# Software Testing using the Black Box Method: Case study - Pioneer Tourism Web in Southeast Minahasa

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# ABSTRACT

Southeast Minahasa Regency which is part of North Sulawesi Province also has many tourism objects including well-known natural attractions.

In this study ours conducted a study on the quality of existing pilot tourism web using the Black Box method. The pilot tourism web is made specifically for tourist objects that are not too well known or not yet known by the wider community but are only known by the local community or around. The purpose of this website is as a place to promote pilot tourism objects in Southeast Minahasa Regency. So that it can become an alternative tourist destination that can be visited by the wider community both in the province of North Sulawesi, National, and International.

Black Box testing will be carried out to test the quality of this pilot travel web software without paying attention to the code and program structure, which means that only pay attention to whether the output is as expected or not.

The purpose of this study is to determine whether the software is in accordance with the expected software specifications.

Tests that have been carried out using the Black Box method cannot be separated from the desire to find out the errors that exist in the pilot tourism web software. In this test, the software being tested shows that the implementation of the software has been correctly carried out through functions according to the software specification requirements.

## **General Terms**

Software Testing

#### **Keywords**

Testing, Black Box, Web Tourism

#### **1. INTRODUCTION**

North Sulawesi Province is a province located in the North of Sulawesi Island which has many tourist attractions. Currently a famous tourist attraction to foreign countries is the Bunaken National Park which is an underwater park located on Bunaken Island.

The beauty of the Bunaken marine park has been well recognized in foreign countries apart from its beauty as well because promotions through various media are available including those on google facilities.

Southeast Minahasa Regency which is part of North Sulawesi Province also has many tourism objects including well-known natural attractions.

In this study we conducted a study on the quality of existing pilot tourism web using the Black Box method. The pilot tourism web is made specifically for tourist objects that are not too well known or not yet known by the wider community but are only known by the local community or around. The purpose of this website is as a place to promote pilot tourism objects in Southeast Minahasa Regency. So that it can become an alternative tourist destination that can be visited by the wider community both in the province of North Sulawesi, National, and International.

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#### 2. RELATED RESEARCH

Some related research

Research by Bansal (2014), this study uses comparisons between blackbox testing with 2 other methods, namely the whitebox testing method and greybox testing. The results of this study indicate that the blacbox testing method does not look at the internal structure, in contrast to the whitebox testing which looks at the inner structure as a whole. While using the greybox testing method, only partially the structure is considered [1].

By Supriadi, Bambang in 2014 with the title Alternative Development of Mount Bromo Tourism Stubs. The purpose of this research is to develop tourism pilots that have tourism potential on the Mount Bromo route through the north and south routes of Pasuruan. The analysis method uses statisticaldescriptive analysis to identify the problems stated above, a sample of 50 tourists at the DTW Mount Bromo. In conclusion, there are 5 (five) tourist attractions to be developed. All of the tourism pioneers in the Mount Bromo route have good potential considering the average mean value is 3.7 (good) on the Linkert scale and think very beautiful and beautiful, the mean is 4.1 the tourists have a good opinion and there are no bad commentators, all agree that it is beautiful. The tourist attraction of the desert in this tourist spot has a good value of 90% and very good 10% and no tourists are disappointed with this tourism potential. Pioneering the tourism attractiveness of the existence of cultural heritage in this tourist spot has a good value of 35% and a good enough 15% and only 4% who still consider it lacking, but the majority of tourists who are disappointed with this tourism potential are not there. Pioneering tourist attraction historical existence in this tourist spot has a very good score of 22% and quite good 14% and only 2% who still consider it insufficient. Xu et al's research (2016), tested using the blackbox testing method used in open source software. The software being tested are Advance Trigonometry Calculator and Personal Bank Account Manager (YAPBAM). The result of the research is that testing shows that the testing is thorough and relatively accurate which may require all software whenever possible with the application of the available combinations. Certain testing techniques do not guarantee a high level of efficiency because the number of known bugs is also high; in the test analysis it is therefore necessary to estimate the costs that may exist in each application of the test technique; it appears that most of the defects in software were negative in the test cases performed; error correction is not selalu dilakukan dengan memodifikasi kode sumber[2].

#### 3. TEORY

Black-Box Testing is a software testing technique that focuses on the functional specifications of software [3], [4]. Blackbox Testing works by ignoring the control structure so that attention is focused on domain information [4]. Blackbox Testing method is done without looking at and considering the structure of the software [7]. Blackbox Testing allows software developers to create a set of input conditions that will train all the functional requirements of a program [5, [4]. The advantages of using the Blackbox Tetsting method are [6]: (1) Examiners do not need to have knowledge of a particular programming language; (2) Testing is carried out from the user's point of view, this helps to reveal ambiguities or inconsistencies in the specification of requirements; (3) The programmer and the tester both depend on each other. The shortcomings of the Blackbox Testing method are [6]: (1) Test cases are difficult to design without clear specifications; (2) The possibility of having a repeat of a test that the programmer has already performed; (3) Some parts of the back end are not tested at all.

