Assignment 5

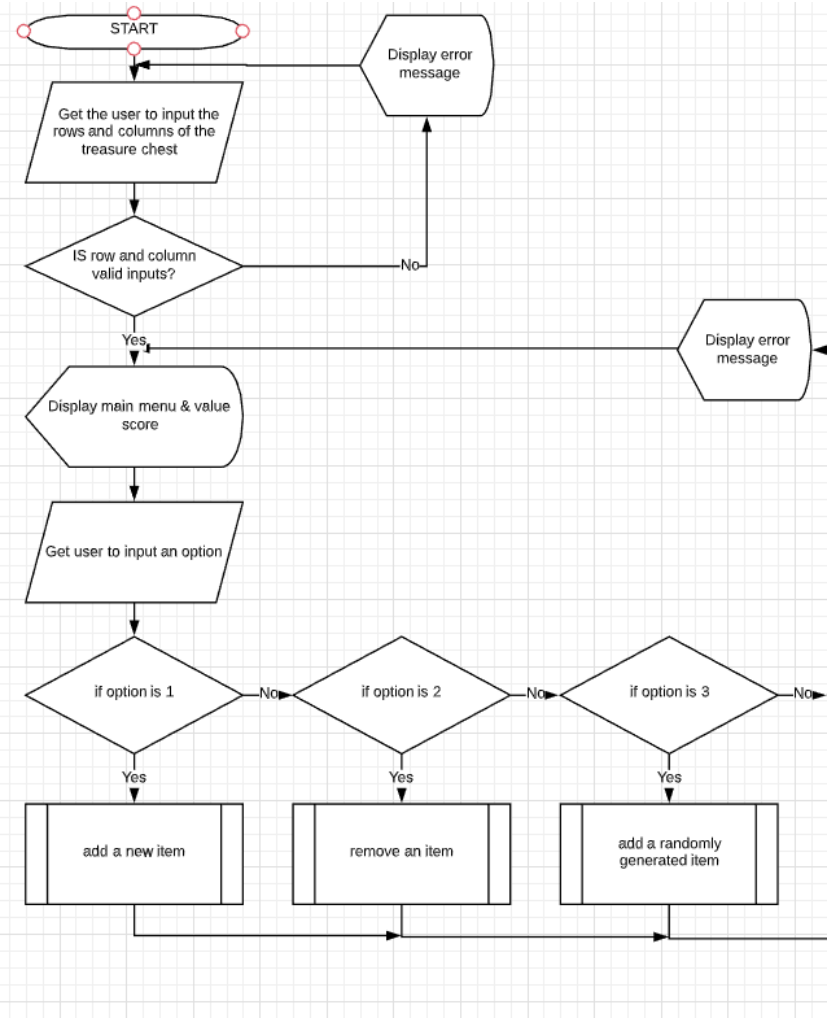
Problem statement: This program will stare 9 items in a 2-dimensional array with each item being a structure value. The user must choose a treasure chest size that is more than 1 to allow the storage of at least 1 item. The items stored in the treasure chests are hotel keys, the floor it is on, the number of beds in the room, the cost of the room per night, the existence of TV in the room. The 6 functions are as follow:

