CptS 443/543—Human-Computer Interaction HW3
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Cognitive Walkthrough Form

Briefly describe the system being evaluated:

The Algorithm Visualization Storyboarder, which gives learner a visual view of how code works

Briefly describe the target users of this system (background, experience, etc.):

First-semester computer science students who are learning to program algorithm

Briefly describe the task(s) to be evaluated:

Designing array-iterative algorithms by creating and placing variables and arrays and writing control and iterative logic in ALVIS language

Task 1: Create an array with six cells containing random integers

Task Steps for Task 1	Will the user know what to do next to make progress?	Will the user notice how to perform the correct action?	Will the user interpret the system response correctly?
1.1 Click on "Create Array" button	Yes, on the toolbox at left side, the target button is labeled with "Create Array"	Yes, after click the button, a dialog shows up that guides user to drag cursor	Yes, when drag the cursor the length of array changes accordingly. And the index number shown in each single cell
1.2 Populate array with random numbers	Yes, on the toolbox at left side, the target button is labeled with "Populate"	Yes, when hover the cursor on the button, a dialog shows up to inform user that double click it can change its property. After single-click the button, a dialog shows up that guides user to click on the array to populate it with number	Yes, the array cells turn into green and filled with random ints from 1 to 100
1.3			
1.4			
1.5			

Task 2: Create variable called "maxsofar"

Task Steps for Task 2	Will the user know what to do next to make progress?	Will the user notice how to perform the correct action?	Will the user interpret the system response correctly?
2.1 Create a variable	Yes, on the toolbox at left side, the target button is labeled with "Create Variable"	Yes, after click the button, a dialog shows up that guides user to click on the window	Yes, a square showed up with the name v1
2.2 change the name "v1" to "maxsofar"	Yes, when hover the cursor on the variable, a dialog shows up to inform user that double click it to edit.	Yes, after double click the variable, a dialog shows up that has a name text area. Put "maxsofar" in that area	Yes, the name label of the variable has changed to "maxsofar"
2.3			
2.4			
2.5			

Task 3: Create an index of the array

Task Steps for Task 3	Will the user know what to do next to make progress?	Will the user notice how to perform the correct action?	Will the user interpret the system response correctly?
3.1 Create an index of the array	Yes, on the toolbox at left side, the target button is labeled with "Create Index"	Yes, after click the button, a dialog shows up that guides user to click cell of the target array to set the initial position of the index	Yes, after clicking on the 1st cell, a red triangle cursor showed up and pointing to the first cell
3.2			
3.3			
3.4			
3.5			

Task 4: Create an iteration over the array

Task Steps for Task 4	Will the user know what to do next to make progress?	Will the user notice how to perform the correct action?	Will the user interpret the system response correctly?
4.1 Create an iteration over the array	Yes, on the toolbox at left side, the target button is labeled with "Iterate Loop"	Yes, after click the button, a dialog shows up that guides user to indicating the iteration range by dragging the index to the end position cell	No, even though a while loop is created on the script Editor window, but nothing changed in animation window. There should be an obvious feedback in animation window to inform user the action is successfully performed.
4.2			
4.3			
4.4			
4.5			

Task 5: Create comparison between current value with maxsofar and updating maxsofar

Task Steps for Task 5	Will the user know what to do next to make progress?	Will the user notice how to perform the correct action?	Will the user interpret the system response correctly?
5.1 create comparison	No, for the users haven't learnt if statements, they do not know to construct comparison by click if tool	Yes, after click the button, a dialog shows up that guides user to click the variable they want to compare. And then to choose logical operation. Finally, choose the other compared variable.	No, even though an if statement is created on the script Editor window, but nothing changed in animation window. There should be an obvious feedback in animation window to inform user the action is successfully performed.
5.2 updating the value of maxsofar	Yes, on the toolbox at left side, the target button is labeled with "Set"	Yes, after click the button, a dialog shows up that guides user to click the variable they want to set value with. After that another dialog showed up to gives user the option to set value to another variable.	No, even though an settor is created on the script Editor window, but nothing changed in animation window. There should be an obvious feedback in animation window to inform user the action is successfully performed.
5.3			
5.4			
5.5			

Summary of results:

Aspects of design that worked: [In general, ALVIS did a very good job to guide new CS student learn the how to use the software. Every button has a strong signifier with text label that clearly summaries the purpose of the button. Moreover, ALVIS has set a hidden signifier (when hover on a button for a while, a detailed explanation will appear.) ALVIS also provide visual feedback for user, it is significantly useful to those students who don't have a lot coding experience]

Potential usability issues:
[1. For logic related operation, such as comparing two variables, there is no significant sign to inform students how to perform it.
2. ALVIS did good job to use visual feedback, but in some cases, no visual feedback is given to students.

Proposed Design Changes:

1. For logic related operation, a window with possible actions (<, >, ==, ≤, ≥) should be shown by hover on if button.
2. Given detailed visual feed for complicated action. For example, to indicate a loop on a figure, it can add a list view next to the cursor figure to suggest the start position and end position.