# Step 1: (March 9th, 2021)

For this step, I created a terminate boolean variable initialized to false in Santa, Reindeer, and Elf. Additionally, I created a publicly accessible deferredTerminate function in SantaScenario, Santa, Reindeer, and Elf. In Santa, Reindeer, and Elf, this function sets terminate to true. In SantaScenario, deferredTerminate calls the corresponding deferredTerminate for each santa, elf, and reindeer in the scenario. Additionally, I modified the while loop in Santa, Reindeer, and Elf to only run while terminate is false (while(!terminate)), rather than to run indefinitely (while(true)). In the SantaScenario thread, I called deferredTerminate on day 370.

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# Step 2: (March 9th, 2021)

For this step, I first removed all references to reindeer in SantaScenario. Then, I modified the behavior of an Elf when it is in TROUBLE. When it is in TROUBLE, its state switches to AT\_SANTAS\_DOOR. When it is AT\_SANTAS\_DOOR, it calls a function I created in the Santa thread to wake Santa. This function sets the elfAtDoor variable (a private elf variable I created in the santa class) to the elf that called the wakeByElf function and sets the state to WOKEN\_UP\_BY\_ELVES. Then in the WOKEN\_UP\_BY\_ELVES case, santa calls the setState function in the elf class to set the elf state to WORKING and then sets the santa state to SLEEPING.

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# Step 3:

# Step 4:

# Step 5: