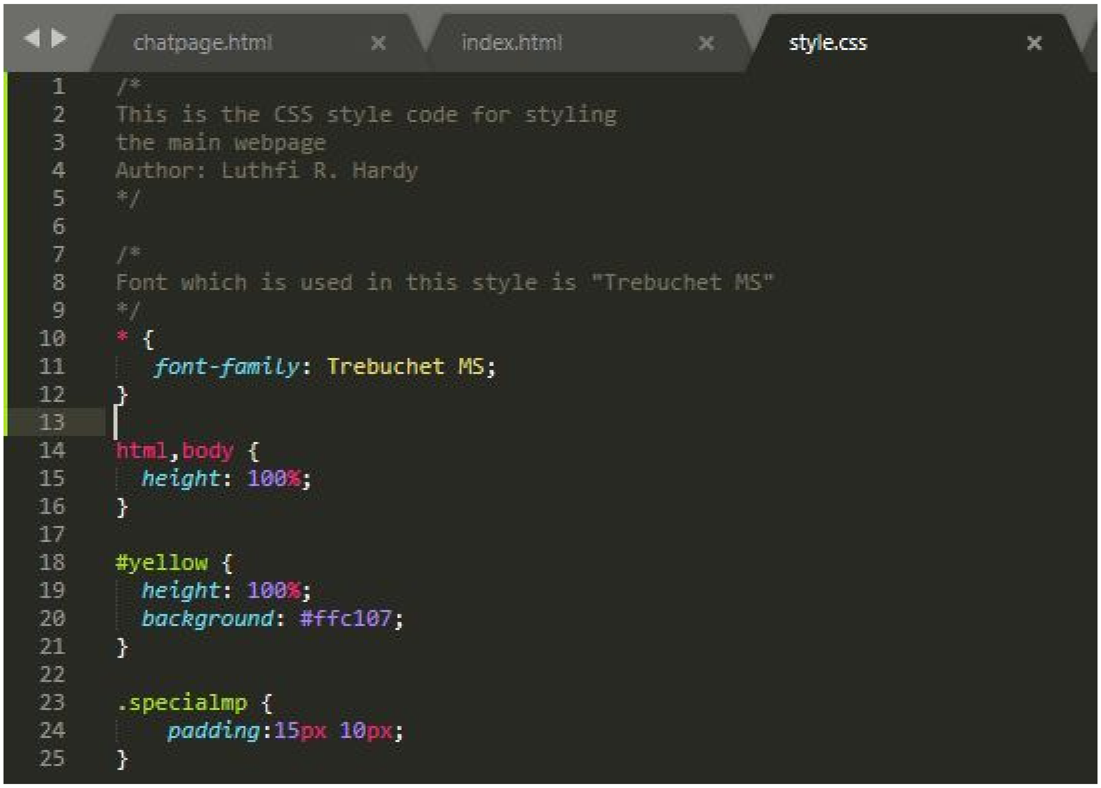
Chatbot page: chatpage.html



```html
<!--
This code is created to merge all resources
for web display and functions
Author : Muhammad Hamzah, Adri A. An Nabaa, & Luthfi R. Hardy
 -->
<html>
    <style>
    #box1
    {
    height: 70px;
    width: 160px;
    margin: 5px;
    padding: 2px 0 3px 0;
    background: #ff9b00;
    }
    </style>
    <head>
        <title>Chatbot Engati Demo 1.0</title>
        <link rel="stylesheet" href="assets/css/bootstrap.min.css">
        <link rel="stylesheet" href="style/style.css">
        <script src="assets/js/jquery.min.js"></script>
        <script src="assets/js/vendor/popper.min.js"></script>
        <script src="assets/js/bootstrap.min.js"></script>
    </head>
    <body>
        <div class="container-fluid h-100" id="yellow">
            <div class="specialmp">
            <a href="index.html">
                <img src="images/Logo.png" >
            </a>
            <p></p>
            <p align: "4px">ChatBot Status<p>
            <div id = "box1" style = "text-align:center">
                <font size = '4' face = 'arial'>
                <b><p id = "conntest"><script type="text/javascript" src = "js/connection_test.js"></p></b>
                </script>
                </font>
            </div>
            </div>
            <iframe src="https://app.engati.com/static/standalone/bot.html?bot_key=f3c0e8a9923b4a22"
            frameborder="0" style="overflow:hidden;height:relative;width:100%" height="65%" width="100%"></
            iframe>
        </div>
    </body>
</html>
```

Figure 4.4. chatpage.html source code

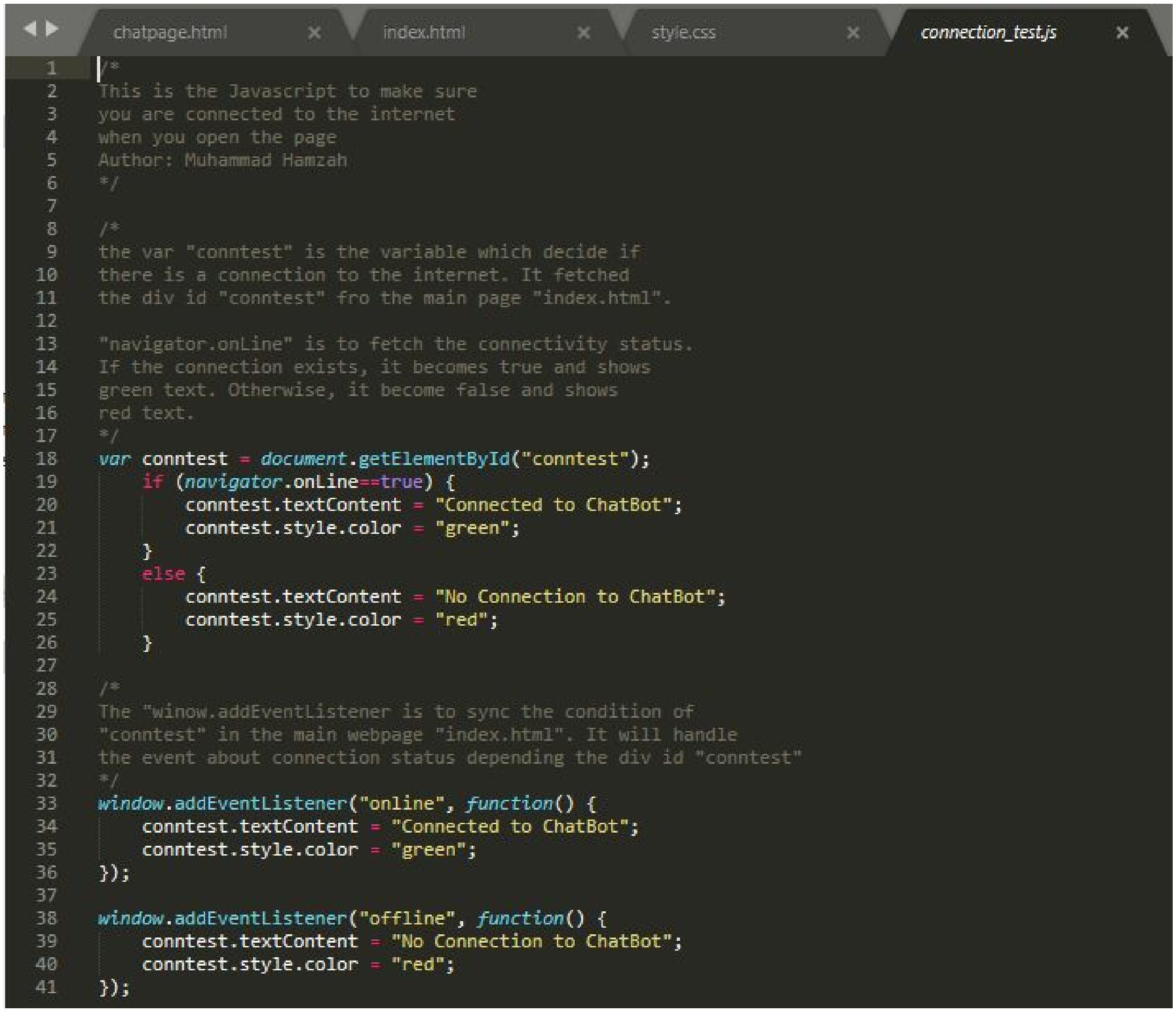
Webpage style: style.css



```css
/*
This is the CSS style code for styling
the main webpage
Author: Luthfi R. Hardy
*/

/*
Font which is used in this style is "Trebuchet MS"
*/
* {
   font-family: Trebuchet MS;
}

html,body {
  height: 100%;
}

#yellow {
  height: 100%;
  background: #ffc107;
}

.specialmp {
    padding:15px 10px;
}
```

Figure 4.5. style.css source code

Javascript for connection test: connection_test.js

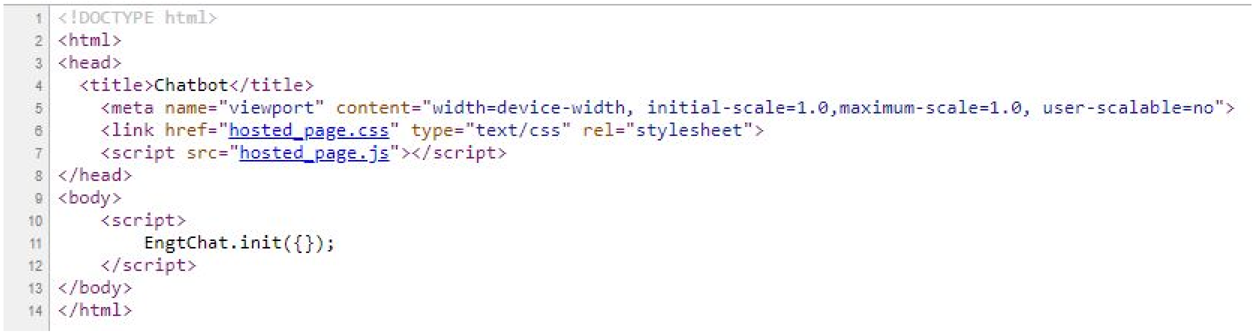


```
/*
This is the Javascript to make sure
you are connected to the internet
when you open the page
Author: Muhammad Hamzah
*/

/*
the var "conntest" is the variable which decide if
there is a connection to the internet. It fetched
the div id "conntest" fro the main page "index.html".

"navigator.onLine" is to fetch the connectivity status.
If the connection exists, it becomes true and shows
green text. Otherwise, it become false and shows
red text.
*/
var conntest = document.getElementById("conntest");
    if (navigator.onLine==true) {
        conntest.textContent = "Connected to ChatBot";
        conntest.style.color = "green";
    }
    else {
        conntest.textContent = "No Connection to ChatBot";
        conntest.style.color = "red";
    }

/*
The "winow.addEventListener is to sync the condition of
"conntest" in the main webpage "index.html". It will handle
the event about connection status depending the div id "conntest"
*/
window.addEventListener("online", function() {
    conntest.textContent = "Connected to ChatBot";
    conntest.style.color = "green";
});

window.addEventListener("offline", function() {
    conntest.textContent = "No Connection to ChatBot";
    conntest.style.color = "red";
});
```

