Project 1
Chutes and Ladders

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Introduction

Chutes and Ladders

Chutes and Ladders is a simple boardgame where the ultimate goal is to reach the number 100. In order to do such, the player must roll a die and move their character. If the player lands on a number with a ladder symbol on it, the player must go up to the top of the ladder. If the player lands on a number with a chute (slide or snake depending on the version), the player must go down it until it ends. For example, landing on the number 80 is a ladder all the way up to number 100. The traditional game can have up to 4 players, but my version only has up to 2 players.

Summary

Project Size: 500+ lines
Number of variables: 18

The first way I went about this was using an if-statement to separate from one player to two players. I switched this to a switch-statement, but ran into trouble, so I had to include an if statement in order to fix this bug. Inside both versions for one player and two players, I included a for loop in order control the amount of times the game played. Both versions include testing for chutes and ladders. For two players, this was done twice, once for each player.

The number a player lands on cannot go over 100, so if a player rolls above it, I included a while-loop in order to make them backtrack. In a sense, that player loses their turn if this happens, and must let the other player go next.

The variables win1 and win2 is to determine who has won in that round, player 1 or player 2. The variables cwin1 and cwin2 are used to count the amount of wins a player has accumulated, so that it can be displayed at the end of the program.

While I didn't have to worry about ending a certain player's turn in the version with only one player, I did have to worry about who's turn it was in the two-player version. Therefore, I created the bool variables end1 and end2. They are used to determine who's turn in true and who's is false.

Lastly, I outputted the number of players, the number of games, and the number of wins each player had. I outputted this both into the standard output, and into the file.

Psuedo Code

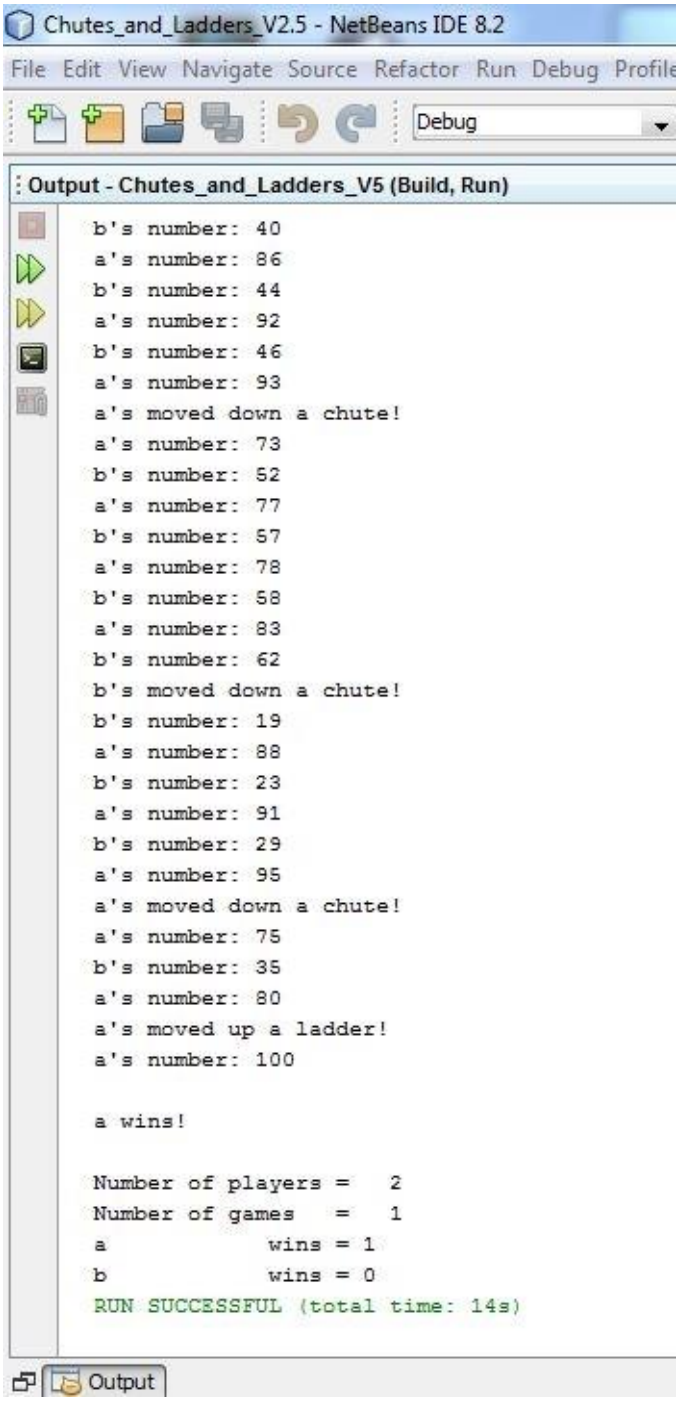
```
/*
* File:   main.cpp
* Author: Nellie Garcia
* Created on April 13th, 2019, 1:30 PM
* Purpose:  Chutes and Ladders Psuedocode
*/

//System Libraries
//Input/Output Library
//C Standard Library - Random Number
//Time Library
//Format Library
//Math Library
//File Library
//String Library
//Namespace std

//User Libraries

//Global Constants, no Global Variables are allowed
//Math/Physics/Conversions/Higher Dimensions - i.e. PI, e, etc...

//Function Prototypes

//Execution Begins Here!
    //Set the random number seed

    //Declare Variables
    //Die input
    //Number of players
    //Place for player 1
```