## 4. TESTING METHOD

#### 4.1 Flowchart Testing



**Fig 1: Research Flowchart** 

Research testing this software uses the following sequence (see Figure 1):

- Determine the program or module to be tested
- Doing testing
- See whether the results are in accordance with expectations
- Documenting test results

#### 4.2 Some Parts of the Software

Some parts of the software are presented here as On this web home page, contains several menus that can be used to see startup attractions in Southeast Minahasa (see figure 2)

Login menu is used by user and admin to enter system both front-end and back-end (see figure 3)

The web also provides users with a map page showing or marking the location of a startup tour (see figure 4)

The web also provides detailed information of the location of the startup attraction by clicking on the location mark on the map on the web (see figure 5)

Minabara Tenggara Sulavesi Utara	Objek Wisata Rintisan
Pariwisata Rintisan Mitra Beranda Hotel Restoran Ginderamata O	bjek Wisata Percarian Can
Pasan	
Pusomaen	

Fig 2: Home Page



Fig 3: Login Page



Fig 4: Page of map mark

![](_page_2_Figure_7.jpeg)

Fig 5: Page of detailed mark information

# 5. RESULT AND DISCUSSION

## 5.1 Result

Table 1. List of Black-Box tests on the front-end system (user)

No.	Test List	Test Scenarios	Expected Results	Actual Result
1.	Home / Main page	The user enters a name application domain on the web browser	System displays home page or main page	Corresponding
2.	Access detailed informatio n Attractions , Hotels, Restaurant s and Shops Souvenirs via map spread on the page Home	Click the marker on the map the spread for bring up info window, then click "More Informatio n"	System displays informatio n detail page of the selected marker	Corresponding
3.	Display charts visitor monitoring attractions per month	Fill in the month form fields and year, then click "Show Graphics"	The system displays graphs visitor monitoring tourist attraction on the page pitched	Corresponding

No.	Test List	Test Scenarios	Expected Results	Actual Result
			based on enter the month form and year	
4.	Object List page Travel	Click the "Tourism Object" menu on the navigation bar	The system displays a list tourist attraction recorded and categorized by recorded districts / cities	Corresponding
5.	Informatio n Detail Page Tourist attraction	Click an option tourist attraction on the page list of attractions	System displays informatio n detail page tourist attraction selected	Corresponding
б.	Get a travel route to the location of the tourist object	Click the button "Get it Travel route", then fill in the location the origin of the user on the form and click "Get Route"	The system displays a map and directions informatio n to the location of a tourist attraction	Corresponding
7.	Leave a review tourist attraction visitors	Click the button "Give Reviews About Objects Tour ", then fill in the fields for the review	Successfull y saved data reviews on the database.	Corresponding

No.	Test List	Test Scenarios	Expected Results	Actual Result
		form and click "Submit"		
8.	List hotel Page	Click the "Hotel" menu navigation bar	The system displays a list hotel recorded.	Corresponding

The test chosen is a front-end system on the user's side with the final results of the testing being all in accordance with the expectations, namely in accordance with the needs of the software specifications. Therefore, in testing with the Black Box method, it only looks at whether the input, process and output can be run without any errors and produce output or information as expected.

## 5.2 DISCUSSION

Tests that have been done show that the software functions work in accordance with the device specifications and this is good because it shows that the performance requirements have been met.

In the testing process the principle of testing is used to uncover errors. So that later the software being tested is deemed unable to meet its requirements if some or all errors are found.

Based on the above principles, the test carried out to find errors is to enter data in accordance with the required process or in accordance with the scenario. The data entry in this test is alphanumeric data and the response from the trigger software is given by clicking on the mouse.

In order for testing to be carried out efficiently, this test is carried out every time a function of the software has been developed so that you can see the errors in the program.

What is usually done if an error is found in the software. But according to Xu et al, if there is an error in the software and you want to correct the error, it will not always be by modifying the program code [1]. That happens because the tests carried out do not pay much attention to the program code but more to the functions that exist in the software.

# 6. CONCLUSION

Tests that have been carried out using the Black Box method cannot be separated from the desire to find out the errors that exist in the pilot tourism web software. In this test, the software being tested shows that the implementation of the software has been correctly carried out through functions according to the software specification requirements. In the future, testing can be done to determine the efficiency of software engineering by conducting several related studies such as the White box method.

# 7. ACKNOWLEDGMENTS

Our thanks to Manado State Polytechnic for giving the opportunity to conduct this research.

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