Figure 4.6. connection_test.js source code

4.2 Code For Engati Services

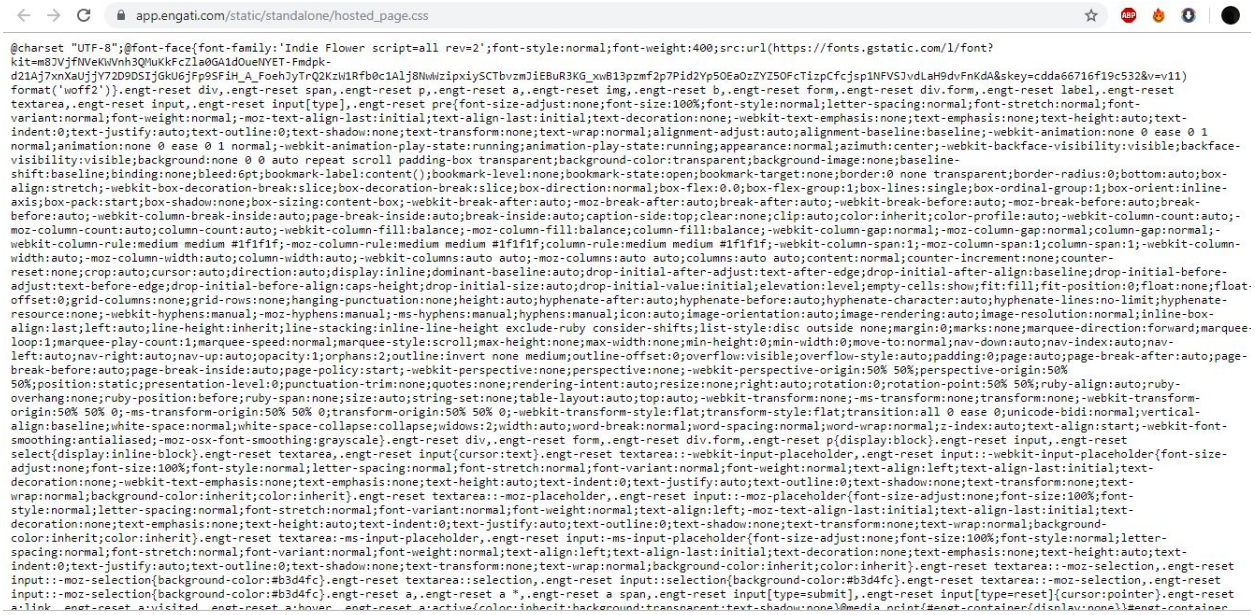
The codes that are from Engati Services are fixed code created by Engati so we can’t edit any single thing of them like adding comment(s) or changing other parts.



```html
<!DOCTYPE html>
<html>
<head>
  <title>Chatbot</title>
    <meta name="viewport" content="width=device-width, initial-scale=1.0,maximum-scale=1.0, user-scalable=no">
    <link href="hosted_page.css" type="text/css" rel="stylesheet">
    <script src="hosted_page.js"></script>
</head>
<body>
    <script>
        EngtChat.init({});
    </script>
</body>
</html>
```

Figure 4.7. bot.html source from

https://app.engati.com/static/standalone/bot.html?bot_key=f3c0e8a9923b4a22

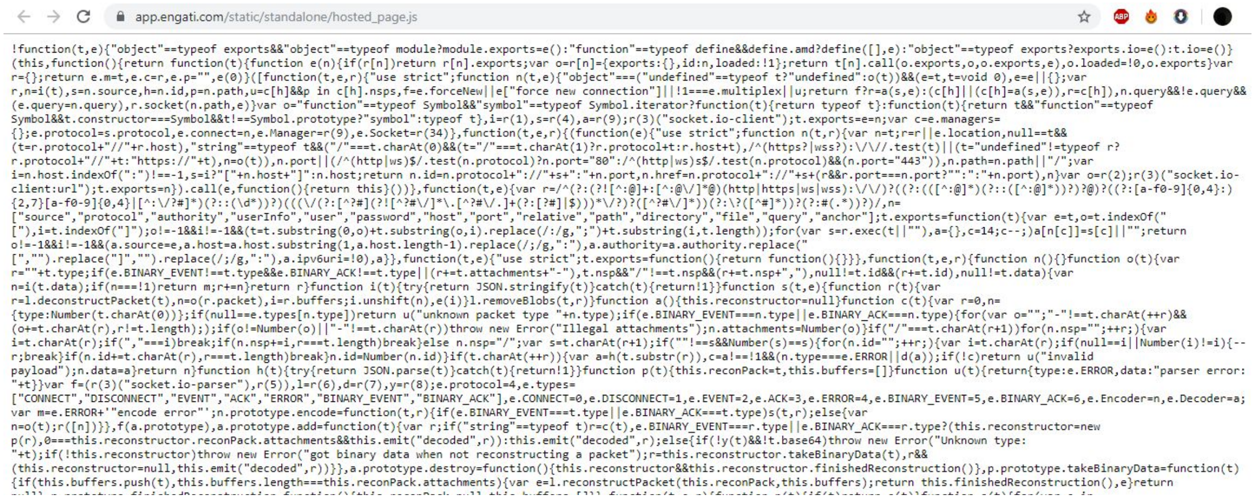


```css
@charset "UTF-8";@font-face{font-family:'Indie Flower script=all rev=2';font-style:normal;font-weight:400;src:url(https://fonts.gstatic.com/l/font?
kit=m8JVjfNVeKWVnh3QMuKkFcZla0GA1dOueNYET-Fmdpk-
d21Aj7xnXaUjjY72D9DSIjGkU6jFp9SFiH_A_FoehJyTrQ2KzW1Rfb0c1Alj8NwWzipxiySCTbvzmJiEBuR3KG_xwB13pzmf2p7Pid2Yp5OEaOzZYZ5OFcTizpCfcjsp1NFVSJvdLaH9dvFnKdA&skey=cdda66716f19c532&v=v11)
format('woff2')}.engt-reset div,.engt-reset span,.engt-reset p,.engt-reset a,.engt-reset img,.engt-reset b,.engt-reset form,.engt-reset div.form,.engt-reset label,.engt-reset
textarea,.engt-reset input,.engt-reset input[type],.engt-reset pre{font-size-adjust:none;font-size:100%;font-style:normal;letter-spacing:normal;font-stretch:normal;font-
variant:normal;font-weight:normal;-moz-text-align-last:initial;text-align-last:initial;text-decoration:none;-webkit-text-emphasis:none;text-emphasis:none;text-height:auto;text-
indent:0;text-justify:auto;text-outline:0;text-shadow:none;text-transform:none;text-wrap:normal;alignment-adjust:auto;alignment-baseline:baseline;-webkit-animation:none 0 ease 0 1
normal;animation:none 0 ease 0 1 normal;-webkit-animation-play-state:running;animation-play-state:running;appearance:normal;azimuth:center;-webkit-backface-visibility:visible;backface-
visibility:visible;background:none 0 0 auto repeat scroll padding-box transparent;background-color:transparent;background-image:none;baseline-
shift:baseline;binding:none;bleed:6pt;bookmark-label:content();bookmark-level:none;bookmark-state:open;bookmark-target:none;border:0 none transparent;border-radius:0;bottom:auto;box-
align:stretch;-webkit-box-decoration-break:slice;box-decoration-break:slice;box-direction:normal;box-flex:0.0;box-flex-group:1;box-lines:single;box-ordinal-group:1;box-orient:inline-
axis;box-pack:start;box-shadow:none;box-sizing:content-box;-webkit-break-after:auto;-moz-break-after:auto;break-after:auto;-webkit-break-before:auto;-moz-break-before:auto;break-
before:auto;-webkit-column-break-inside:auto;page-break-inside:auto;break-inside:auto;caption-side:top;clear:none;clip:auto;color:inherit;color-profile:auto;-webkit-column-count:auto;-
moz-column-count:auto;column-count:auto;-webkit-column-fill:balance;-moz-column-fill:balance;column-fill:balance;-webkit-column-gap:normal;-moz-column-gap:normal;column-gap:normal;-
webkit-column-rule:medium medium #1f1f1f;-moz-column-rule:medium medium #1f1f1f;column-rule:medium medium #1f1f1f;-webkit-column-span:1;-moz-column-span:1;column-span:1;-webkit-column-
width:auto;-moz-column-width:auto;column-width:auto;-webkit-columns:auto auto;-moz-columns:auto auto;columns:auto auto;content:normal;counter-increment:none;counter-
reset:none;crop:auto;cursor:auto;direction:auto;display:inline;dominant-baseline:auto;drop-initial-after-adjust:text-after-edge;drop-initial-after-align:baseline;drop-initial-before-
adjust:text-before-edge;drop-initial-before-align:caps-height;drop-initial-size:auto;drop-initial-value:initial;elevation:level;empty-cells:show;fit:fill;fit-position:0;float:none;float-
offset:0;grid-columns:none;grid-rows:none;hanging-punctuation:none;height:auto;hyphenate-after:auto;hyphenate-before:auto;hyphenate-character:auto;hyphenate-lines:no-limit;hyphenate-
resource:none;-webkit-hyphens:manual;-moz-hyphens:manual;-ms-hyphens:manual;hyphens:manual;icon:auto;image-orientation:auto;image-rendering:auto;image-resolution:normal;inline-box-
align:last;left:auto;line-height:inherit;line-stacking:inline-line-height exclude-ruby consider-shifts;list-style:disc outside none;margin:0;marks:none;marquee-direction:forward;marquee-
loop:1;marquee-play-count:1;marquee-speed:normal;marquee-style:scroll;max-height:none;max-width:none;min-height:0;min-width:0;move-to:normal;nav-down:auto;nav-index:auto;nav-
left:auto;nav-right:auto;nav-up:auto;opacity:1;orphans:2;outline:invert none medium;outline-offset:0;overflow:visible;overflow-style:auto;padding:0;page:auto;page-break-after:auto;page-
break-before:auto;page-break-inside:auto;page-policy:start;-webkit-perspective:none;perspective:none;-webkit-perspective-origin:50% 50%;perspective-origin:50%
50%;position:static;presentation-level:0;punctuation-trim:none;quotes:none;rendering-intent:auto;resize:none;right:auto;rotation:0;rotation-point:50% 50%;ruby-align:auto;ruby-
overhang:none;ruby-position:before;ruby-span:none;size:auto;string-set:none;table-layout:auto;top:auto;-webkit-transform:none;-ms-transform:none;transform:none;-webkit-transform-
origin:50% 50% 0;-ms-transform-origin:50% 50% 0;transform-origin:50% 50% 0;-webkit-transform-style:flat;transform-style:flat;transition:all 0 ease 0;unicode-bidi:normal;vertical-
align:baseline;white-space:normal;white-space-collapse:collapse;widows:2;width:auto;word-break:normal;word-spacing:normal;word-wrap:normal;z-index:auto;text-align:start;-webkit-font-
smoothing:antialiased;-moz-osx-font-smoothing:grayscale}.engt-reset div,.engt-reset form,.engt-reset div.form,.engt-reset p{display:block}.engt-reset input,.engt-reset
select{display:inline-block}.engt-reset textarea,.engt-reset input{cursor:text}.engt-reset textarea::-webkit-input-placeholder,.engt-reset input::-webkit-input-placeholder{font-size-
adjust:none;font-size:100%;font-style:normal;letter-spacing:normal;font-stretch:normal;font-variant:normal;font-weight:normal;text-align:left;text-align-last:initial;text-
decoration:none;-webkit-text-emphasis:none;text-emphasis:none;text-height:auto;text-indent:0;text-justify:auto;text-outline:0;text-shadow:none;text-transform:none;text-
wrap:normal;background-color:inherit;color:inherit}.engt-reset textarea::-moz-placeholder,.engt-reset input::-moz-placeholder{font-size-adjust:none;font-size:100%;font-
style:normal;letter-spacing:normal;font-stretch:normal;font-variant:normal;font-weight:normal;text-align:left;-moz-text-align-last:initial;text-align-last:initial;text-
decoration:none;text-emphasis:none;text-height:auto;text-indent:0;text-justify:auto;text-outline:0;text-shadow:none;text-transform:none;text-wrap:normal;background-
color:inherit;color:inherit}.engt-reset textarea:-ms-input-placeholder,.engt-reset input:-ms-input-placeholder{font-size-adjust:none;font-size:100%;font-style:normal;letter-
spacing:normal;font-stretch:normal;font-variant:normal;font-weight:normal;text-align:left;text-align-last:initial;text-decoration:none;text-emphasis:none;text-height:auto;text-
indent:0;text-justify:auto;text-outline:0;text-shadow:none;text-transform:none;text-wrap:normal;background-color:inherit;color:inherit}.engt-reset textarea::-moz-selection,.engt-reset
input::-moz-selection{background-color:#b3d4fc}.engt-reset textarea::selection,.engt-reset input::selection{background-color:#b3d4fc}.engt-reset textarea::-moz-selection,.engt-reset
input::-moz-selection{background-color:#b3d4fc}.engt-reset a,.engt-reset a *,.engt-reset a span,.engt-reset input[type=submit],.engt-reset input[type=reset]{cursor:pointer}.engt-reset
a:link,.engt-reset a:visited,.engt-reset a:hover,.engt-reset a:active{color:inherit;background:transparent;text-shadow:none}@media print{#engt-container{display:none}}#engt-container
```