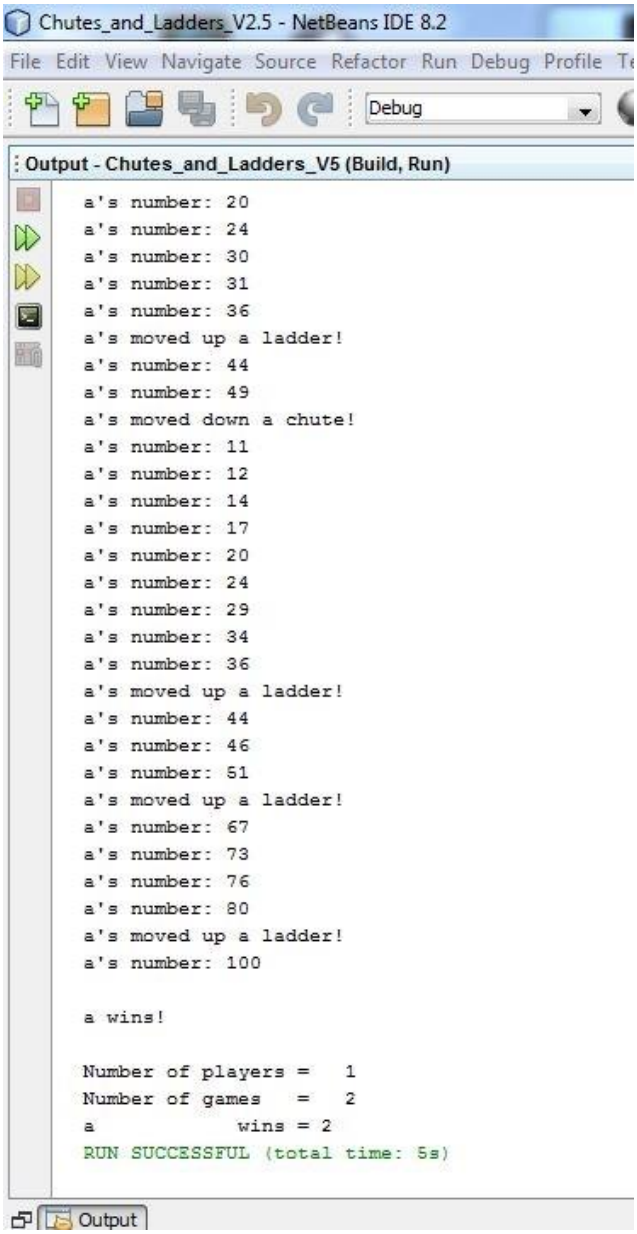
```
//Place for player 2
//Counting first player's wins
//Counting second player's wins
//Number of games
//Win/Lose for player 1
//Win/Lose for player 2
//End first player's turn
//End second player's turn
//Name of first player
//Name of second player
//Input file
//Output file

//Initialize or input i.e. set variable values
//Set number of players
//Validating user input
//Set number of games
//Round to integer
//Open input file
//Open output file

//Map inputs -> outputs
//Determine game by using switch statement
   //One player

         //Entering names

         //For loop for number of games

            //Reset place and wins

            //Begin game

               //Place cannot go over 100
```

