

CHAPTER 4

ANALYSIS AND DESIGN

4.1. Analysis

4.1.1. Black Box Method

Testing on software is very important in an application or web that will be developed because if it isn't tested there will be bugs in the application or web, it's all supported by various methods and techniques that support in a research. The method used in this research is the Black Box method. The Black Box method is a testing method that only tests the functionality and usability of the application or web, Black Box Testing only checks input and output on an application/web as expected or without knowing the program.

The software testing process uses the black box method, namely:

1. Analysis of user requirements and conditions on the software.
2. Create inputs that produce correct output answers and Create inputs that produce incorrect output answers.
3. Specifies the output for the input.
4. Tests are carried out with various inputs that have been selected correctly.
5. Doing a test.
6. Comparing the output that has been produced with the requested / expected output.
7. Creates predefined functionality on the software being tested.

4.1.2. Automation Testing

Automation Testing is a Software Testing Technique. Automation Testing works by comparing the desired output with the resulting output. To produce this output, most people use scripts or test tools to generate the output. PT. Hartono Istana Teknologi still uses manual testing in doing the test because the company has not been able to find what kind of method can be used to be effective and efficient in conducting testing. The steps in performing Automation Testing are :

1. Assess and analyze the advantages and disadvantages of the tools to be used.
2. Create a test design.
3. Run the implementation or test, check if the application can run and function properly.
4. Report the results obtained from the test results.
5. Doing a re-examination.

The type of test used in this study is Functional Testing, Functional Testing is a test that's used to ensure that the application or web can perform all it's functions without errors. The tools that can be used in automation testing are actually very diverse, such as Katalon Studio, IBM RFT, Selenium, etc.

4.1.3. Test Case

Test Case is a flow or series of what will be done by the user (user in this sense is Quality Assurance). At PT. Hartono Istana Teknologi in working on a project makes use cases based on requests from users. The purpose of the Test Case is to ensure an application or web can run properly as desired and can provide feedback on incorrect input on the application or web. Test Case is the beginning of testing, the application or web and it can also be seen that the web or application is running normally or not. The components in the test case are test case id, test case description, prerequisites, test steps, expected results, actual results and status. Things to do when creating test cases :

1. Testers should make test cases as simple as possible so that they are easy to understand.
2. Testers must position themselves as users in the creation of test cases.
3. As much as possible there is no repetition in the test case.
4. Don't assume on buttons, functions or features.
5. Testing must cover all the features contained in the application or web.
6. The name of the test case id must be clear so that it's easy to track if something goes wrong.

On app testing / Web Quality Assurance don't do it randomly, but has a technique used to collect as many errors as possible in application or web. The technique used in this research is Boundary Value Analysis (BVA). Boundary Value Analysis is a test technique that includes the representation of limit values. In determining the value of the success rate, a test case table is made, from these cases, the test results are then divided by the number of data tested, the percentage of success is obtained. There is also documentation of software components in document inspection, namely:

1. Making flowcharts.
2. Give an explanation of the input used.
3. Give an explanation of the output used.
4. Explain the output that has been generated.
5. Controlling the application/web created.

4.1.4. Selenium

Selenium is a tool used for Automation Testing. This tool is used to perform automated tests on a multi-platform web, which means it can run on multiple platforms. There are 4 types of selenium, namely Selenium IDE, WebDriver, Selenium Remote Control (RC), and Selenium Grid. Selenium WebDriver is the tool that the author uses in this research. Selenium WebDriver is an open source tool / everyone can use this tool and use it for free, This tool can also be run in various languages including Java, Python, Ruby, #C, etc. Selenium is also a tool that can be used in various browsers including Mozilla FireFox, Chrome, Opera, Safari, and Internet Explorer, etc. It is also a multi-system operating tool, which means it can support multiple operating systems including Linux, Windows and Mac.

4.2. Table Test Case

4.2.1. Button Functionality Testing “Tambah Kode Perusahaan”

The program that author will use is the finance program, and which is located on the trial server at the PT. Hartono Istana Teknologi. Next will test the functionality on the menu kode perusahaan Button “tambah kode perusahaan”.

Table 4. 1 Function Test Results of the “Tambah Kode Perusahaan” Button

No	Function	Expected results
1	Tambah button	Can add tambah kode perusahaan
2	Add kode perusahaan	Can enter kode perusahaan
3	Add nama perusahaan	Can enter nama perusahaan

Next will be testing on the fields used on the button “tambah kode perusahaan”

Table 4. 2 Add Kode Perusahaan Field

No	Field name	Data type
1	Kode perusahaan	Varchar(6)
2	Nama perusahaan	Varchar(50)

Field testing kode perusahaan

The data type used is varchar but which will include a 6 letter character set.

Table 4. 3 Kode Perusahaan Field Trial Scenario

No	Scenario	Results
1	Number of characters more than 6	Can be input
2	Number of characters less than 6	Can be input
3	The number of characters according to the provisions is 6	Can be input
4	Empty	Error message

In the "kode perusahaan" column, the author adds testing by trying various test variables, namely the number of characters is more than 6, the number of characters is less than 6, the number of characters according to the provisions is 6 and the column is empty. . By doing this test the author can find out whether the field is in accordance with the provisions or not. If there are no errors, the field can be declared according to company regulations.

Field testing nama perusahaan

The data type used is varchar, but will enter a 50 character string including alphabet, numbers and spaces.

Table 4. 4 Nama Perusahaan Field Trial Scenario

No	Scenario	Results
1	Number of characters more than 50	Can be input
2	Number of characters less than 50	Can be input
3	The number of characters according to the provisions is 50	Can be input
4	Empty	Error message

In the nama perusahaan column, the author adds testing by trying various test variables, namely the number of characters is more than 50, the number of characters is less than 50, the number of characters according to the provisions is 50 and the column is empty. By doing this test the author can find out whether the field is in accordance with the provisions or not. If there are no errors, the field can be declared according to company regulations.

4.2.2. Button Functionality Testing “Tambah Site”

The program that author will use is the finance program, and which is located on the trial server at the PT. Hartono Istana Teknologi. Next will test the functionality on the menu “site” button “tambah site”.

Table 4. 5 Function Test Result Of The “Tambah Site” Button

No	Function	Expected results
1	Tambah button	Can add tambah site
2	Site	Can enter new side
3	Kode Pos	Can enter new kode pos

Next will be testing on the fields used on the button “tambah site baru”

Table 4. 6 Field Tambah Site

No	Field name	Data type
1	Site	Varchar(15)
2	Kode Pos	Varchar(10)

Field testing site

The data type used is varchar but which will include a 15 letter character set.

Table 4. 7 Site Field Trial Scenario

No	Scenario	Result
1	Number of characters more than 15	Can be input
2	Number of characters less than 15	Can be input
3	The number of characters according to the provisions is 15	Can be input
4	Empty	Error message

In the "site" column, the author adds testing by trying various test variables, namely the number of characters is more than 15, the number of characters is less than 15, the number of characters according to the provisions is 15 and the column is empty. By doing this test the author can find out whether the field is in accordance with the provisions or not. If there are no errors, the field can be declared according to company regulations.

Field testing kode pos

The data type used is varchar, but will enter a 10 character string namely numbers.

Table 4. 8 Kode Field Trial Scenario

No	Scenario	Result
1	Number of characters more than 10	Can be input
2	Number of characters less than 10	Can be input
3	The number of characters according to the provisions is 10	Can be input
4	Empty	Error message

In the kode pos column, the author adds testing by trying various test variables, namely the number of characters is more than 10, the number of characters is less than 10, the number of characters according to the provisions is 10 and the column is empty. By doing this test the author can find out whether the field is in accordance with the provisions or not. If there are no errors, the field can be declared according to company regulations.

4.2.3. Button Functionality Testing “Tambah Lokasi”

The program that author will use is the finance program, and which is located on the trial server at the PT. Hartono Istana Teknologi. Next will test the functionality on the menu “lokasi” button “tambah lokasi baru”.

Table 4. 9 Function Test Result Of The “Tambah Lokasi” Button

No	Function	Expected results
1	Tambah button	Can add new tambah lokasi
2	Tipe Lokasi	Can enter new tipe lokasi
3	Kode	Can enter new kode

Next will be testing on the fields used on the button “tambah lokasi baru”

Table 4. 10 Field Tambah Lokasi

No	Field name	Tipe data
1	Tipe Lokasi	Varchar(25)
2	Kode	Varchar(15)

Field testing Tipe Lokasi

The data type used is varchar but which will include a 25 letter character set.

Table 4. 11 Tipe Lokasi Field Trial Scenario

No	Scenario	Result
1	Number of characters more than 25	Can be input
2	Number of characters less than 25	Can be input
3	The number of characters according to the provisions is 25	Can be input
4	Empty	Error message

In the tipe lokasi column, the author adds testing by trying various test variables, namely the number of characters is more than 25, the number of characters is less than 25, the number of characters according to the provisions is 25 and the column is empty. By doing this test the author can find out whether the field is in accordance with the provisions or not. If there are no errors, the field can be declared according to company regulations.

Field testing kode

The data type used is varchar, but will enter a 15 character string namely numbers.

Table 4. 12 Kode Field Trial Scenario

No	Skenario	Hasil
1	Number of characters more than 15	Can be input
2	Number of characters less than 15	Can be input
3	The number of characters according to the provisions is 15	Can be input
4	Empty	Error message

In the kode column, the author adds testing by trying various test variables, namely the number of characters is more than 15, the number of characters is less than 15, the number of characters according to the provisions is 15 and the column is empty. By doing this test the author can find out whether the field is in accordance with the provisions or not. If there are no errors, the field can be declared according to company regulations.