Figure 4.8. hosted_page.css source from

https://app.engati.com/static/standalone/bot.html?bot_key=f3c0e8a9923b4a22

The hosted_page.css source code is taking action of generating the chat room of the chat bot of Engati.



app.engati.com/static/standalone/hosted_page.js

```
!function(t,e){"object"==typeof exports&&"object"==typeof module?module.exports=e():"function"==typeof define&&define.amd?define([],e):"object"==typeof exports?exports.io=e():t.io=e()}
(this,function(){return function(t){function e(n){if(r[n])return r[n].exports;var o=r[n]={exports:{},id:n,loaded:!1};return t[n].call(o.exports,o,o.exports,e),o.loaded=!0,o.exports}var
r={};return e.m=t,e.c=r,e.p="",e(0)}([function(t,e,r){"use strict";function n(t,e){"object"===("undefined"==typeof t?"undefined":o(t))&&(e=t,t=void 0),e=e||{};var
r,n=i(t),s=n.source,h=n.id,p=n.path,u=c[h]&&p in c[h].nsps,f=e.forceNew||e["force new connection"]||!1===e.multiplex||u;return f?r=a(s,e):(c[h]||(c[h]=a(s,e)),r=c[h]),n.query&&!e.query&&
(e.query=n.query),r.socket(n.path,e)}var o="function"==typeof Symbol&&"symbol"==typeof Symbol.iterator?function(t){return typeof t}:function(t){return t&&"function"==typeof
Symbol&&t.constructor===Symbol&&t!==Symbol.prototype?"symbol":typeof t},i=r(1),s=r(4),a=r(9);r(3)("socket.io-client");t.exports=e=n;var c=e.managers=
{};e.protocol=s.protocol,e.connect=n,e.Manager=r(9),e.Socket=r(34)},function(t,e,r){(function(e){"use strict";function n(t,r){var n=t;r=r||e.location,null==t&&
(t=r.protocol+"//"+r.host),"string"==typeof t&&("/"===t.charAt(0)&&(t="/"===t.charAt(1)?r.protocol+t:r.host+t),/^(https?|wss?):\/\//.test(t)||(t="undefined"!=typeof r?
r.protocol+"//"+t:"https://"+t),n=o(t)),n.port||(/^(http|ws)$/.test(n.protocol)?n.port="80":/^(http|ws)s$/.test(n.protocol)&&(n.port="443")),n.path=n.path||"/";var
i=n.host.indexOf(":")!==-1,s=i?"["+n.host+"]":n.host;return n.id=n.protocol+"://"+s+":"+n.port,n.href=n.protocol+"://"+s+(r&&r.port===n.port?"":":"+n.port),n}var o=r(2);r(3)("socket.io-
client:url");t.exports=n}).call(e,function(){return this}())},function(t,e){var r=/^(?:(?![^:@]+:[^:@\/]*@)(http|https|ws|wss):\/\/)?((?:(([^:@]*)(?::([^:@]*))?)?@)?((?:[a-f0-9]{0,4}:)
{2,7}[a-f0-9]{0,4}|[^:\/?#]*)(?::(\d*))?)(((\/(?:[^?#](?![^?#\/]*\.[^?#\/.]+(?:[?#]|$)))*\/?)?([^?#\/]*))(?:\?([^#]*))?(?:#(.*))?)/,n=
["source","protocol","authority","userInfo","user","password","host","port","relative","path","directory","file","query","anchor"];t.exports=function(t){var e=t,o=t.indexOf("
["),i=t.indexOf("]");o!=-1&&i!=-1&&(t=t.substring(0,o)+t.substring(o,i).replace(/:/g,";")+t.substring(i,t.length));for(var s=r.exec(t||""),a={},c=14;c--;)a[n[c]]=s[c]||"";return
o!=-1&&i!=-1&&(a.source=e,a.host=a.host.substring(1,a.host.length-1).replace(/;/g,":"),a.authority=a.authority.replace("
[","").replace("]","").replace(/;/g,":"),a.ipv6uri=!0),a}},function(t,e){"use strict";t.exports=function(){return function(){}}},function(t,e,r){function n(){}function o(t){var
r=""+t.type;if(e.BINARY_EVENT!==t.type&&e.BINARY_ACK!==t.type||(r+=t.attachments+"-"),t.nsp&&"/"!==t.nsp&&(r+=t.nsp+","),null!=t.id&&(r+=t.id),null!=t.data){var
n=i(t.data);if(n===!1)return m;r+=n}return r}function i(t){try{return JSON.stringify(t)}catch(t){return!1}}function s(t,e){function r(t){var
r=l.deconstructPacket(t),n=o(r.packet),i=r.buffers;i.unshift(n),e(i)}l.removeBlobs(t,r)}function a(){this.reconstructor=null}function c(t){var r=0,n=
{type:Number(t.charAt(0))};if(null==e.types[n.type])return u("unknown packet type "+n.type);if(e.BINARY_EVENT===n.type||e.BINARY_ACK===n.type){for(var o="";"-"!==t.charAt(++r)&&
(o+=t.charAt(r),r!=t.length););if(o!=Number(o)||"-"!==t.charAt(r))throw new Error("Illegal attachments");n.attachments=Number(o)}if("/"===t.charAt(r+1))for(n.nsp="";++r;){var
i=t.charAt(r);if(","===i)break;if(n.nsp+=i,r===t.length)break}else n.nsp="/";var s=t.charAt(r+1);if(""!==s&&Number(s)==s){for(n.id="";++r;){var i=t.charAt(r);if(null==i||Number(i)!=i){--
r;break}if(n.id+=t.charAt(r),r===t.length)break}n.id=Number(n.id)}if(t.charAt(++r)){var a=h(t.substr(r)),c=a!==!1&&(n.type===e.ERROR||d(a));if(!c)return u("invalid
payload");n.data=a}return n}function h(t){try{return JSON.parse(t)}catch(t){return!1}}function p(t){this.reconPack=t,this.buffers=[]}function u(t){return{type:e.ERROR,data:"parser error:
"+t}}var f=(r(3)("socket.io-parser"),r(5)),l=r(6),d=r(7),y=r(8);e.protocol=4,e.types=
["CONNECT","DISCONNECT","EVENT","ACK","ERROR","BINARY_EVENT","BINARY_ACK"],e.CONNECT=0,e.DISCONNECT=1,e.EVENT=2,e.ACK=3,e.ERROR=4,e.BINARY_EVENT=5,e.BINARY_ACK=6,e.Encoder=n,e.Decoder=a;
var m=e.ERROR+'"encode error"';n.prototype.encode=function(t,r){if(e.BINARY_EVENT===t.type||e.BINARY_ACK===t.type)s(t,r);else{var
n=o(t);r([n])}},f(a.prototype),a.prototype.add=function(t){var r;if("string"==typeof t)r=c(t),e.BINARY_EVENT===r.type||e.BINARY_ACK===r.type?(this.reconstructor=new
p(r),0===this.reconstructor.reconPack.attachments&&this.emit("decoded",r)):this.emit("decoded",r);else{if(!y(t)&&!t.base64)throw new Error("Unknown type:
"+t);if(!this.reconstructor)throw new Error("got binary data when not reconstructing a packet");r=this.reconstructor.takeBinaryData(t),r&&
(this.reconstructor=null,this.emit("decoded",r))}},a.prototype.destroy=function(){this.reconstructor&&this.reconstructor.finishedReconstruction()},p.prototype.takeBinaryData=function(t)
{if(this.buffers.push(t),this.buffers.length===this.reconPack.attachments){var e=l.reconstructPacket(this.reconPack,this.buffers);return this.finishedReconstruction(),e}return
```

Figure 4.9. hosted_page.js source from

https://app.engati.com/static/standalone/bot.html?bot_key=f3c0e8a9923b4a22

The hosted_page.js source code is managing the message to be passed into the Engati engine and then fetched the answer generated by the engine. It also generates the algorithm to process the question from the users before a decision is made by the engine.

