Finite State Machine-Model Based Testing for Website Application

Final Project

Submitted to Meet One of the Conditions

To earn the Bachelor's Degree of

Undergraduate Informatics Study Program

School of Computing

Telkom University

1301170506

Maulana Malik Ibrahim

Informatics Study Program

School of Computing

Universitas Telkom

Bandung

2021

DECLARATION OF ACCEPTANCE

Finite State Machine-Model Based Testing pada Aplikasi Website

Finite State Machine-Model Based Testing for Website Application

NIM :1301170506

Maulana Malik Ibrahim

This final project was submitted as the final project to meet one of condition
To earn Bachelor's Degree of Informatics Study Program
School of Computing
Telkom University

Bandung, 06/02/2021

Approve

Advisor 1 ,	Advisor 2,
Dana Sulistyo Kusumo, S.T., M.T., PhD	Rosa Reska Riskiana S.T., M.T.I.
NIP: 0278011	NIP: 20930035

Head of Informatics Study Program,

Dr. Erwin Budi Setiawan, S.Si., M.T.
NIP : 00760045

DECLARATION OF ORIGINALITY

I hereby, Maulana Malik Ibrahim, actually declare that my Final Project with the title **Finite State Machine-Model Based Testing for Website Application** along with all its contents is the work of my own, and I do not plagiarize that is not in accordance with the scientific ethics prevailing in the scientific community. I am ready to bear the risk / sanction given if a violation of scientific ethics is found in the TA book or if there are claims from other parties against the authenticity of the work,

Bandung, 05/02/2021

Yang Menyatakan

Maulana Malik Ibrahim

Finite State Machine-Model Based Testing For Website Application

Maulana Malik Ibrahim[1], Dana Sulistyo Kusumo[2] ,Rosa Reska Riskiana[3]
[1,2,3] School of Computing, Telkom University, Bandung
[1]maulanamalikibrahim@students.telkomuniversity.ac.id, [2]danakusumo@telkomuniversity.ac.id,
[3]rosareskaa@telkomuniversity.ac.id

Abstrak

Testing merupakan salah satu step penting dalam meluncurkan aplikasi. Dengan banyaknya metode yang ditawarkan, testing untuk aplikasi atau website yang sudah diluncurkan memiliki beberapa pilihan. Peduli lindungi website adalah salah satu website yang telah diluncurkan dan sering digunakan pada saat pandemi ini, website tersebut merupakan website penting karena sangat dibutuhkan. Pada research ini Finite State Machine-Model Based Testing (FSM MBT) diajukan sebagai metode research karena FSM MBT dapat mengcover 100% tes eksekusi. Dengan menggunakan metode ini, ditemukan bahwa FSM MBT dapat mengcover 100% tes eksekusi dengan waktu eksekusi adalah 20detik. Error yang ditemukan saat menggunakan metode ini adalah buttons dan forms pada website tidak dapat dipanggil tetapi flow dari MBT tetap berjalan, yang menyebabkan ini menjadi sebuah drawback dalam menggunakan metode FSM MBT.

Kata kunci : Testing, Finite State Machine-Model Based Testing (FSM MBT), Website.

Abstract

Testing is one of the important steps in launching an application. With so many testing methods available, testing for website applications that have been developed has some few options. Peduli lindungi website is one of the developed websites that are currently being used by so many users. In this research Finite State Machine-Model Based Testing (FSM MBT) is proposed as the method to do the testing, because FSM MBT was found to cover 100% test execution. By using this method, we found that FSM MBT can cover 100% test execution within 20s. There are few errors found in the method implementation, the buttons and forms in the website cannot be called, but this didn't affect the test execution flow. This is the drawback that we found by using the proposed method.

Keywords : Testing, Finite State Machine-Model Based Testing (FSM MBT), Website.

1. Introduction

With the pervasive use of software systems in modern society and people's reliance on them in daily life, work, and societal functions, then there should be an assurance that these systems meet people's expectations for quality and reliability [1]. Web-applications have rapidly become popular and highly functional, and rely upon a two-way flow of information between the server and browser [2][3]. Web applications can also now handle tasks that before could only be performed by desktop applications [4], like editing images or creating spreadsheets documents [5]. Despite the relevance that web applications have in the community, they still suffer from a lack of standards and conventions [6], unlike desktop and mobile applications [5].

Without a doubt testing is one of the important steps in launching an application, this is because the estimation of cost relating to testing can cost 50% of the overall development [7]. Model-based testing is a new and evolving technique for generating a suite of test cases from requirements [8]. Testers use this approach to concentrate on a data model and generation infrastructure instead of hand-crafting individual tests [8].

Background

Research that presents the experiment about model based testing on Indonesian developed websites is still rarely done, one of them is the research by Miguel Nabuco and Ana C.R. Paiva, where they use a developed website called Tudu as their object of research, even though it is not an Indonesian website [5]. Pedulilindungi.id is one of the Indonesian websites that is currently being used because of Covid-19. Of course with the application being made, pedulilindungi.id might be used less by users. But this doesn't seem to be true. Based on the sampling of reviews from the app store and google play store about PeduliLindungi app, we have found that the website might have been used more than the application. The application seems to be having so many errors which makes the website visited more often than the application. The sampling method will be provided in the attachment section.

[1] https://altom.gitlab.io/altwalker/altwalker/overview.html

Because of this urgency of the website being used more than the application, this can lead to a problem if the website has the same errors that the application has. From the sampling we didn't only get the reviews for the application but also the website, this seems to be quite a problem. The problem that we found is that the website can sometimes have inconsistency when it comes to showing the vaccine certification, and there is also a problem with the flow of the website, like clicking on a button but it doesn't show the next page or the next form that needs to be filled to register for vaccinations.

Peduli lindungi is chosen because it is the combination of the object that was tested in the research by Miguel Nabuco and Ana C.R Paiva, the characteristics includes todo list, and task management web application [5]. These characteristics is one that leads us to be using FSM MBT and because model based testing offers considerable promise in reducing the cost of test generation, increasing the effectiveness of the tests, and shortening the testing cycle [8]. And from the research by Miguel Nabuco and Ana C.R Paiva, we found that MBT is one of the effective ways to get coverage of the test execution as well as finding bugs for a developed website [5].

There are some approaches that can be done to do model based testing, MBT using Algebraic specification languages [5], MBT using UML state charts, MBT using FSM, etc. MBT using Algebraic specification languages have been used for formal specification of abstract data types (ADTs) and software components [5]. MBT, using UML state charts, automatically generates test cases which are produced from the UML state charts [9]. Unlike the other two approaches, MBT using FSM focuses on complete coverage [4], and because of that reason we chose MBT using FSM as the method of this research, because we want to know exactly how MBT using FSM covers a complete test execution.

Problem Statement

In this research the Indonesian website that will be used is peduli lindungi, it's a website conducted for news and features to help people get information about Covid-19. While the errors and complaints by users found from the sampling, we found that because peduli lindungi meets the characteristics of the referenced research by Miguel Nabuco and Ana C.R Paiva [5], the website is used in this research. Because the website has issues, therefore testing should be conducted. Because testing is a way of finding bugs and faults in the website, FSM MBT offers a considerable promise in reducing the cost of test generation, increasing the effectiveness of the tests, and shortening the testing cycle [8]. Therefore, FSM MBT is used in this research, and this leads to a research question that is how exactly does FSM MBT cover a complete test execution.

Purpose

The purpose of this research is to know exactly how FSM MBT covers a complete test execution by implementing the approach. The evaluation will be the coverage of test execution by using MBT and manual testing.

2. Related Works

Model-Based Test Case Generation for Web Applications by Miguel Nabuco, and Ana C.R Paiva is one of the researchers that use model based testing, in their research they use PARADIGM model to generate test cases and also be tested on an online application called Tudu [5]. Their research found that using PARADIGM model based testing to several web applications proved to be effective, as there is a filtering that can provide better coverage, finding more bugs and killing more mutants [5]. There is also a research by Hassan Reza, Kirk Ogaard, Amarnath Malge [10] and their research of A Model Based Testing Technique To Test Web Applications Using Statecharts, in this research they use UML Statecharts as their base to do MBT, they proposed a method that can be used to verifying the functionality of the front end [10].

2.1 Manual Testing

Manual testing is a technique where the test engineer prepares test cases manually and executes them to identify defects in the software [11]. It is the most rigorous and old method of software testing [12]. Manual testing is a laborious activity that requires the tester to possess a certain set of qualities; to be patient, observant,

speculative, creative, innovative, open-minded, and skillful [11]. Repetitive manual testing can be difficult to perform on large software applications or applications having very large dataset coverage [11].

2. 2 Model Based Testing (MBT)

Model-Based Testing (MBT) designates any kind of "testing based on or involving models" [13]. Models represent the system under test (SUT), its environment, or the test itself which directly supports test analysis, planning, control, implementation, execution and reporting activities [14]. Model-based testing is an application of model-based design for generating test cases and executing them against SUT for testing purposes [14]. The process consists of several main steps, modelling, generation of abstract tests, generation of executable tests, executing tests and analysis of test results [15].

2. 3 Finite State Machine (FSM)

Finite state machine (FSM) is a powerful computation model [16]. It consists of a finite set of states, a start state, an input alphabet, a transition function that defines the next state based on the current state and input symbols [16]. FSM may also have outputs associated with the transition [16]. Finite state machines are usually drawn as state transition diagrams [17].

Consider that there are two states that represents an action to turn on the light, it can be described as follows:

Table 1. States example

State	Description
S0	Turn off
S1	Turn on

Table 2. Input Examples

Input	Description
Button	On/Off button

From the state described above, we can make a state transition diagram as follows:

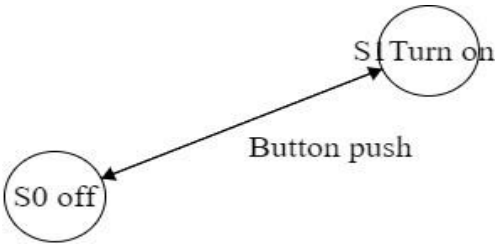


Figure 1 Finite State Machine Example (Turning on and off a light button)

2. 4 Altwalker

Altwalker is a test execution tool, created by Altom which uses model based testing to generate test cases through graphwalker [18]. The executor will execute the test path from the directed graph finite state machine. The logic for the test structure was inspired by the approach of python's unittest module. Every model is mapped into a class with the same name and every vertex and edges is also mapped as the method inside the class [18], and through this classes which represents the models, the execution will start as same as the finite state machine, which started from starting point and the stop condition which is the input code of the execution [18].

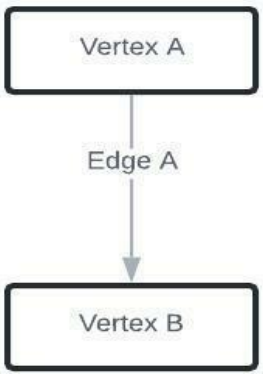


Figure 2 Figure of default.json

State Or Edge	Status	Coverage
Vertex A	PASS	1/3 = 1/3 * 100% = 33.33%
Edge A	PASS	2/3 = 2/3 * 100% = 66.66%
Vertex B	PASS	3/3 = 3/3 * 100% = 100%

From the table above we can see that the way altwalker execute the model is by going from start point which is Vertex A and then Edge A and ended in Vertex B. Altwalker gives default.json as their base to learn and to verify the work of altwalker, the files will be downloaded at the first time altwalker is installed to the computer so this way tester that wants to use altwalker will be given more verification and more assurance to using altwalker as a test executor [18].

3. Research Method

There are several main tasks need to be performed during the process of this research, which will be shown in the following graph :

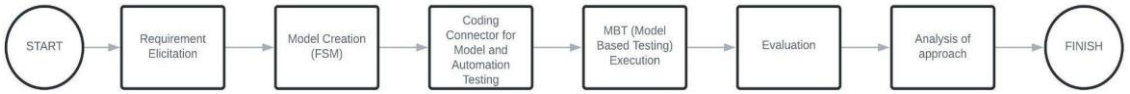


Figure 3 Flow Diagram of Research Method

3.1 Requirement Elicitation

Based on the sampling review from the users perspective to the website, the features in peduli lindungi consists of 14 features with 44 actions that can be done by users. This review is used as the basis of the requirement elicitation in this research. With the respondents of 50 people from the review, the sample of the features exist in peduli lindungi website are as follows:

Table 3. Sample of peduli lindungi requirements

Features	User	Input	Output
Beranda	Users	Typing pedulilindungi.id in a browser	Have to fully shown beranda page, including tentang and cara kerja, video in cara kerja must be playable, transition must be smooth without delay, can move to unduh, every button and filing form must be able to be conducted or used
Syarat Penggunaan	Users	Clicking Syarat Penggunaan in the menu	Have to fully shown syarat penggunaan page, consists with all conditions to be understand by users before using peduli lindungi
Kebijakan Privasi	Users	Clicking Kebijakan Privasi in the menu	Have to fully shown kebijakan privasi page, consists with how peduli lindungi will protect the users when their using the website
Tentang	Users	Clicking Tentang in the menu	Have to fully shown tentang which consists of the information about peduli lindungi
Cara Kerja	Users	Clicking Cara Kerja in the menu	Have to fully shown cara kerja which consists about the information on how to use peduli lindungi website and it’s features

3.2 Model Creation (FSM)

In the modelling task, some features/requirements can be represented in a state using FSM. In this case, since we are dealing with making the requirements/features into a state, we need to determine which will be the state or vertex and which will be the edge. FSM requires a state and also action represented as vertices (state) and edges (transition) [16]. Edges (transition) connects one vertex to another vertex, edges (transition) works

with an input that needs to be completed or else it cannot move to another state [16]. In this research, the edges will be represented as (e) and vertices will be represented as (v), and each transition will represent the actual actions that the features of the website have [16]. The representation and the model creation will refer to the flowchart of the business process of peduli lindungi and also from the sampling review gathered.

Table 4. Sample of features converted into edges and vertices for FSM

Features	Labels in edges and vertices
Homepage	v_HomePage
Peduli Lindungi	v_PeduliLindungi
Beranda	v_ViewBeranda
Tentang	v_ViewTentang
Cara Kerja	v_ViewCaraKerja
Syarat Penggunaan	v_ViewSyaratPenggunaan
Kebijakan Privasi	v_ViewKebijakanPrivasi
Unduh	v_ViewUnduh
Login/Register	v_ViewLoginRegister
Click Beranda	e_ClickBeranda
Click Tentang	e_ClickTentang
Click Cara Kerja	e_ClickCaraKerja
Click Syarat Penggunaan	e_ClickSyaratPenggunaan

The model created from the requirements has been checked by 50 respondents of the review conducted, to ensure that the models created are satisfied and correspond to the requirements that have to be in peduli lindungi website. From the review result given in the attachment section, the models created for the testing have been given an approval from the respondents with a total of 86% of the respondents agreed.

3.3 Coding Connector for Model and Automation Testing

In this research, the model will be connected with an automation testing tool in code, because we're using altwalker, an open model based testing tool in python, therefore the algorithm and library for this research will be using selenium and python. Selenium is used to be the webdriver which connects the model and the website and it's features. The functions created in this research will be representing the edges and also vertices of the model, and since there are more than 1 pages in the website, the connection between pages has also been made in python also. The code will refer to the flowchart of peduli lindungi, which can be seen in the attachment section and also the code can be seen in the attachment section.

3. 4 Model Based Testing (MBT) Execution

In this research we use altwalker as the MBT executor, altwalker is an open source Model-Based Testing framework that supports running tests in python3 and .NET/C#. The execution will be done in command prompt with the execution code of :

```
altwalker online tests -m models/PeduliLindungiModel.json "random(edge_coverage(100))"
```

The code represented above is the code from altwalker, the code will run the model and then do the testing by using mozilla as its webdriver, and the path of the test will be just as the same as how the model was created.

4. Results and Discussion

By using manual testing, the testing obviously was done manually. Test case was made manually until the report of the testing.

Table 5. Sample of report manual testing

Test Case ID	Test Case Name	Expected Result	Actual Result	Status	Note
1	Login	User can login to the website	User can login to the website	PASS	Every forms and buttons worked
2	Register	User can register to the website	User can register to the website	PASS	Every forms and buttons worked
3	Pendaftaran Vaksin	User can do the vaccine registration	User can do the vaccine registration	PASS	Every forms and buttons worked
4	View Facilities	User can see the facilities for Covid-19	User can see the facilities for Covid-19	PASS	Every forms and buttons worked
5	View Vaccine Status	User can see their vaccine status	User can see their vaccine status	PASS	Every forms and buttons worked

The sample report of FSM MBT will be as follows :

testcase name="PeduliLindungi" time="20.173145" classname="models">

<system-out>== Global Statistics ==

Model Coverage: 100%%

Number of Models: 3

Completed Models: 3

Failed Models: 0

Incomplete Models: 0

Not Executed Models: 0

[2021-08-19 20:00:58.429674] PeduliLindungiNavigation.e_ClickUnduh Status: PASSED

[2021-08-19 20:00:58.443638] PeduliLindungiNavigation.v_ViewUnduh Status: PASSED

[2021-08-19 20:00:59.013497] PeduliLindungiNavigation.e_ClickUnduh Status: PASSED

[2021-08-19 20:00:59.027460] PeduliLindungiNavigation.v_ViewUnduh Status: PASSED

From using FSM MBT, the test coverage was proved to be 100%. It is proved by the result of running the test using FSM MBT. In manual testing, the test coverage by using the test cases from FSM MBT proved that manual coverage also covers 100% of the test execution. But in time execution, FSM MBT took 20s for each running time, while in manual testing it took at least 12min to finish all of the test cases.

Based on the full result by using FSM MBT, FSM MBT covers the test execution by covering all of the edges and vertices inside the models created. Starting from the start state (v_Homepage) until it ends after completing every single edge in the model, this is because of the stop condition in the test execution method stated, that the stop condition is “random(edge_coverage(100))”. This is proved by the result which can be seen in the attachment section. All of the edges and vertices in the models were given a pass status, meaning that

every edge and vertex representing the transition and state in the website were all executed. This proves that FSM MBT can cover a 100% test execution.

Execution and Error	Percentage	Features
Complete Execution (With Error)	78.46%	Page Moving, Main Menu, Flow of the website
Errors	21.53%	Buttons and forms error
Total	100% (Complete Execution)	

From the calculation above, we can see that there are also some errors contributing to the test execution. It appears that some of the filling forms and buttons like Pendaftaran Vaksinasi and Not A Robot cannot be executed. This is because the buttons and forms in peduli lindungi have the same class, which confuses the locator to find each button and form. This is one of the drawbacks found in implementing FSM MBT. While in the report of manual testing, the website doesn't have any errors when it comes to using the buttons and forms.

5. Conclusion

In this research, FSM MBT was implemented on a website called peduli lindungi. The execution is focusing on the coverage of the test execution. By making the FSM model from the features required from observing the website, and do the execution using altwalker library which is an open MBT library executor. It is found that for covering the test execution FSM MBT is suitable for such a task. This is supported by the results of the experiment that shows that after running the test using MBT, FSM MBT can cover 100% of the execution with the time execution of 20s for one execution from the models. It is proved that the proposed method performs faster when it comes to cover the test execution rather than manual testing.