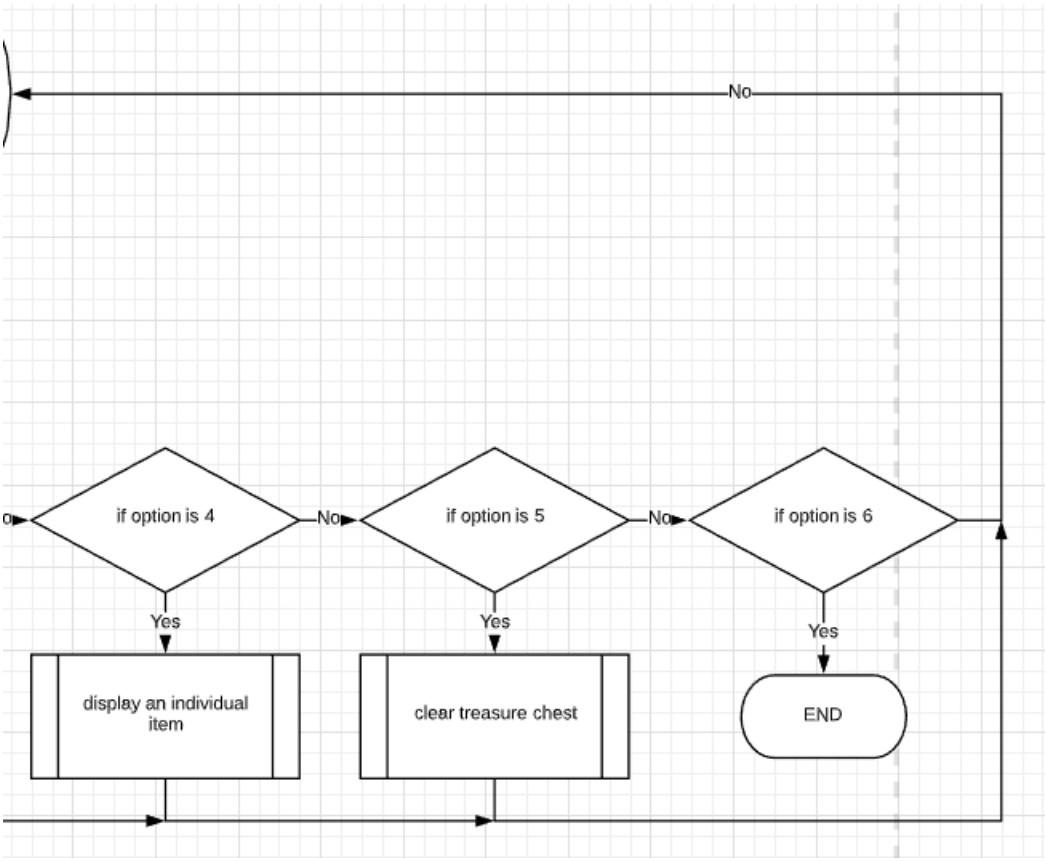
1. Add an item of the user's choice where the attribute is specified by me.
    a. Floor number – The floor number has to be a whole number and it can be in the basement(taken as a negative number).
    b. Number of beds – The room cannot have a negative number of beds.
    c. Cost of room per night– The room has to have a value of at least 1 per night.
    d. Existence of TV – Boolean value of true or false.

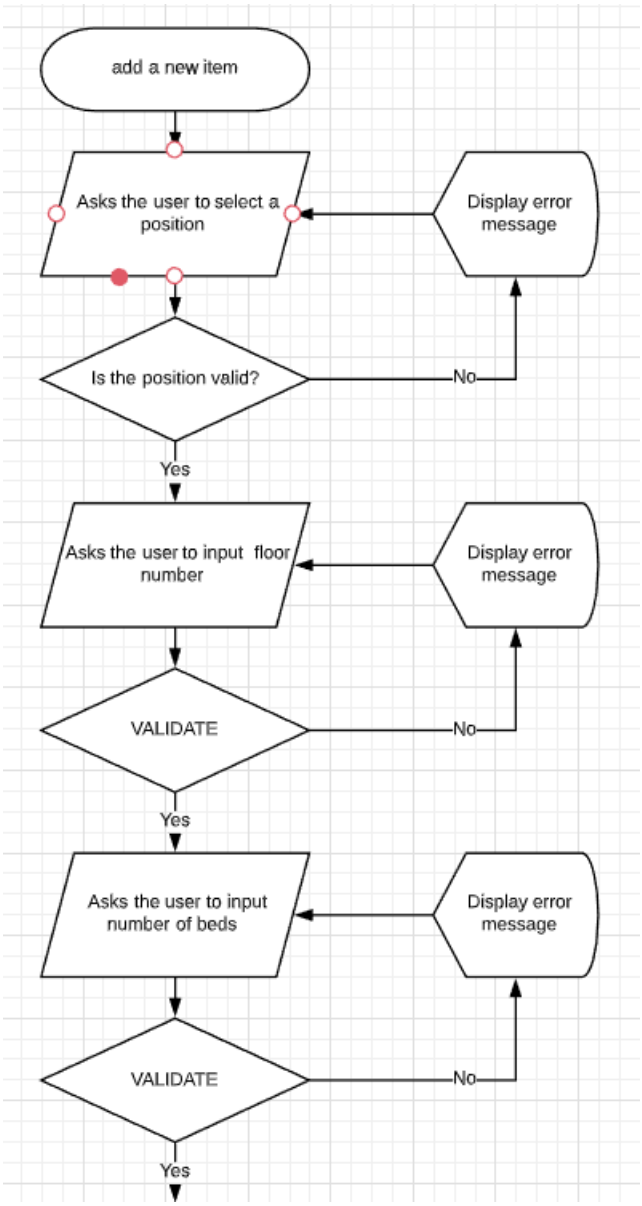
    If the item exists at the location, prompt the user it is already there; if the user wants to add an item where it is out of range, prompt the user it is out of range.
2. Remove an item from the chest if and only if the item exists at the spot. Else prompt an error message.
3. Randomly generate values for every attribute in the treasure chest spot:
    a. Floor number – Random int positive / negative
    b. Number of beds – random positive integer
    c. Costs of room – random positive float(not 0)
    d. Existence of TV – Random true or false value
4. Shows the item at the location given that the item exists. Item doesn't exist then prompt the user; item locating is not within the boundary set then prompt the user.
5. Clear every item in the treasure chest!
6. Exit the program.

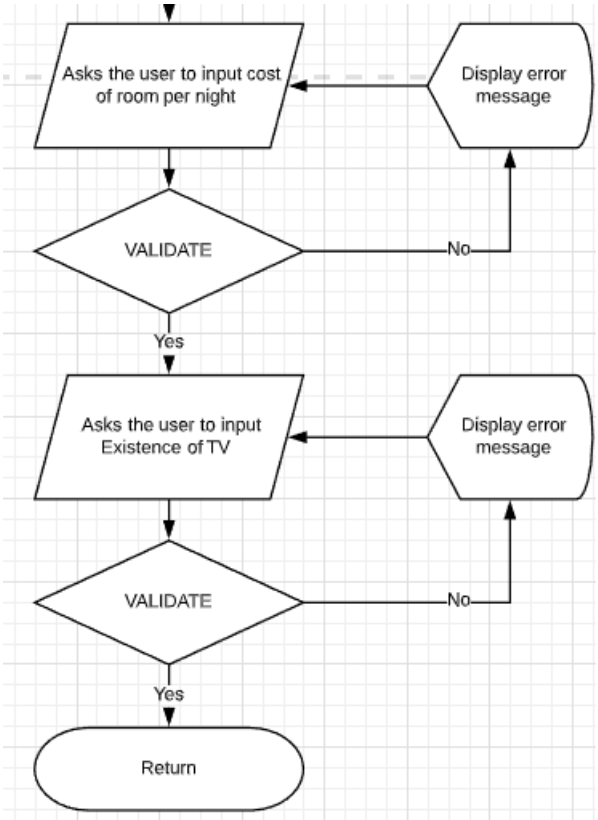
I assume that the user will enter int value for options in the menu, and so forth as indicated in the context.