CHAPTER V

UNIT TESTING

5.1 Test at Normal Parameter

Compatibility Test

Table 5.1. Compatibility test

Test Steps	**Test Data**	**Expected Result**	**Actual Result**	**Status (Pass/Fail)**	**Notes**
Ensure that the web works at PC browser	Link: http://helpdesk-dteui-id.000webhostapp.com/	User should be able to open the link	Link succesfully accessed in PC	PASS	
Ensure that the web works at PC browser	Link: http://helpdesk-dteui-id.000webhostapp.com/	User should be able to open the link	Link succesfully accessed in Android	PASS	The connection indicator don't change when connection was severed

5.2 Test at Limit Parameter

Academic Leave

Table 5.2. Academic leave functional test

Test Steps	**Test Data**	**Expected Result**	**Actual Result**	**Status (Pass/Fail)**	**Notes**
Procedural		Chat bot must respond properly to procedural input	Tester successfull y gain information about this topic	PASS	
Basic Questions		Chat bot must adapt to normal QnA	Chatbot managed to adapt to different phrasing of questions	PASS	

Internship

Table 5.3. Internship functional test

Test Steps	**Test Data**	**Expected Result**	**Actual Result**	**Status (Pass/Fail)**	**Notes**
Procedural		Chat bot must respond properly to procedural input	Tester successfully gain information about this topic	PASS	

Basic Questions		Chat bot must adapt to normal QnA	Chatbot did not answer the question correctly	FAIL	

Thesis

Table 5.4. Thesis functional test

Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
Procedural		Chat bot must respond properly to procedural input	-	-	
Basic Questions		Chat bot must adapt to normal QnA	-	-	

5.3 Test Outside Parameter

Table 5.5. Error handling functional test

Test Steps	**Test Data**	**Expected Result**	**Actual Result**	**Status (Pass/Fail)**	**Notes**
Error handling		Chat bot must give a default message to aberrant input	Default message appears	PASS	

CHAPTER VI

USER MANUAL

6.1 Access The Homepage

- Open the internet browser (in PC or smartphone)

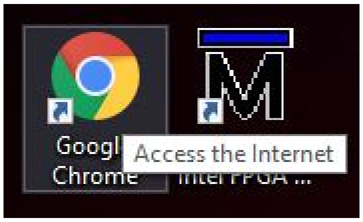
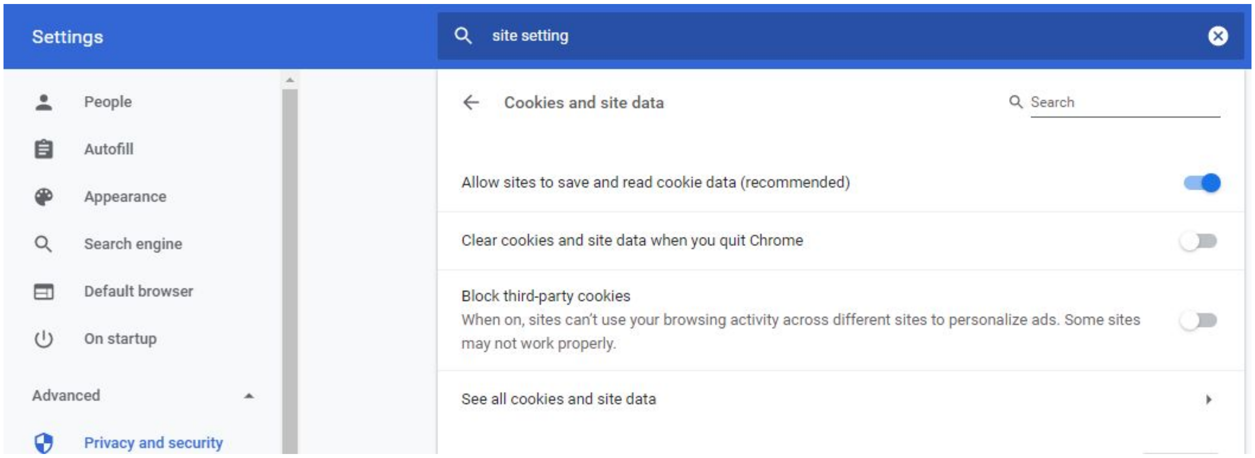


Figure 6.1. Browser icon.

- Allow all cookies



Cookies and site data

Allow sites to save and read cookie data (recommended)

Clear cookies and site data when you quit Chrome

Block third-party cookies
When on, sites can't use your browsing activity across different sites to personalize ads. Some sites may not work properly.

See all cookies and site data

Figure 6.2. Allowing cookies.

- go to http://helpdesk-dteui-id.000webhostapp.com/

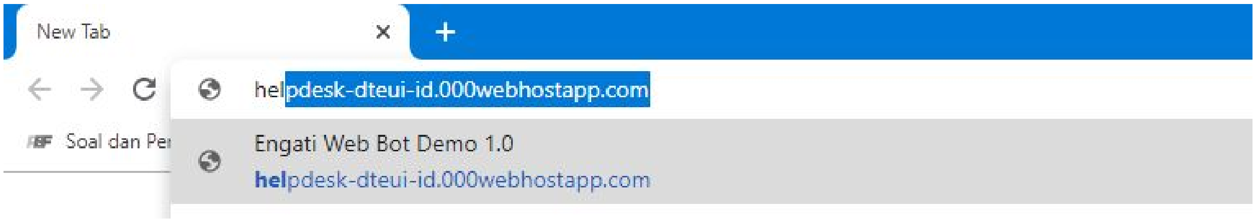

New Tab
helpdesk-dteui-id.000webhostapp.com
Soal dan Per
Engati Web Bot Demo 1.0
helpdesk-dteui-id.000webhostapp.com

Figure 6.3. The chat bot's homepage address.

6.2 Access The Chatbot

- go to http://helpdesk-dteui-id.000webhostapp.com/

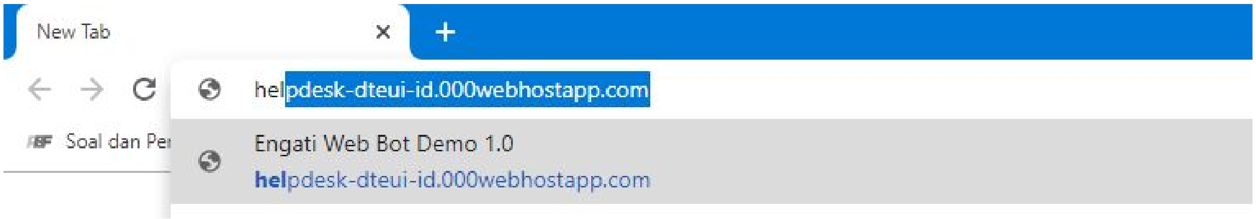

New Tab
helpdesk-dteui-id.000webhostapp.com
Soal dan Per
Engati Web Bot Demo 1.0
helpdesk-dteui-id.000webhostapp.com

Figure 6.4. The chatbot's address to access the chat bot's web.

- The web display will be like this picture below

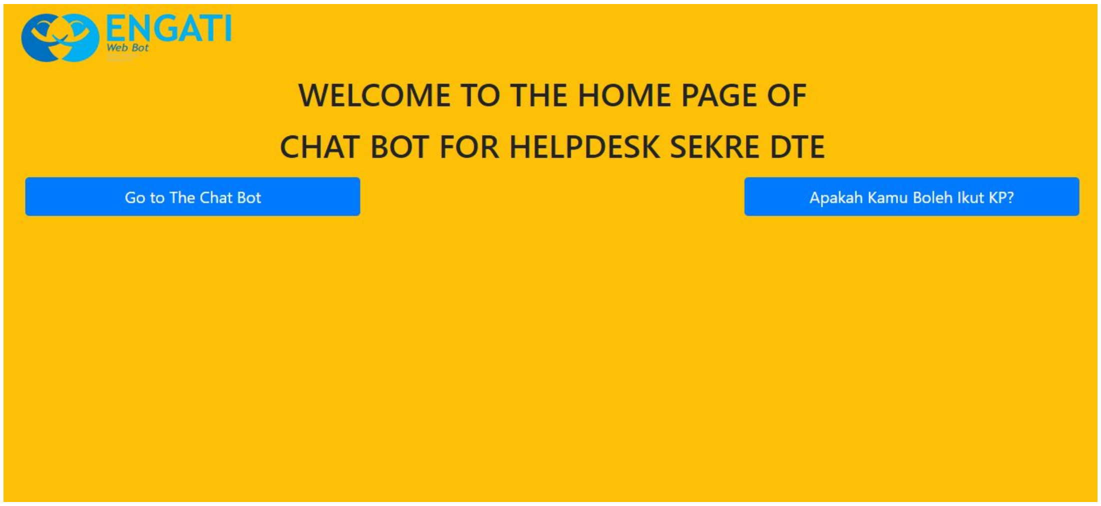

ENGATI
Web Bot
WELCOME TO THE HOME PAGE OF
CHAT BOT FOR HELPDESK SEKRE DTE
Go to The Chat Bot
Apakah Kamu Boleh Ikut KP?

Figure 6.5. The chatbot's homepage display.

