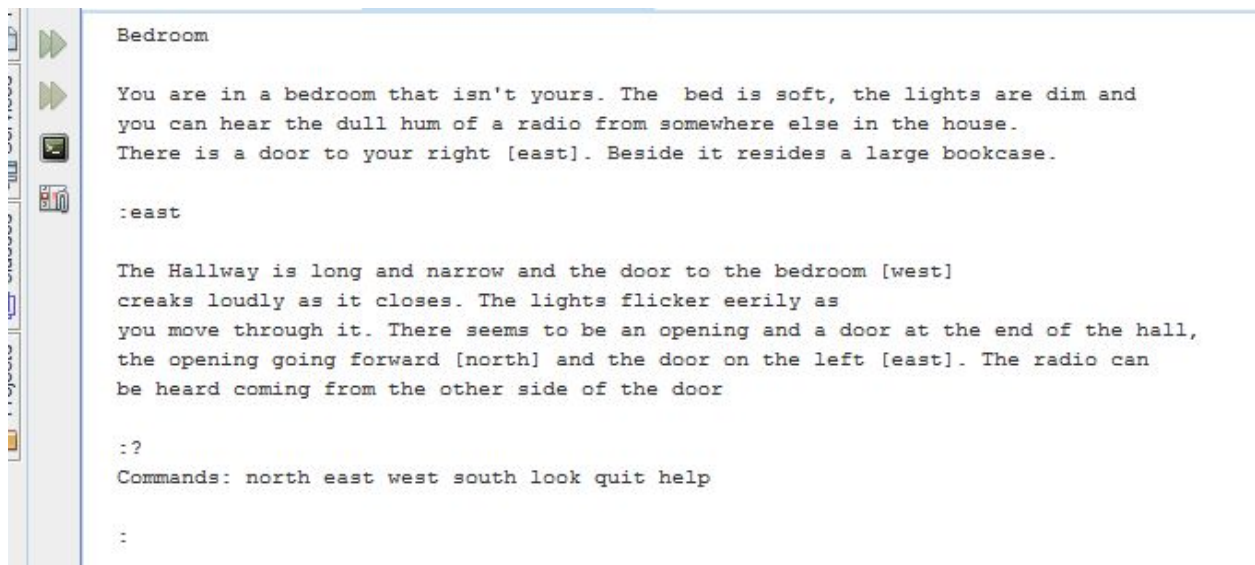# Escape the Room V2

Jourdan Joyner
CSC-5 46091
July 21 2015

Introduction

Title: Escape the Room

This game outputs a room description and allows you to navigate your way through the house. It reads in the information from a .txt file and uses the code to allow movement.


```
Bedroom

You are in a bedroom that isn't yours. The  bed is soft, the lights are dim and
you can hear the dull hum of a radio from somewhere else in the house.
There is a door to your right [east]. Beside it resides a large bookcase.

:east

The Hallway is long and narrow and the door to the bedroom [west]
creaks loudly as it closes. The lights flicker eerily as
you move through it. There seems to be an opening and a door at the end of the hall,
the opening going forward [north] and the door on the left [east]. The radio can
be heard coming from the other side of the door

:?
Commands: north east west south look quit help

:
```

Summary

Number of Lines: ~180.
Number of Variables: 14

        This project incorporates if, else if, and else statements; while loops; user and file input and output; string statements; functions; and a data structure.
The project took a lot of work to create. The functions were a bit of a hassle to try to work together and learning how to use data structures on my own took a bit of time. A large majority of the time was spent trying to make the file read in function of the project functional, due to the fact that the program would run but refuse to output the code.

        The program currently allows the user to move around the house but it is not currently beatable. I did not budget enough time to produce a item viewing function or a storage function. The plan is for the player to need to find a 4 digit code that will lead them to a key that will lead out of the house. That will be included in the final product.