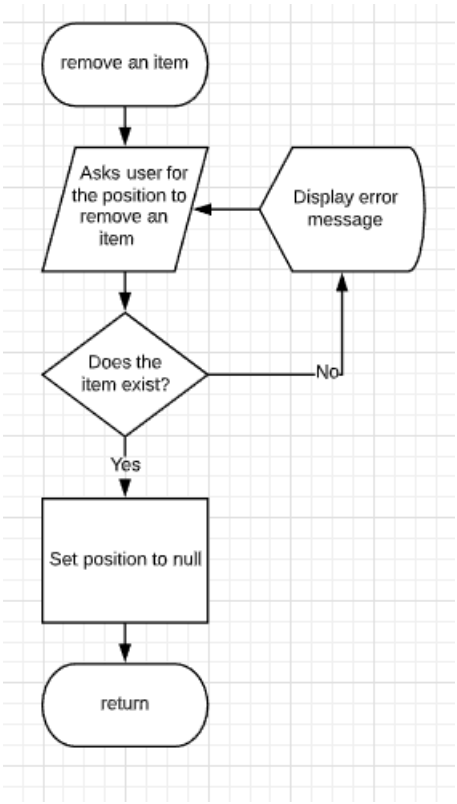
Devise a plan

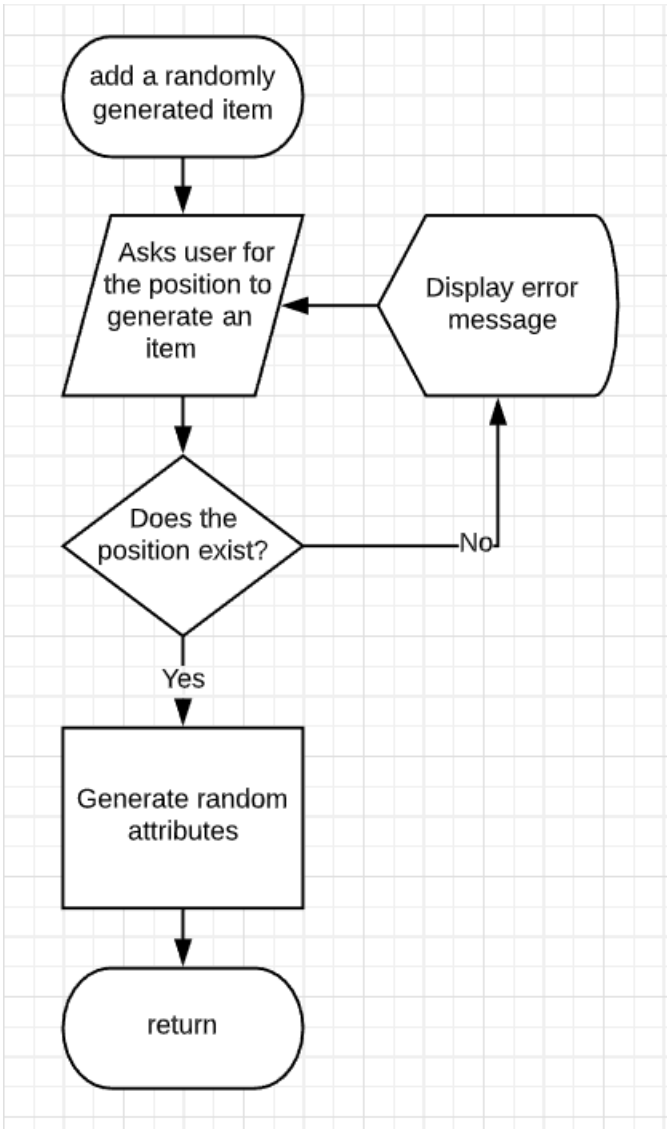


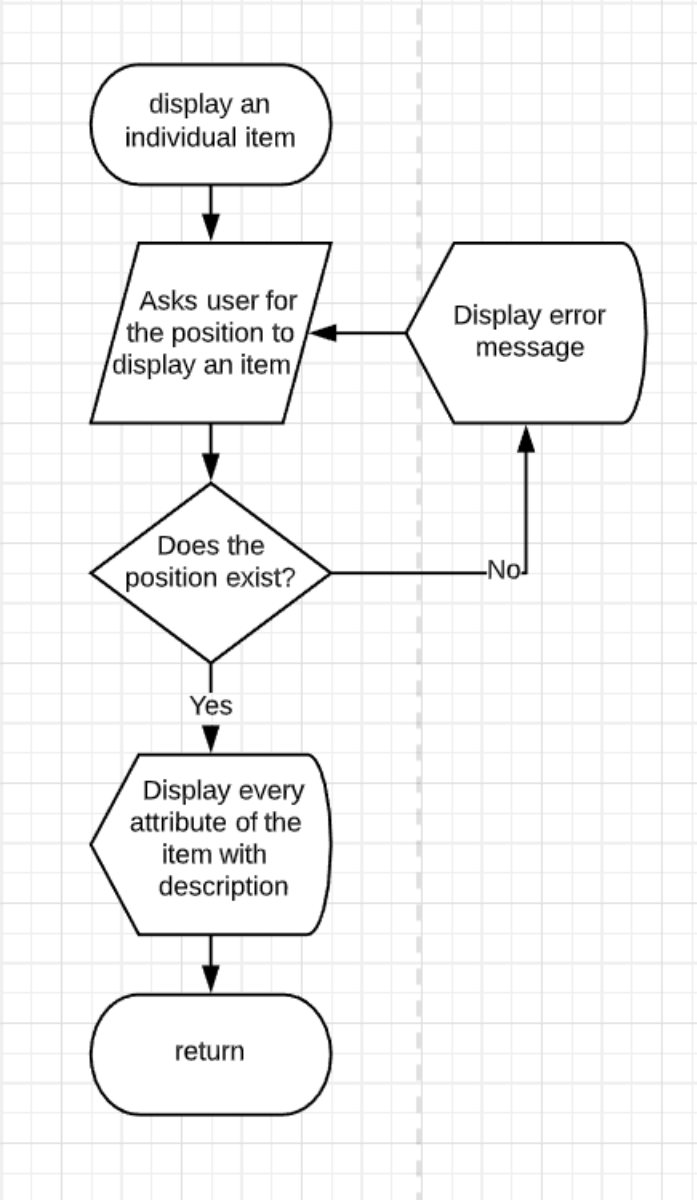

No
if option is 4
No
if option is 5
No
if option is 6
Yes
Yes
Yes
display an individual item
clear treasure chest
END

