Program Design & Testing Document for Program 2
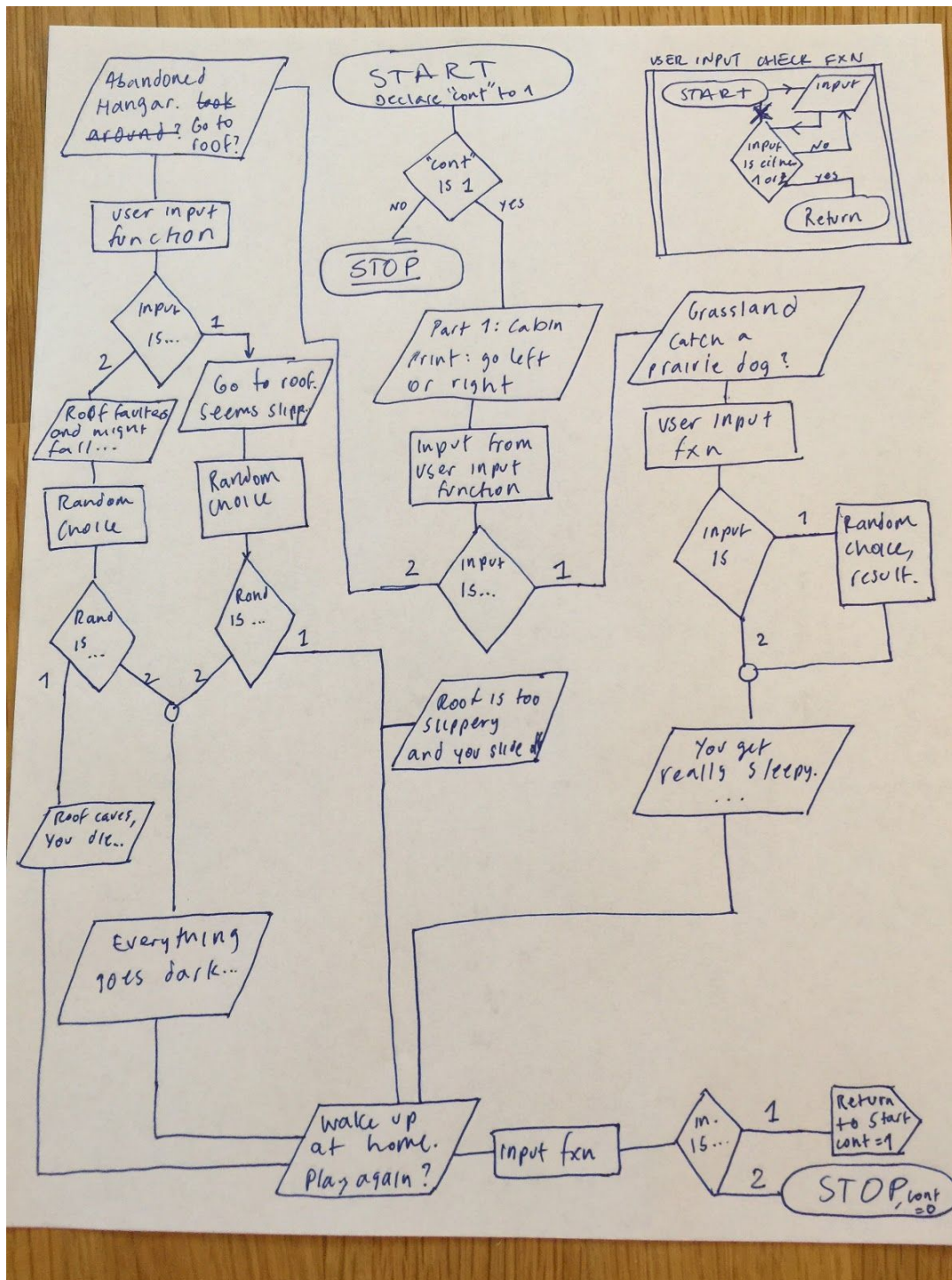# Lyell C Read

Problem Statement

Write a text based C++ adventure game. This game will take input on the range (1,2) to make a choice for each step. The program must use at least 5 if statements, with at least 1 nested if. The game must include a 'random' element of chance, changing the progression of the game somehow, and must properly display errors and re-prompt the user if valid input is not entered. The progression of this program for each question will go as follows:

- Use a while loop to keep the program running and to allow the user to restart.
- Start with a welcome message, at the first location
- For each location:
    - An option might be given, or the opportunity to experience a random event.
    - A function will be called to check user input
    - The random chance or user input will be evaluated to produce the desired result
    - The next location will start.
- The game will ask the user if they want to restart at the end of the game.

Understanding the Problem

The problem is asking me to develop a text based adventure game with multiple locations and an element of chance thrown in. I am expecting only the whole numbers 1 and 2 from the user as they make choices. This will be guaranteed using a checking function that implements a while loop to ensure that the only values that are returned are either 1 or 2.

Devising a Plan

Flowchart (hand-drawn):

- Abandoned Hangar. Look around? Go to roof?
- User input function
- Input is... → 1 / 2
- 2: Roof faulters and might fall...
- Random Choice
- Rand is ... → 1 / 2
- Roof caves, You die..
- Everything goes dark...

- START — Declare "cont" to 1
- "cont" is 1 → NO / YES
- NO → STOP
- 1: Go to roof. Seems slipp.
- Random choice
- Rand is ... → 2 / 1

- Part 1: Cabin Print: go left or right
- Input from user input function
- Input is... → 2 / 1
- Roof is too slippery and you slide off

- USER INPUT CHECK FXN
- START → input
- input is either 1 or 2 → No / Yes
- Return

- Grassland Catch a prairie dog?
- User input fxn
- Input is → 1 / 2
- 1: Random choice, result.
- You get really sleepy. ...

- Wake up at home. Play again?
- Input fxn
- m. is... → 1 / 2
- 1: Return to start, cont = 1
- 2: STOP, cont = 0

Pseudo Code

Func1:
Cin from user
While input is not either 1 or 2
        Print error message
        Cin from user
Return input

main:
Set cont to 1
While cont is 1
        Print message for part 1
        Seek user input from func1
        If input is 1
                Print grassland message and ask user if they want to catch a prairie dog
                User input from func1
                If user answered 1
                        Catch is defined to be a random int from 1 to 2
                        If it is 1
                                Print You catch a prairie dog then release it
                        Else
                                You did not catch it.
                Print you get really sleepy
        Else
                Print abandoned hangar welcome message. Climb to roof?
                Seek user input from func1
                If user input is 1
                        Print roof message, roof is slippery
                        Define slip to random from 1 to 2
                        If slip is 1
                                Print Slip and fall to ground, everything goes black
                        Else
                                Print you return inside because it is slippery. Everything goes dark
                Else if user input is 2
                        Print roof shifts and falls, everything goes dark
Print you wake up in your bed. Play again
User input from func1
Set cont to user input (1 will play again, 0 will not, 2 will not)

Testing User Input Function

Value	What Should Happen	Does This Happen
1	Do option 1	yes
2	Do option 2	yes
1.1	Return error, ask again	yes
j	Return error, ask again	yes
koala	Return error, ask again	yes
00001919130491238O	Return error, ask again	yes
	Return error, ask again	No, prints a newline instead. But does not allow the character in return so OK.