Project Flowchart
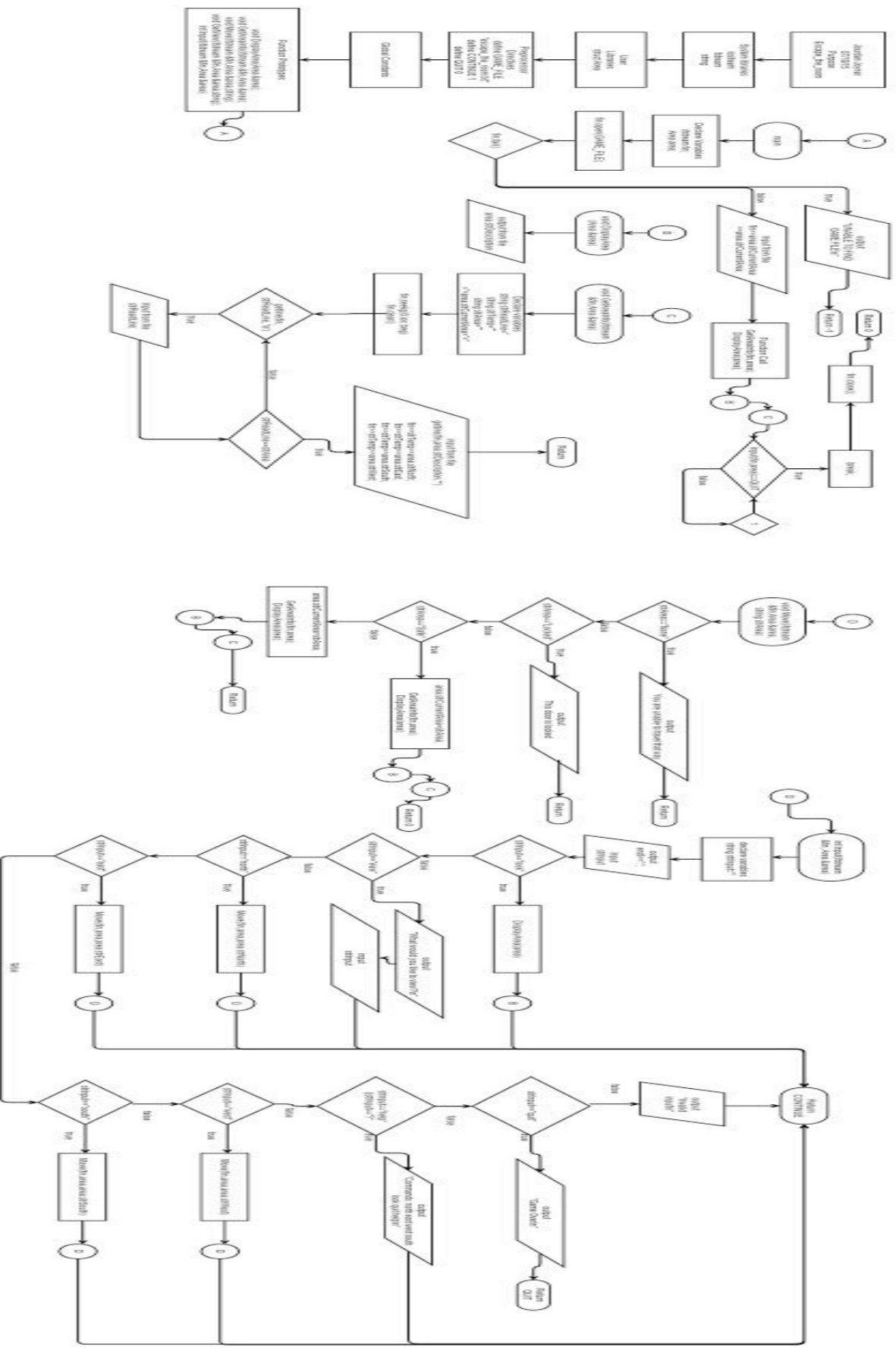
Pseudocode

execution

  defines pointer that opens and reads from file
  defines area structure data
  opens game file

