ECE 322

Assignment 1

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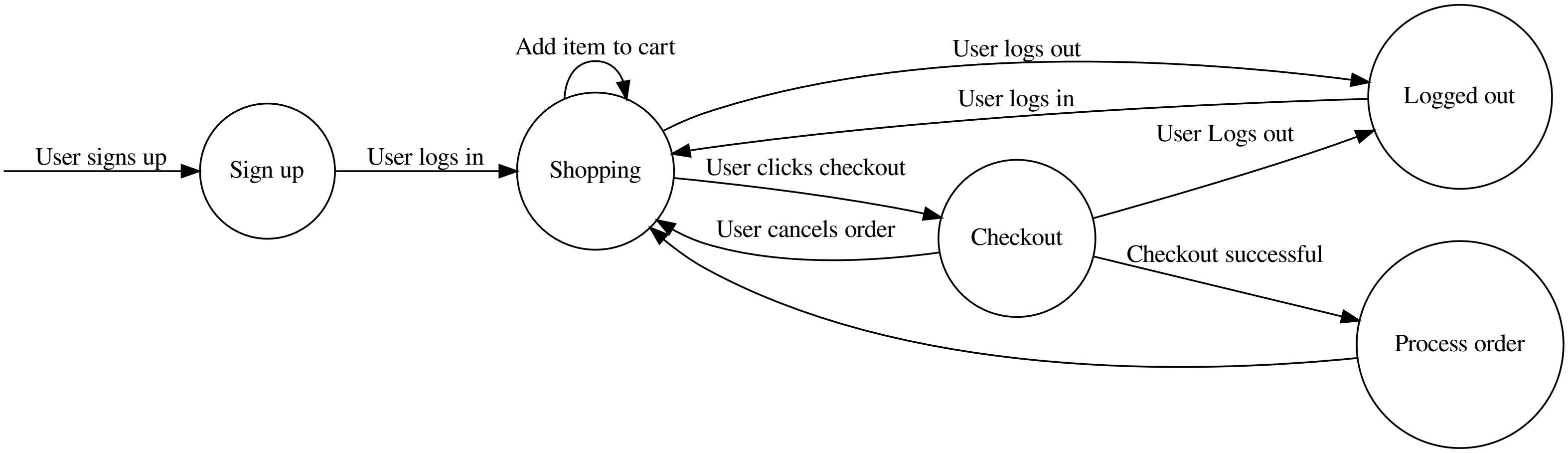
1 e-Shopping System FSM

The following assumptions were made:

1. The items added to the user's online shopping cart are always in stock
2. A user must sign up before being able to purchase an item from this e-shopping system.
3. Once the user has signed up, their account cannot be deleted. They can however, remain logged out indefinitely.
4. Once an order is processed, the user cannot cancel their order



2 maxofThreeNumbers(int n1, int n2, int n3

2 a) Exhaustive Testing

By definition, with exhaustive testing, we would have to check for every possible combination of inputs to cover the input space. Assuming the program in question stores its **int** data type as a 64-bit signed integer, each parameter can have a minimum value of −9223372036854775808, and a maximum value of 9223372036854775807. Therefore, for each input argument, there are

18446744073709551615 possibilities. So, to account for each possible combination of inputs, there would be

$$18446744073709551615 \times 18446744073709551615 \times 18446744073709551615 = \\ 6277101735386680762814942322444851025767571854389858533375$$

test cases.

2 b) Error Guessing

With error guessing, we can choose some inputs from the input space that from previous experience and from guessing we might think could break the program. A few test cases are listed below:

1. maxOfThreeNumbers(-1, 0 2) checks for negative and positive inputs
2. maxOfThreeNumbers(0, 0, 1) checks for when two inputs are the same
3. maxOfThreeNumbers(-9223372036854775808, 0 4) minmum value for one input
4. maxOfThreeNumbers(2, -2, 9223372036854775807) maximum value for one input
5. maxOfThreeNumbers(0, 0, 0) checks for when all arguments are zero, and also when all the arguments are the same
6. maxOfThreeNumbers(1, 2, 3) checks for all positive arguments
7. maxOfThreeNumbers(-5, -9, -2) checks for all negative arguments

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