- Click “Go to The Chat Bot”

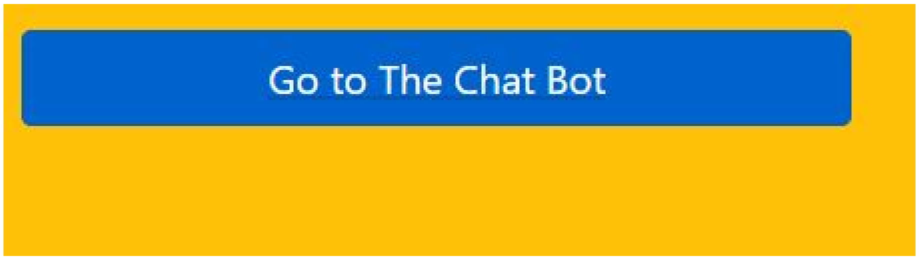
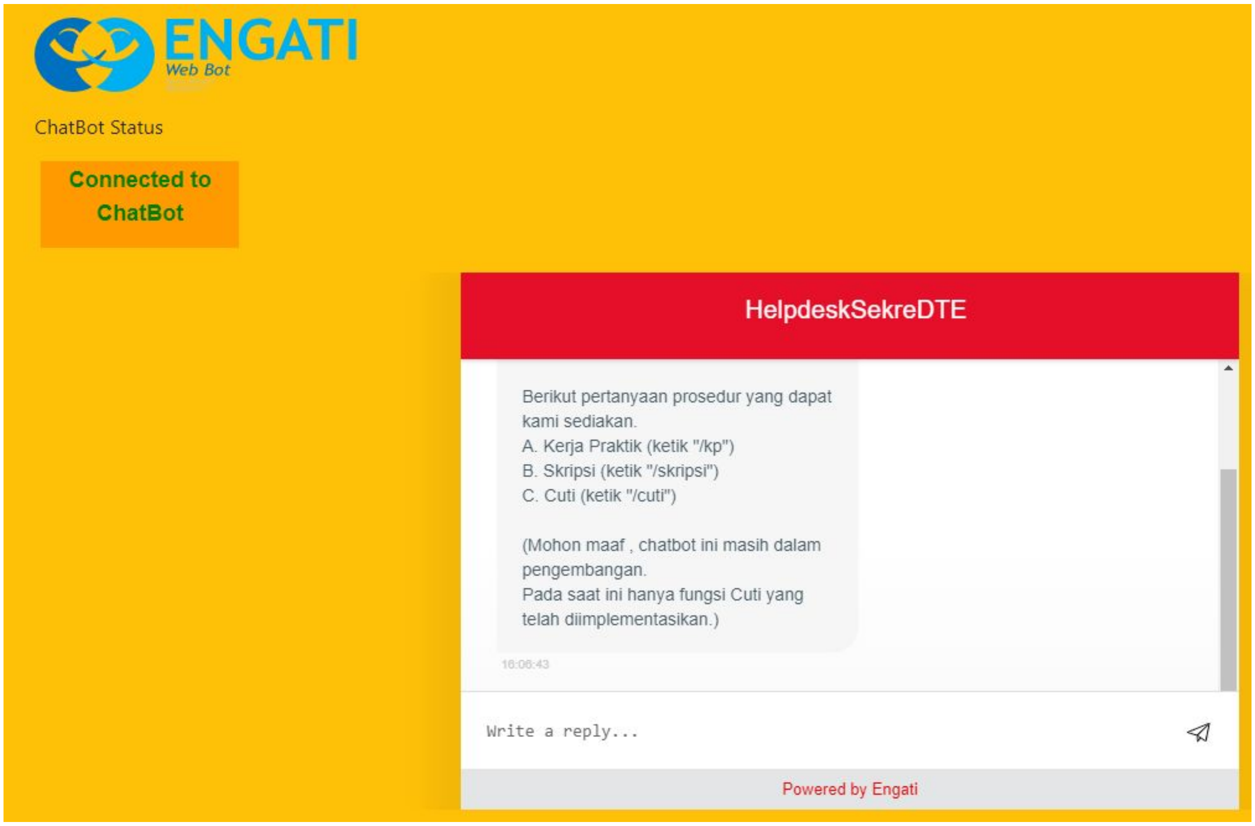


Figure 6.6. The button to go to the chatbot’s page.

- The successful connection to the chat page will give result like the picture below



Berikut pertanyaan prosedur yang dapat kami sediakan.
A. Kerja Praktik (ketik "/kp")
B. Skripsi (ketik "/skripsi")
C. Cuti (ketik "/cuti")

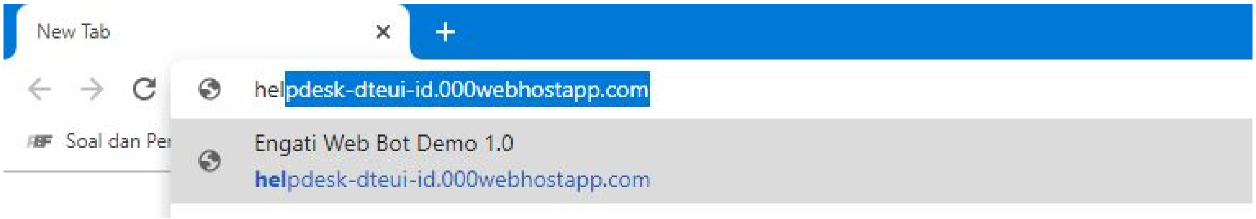
(Mohon maaf , chatbot ini masih dalam pengembangan.
Pada saat ini hanya fungsi Cuti yang telah diimplementasikan.)

16:06:43

Figure 6.7. The chatbot’s page.

6.3 Check The SKS Amount to Take Academic Internship

- go to http://helpdesk-dteui-id.000webhostapp.com/



New Tab

helpdesk-dteui-id.000webhostapp.com

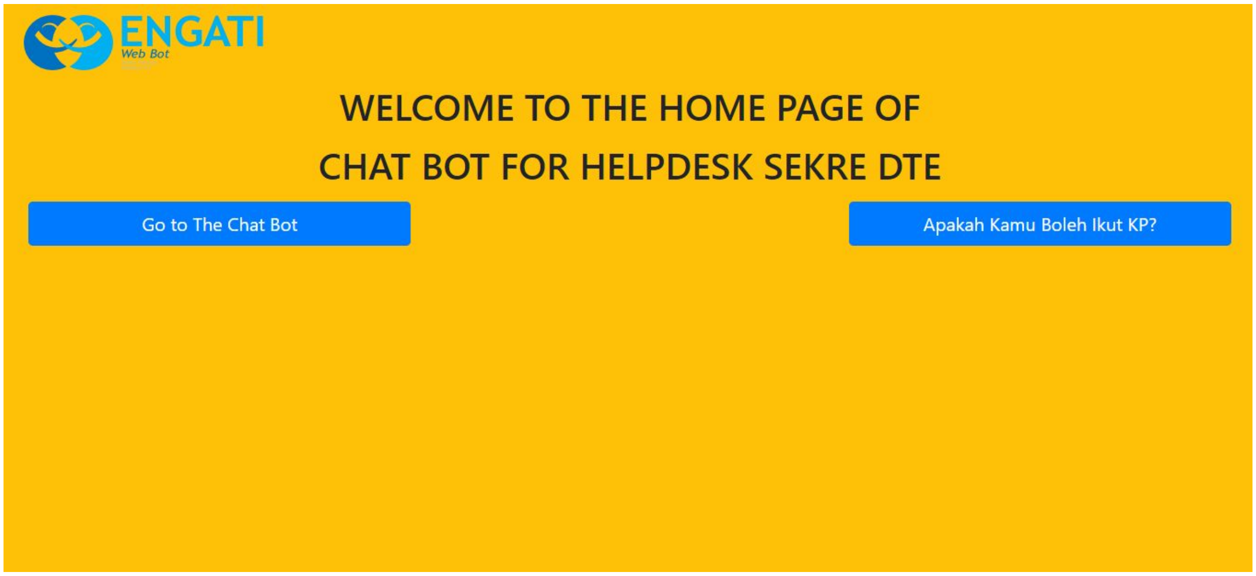
Soal dan Per

Engati Web Bot Demo 1.0

helpdesk-dteui-id.000webhostapp.com

Figure 6.8. The chatbot's homepage address to access SKS checker.

- The web display will be like this picture below



ENGATI Web Bot

WELCOME TO THE HOME PAGE OF

CHAT BOT FOR HELPDESK SEKRE DTE

Figure 6.9. The chatbot's homepage display which contains "SKS Checker" feature.

- Click "Apakah Kamu Boleh Ikut KP?"

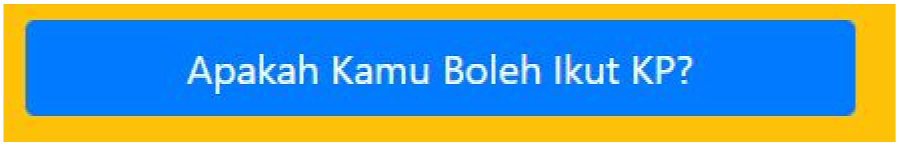
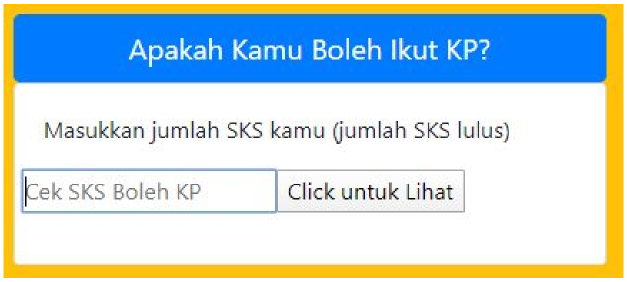


Figure 6.10. The chatbot's button for "SKS Checker" feature.

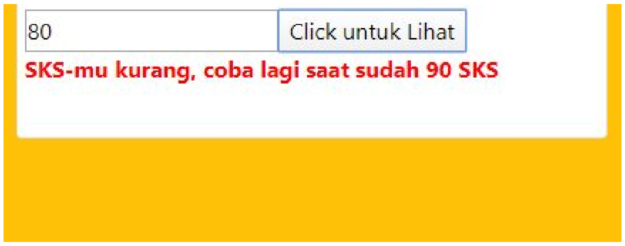
- Enter the passed “SKS” amount in the “Cek SKS Boleh KP” field, then click the “Click untuk Lihat” button. Then, the result will be displayed below the field.



Apakah Kamu Boleh Ikut KP?

Masukkan jumlah SKS kamu (jumlah SKS lulus)

Figure 6.11. The chatbot’s “SKS Checker” feature with an empty field.



80

SKS-mu kurang, coba lagi saat sudah 90 SKS

Figure 6.12. The result of the chatbot’s “SKS Checker” feature.

CHAPTER VII

QUESTIONS ADDED TO THE CHATBOT

7.1 Questions

Question 1 (Category: default)

- /cuti

Answer: (Start path '/cuti')

Question 2 (Category: default)

- /home

Answer: (Start path 'Greet returning user')

Question 3 (Category: default)

- /howtocuti

Answer: (Start path '/howtocuti')

Question 4 (Category: pertanyaansetelahpenjelasan)

- "status mahasiswa cuti"
- "bagaimana status saya jika cuti"
- "status saya sebagai mahasiswa jika mengambil cuti"
- "bagaimana status saya sebagai mahasiswa jika mengambil cuti"

Answer:

“Status mahasiswa akan menjadi "Cuti" hanya setelah permohonan cuti disetujui. Pusat Administrasi Fakultas (PAF) yang melakukan perubahan status mahasiswa.”

Question 5 (Category: pertanyaansetelahpenjelasan)

- “Jika saya mengajukan cuti, apakah saya harus membayar kuliah?”

