

Project 1 – Remote Learning: The System Verilog Game

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Table of Contents:

My FSM Explanation:	2
FSM State Diagram:	3
Links to My FSM + link to a full solution:.....	4
My Post from Discussion Board:	4
Vedant Daga's Escape Room Explanation:	5

My FSM Explanation:

I honestly had no idea how to make an organized state diagram with 21 different states, so I am sorry if it is too confusing to understand. The boxes represent each of the individual states. Some boxes have a top and bottom. The top represents the conditions needed to arrive to that state. The bottom represents the state name and any changes to variables that may happen while in that state. There may also be a tiny box below labelled something like “D) Leave...”; this represents that there is a condition needed to backtrack to the previous state.

So, this game is supposed to simulate “a day in the life of remote learning,” and the goal is to find enough motivation to get all your homework done. There are exactly seven ways that a player can earn motivation (take a shower, eat/drink water, go outside, take a nap, talk to friends, watch fun videos, and go to class). Once the player makes the decision to do any of these activities, their motivation will increase, and they will be sent back to the previous state. A player may also only do any of these activities once, which is why there are variables like HasShowered, IsFull, IsRaining, etc. If a player tries to do an activity twice, they will be sent to State 16, and are told to find something else to procrastinate on. The player can also only go outside if they have a mask, which they can get by getting dressed in their bedroom. I have it set up where a player only needs to do about half the activities to have enough motivation to do their homework and win. Changing the conditions to arrive at State 9 can increase or decrease the number of activities a player needs to do.

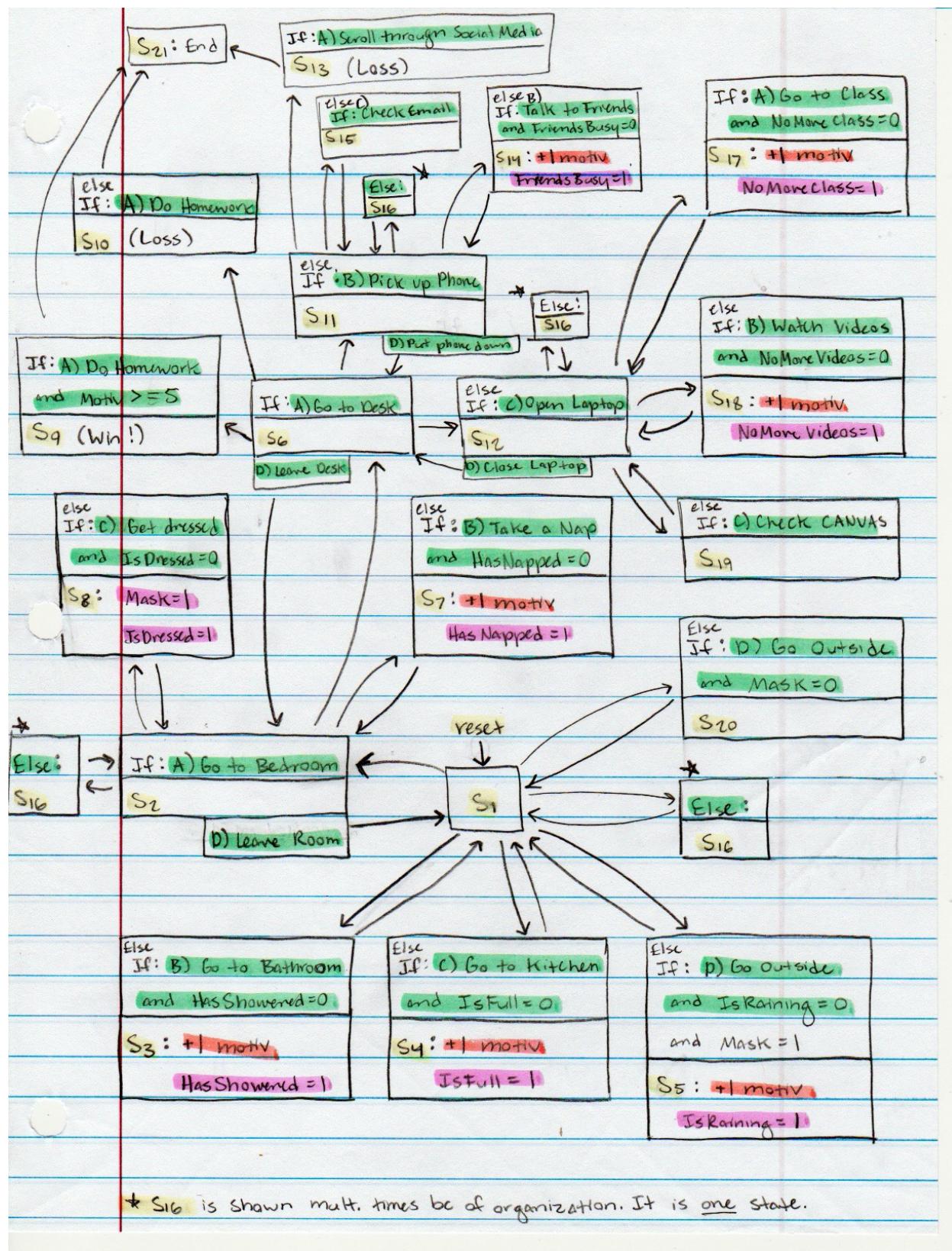
There is one way to win and end the game, and two ways to lose and end the game. All three scenario states will be sent to State 21, so that the log does not repeat winning/losing dialogue several times. When you arrive to State 21, the only way to get back to State 1 is by resetting. To win, the player must earn enough motivation, go to their bedroom, go to their desk, and do their homework. To lose, the player can either do their homework without enough motivation or choose to scroll through social media on their phone at their desk.