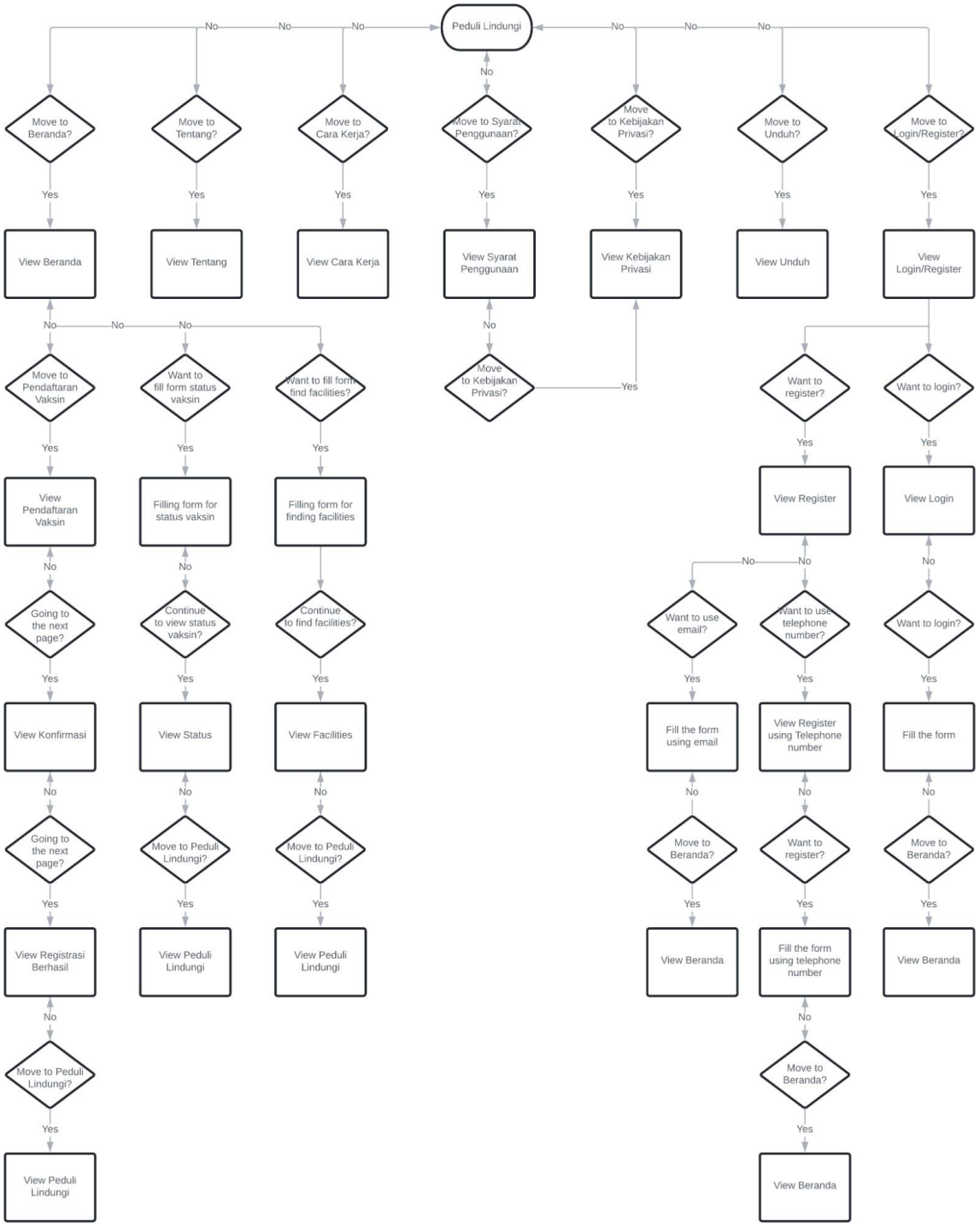
Unfortunately, there are errors contributing to the proposed method, this is mainly caused by the same class name that all the buttons and forms have in the website, which confuses the testing tools to call which button or forms to be clicked. This gives the actual execution rate goes to 78.46% model or features executed, this is because of the errors contributing in the proposed method. This type of error leaves us more space to improve the experiment and get a better modelling and connector system. In the future, a better comparison can be made to see if this kind of error is found in other websites.

References

[1] Jeff Tian. 2005. Software Quality Engineering, Testing, Quality Assurance, An Quantifiable Improvement.
[2] Pieter Koopman, Rinus Plasmeijer, Peter Achten. 2006. Model-Based Testing of Thin-Client Web Applications.
[3] LaShanda Dukes, Xiaohong Yuan, Francis Akowuah.2013. A Case Study on Web Application Security Testing with Tools and Manual Testing.
[4] Garrett J. J. 2006. a new approach to Web applications.
[5] Miguel Nabuco, Ana C. R. Paiva. 2014. Model-Based Test Case Generation for Web Applications.
[6] Constantine L. L, Lockwood L. A. D. 2002. Usage-centered engineering for Web applications.
[7] A. Pretschner, W. Prenniger, S. Wagner, C. Kuhnel, M. Baumgartner, B. Sostawa, R. Zolch, T. Stauner. 2005. One Evaluation of Model-Based Testing and its Automation.
[8] S. R. Dalal, A. Jain, N. Karunanithi, J. M. Leaton, C.M. Lott, G. C. Patton, B. M. Horowitz. 1999. Model-Based Testing in Practice.
[9] Fröhlich, P., Link, J. Springer, Heidelberg. 2000. Automated Test Case Generation from Dynamic Models.In: Bertino, E. (ed.) ECOOP 2000. LNCS, vol. 1850, p. 472. Springer, Heidelberg (2000)
[10] Hassan Reza, Kirk Ogaard, Amarnath Malge. 2008. A MODEL BASED TESTING TECHNIQUE TO TEST WEB APPLICATIONS USING STATECHARTS.
[11] R. M. Sharma. 2008. Quantitative Analysis of Automation and Manual Testing.
[12] Prof. (Dr.) V. N. Maurya, Er. Rajender Kumar. January 2012. Analytical Study on Manual vs. Automated Testing Using with Simplistic Cost Model.
[13] Kramer A. Legeard B. 2016. Model-Based Testing Essentials: Guide to the ISTQB Certified Model-Based Tester Foundation Level.
[14] Wenbin Li, Franck Le Gall, Naum Spaseski. 2017. A Survey on Model-Based Testing Tools for Test Case Generation.
[15] Kabsu Han, Insick Son, Jeonghun Cho. 2013. A Study on Test Automation of IVN of Intelligent Vehicle Using Model-based Testing.
[16] Lin Yuan, Gang Qu. 2004. Information Hiding in Finite State Machine
[17] Finite State Machines Explanation. https://isaaccomputerscience.org/concepts/dsa_toc_fsm
[18] Altwalker. Altom. 2020. https://altom.gitlab.io/altwalker/altwalker/how-tos/actions-and-guards.html

Attachment

Flowchart of peduli lindungi :



Code taken from VSCode :

```
class PeduliLindungiNavigation(unittest.TestCase):
    """Contains common methods for all models."""

    def setUpModel(self):
        global driver
        print("Set up for: {}".format(type(self)._name_))
        self.driver = driver

    def v_HomePage(self):
        page = PeduliLindungiPage(self.driver, BASE_URL)
        page.open()

    def v_PeduliLindungi(self):
        page = PeduliLindungiPage(self.driver)
        driver.implicitly_wait(15)
        #page.open()

    def v_ViewBeranda(self):
        page = BerandaPage(self.driver)

    def v_ViewTentang(self):
        page = TentangPage(self.driver)

    def v_ViewCaraKerja(self):
        page = CaraKerjaPage(self.driver)

    def v_ViewSyaratPenggunaan(self):
        page = SyaratPenggunaanPage(self.driver)

    def v_ViewKebijakanPrivasi(self):
        page = KebijakanPrivasiPage(self.driver)

    def v_ViewUnduh(self, data):
        page = UnduhPage(self.driver)

    def v_ViewLoginRegister(self):
        page = LoginPage(self.driver, Login_URL)
        page.open()

    def e_ClickBeranda(self):
        #debugger.set_trace()
        page = BerandaPage(self.driver)
```

```
        driver.implicitly_wait(15)
        #page.click_Beranda()

    def e_ClickPeduliLindungi(self):
        page = PeduliLindungiPage(self.driver)
        page.click_PeduliLindungi()

    def e_ClickTentang(self):
        page = TentangPage(self.driver)
        driver.implicitly_wait(15)
        #page.click_Tentang()

    def e_ClickCaraKerja(self):
        page = CaraKerjaPage(self.driver)
        page.click_CaraKerja()

    def e_ClickSyaratPenggunaan(self):
        page = SyaratPenggunaanPage(self.driver)
        page.click_SyaratPenggunaan()

    def e_ClickKebijakanPrivasi(self):
        page = KebijakanPrivasiPage(self.driver)
        driver.implicitly_wait(15)

    def e_ClickUnduh(self):
        page = UnduhPage(self.driver)
        page.click_Unduh()

    def e_ClickLoginRegister(self):
        page = LoginPage(self.driver)
        page.click_Login()

    def e_ClickSayaSetuju(self):
        page = PeduliLindungiPage(self.driver)
        driver.implicitly_wait(15)
        #page.click_SayaSetuju()

    def e_Wait(self):
        page = LoginPage(self.driver)
        driver.implicitly_wait(15)


class PeduliLindungi(PeduliLindungiNavigation):
```

```
    def v_PeduliLindungi(self):
        page = PeduliLindungiPage(self.driver, BASE_URL)
        page.open()

class Beranda(PeduliLindungiNavigation):
    def e_FillInTheBlanks(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(60)
        #page.click_AddFullName().send_keys("Maulana Malik Ibrahim")
        #page.click_AddNIK().send_keys("3217010101000292")

    def v_BlanksFilled(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)

    def e_ClickNotARobot(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)

    def v_FinishingTask(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)

    def e_ClickPeriksa(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)

    def v_ViewStatus(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(60)

    def e_ClickPeduliLindungi(self):
        page = PeduliLindungiPage(self.driver)
        page.click_PeduliLindungi()

    def e_FillTemukanFasilitas(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(30)
        #page.click_FindFacility().send_keys("Bandung")

    def v_BlanksTemukanFilled(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)
```

```
    def e_ClickCari(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)

    def v_ViewingFacilities(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(60)

    def e_ClickPendaftaranVaksin(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)

    def v_ViewPendaftaranVaksin(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)

    def e_FillForm(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)

    def v_FormFilled(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)

    def e_ClickSelanjutnya(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)

    def v_ViewKonfirmasi(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)

    def v_ViewRegistrasiBerhasil(self):
        page = BerandaPage(self.driver)
        driver.implicitly_wait(15)

class Tentang(PeduliLindungiNavigation):

    def e_ClickPeduliLindungi(self):
        page = PeduliLindungiPage(self.driver)
        page.click_PeduliLindungi()
```

```
class CaraKerja(PeduliLindungiNavigation):

    def e_ClickPeduliLindungi(self):
        page = PeduliLindungiPage(self.driver)
        page.click_PeduliLindungi()

class SyaratPenggunaan(PeduliLindungiNavigation):

    def e_ClickKebijakanPrivasi(self):
        page = KebijakanPrivasiPage(self.driver)
        driver.implicitly_wait(15)

    def e_ClickPeduliLindungi(self):
        page = PeduliLindungiPage(self.driver)
        page.click_PeduliLindungi()

class KebijakanPrivasi(PeduliLindungiNavigation):

    def e_ClickPeduliLindungi(self):
        page = PeduliLindungiPage(self.driver)
        page.click_PeduliLindungi()

class Unduh(PeduliLindungiNavigation):

    def e_ClickPeduliLindungi(self):
        page = PeduliLindungiPage(self.driver)
        page.click_PeduliLindungi()

class Login(PeduliLindungiNavigation):

    def e_ClickRegister(self):
        page = LoginPage(self.driver, Register_URL)
        page.open()

    def v_UserRegister(self):
        page = LoginPage(self.driver)
        driver.implicitly_wait(15)

    def e_Wait(self):
        page = LoginPage(self.driver)
        driver.implicitly_wait(15)

    def e_ClickUsingTelephone(self):
```

```
        page = LoginPage(self.driver)
        driver.implicitly_wait(15)

    def v_UsingEmail(self):
        page = LoginPage(self.driver)
        driver.implicitly_wait(15)

    def v_UsingTelephone(self):
        page = LoginPage(self.driver)
        driver.implicitly_wait(15)

    def e_FillForm(self):
        page = LoginPage(self.driver)
        page.click_AddNamaLengkap()
        page.click_AddEmail()

    def e_FillRegisterForm(self):
        page = LoginPage(self.driver)
        page.click_AddNama()
        page.click_AddNomorTelepon()

    def v_FillForm(self):
        page = LoginPage(self.driver)
        driver.implicitly_wait(15)

    def e_SendingOTP(self):
        page = LoginPage(self.driver)
        driver.implicitly_wait(180)

    def v_ReceiveOTP(self):
        page = LoginPage(self.driver)
        driver.implicitly_wait(15)

    def v_ViewBeranda(self):
        page = LoginPage(self.driver)

    def e_Login(self):
        page = LoginPage(self.driver, Login_URL)
        driver.implicitly_wait(15)

    def v_Login(self):
        page = LoginPage(self.driver)
        driver.implicitly_wait(15)
```

```
    def e_FillEmail(self):
        page = LoginPage(self.driver)
        driver.implicitly_wait(90)

    def v_InformationFilled(self):
        page = LoginPage(self.driver)
        driver.implicitly_wait(15)

    def e_AutomaticToBeranda(self):
        page = LoginPage(self.driver)
        driver.implicitly_wait(15)
```

Report of MBT (XML JUnit Report) :
<?xml version="1.0" ?>
<testsuites disabled="0" errors="0" failures="0" tests="1" time="20.173145294189453">
<testsuite disabled="0" errors="0" failures="0" name="AltWalker" skipped="0" tests="1" time="20.173145294189453">
<testcase name="PeduliLindungi" time="20.173145" classname="models">
<system-out>== Global Statistics ==
Model Coverage: 100%%
Number of Models: 3
Completed Models: 3
Failed Models: 0
Incomplete Models: 0
Not Executed Models: 0
====

[2021-08-19 20:00:37.110858] PeduliLindungiNavigation.setUpModel Status: PASSED
Output:
Set up for: PeduliLindungiNavigation

[2021-08-19 20:00:45.544700] PeduliLindungiNavigation.v_HomePage Status: PASSED

[2021-08-19 20:00:45.572624] PeduliLindungiNavigation.e_Wait Status: PASSED

[2021-08-19 20:00:45.595563] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:45.656401] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:45.681335] PeduliLindungiNavigation.e_ClickTentang Status: PASSED

[2021-08-19 20:00:45.700285] PeduliLindungiNavigation.v_ViewTentang Status: PASSED

[2021-08-19 20:00:45.958761] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:45.974719] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:46.004640] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:46.277909] PeduliLindungiNavigation.e_ClickSyaratPenggunaan Status: PASSED

[2021-08-19 20:00:46.300848] PeduliLindungiNavigation.v_ViewSyaratPenggunaan Status: PASSED

[2021-08-19 20:00:46.671856] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:46.695791] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:46.736179] PeduliLindungiNavigation.e_ClickBeranda Status: PASSED

[2021-08-19 20:00:46.775076] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:47.390823] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:47.616218] PeduliLindungiNavigation.e_ClickCaraKerja Status: PASSED

[2021-08-19 20:00:47.626192] PeduliLindungiNavigation.v_ViewCaraKerja Status: PASSED

[2021-08-19 20:00:47.850595] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:47.867544] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:47.959302] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:48.290142] PeduliLindungiNavigation.e_ClickSyaratPenggunaan Status: PASSED

[2021-08-19 20:00:48.309092] PeduliLindungiNavigation.v_ViewSyaratPenggunaan Status: PASSED

[2021-08-19 20:00:48.342013] PeduliLindungiNavigation.e_ClickKebijakanPrivasi Status: PASSED

[2021-08-19 20:00:48.376919] PeduliLindungiNavigation.v_ViewKebijakanPrivasi Status: PASSED

[2021-08-19 20:00:48.727896] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:48.753828] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:49.108883] PeduliLindungiNavigation.e_ClickCaraKerja Status: PASSED

[2021-08-19 20:00:49.131825] PeduliLindungiNavigation.v_ViewCaraKerja Status: PASSED

[2021-08-19 20:00:49.381150] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:49.404090] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:49.688430] PeduliLindungiNavigation.e_ClickLoginRegister Status: PASSED

[2021-08-19 20:00:50.018721] PeduliLindungiNavigation.v_ViewLoginRegister Status: PASSED

[2021-08-19 20:00:51.267437] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:51.680856] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:51.703795] PeduliLindungiNavigation.e_ClickBeranda Status: PASSED

[2021-08-19 20:00:51.724742] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:51.775603] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:51.842427] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:51.895282] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:51.984046] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:52.093754] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:52.148618] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:52.215428] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:52.724745] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:52.739706] PeduliLindungiNavigation.e_ClickKebijakanPrivasi Status: PASSED

[2021-08-19 20:00:52.754885] PeduliLindungiNavigation.v_ViewKebijakanPrivasi Status: PASSED

[2021-08-19 20:00:52.987458] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:52.998431] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:53.018376] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:53.243042] PeduliLindungiNavigation.e_ClickUnduh Status: PASSED

[2021-08-19 20:00:53.257003] PeduliLindungiNavigation.v_ViewUnduh Status: PASSED

[2021-08-19 20:00:53.494597] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:53.507562] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:53.540475] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:53.555451] PeduliLindungiNavigation.e_ClickTentang Status: PASSED

[2021-08-19 20:00:53.571410] PeduliLindungiNavigation.v_ViewTentang Status: PASSED

[2021-08-19 20:00:53.806325] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:53.824274] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:54.061428] PeduliLindungiNavigation.e_ClickCaraKerja Status: PASSED

[2021-08-19 20:00:54.074394] PeduliLindungiNavigation.v_ViewCaraKerja Status: PASSED

[2021-08-19 20:00:54.313753] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:54.331706] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:54.353646] PeduliLindungiNavigation.e_ClickBeranda Status: PASSED

[2021-08-19 20:00:54.375589] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:54.906170] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:55.157139] PeduliLindungiNavigation.e_ClickLoginRegister Status: PASSED

[2021-08-19 20:00:55.397254] PeduliLindungiNavigation.v_ViewLoginRegister Status: PASSED

[2021-08-19 20:00:56.904721] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:56.925664] PeduliLindungiNavigation.e_ClickTentang Status: PASSED

[2021-08-19 20:00:56.944615] PeduliLindungiNavigation.v_ViewTentang Status: PASSED

[2021-08-19 20:00:57.306637] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:57.320600] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:57.354509] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:57.373461] PeduliLindungiNavigation.e_ClickBeranda Status: PASSED