Answer:

“Jika cuti diajukan sebelum registrasi akademis (dan disetujui), mahasiswa hanya dibebankan 25% biaya pendidikan semester yang akan berjalan.

Jika cuti dilakukan setelah registrasi akademis atau saat semester berjalan, beban biaya adalah 100% biaya semester berjalan tersebut.”

Question 6 (Category: default)

- “bagaimana cara cuti”
- “Bagaimana cara mengajukan cuti”

Answer:

“Permohonan cuti akademik diajukan oleh mahasiswa bersangkutan kepada Dekan sebelum pelaksanaan registrasi administrasi, dengan mengisi formulir yang tersedia di bagian administrasi akademik Fakultas . Untuk lebih detail nya, silahkan ketik '/howtocuti'”

Question 7 (Category: pertanyaansetelahpenjelasan)

- “cuti tidak bayar”

Answer:

“Apabila memperoleh cuti namun tidak membayar biaya pendidikan (25% biaya sebenarnya) pada masa registrasi administrasi, cuti batal dan status menjadi "Kosong".”

Question 8 (Category: pertanyaansetelahpenjelasan)

- tidak

Answer: (Start path ‘Welcome new user’)

Question 9 (Category: default)

- tidak

Answer: (Start path ‘Default Message’)

Question 10 (Category: pertanyaansetelahpenjelasan)

- “berkas persiapan sebelum mengajukan kp”

Answer:

“3 berkas

1. Transkrip Nilai atau Ringkasan di SIAK-NG

2. Form permohonan KP (minta ke sekretariat terlebih dahulu)

3. Surat keterangan mahasiswa aktif (sama seperti poin 2)

Lalu, tunggu verifikasi (oleh karyawan departemen), dan (jika terverifikasi) akan dibuatkan surat permohonan Kerja Praktik (KP) pada 2 hari kerja setelah menyerahkan form permohonan KP."

Question 11 (Category: default)

- "{SKS} SKS boleh ikut kp?" *{SKS} diganti dengan angka
- "SKS {SKS} boleh ikut kp?"

Answer: (Start path 'JumlahSKSKP')

Question 12 (Category: pertanyaansetelahpenjelasan)

- iya

Answer: (Start path '/asking2')

Question 13 (Category: pertanyaansetelahpenjelasan)

- "sks {80}" *{80} diganti dengan angka
- "SKS saya {SKS}. Apakah saya dapat mengikuti KP?"
- "sks {80} bisa kp"
- "sks {80} untuk kp"

Answer: (Start path 'JumlahSKSKP')

Question 14 (Category: default)

- "bagaiman cara KP"
- "cara KP"
- "cara mengajukan KP"

- /howtokp

Answer: (Start path '/howtokp')

Question 15 (Category: default)

- exit
- "kembali"
- "kembali ke awal"

Answer: (Start path 'Welcome new user')

Question 16 (Category: default)

- "berapa lama batas cuti"
- "berapa semester cuti"
- "maksimal cuti"
- "maksimal semester cuti"

Answer:

"Durasi cuti maksimal 2 semester."

Question 17 (Category: default)

- /kp
- "kerja praktik"
- "bagaimana prosedur kp"
- "informasi kp"
- "Saya ingin lebih tahu tentang kerja praktik"

- “Saya ingin lebih tahu kp”

Answer: (Start path ‘/kp’)

Question 18 (Category: default)

- /howtoskripsi
- “bagaimana skripsi”
- “bagaimana cara skripsi”

Answer: (Start path ‘/howtoskripsi’)

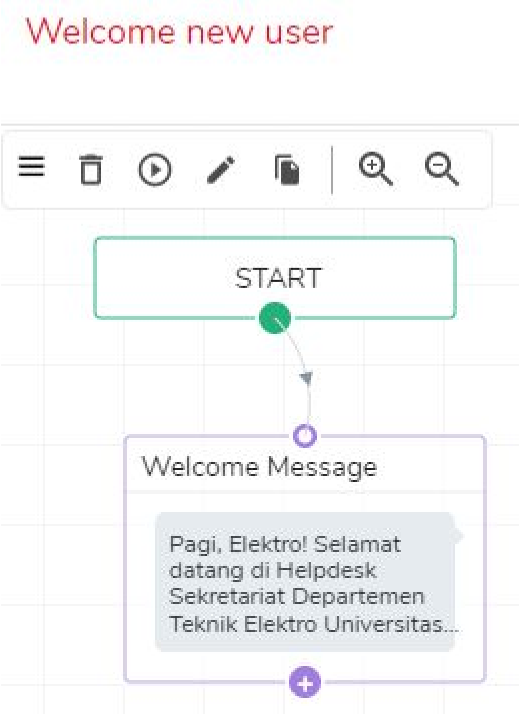
Question 19 (Category: default)

- /skripsi
- “skripsi”
- “saya ingin tahu tentang skripsi”

Answer: (Start path ‘/skripsi’)

7.2 Paths

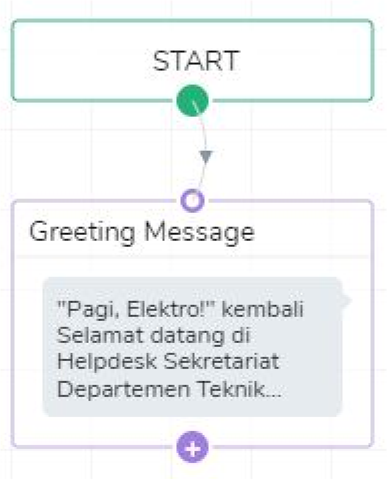
Welcome new user



Pagi, Elektro! Selamat datang di Helpdesk Sekretariat Departemen Teknik Elektro Universitas...

Figure 7.1. Path ‘Welcome new user’.

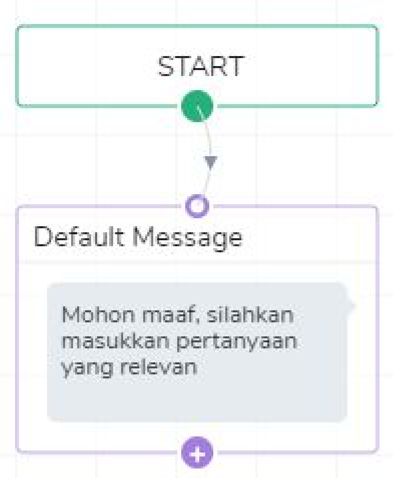
Greet returning user



"Pagi, Elektro!" kembali Selamat datang di Helpdesk Sekretariat Departemen Teknik...

Figure 7.2. Path ‘Greet returning user’.

Default message



Mohon maaf, silahkan masukkan pertanyaan yang relevan

Figure 7.3. Path ‘Default message’.

/asking

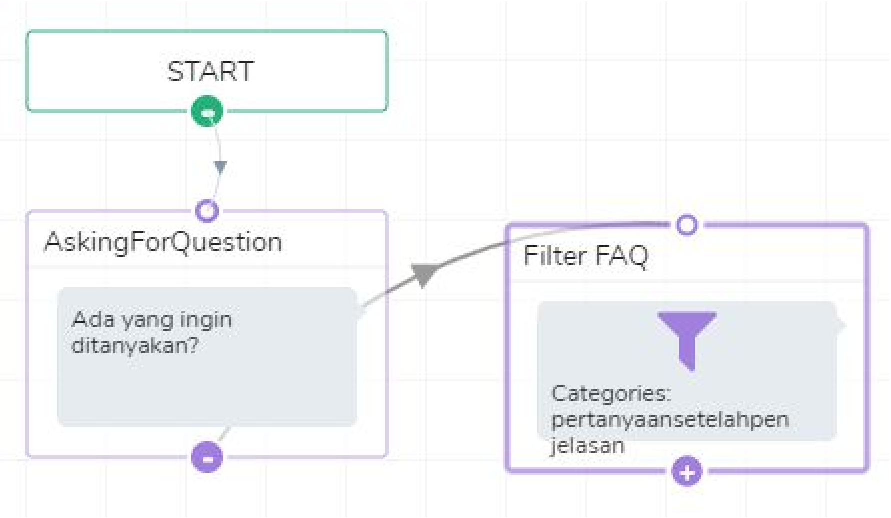

START
AskingForQuestion
Ada yang ingin ditanyakan?
Filter FAQ
Categories: pertanyaansetelahpenjelasan

Figure 7.4. Path ‘/asking’.

/asking2

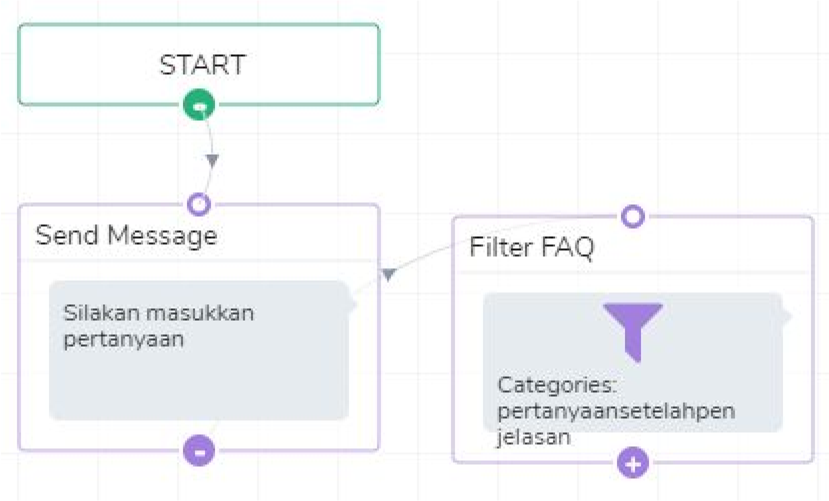
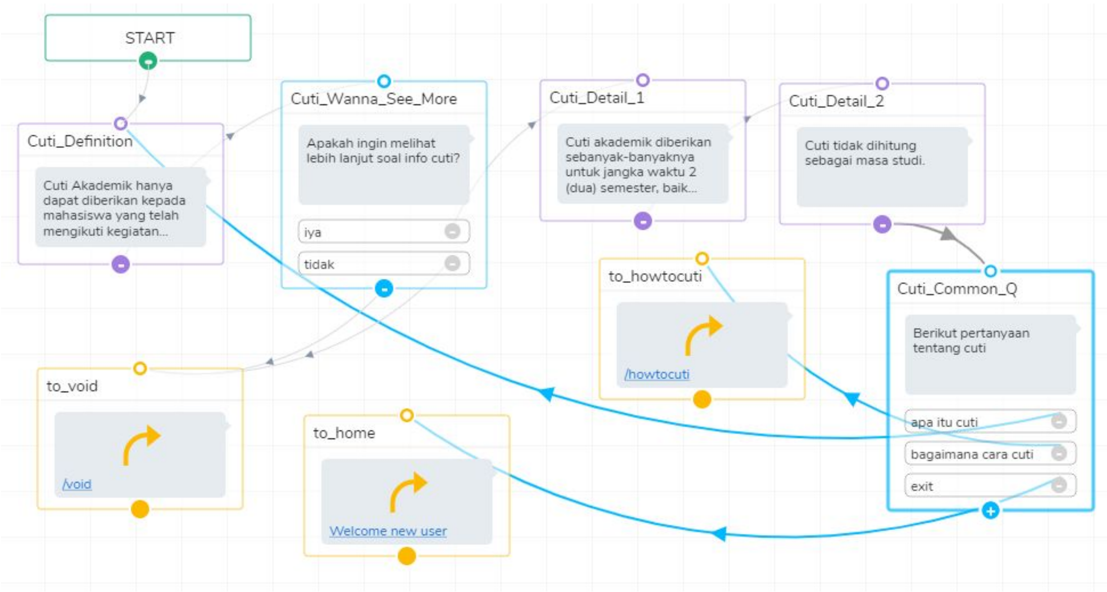

START
Send Message
Silakan masukkan pertanyaan
Filter FAQ
Categories: pertanyaansetelahpenjelasan

Figure 7.5. Path ‘/asking2’.