  if file doesn't open quit
    return -1
  reads in the start point for the game

  calls function to receive info from the file

  calls function to display the area to the user
  main game loop equals 1

    if user enters quit, game ends
    break;

closes file

terminate
}
*/**/*
*//***************DisplayArea***************************/*
*//******Function is called to display strDescription*******/*
*/**/*

displays area description

*/**/*
*//***************GetAreaInfo***************************/*
*//******Function receives strCurrentArea and retrieves*****/*
//strDescription, strNorth, strSouth, strEast, and strWest/*
*//*************information from the file*****************/*
*/**/*

temporary strings for reading in info

ooks for the room name in brackets to find easier i.e instead of main it reads in <main>

starts the header search from the beginning of the file

allows the file to be read through multiple times

loop reads file till it finds the correct area heading
input strReadLine;
if strReadLine equals strArea

if it finds the correct area heading, it reads its info til it hits the *

Read past the direction blocks (I.E. <north>) and store the room name for that direction
reads in area to the north
reads in area to the east;
reads in area to the south;
reads in area to the west;
return;

```
/******************************************************/
//*******************Move***********************/
//******Function is called to move through the************/
//****game if there is an area in that direction**********/
/******************************************************/
```

if strArea equals None detects if there is no area in the direction inputted

displays error message and returns the function
return;
}
if strArea equals Locked

Displays error message if a locked door is approached
return;
else{
Sets the current area to the new one

Calls function to pass in the file pointer so the new area data is read
Calls function to display current area

/***/
//*******************Input******************************/
//******Main game mechanic feature. Receives *************/
//****user input and reacts to it accordingly to *********/
//*******progress through the game***********************/
/***

define variable that holds user input

display prompt
reads in the user input

   if input equals look calls function to give current area description
   else if input equals view asks what user wants to view and inputs value
   else if input equals north calls function to move north if possible
   else if input equals east calls function to move east if possible
   else if input equals calls function to move west is possible
   else if input equals south calls function to move south if possible
   else if input equals help or ? display commands to user
   else if input equals quit, ends game
   else display when invalid input is received
      return CONTINUE;

Major Variables

Type	Variable Name	Description	Location
string	strCurrentArea	name of current area	struct Area
	strDescription	description of current area	struct Area
	strNorth	name of area to the north	struct Area
	strEast	name of area to the east	struct Area
	strWest	name of area to the west	struct Area
	strSouth	name of area to the south	struct Area
	strView	name of item to view	struct Area
	strReadLine	storage for the current line of text	void GetAreaInfo()

	strTemp	temporary for reading in info	void GetAreaInfo()
	strArea	looks for the room name in brackets to find easier	void GetAreaInfo()
	strInput	receives user input	int Input()
ifstream	fin	pointer that opens the file and reads data in	int main()
Area	area	area structure data	int main()

Reference
- Gaddis 7th Edition
- Savitch 9th Edition
- The communities of:
   - sourceforge.net
   - cplusplus.com
   - reddit.com/r/cpp