[2021-08-19 20:00:57.384429] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:57.421330] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:57.450253] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:57.501117] PeduliLindungiNavigation.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:57.905214] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:57.919177] PeduliLindungiNavigation.e_ClickKebijakanPrivasi Status: PASSED

[2021-08-19 20:00:57.932143] PeduliLindungiNavigation.v_ViewKebijakanPrivasi Status: PASSED

[2021-08-19 20:00:58.161688] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:58.170665] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:58.192604] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:58.429674] PeduliLindungiNavigation.e_ClickUnduh Status: PASSED

[2021-08-19 20:00:58.443638] PeduliLindungiNavigation.v_ViewUnduh Status: PASSED

[2021-08-19 20:00:58.694004] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:58.708966] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:58.756836] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:59.013497] PeduliLindungiNavigation.e_ClickUnduh Status: PASSED

[2021-08-19 20:00:59.027460] PeduliLindungiNavigation.v_ViewUnduh Status: PASSED

[2021-08-19 20:00:59.260559] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:59.273525] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:59.494225] PeduliLindungiNavigation.e_ClickUnduh Status: PASSED

[2021-08-19 20:00:59.502205] PeduliLindungiNavigation.v_ViewUnduh Status: PASSED

[2021-08-19 20:00:59.722859] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:59.731836] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:59.753776] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:59.764748] PeduliLindungiNavigation.e_ClickTentang Status: PASSED

[2021-08-19 20:00:59.772727] PeduliLindungiNavigation.v_ViewTentang Status: PASSED

[2021-08-19 20:00:59.991337] PeduliLindungiNavigation.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:01:00.001316] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:01:00.023253] PeduliLindungiNavigation.v_PeduliLindungi Status: PASSED

[2021-08-19 20:01:00.259699] PeduliLindungiNavigation.e_ClickLoginRegister Status: PASSED

[2021-08-19 20:01:00.535474] PeduliLindungiNavigation.v_ViewLoginRegister Status: PASSED

[2021-08-19 20:00:45.620496] Beranda.setUpModel Status: PASSED
Output:
Set up for: Beranda

[2021-08-19 20:00:45.630471] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:45.988681] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:46.811494] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:46.852384] Beranda.e_FillTemukanFasilitas Status: PASSED

[2021-08-19 20:00:46.887293] Beranda.v_BlanksTemukanFilled Status: PASSED

[2021-08-19 20:00:46.926371] Beranda.e_ClickCari Status: PASSED

[2021-08-19 20:00:46.965271] Beranda.v_ViewingFacilities Status: PASSED

[2021-08-19 20:00:47.360900] Beranda.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:47.376859] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:47.887495] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:51.253472] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:51.280401] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:51.297354] Beranda.e_FillInTheBlanks Status: PASSED

[2021-08-19 20:00:51.314314] Beranda.v_BlanksFilled Status: PASSED

[2021-08-19 20:00:51.328272] Beranda.e_ClickNotARobot Status: PASSED

[2021-08-19 20:00:51.347233] Beranda.v_FinishingTask Status: PASSED

[2021-08-19 20:00:51.379143] Beranda.e_ClickPeriksa Status: PASSED

[2021-08-19 20:00:51.396099] Beranda.v_ViewStatus Status: PASSED

[2021-08-19 20:00:51.648941] Beranda.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:51.660909] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:51.799544] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:51.957117] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:52.010973] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:52.069817] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:52.196477] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:52.229394] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:52.247342] Beranda.e_FillInTheBlanks Status: PASSED

[2021-08-19 20:00:52.266291] Beranda.v_BlanksFilled Status: PASSED

[2021-08-19 20:00:52.286238] Beranda.e_ClickNotARobot Status: PASSED

[2021-08-19 20:00:52.306183] Beranda.v_FinishingTask Status: PASSED

[2021-08-19 20:00:52.329122] Beranda.e_ClickPeriksa Status: PASSED

[2021-08-19 20:00:52.351063] Beranda.v_ViewStatus Status: PASSED

[2021-08-19 20:00:52.693829] Beranda.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:52.708790] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:53.008403] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:53.523518] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:54.395534] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:54.443406] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:54.469337] Beranda.e_FillInTheBlanks Status: PASSED

[2021-08-19 20:00:54.497263] Beranda.v_BlanksFilled Status: PASSED

[2021-08-19 20:00:54.526185] Beranda.e_ClickNotARobot Status: PASSED

[2021-08-19 20:00:54.554110] Beranda.v_FinishingTask Status: PASSED

[2021-08-19 20:00:54.576051] Beranda.e_ClickPeriksa Status: PASSED

[2021-08-19 20:00:54.602980] Beranda.v_ViewStatus Status: PASSED

[2021-08-19 20:00:54.875251] Beranda.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:54.890212] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:56.470342] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:56.489294] Beranda.e_ClickPendaftaranVaksin Status: PASSED

[2021-08-19 20:00:56.507245] Beranda.v_ViewPendaftaranVaksin Status: PASSED

[2021-08-19 20:00:56.521208] Beranda.e_FillForm Status: PASSED

[2021-08-19 20:00:56.537165] Beranda.v_FormFilled Status: PASSED

[2021-08-19 20:00:56.552125] Beranda.e_ClickSelanjutnya Status: PASSED

[2021-08-19 20:00:56.567594] Beranda.v_ViewKonfirmasi Status: PASSED

[2021-08-19 20:00:56.582558] Beranda.e_ClickSelanjutnya Status: PASSED

[2021-08-19 20:00:56.599514] Beranda.v_ViewRegistrasiBerhasil Status: PASSED

[2021-08-19 20:00:56.860124] Beranda.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:56.878795] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:57.337552] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:57.397394] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:57.469202] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:57.515078] Beranda.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:57.532034] Beranda.e_ClickPendaftaranVaksin Status: PASSED

[2021-08-19 20:00:57.548987] Beranda.v_ViewPendaftaranVaksin Status: PASSED

[2021-08-19 20:00:57.564947] Beranda.e_FillForm Status: PASSED

[2021-08-19 20:00:57.583897] Beranda.v_FormFilled Status: PASSED

[2021-08-19 20:00:57.596860] Beranda.e_ClickSelanjutnya Status: PASSED

[2021-08-19 20:00:57.611819] Beranda.v_ViewKonfirmasi Status: PASSED

[2021-08-19 20:00:57.626782] Beranda.e_ClickSelanjutnya Status: PASSED

[2021-08-19 20:00:57.643733] Beranda.v_ViewRegistrasiBerhasil Status: PASSED

[2021-08-19 20:00:57.876292] Beranda.e_ClickPeduliLindungi Status: PASSED

[2021-08-19 20:00:57.889258] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:58.180637] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:58.734895] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:59.742831] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:01:00.010287] Beranda.v_PeduliLindungi Status: PASSED

[2021-08-19 20:00:50.040663] Login.setUpModel Status: PASSED
Output:
Set up for: Login

[2021-08-19 20:00:50.327947] Login.v_ViewLoginRegister Status: PASSED

[2021-08-19 20:00:50.612187] Login.e_ClickRegister Status: PASSED

[2021-08-19 20:00:50.633132] Login.v_UserRegister Status: PASSED

[2021-08-19 20:00:50.677014] Login.e_Wait Status: PASSED

[2021-08-19 20:00:50.696963] Login.v_UsingEmail Status: PASSED

[2021-08-19 20:00:51.157728] Login.e_FillForm Status: PASSED

[2021-08-19 20:00:51.173686] Login.v_FillForm Status: PASSED

[2021-08-19 20:00:51.190641] Login.e_SendingOTP Status: PASSED

[2021-08-19 20:00:51.207595] Login.v_ReceiveOTP Status: PASSED

[2021-08-19 20:00:51.224551] Login.e_AutomaticToBeranda Status: PASSED

[2021-08-19 20:00:51.238511] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:51.747678] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:51.822481] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:51.872344] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:51.925203] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:52.039895] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:52.121678] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:52.177528] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:54.421465] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:55.602513] Login.v_ViewLoginRegister Status: PASSED

[2021-08-19 20:00:55.834891] Login.e_ClickRegister Status: PASSED

[2021-08-19 20:00:55.859824] Login.v_UserRegister Status: PASSED

[2021-08-19 20:00:55.878773] Login.e_ClickUsingTelephone Status: PASSED

[2021-08-19 20:00:55.895727] Login.v_UsingTelephone Status: PASSED

[2021-08-19 20:00:56.345675] Login.e_FillRegisterForm Status: PASSED

[2021-08-19 20:00:56.364626] Login.v_FillForm Status: PASSED

[2021-08-19 20:00:56.387565] Login.e_SendingOTP Status: PASSED

[2021-08-19 20:00:56.409507] Login.v_ReceiveOTP Status: PASSED

[2021-08-19 20:00:56.432445] Login.e_AutomaticToBeranda Status: PASSED

[2021-08-19 20:00:56.453389] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:57.409362] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:57.435293] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:00:57.483162] Login.v_ViewBeranda Status: PASSED

[2021-08-19 20:01:00.759464] Login.v_ViewLoginRegister Status: PASSED

[2021-08-19 20:01:00.792378] Login.e_Login Status: PASSED

[2021-08-19 20:01:00.813321] Login.v_Login Status: PASSED

[2021-08-19 20:01:00.827284] Login.e_FillEmail Status: PASSED

[2021-08-19 20:01:00.847230] Login.v_InformationFilled Status: PASSED

[2021-08-19 20:01:00.865182] Login.e_AutomaticToBeranda Status: PASSED

[2021-08-19 20:01:00.878147] Login.v_ViewBeranda Status: PASSED
</system-out>
</testcase>
</testsuite>
</testsuites>

Sampling Review Data of Peduli Lindungi:

Rating	Respondents	Review
1/5	(39)	Website works better than the application, application not suitable for users phone
2/5	(11)	Application works ok but the tendency to use website is more
3/5	(10)	Application and website still has some inconsistency, and the website is used as a bridge for the application
4/5	(1)	Application works, but website still be used as comparison
5/5	(2)	Website and application works and synchronize
Total	63	

Review of Requirements and Model Creation:

Peduli Lindungi Features Satisfaction (Requirements)	Respondents	Review
Satisfied	92% (46)	The requirements mentioned by respondents matched with the requirements extracted from the website
Unsatisfied	8% (4)	Respondents are giving a few opinions towards the features and the requirements that should have been in the website

Model Checking by Respondents	Respondents	Review
Matches the features considered by respondents	86% (43)	Respondents agree that the model created (FSM) covers the requirements needed in the website

Unmacthes the features considered by respondents	14% (7)	Respondents are giving comments to the path or arrow connecting the edges and vertex in the model

Requirements extracted :

Features	User	Input	Output
Beranda	Users	Typing pedulilindungi.id in a browser	Have to fully shown beranda page, including tentang and cara kerja, video in cara kerja must be playable, transition must be smooth without delay, can move to unduh, every button and filing form must be able to be conducted or used
Syarat Penggunaan	Users	Clicking Syarat Penggunaan in the menu	Have to fully shown syarat penggunaan page, consists with all conditions to be understand by users before using peduli lindungi
Kebijakan Privasi	Users	Clicking Kebijakan Privasi in the menu	Have to fully shown kebijakan privasi page, consists with how peduli lindungi will protect the users when their using the website
Tentang	Users	Clicking Tentang in the menu	Have to fully shown tentang which consists of the information about peduli lindungi
Cara Kerja	Users	Clicking Cara Kerja in the menu	Have to fully shown cara kerja which consists about the information on how to use peduli lindungi website and it's features
Unduh	Users	Clicking Unduh in the menu	Have to fully shown unduh which consists about the information on how to unduh peduli lindungi on users phone
Peduli Lindungi	Users	Clicking the logo of peduli lindungi in the menu	Have to fully shown peduli lindungi main page which consists of the menus and beranda
Login using email	Users	Clicking the login/register menu	Have to fully shown peduli lindungi login page which consists of the form to login to the website using email
Login using telephone	Users	Clicking the login using telephone	Have to fully shown peduli lindungi login page which consists of the form to login to the website using telephone
Register using email	Users	Clicking the login/register menu	Have to fully shown peduli lindungi register page which consists of form using email to register

Register using telephone	Users	Clicking the register using telephone menu	Have to fully shown peduli lindungi register page which consists of form using telephone to register
Pendaftaran Vaksin	Users	Clicking the Pendaftaran Vaksinasi button	Have to fully shown the pendaftaran vaksinasi page which consists of form to registering to get vaccination
Check Facility	Users	Filling Location in beranda page	Have to fully shown the facility resides in that location of chosen
Vaccine Status	Users	Filling names and NIK in beranda page	Have to fully shown the vaccine status of a person that fills the name and NIK