/cuti



Cuti Akademik hanya dapat diberikan kepada mahasiswa yang telah mengikuti kegiatan...

Apakah ingin melihat lebih lanjut soal info cuti?

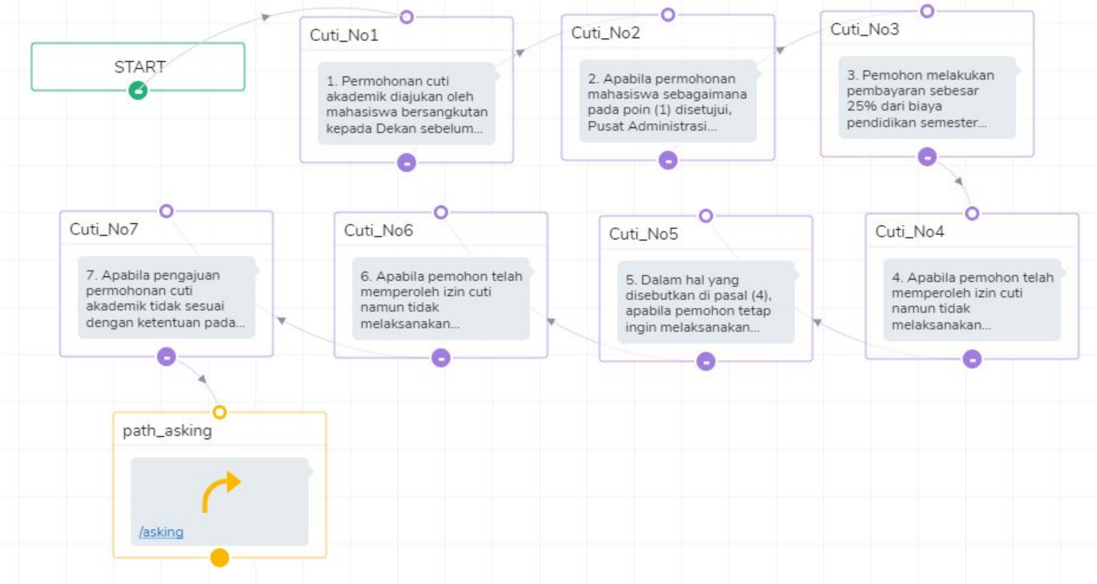
Cuti akademik diberikan sebanyak-banyaknya untuk jangka waktu 2 (dua) semester, baik...

Cuti tidak dihitung sebagai masa studi.

Berikut pertanyaan tentang cuti

Figure 7.6. Path '/cuti'.

/howtocuti



1. Permohonan cuti akademik diajukan oleh mahasiswa bersangkutan kepada Dekan sebelum...

2. Apabila permohonan mahasiswa sebagaimana pada poin (1) disetujui, Pusat Administrasi...

3. Pemohon melakukan pembayaran sebesar 25% dari biaya pendidikan semester...

4. Apabila pemohon telah memperoleh izin cuti namun tidak melaksanakan...

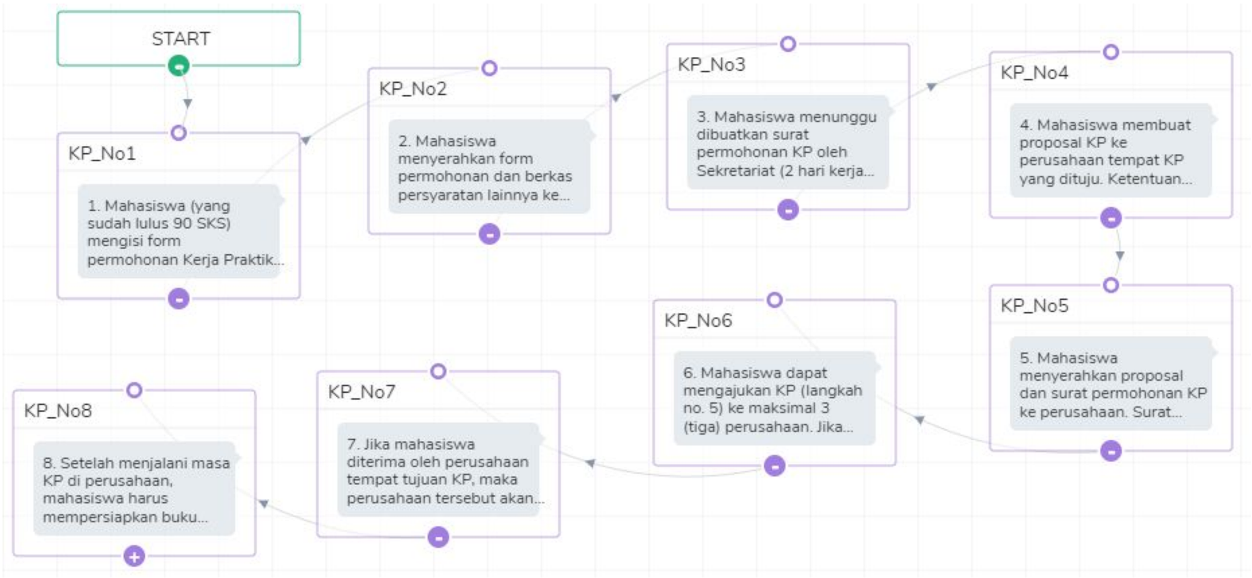
5. Dalam hal yang disebutkan di pasal (4), apabila pemohon tetap ingin melaksanakan...

6. Apabila pemohon telah memperoleh izin cuti namun tidak melaksanakan...

7. Apabila pengajuan permohonan cuti akademik tidak sesuai dengan ketentuan pada...

Figure 7.7. Path '/howtocuti'.

/howtokp



1. Mahasiswa (yang sudah lulus 90 SKS) mengisi form permohonan Kerja Praktik...

2. Mahasiswa menyerahkan form permohonan dan berkas persyaratan lainnya ke...

3. Mahasiswa menunggu dibuatkan surat permohonan KP oleh Sekretariat (2 hari kerja...

4. Mahasiswa membuat proposal KP ke perusahaan tempat KP yang dituju. Ketentuan...

5. Mahasiswa menyerahkan proposal dan surat permohonan KP ke perusahaan. Surat...

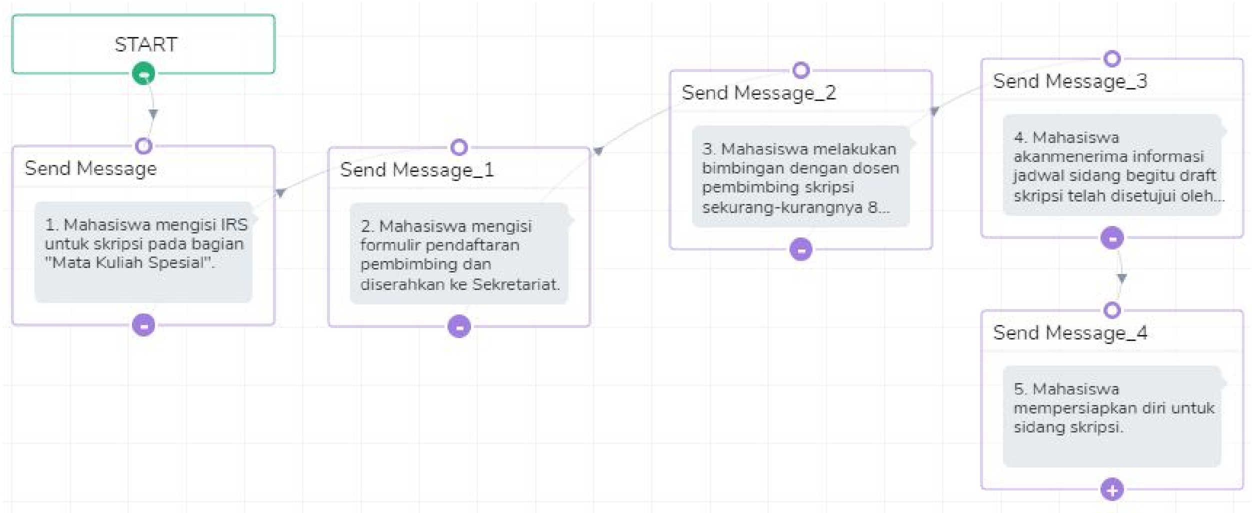
6. Mahasiswa dapat mengajukan KP (langkah no. 5) ke maksimal 3 (tiga) perusahaan. Jika...

7. Jika mahasiswa diterima oleh perusahaan tempat tujuan KP, maka perusahaan tersebut akan...

8. Setelah menjalani masa KP di perusahaan, mahasiswa harus mempersiapkan buku...

Figure 7.8. Path ‘/howtokp’.