Program

```
/*
 * File:   mainV2.cpp
 * Author: Jourdan Joyner
 * Created on July 21, 2015, 2:37AM
 * Purpose: C++ Project
 */

//file libraries
#include <iostream>
#include <fstream>
#include <string>
using namespace std;

#define GAME_FILE "escape_the_house.txt"//read in for the world data
#define CONTINUE    1
#define QUIT        0

//user libraries
struct Area{//structure that holds the info for the main area
```

```cpp
        string strCurrentArea;//name of current area
        string strDescription;//description of current area
        string strNorth;//name of area to the north
        string strEast;//name of area to the south
        string strSouth;//name of area to the east
        string strWest;//name of area to the west
        string strView;//name of item to view
};
//global constants

//function prototypes
void DisplayArea(Area &area);
void GetAreaInfo(ifstream &fin,Area &area);
void Move(ifstream &fin,Area &area,string);
void GetView(ifstream &fin,Area &area,string);
int Input(ifstream &fin,Area &area);
//execution
int main(){

    ifstream fin;//pointer that opens and reads from file
    Area area;//area structure data
    fin.open(GAME_FILE);

    if(fin.fail()){//if file dosent open quit
        cout<<"UNABLE TO FIND GAME FILE\n";

        return -1;
    }
    fin>>area.strCurrentArea>>area.strCurrentArea;//reads in the start point for the game
     cout<<area.strCurrentArea<<endl;

    GetAreaInfo(fin,area);//calls function to receive info from the file

    DisplayArea(area);//calls function to display the area to the user

    while(1){//main game loop


        if(Input(fin,area)==QUIT){//if user enters quit, game ends
```

```cpp
            break;
        }
    }

    fin.close();//closes file

    return 0;
}
/*****************************************************/
//***************DisplayArea************************/
//******Function is called to display strDescription******/
/*****************************************************/
void DisplayArea(Area &area)
{
    cout<<area.strDescription<<endl;//displays area description
}
/*****************************************************/
//***************GetAreaInfo***********************/
//******Function receives strCurrentArea and retrieves*****/
//strDescription, strNorth, strSouth, strEast, and strWest*/
//*************information from the file****************/
/*****************************************************/
void GetAreaInfo(ifstream &fin,Area &area){

    string strReadLine="";
    string strTemp="";//temporary for reading in info

    string strArea="<"+area.strCurrentArea+">";//looks for the room name in brackets to
find easier i.e instead of main it reads in <main>

    fin.seekg(0,ios::beg);//starts the header search from the beginning of the file

    fin.clear();//allows the file to be read through multiple times

    while(getline(fin, strReadLine, '\n')){//while loop reads file til it finds the correct area
heading
        fin>>strReadLine;
        if(strReadLine==strArea){
```

```cpp
        getline(fin,area.strDescription,'*');//if it finds the correct area heading, it reads its
info  til it hits the *

        // Read past the direction blocks (I.E. <north>) and store the room name for that
direction
        fin>>strTemp>>area.strNorth;
        fin>>strTemp>>area.strEast;
        fin>>strTemp>>area.strSouth;
        fin>>strTemp>>area.strWest;//it then read in the surrounding area titles by
skipping their <area> descriptors
        fin>>strTemp>>area.strView;

        return;
    }
  }
}
/********************************************************/
//*******************Move***********************/
//******Function is called to move through the************/
//****game if there is an area in that direction**********/
/********************************************************/
void Move(ifstream &fin,Area &area, string strArea){

  if(strArea=="None"){//detects if there is no area in the direction inputted


      cout<<"You are unable to travel that way\n";//displays error message and returns
the function
      return;
    }
  if(strArea=="Locked"){

      cout<<"This door is locked.\n";//Displays error message if a locked door is
approached
      return;
    }
  if(strArea=="Safe2"){
    area.strCurrentArea=strArea;// Sets the current area to the new one
```

```
        GetAreaInfo(fin, area);        // Passes in the file pointer so the new area data is
read

        DisplayArea(area);// Displays current area

    //****  return QUIT;
    }
    else{

        area.strCurrentArea=strArea;// Sets the current area to the new one

        GetAreaInfo(fin, area);        // Passes in the file pointer so the new area data is
read

        DisplayArea(area);// Displays current area

    }
}
/*******************************************************/
//******************Input****************************/
//******Main game mechanic feature. Receives **************/
//****user input and reacts to it accordingly to *********/
//*******progress through the game***********************/
/*******************************************************/
int Input(ifstream &fin, Area &area){

    string strInput="";//holds user input

    cout<<endl<<":";//displays prompt
    cin>>strInput;//reads in the user input

    if(strInput=="look"){
        DisplayArea(area);//calls function to give current area description
    }
    else if(strInput=="view"){
        cout<<"What would you like to view?\n";
        cin>>strInput;
    }
    else if(strInput=="north"){
```

```cpp
        Move(fin,area,area.strNorth);//calls function to move north if possible
    }
    else if(strInput=="east"){
        Move(fin,area,area.strEast);//calls function to move east if possible
    }
    else if(strInput=="west"){
        Move(fin,area,area.strWest);//calls function to move west is possible
    }
    else if(strInput=="south"){//calls function to move south if possible
        Move(fin,area,area.strSouth);
    }
    else if(strInput=="help"||strInput=="?"){//displays commands to user
        cout<<"Commands: north east west south look quit help\n";
    }
    else if(strInput=="quit"){//ends game
        cout<<"Game Over\n";
        return QUIT;
    }
    else{//displays when invalid input is received
        cout<<"Invalid input\n";
    }

    return CONTINUE;
}
```

