Testing. Usability and functional testing

Functional testing is a necessary step to accomplish a good quality IT product. This testing is necessary in order to make sure that the product behaves exactly as the ball is programmed, it is important to understand that this testing does not include testing the design part of the product. Testing usually involves using a different input data to discover that a feature is not working properly.

In turn, usability testing is responsible for ease of use by the customer. It is important that the user himself performs the entire procedure and the desired result is obtained without any external assistance. This testing includes such aspects as: testing the overall structure, the arrangement of elements on the page, content clarity, game play and overall behavior of the product.

First, functional testing is carried out, then, if any shortcomings or errors are identified, these errors are eliminated, or in other words bugs are fixed. Then usability testing is carried out already on a working product, since if you conduct a usability test on a product that has problems with the functional part, this will only add difficulties and confusion for the user.

Both tests must be conducted by a person who is not associated with the production of the product to eliminate bias.

Usability testing process. The user must complete a certain number of steps in order to complete some action or use of the product. After each completed action, the user answers certain questions related to the task. Questions should be of a different nature and structure. For example, multiple choice questions should be used to make it easier for the participant to answer them without feeling pressure from outside. Often participants are asked to comment on what is happening and think out loud, while describing their emotions is welcome. It is very important to get a full review with comments about the test after usability testing.

<https://qualitestgroup.com/insights/white-paper/functional-testing-vs-usability-testing/#:~:text=A%20simple%20way%20to%20think,and%20successfully%20use%20the%20product>.

Ten simple rules for a proper usability testing:

* Keep feedback with a user.
* User speaks, not programmer.
* Make sure there is an undo and quick get-aways for a user.
* Make sure testing is based on standards and consistency.
* Keep error alerts away from customer.
* Users need to learn, not to memorise.
* Provide a user with a shortcut key, access key and other helpful tips if necessary.
* Minimum design - maximum functionality.
* Show a user how to recognize, diagnose and recover from mistakes.
* Document all answers, behaviour, all help that have been provided.

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| test id | test  description | Steps including testing data | expected result | actual result | pass/ fail |
| 1 | verification for: game is building (starting) | 1. double click with a LMB 2. or right click + open | game is opening and main menu should appear |  |  |
| 2 | verification for: all buttons and background is loaded | Observation | 1.Background picture should appear 2."Continue","New Game", "Exit” button should appear |  |  |
| 3 | verification for: exit button is working | Click on EXIT button with a LMB | Exiting a game |  |  |
| 4 | verification for: new game button is working | Click on NEW GAME button with a LMB | Starting a new game, menu for an player is appearing |  |  |
| 5 | verification for: continue button is working !!!NOTE should be done after exiting an actual game | Click on CONTINUE button with a LMB | Character is respawning on the same spot as left before after exiting a game |  |  |
| 6 | verification for: character name input | press "new game" LMB on character name and start typing a name | New name of a character is appearing |  |  |
| 7 | verification for: character emerging in a right start map | click on start button | Character is emerging on a map with a houses and villagers. |  |  |
| 8 | verification for: game controlling | press “continue" check for movement of a character: W-character moves up S-character moves down A-character moves left D-character moves right OR ↑↓→← as an arrow key | Character is moving into right direction according to test condition |  |  |
| 9 | verification for: exit/enter | character following a footpath to the end of a map and exiting a start map | should emerge on a different map from the correct side, if character was exiting to the right-should appear on the left side of the new map etc… |  |  |
| 10 | verification for: dialogs | Right click on an villager | dialog window is appearing |  |  |
| 11 | verification for: game object act like an obstacle | Find any object (house, tree etc) try to navigate character through an object | character should not go through but keep moving on a spot |  |  |
| 12 | verification for: making a damage on enemy | RBM on an enemy | HP bar of an enemy should decrease |  |  |
| 13 | verification for: taking an damage | RBM on an enemy waiting 2 seconds an enemy's turn to hit character | HP bar of a character should decrease |  |  |
| 14 | verification for:healing a character | RMB on a character choose a healing potion (red color) | HP should increase for up 25 % |  |  |
| 15 | verification for: winning a battle | RBM on an enemy multiply time until enemies HP is equal to zero | HP bar should disappear an enemy should lay down |  |  |
| 16 | verification for: losing a battle/death | receive all damage with no action from an enemy | character lays down header " Game Over" appear Navigation goes Back to main menu |  |  |
| 17 | verification for: exiting a game | RMB then click on exit game | main menu appears from test id # 1 |  |  |
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