/howtoskripsi



1. Mahasiswa mengisi IRS untuk skripsi pada bagian "Mata Kuliah Spesial".

2. Mahasiswa mengisi formulir pendaftaran pembimbing dan diserahkan ke Sekretariat.

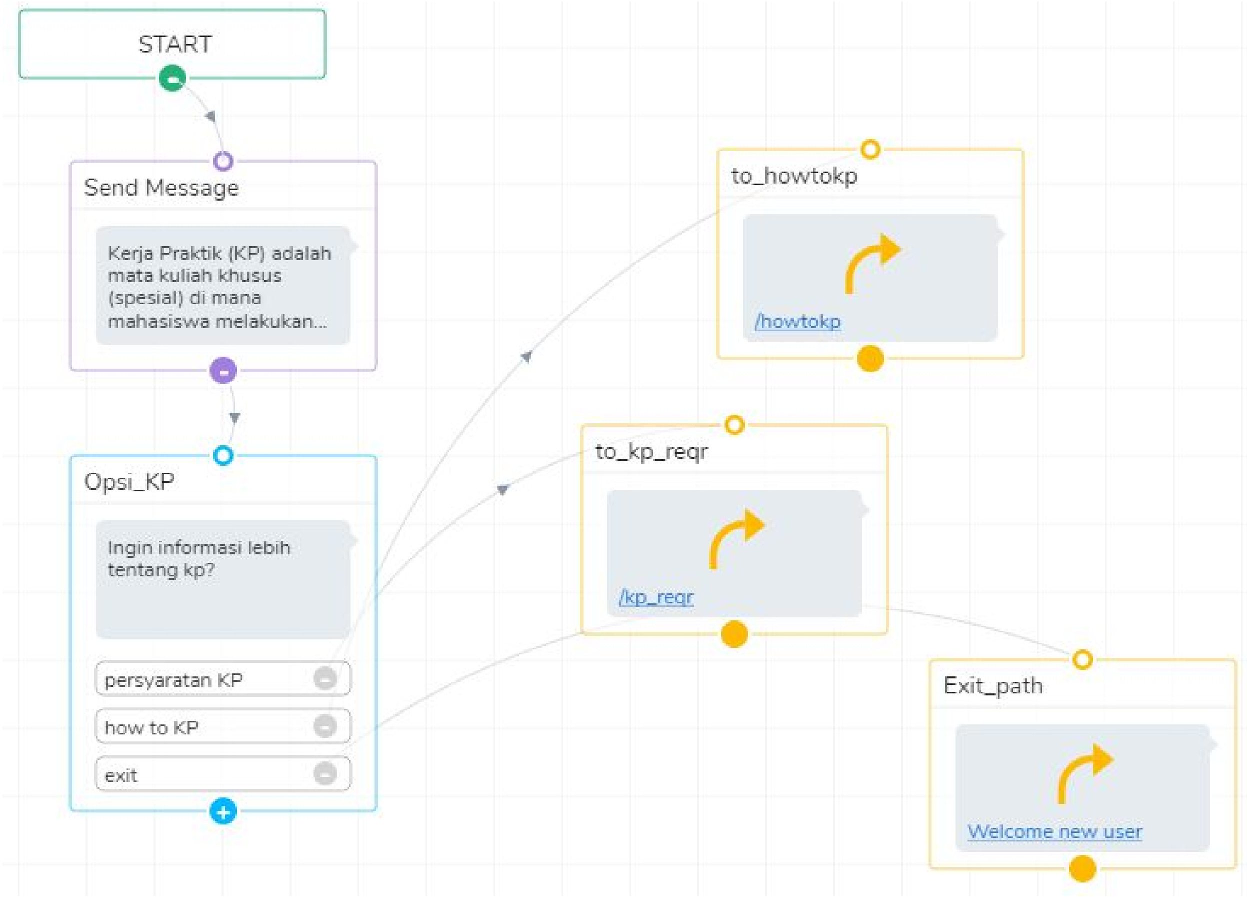
3. Mahasiswa melakukan bimbingan dengan dosen pembimbing skripsi sekurang-kurangnya 8...

4. Mahasiswa akanmenerima informasi jadwal sidang begitu draft skripsi telah disetujui oleh...

5. Mahasiswa mempersiapkan diri untuk sidang skripsi.

Figure 7.9. Path ‘/howtoskripsi’.

/kp



START

Send Message

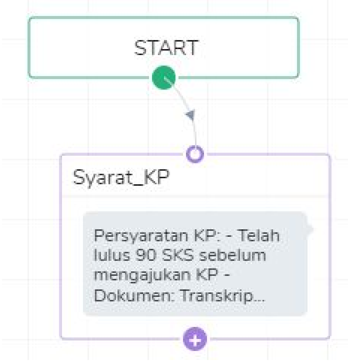
Kerja Praktik (KP) adalah mata kuliah khusus (spesial) di mana mahasiswa melakukan...

Opsi_KP

Ingin informasi lebih tentang kp?

Figure 7.10. Path '/kp'.

/kp_reqr



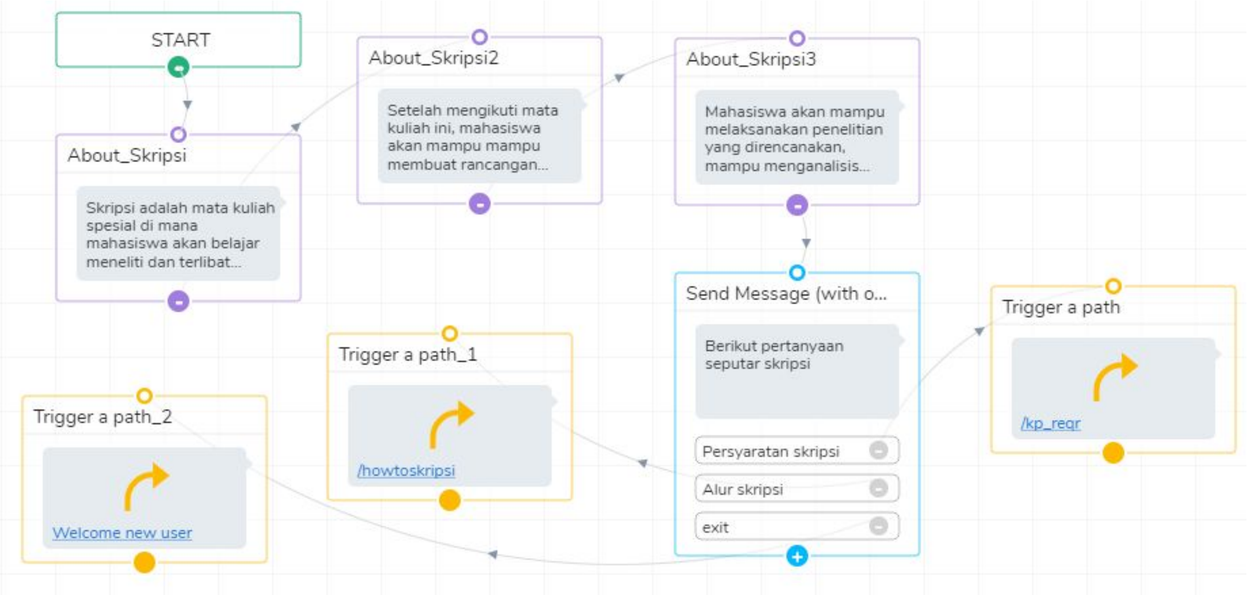
START

Syarat_KP

Persyaratan KP: - Telah lulus 90 SKS sebelum mengajukan KP - Dokumen: Transkrip...

Figure 7.11. Path '/kp_reqr'.

/skripsi



Skripsi adalah mata kuliah spesial di mana mahasiswa akan belajar meneliti dan terlibat...

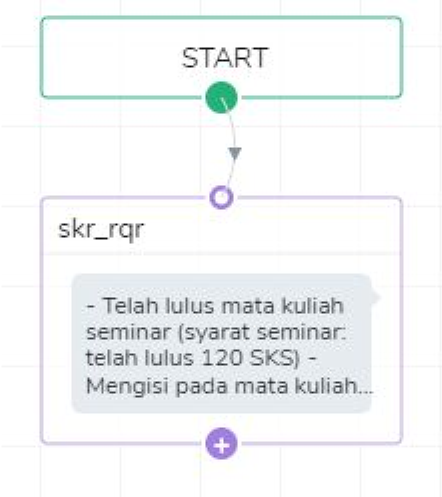
Setelah mengikuti mata kuliah ini, mahasiswa akan mampu mampu membuat rancangan...

Mahasiswa akan mampu melaksanakan penelitian yang direncanakan, mampu menganalisis...

Berikut pertanyaan seputar skripsi

Figure 7.12. Path ‘/skripsi’.

/skripsi_reqr



- Telah lulus mata kuliah seminar (syarat seminar: telah lulus 120 SKS) - Mengisi pada mata kuliah...

Figure 7.13. Path ‘/skripsi_reqr’.

/void

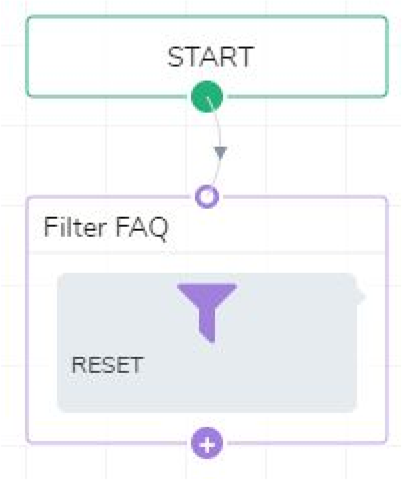
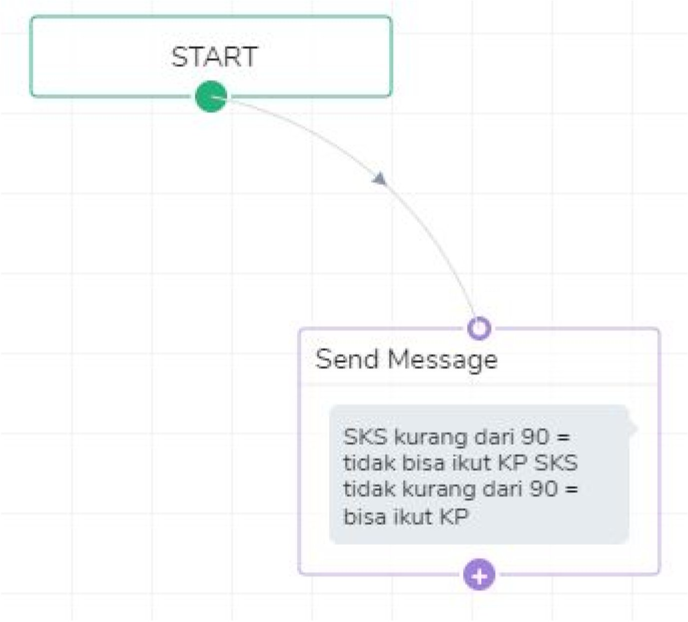


Figure 7.14. Path '/void'.

/JumlahSKSKP



SKS kurang dari 90 = tidak bisa ikut KP SKS tidak kurang dari 90 = bisa ikut KP

Figure 7.15. Path '/JumlahSKSKP'.