

UC Berkeley's CS10 Spring 2017 Midterm 2 : Instructor Dan Garcia

Your Name (first last) _____

SID _____


Lab TA's Name _____

← Name of person on left (or aisle) _____

Name of person on right (or aisle) → _____

Fill in the correct circles & squares completely...like this: ● (select ONE) ■ (select ALL that apply)

Question 1: This is the hardest question on the exam...not! (4 pts)

If  evaluates to **false**, what can you say about **A** and **B**? (select ALL that apply)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A must be false	A must be true	B must be false	B must be true	A must be equal to B	A must be different from B	None of these

...use this area for your scratch work, should you need it...

Question 2: Down at the swap meet... (4 pts)

A code segment will be used to swap (i.e., exchange) the values of the variables **a** and **b** using the temporary variable **temp**. Which of the following code segments correctly swaps the values of **a** and **b**? (select ONE)

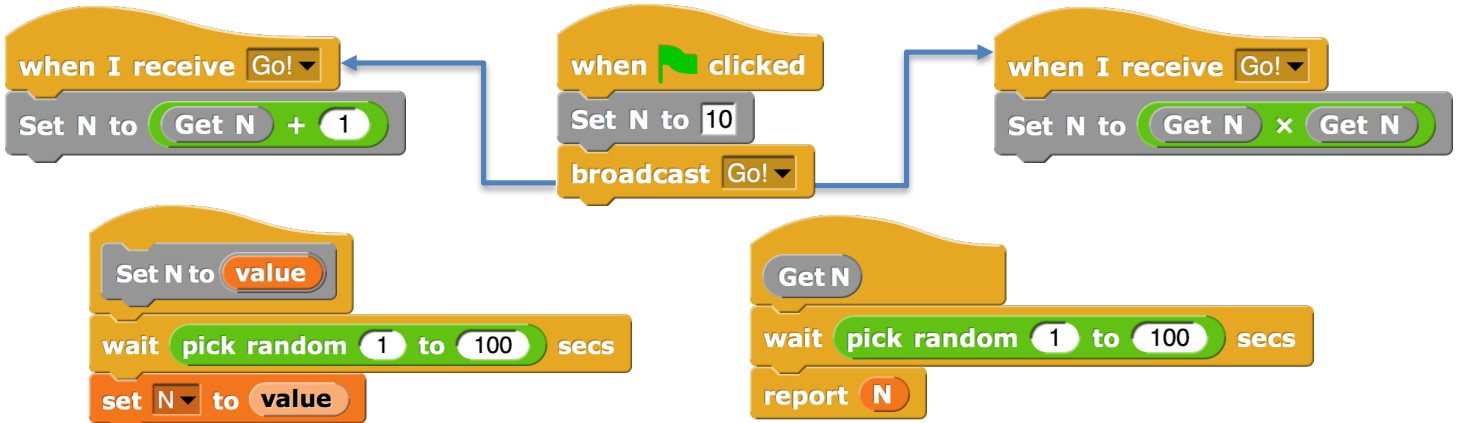
○	○	○	○
<pre> script variables temp set a to b set temp to a set b to temp </pre>	<pre> script variables temp set temp to a set a to b set b to temp </pre>	<pre> script variables temp set temp to a set a to temp set a to b </pre>	<pre> script variables temp set temp to a set b to temp set a to b </pre>

...use this area for your scratch work, should you need it...

Question 3: It's a rat race (condition) out there... (6 pts)

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Which are the possible values of global variable **N** at the end of this program? (select all that apply)

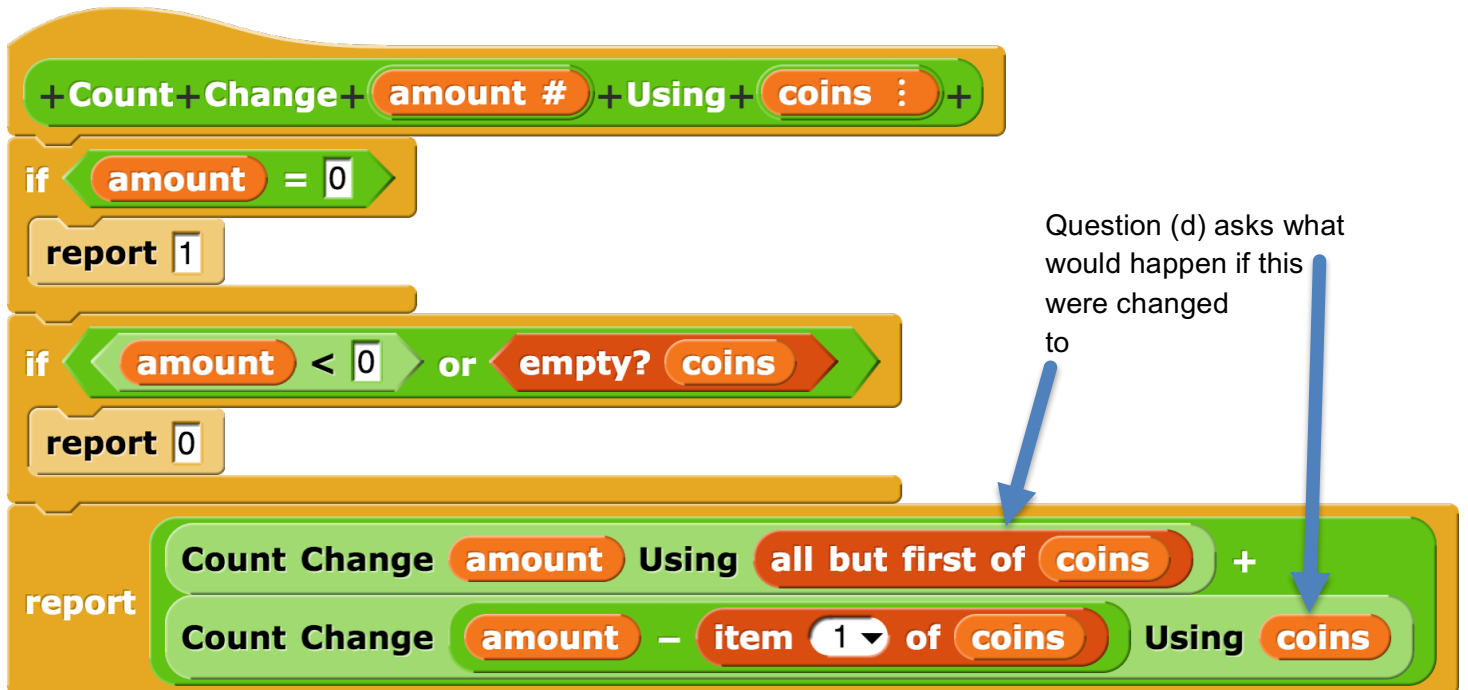


- | | | | | | | | | | | | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 0 | 5 | 6 | 10 | 11 | 25 | 26 | 30 | 31 | 35 | 36 | 100 | 101 | 110 | 111 | 120 | 121 |

...use this area for your scratch work, should you need it...

Question 4: Dick Trace-y and the villainous Count Change! (16 pts = 4+4+4+4)

Recall count change, shown below:



Question 4: Dick Trace-y and the villainous Count Change! (continued)

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Note: each of (a)-(d) are independent and assume we start with the code above.

a) If we swapped the order of the two *if-reports*, when would it change our reported value? (select ONE)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
amount is 0 and coins empty	amount is 0 or coins empty	amount not 0 and coins empty	amount not 0 or coins empty	amount is 0 and coins not empty	amount is 0 or coins not empty	amount not 0 and coins not empty	amount not 0 or coins not empty

...use this area for your scratch work, should you need it...

b) The number of ways of making change for 15 cents given coins (10 5 1) is 6, and our code returns 6. If we swap the order of the coins to (1 5 10), what would happen? It would... (select ONE)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
report the same answer as before	report a larger answer than before	report a smaller answer than before	run forever	cause an error	None of the above

...use this area for your scratch work, should you need it...

c) Normally if we asked for the change for 2 cents given only pennies, i.e., coins were (1), it would report 1, since there's only a single way of doing it (penny + penny). What would it report if we actually had *two kinds of pennies*? I.e., what'd happen if we called count change for 2 cents with (1 1)? It would... (select ONE)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
report 0	report 1	report 2	report 3	report 4	report 5	run forever	cause an error	None of the above

...use this area for your scratch work, should you need it...

d) If we change the bottom-right expression `coins` to `all-but-first-of(coins)`, What'd be computed? It would... (select ONE)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
report the same value as before	report what'd happen if each coin could only be used once	report what'd happen if we never used the first coin	report what'd happen if we always used the first coin	run forever	cause an error	None of the above

...use this area for your scratch work, should you need it...