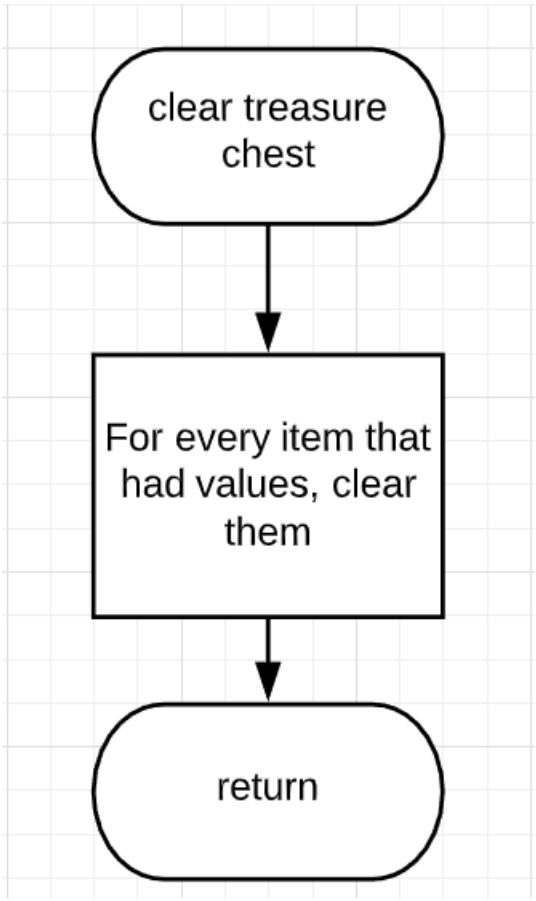

add a new item
Asks the user to select a position
Display error message
Is the position valid?
No
Yes
Asks the user to input floor number
Display error message
VALIDATE
No
Yes
Asks the user to input number of beds
Display error message
VALIDATE
No
Yes


Asks the user to input cost of room per night
Display error message
VALIDATE
No
Yes
Asks the user to input Existence of TV
Display error message
VALIDATE
No
Yes
Return


remove an item
Asks user for the position to remove an item
Display error message
Does the item exist?
No
Yes
Set position to null
return


add a randomly generated item
Asks user for the position to generate an item
Display error message
Does the position exist?
No
Yes
Generate random attributes
return


display an individual item
Asks user for the position to display an item
Display error message
Does the position exist?
No
Yes
Display every attribute of the item with description
return


clear treasure chest
For every item that had values, clear them
return

Test cases

Test Case setting	User input	Expected result
In a 3x3 treasure chest, [0][0] contains an item User chooses to remove an item	Row:1 Column:4	Output "The location [1][4] does not exist within the treasure chest!"
In a 3x3 treasure chest, [0][0] contains an item User chooses to add an item	Row:1 Column:1	Outputs "The position already has an item and cannot add another item in it."
In a 3x3 treasure chest User chooses to add an item	Row:3 Column:1	Continues to the index [2][0] to allow the user to add an item
In a 3x3 treasure chest, [0][0] contains an item User chooses to remove an item	Row:1 Column:1	The position [0][0] is cleared of the item
In a 3x3 treasure chest, only [0][0] contains an item User chooses to remove an item	Row:2 Column:1	There is not item at the location [2][1] to be removed
In a 3x3 treasure chest, [0][0] contains an item User chooses to generate an item	Row:1 Column:1	Outputs "The position already has an item and cannot add another item in it."
In a 3x3 treasure chest User chooses to generate an item	Row:2 Column:1	Generate an item at location [1][0]
In a 3x3 treasure chest User chooses to generate an item	Row:2 Column:4	Output "The location [2][4] does not exist within the treasure chest!"

In a 3x3 treasure chest, only the [1][1] location contains an item User chooses to show an item	Row:1 Column:2	Output “The location doesn’t have an item in it.”
In a 3x3 treasure chest User chooses to show an item	Row:2 Column:4	Output “The location [2][4] does not exist within the treasure chest!”
How many rows do you want in your chest	0	The treasure chest has to have at least 1 row