There are also several filler activities that have no effect on the gameplay. A player may go to these states as many times as they choose. These include, checking canvas, checking email, and trying to go outside without a mask. Players are then sent back to the previous state after arriving to any of these states.

The navigation through the game is as follows: the player will start at State 1, where they will be able to either go to their bedroom, their bathroom, their kitchen, or the outside. If the player goes to their bedroom, they can choose between going to their desk, taking a nap, getting dressed, or leaving their room. If the player goes to their desk, they can then choose to either do their homework, pick up their phone, open their laptop, or leave their desk. If the player picks up their phone, they can either scroll through social media, talk to their friends, check their email, or put down their phone. If the player chooses to open their laptop, they can either go to class, watch videos, check canvas, or close their laptop. The player is able to make their choices, or Decisions, using the following key: A=00, B=01, C=10, D=11

This is really just supposed to be a lighthearted take on what life is like for remote college students living at home right now. I tried to make jokes like “you miss making sour dough bread,” “you haven’t showered in three days,” “you accidentally took a nap for 3 hours,” and “your classmate’s cat during lecture gave you motivation.” Also, since the player can choose which ever activities they do, there are multiple ways players can win. I do acknowledge that this ended up being way more states than I originally thought it would be. This did end up being more complicated than I intended, but I guess I got a little too invested in creating it.

FSM State Diagram (Also included in a separate doc):



Links to My FSM + link to a full solution:

- This is a link to the game: <https://www.edaplayground.com/x/FGv>
- This is an example of how to win the game if all the seven activities are required to win the game: <https://www.edaplayground.com/x/8uiF>

My Post from Discussion Board:

Remote Learning: The SystemVerilog Game

Link: <https://www.edaplayground.com/x/FGv>

Description: Play this game if you want to experience a day in the life of a remote college student living with their parents in Fall 2020. To win the game, your goal is to earn enough motivation so you can get all your homework done. In this game you can enjoy things like showering, checking canvas, being on your phone for hours, and more. You can explore places like your bedroom, your desk, and the outside! This game is only partially based off my real life 😊

How to win: You need to earn motivation through doing different activities, like showering, eating/drinking water, going outside, taking a nap, talking to your friends, watching fun videos, and going to class. I have it set up so that you can win by only doing about half the activities. (The amount of motivation needed to win can be found at line 73). After you get enough motivation, you can successfully finish your homework and win!

How to lose: You can lose by either trying to do homework with an insufficient amount of motivation or scrolling through social media.

Hints:

- You can only do activities that give you motivation once
- You can do activities in any order you choose
- You'll need to find a mask in order to go outside
 - So maybe you should change out of your two-day old sweatpants first
- The Decision key is: A=00 B=01 C=10 D=11
 - If it seems like the game is not processing your ‘Decision,’ write it twice in a row (I think this may be because it needs to stay in that state for an extra clock cycle)
- If you want to challenge yourself, you can try to earn all of the possible motivation, but this might take a while because my game has 21 different states

Q/A: Did I invest too much time into this game (only to have mediocre results)? Yes.

Vedant Daga's Escape Room Explanation:

The escape room starts, and you are stuck in a room with two other people. You first have to answer a riddle about April and March, and the correct answer is “r” (option 01). Then a door opens, and you are left with a choice of either staying or leaving. There’s no need to waste time, so you’ll want to choose to go in (option 00). Then you’ll have a choice between three doors, the correct door is door 2 (option 01). There will be a bike outside the door, so you’ll have to grab it before either of the others can (option 01). You’ll arrive to room with a man with a camera and a gun. You have to act fast and grab the knife on the floor (option 00). Then you go back and rescue the two companions you left to win (option 00)! I had to see what would happen if you didn’t go back, so you can also win by leaving them behind (option 01). The only caveat is that you feel pretty guilty about it. This FSM is very linear. If you pick the right options, you’ll easily go from state 1 to 2 to 3, etc. until you get to the two winning states (6 and 7). It looks like picking the wrong choice will always bring you to state 8, the losing state.

Winning choice sequence: <https://www.edaplayground.com/x/fAHF>

1. 01
2. 00
3. 01
4. 01
5. 00
6. 00 (win) or 01 (guilty win)