Read In file text.

<Start> Bedroom

<Bedroom>
You are in a bedroom that isn't yours. The bed is soft, the lights are dim and
you can hear the dull hum of a radio from somewhere else in the house.
There is a door to your right [east]. Beside it resides a large {bookcase}.*
<north> None
<east> Hallway
<south> None
<west> None
<view> 1 bookcase

<Bedroom|bookcase>
The bookcase contains many books of different shapes and sizes. You go to pick one up only to find
that the books will not budge. You keep trying different books until you finally free one from the case.
The book is a journal, you open it up to find only one thing written within its bindings, "Youre 1st. #1!"
You put the book back where you found it and continue on.*

<Hallway>
The Hallway is long and narrow and the door to the bedroom [west]
creaks loudly as it closes. The lights flicker eerily as
you move through it. There seems to be an opening and a door at the end of the hall,
the opening going forward [north] and the door on the left [east]. The radio can
be heard coming from the other side of the door*
<north> LivingRoom
<east> Locked
<south> None
<west> Bedroom

<LivingRoom>
The Hallway [south] takes you out into the living room. It is spacious and has a very cozy
feel to it. There are many comfortable sofas and expensive looking {art} [north] hangs from the walls.
The only window is a skylight, shining in the warm rays of the sun. The front door stands on the wall to the right
[east] and the entrance to the kitchen [west] is to the left*
<north> Artwork
<east> Locked
<south> Hallway
<west> Kitchen
<view> 1 art

<LivingRoom|art>
The art piece is nice, but not really your taste.*

<Artwork>

You move across the room, closer to one of the hanging masterpieces and realize that it is crooked.
You try to fix this but as soon as you touch the painting it falls to the ground,
exposing a safe[north].*
<north> Safe
<east> None
<south> LivingRoom
<west> None
<view> 1 safe

<Artwork|safe>
There was a safe hidden behind one of the hanging pictures.*

<Safe>
The safe is small and electronic. It has a 4-digit pin and is asking for an input.
ENTER SAFE PIN*
<north> None
<east> None
<south> LivingRoom
<view> None
<1597> Safe2

<Kitchen>
Moving through the living room, [east] You cautiously enter the empty kitchen. The cabinets are open
and empty, as though recently searched. The {backdoor} [west] has been boarded over.
There is a fridge [north] sitting upon the opposite wall, closed and unassuming.*
<north> Fridge
<east> LivingRoom
<south> None
<west> Locked
<view> 1 glassdoor

<Kitchen|glassdoor>
The door has been boarded up from the outside. It looks pretty well done. On the boards, In red spray paint,
a message reads "_ _ _ 7"*

<Fridge>

The refrigerator hums with power. The inside of the fridge is empty, except for some condiments.
On the outside of the fridge, there is a {photo} of a lighthouse atop a mountain overlooking a vast desert.*
<north> None
<east> None
<south> Kitchen
<west> None
<view> 1 photo

<Fridge|photo>
The lighthouse photo is very strange, yet captivating. As you hold it in your hands you realise that there is
a sentence written on the back. "Nine is 3rd".*

<Safe2>
You open the safe to find a ticking bomb. As you try to backpedal out of the way but you aren't quick enough.
The bomb explodes and you are caught in the explosion.*