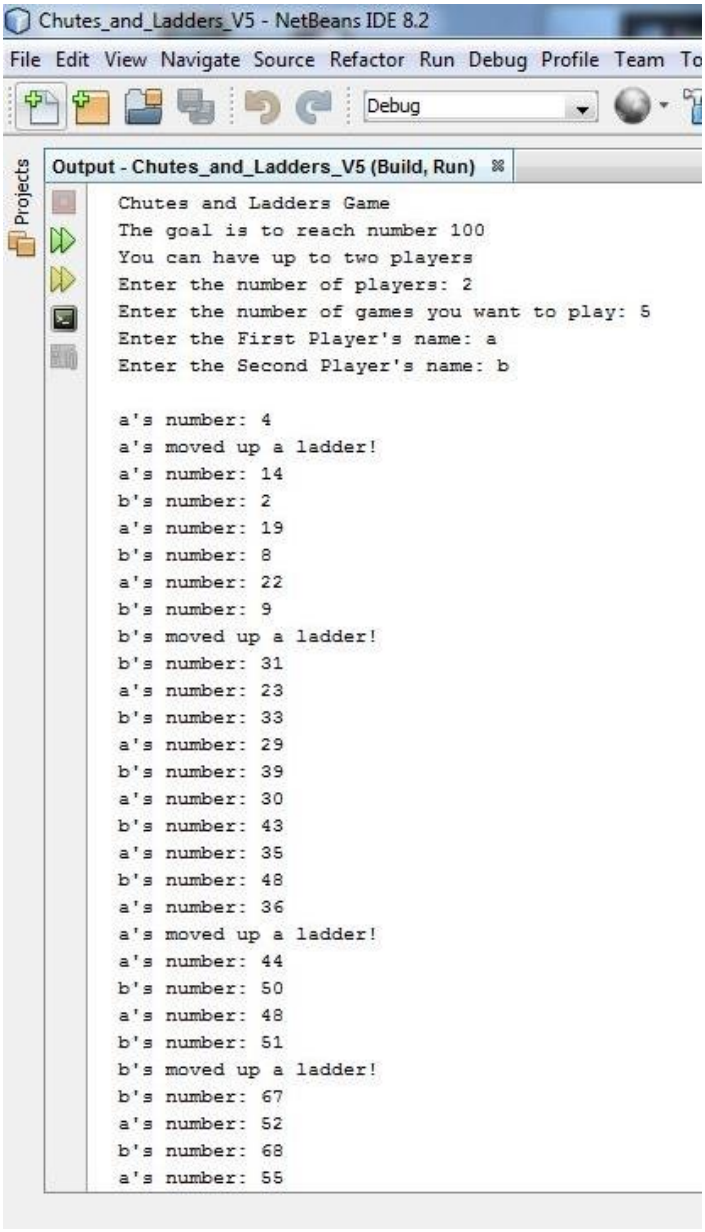
```
            //Testing chutes and ladders
            //Use if-else-if statements

            //Output place1

            //Win Determination

        //Display who wins
        //Output the winner

//Two players

    //Entering names

    //For loop for number of games

        //Reset place, wins, and ends

        //Loop turns in order

            //First player's turn

                //Place cannot go over 100

                //Testing chutes and ladders

                //Output place1

                //Win Determination - Ternary Operator

                //End first player's turn

                //End of game?
```

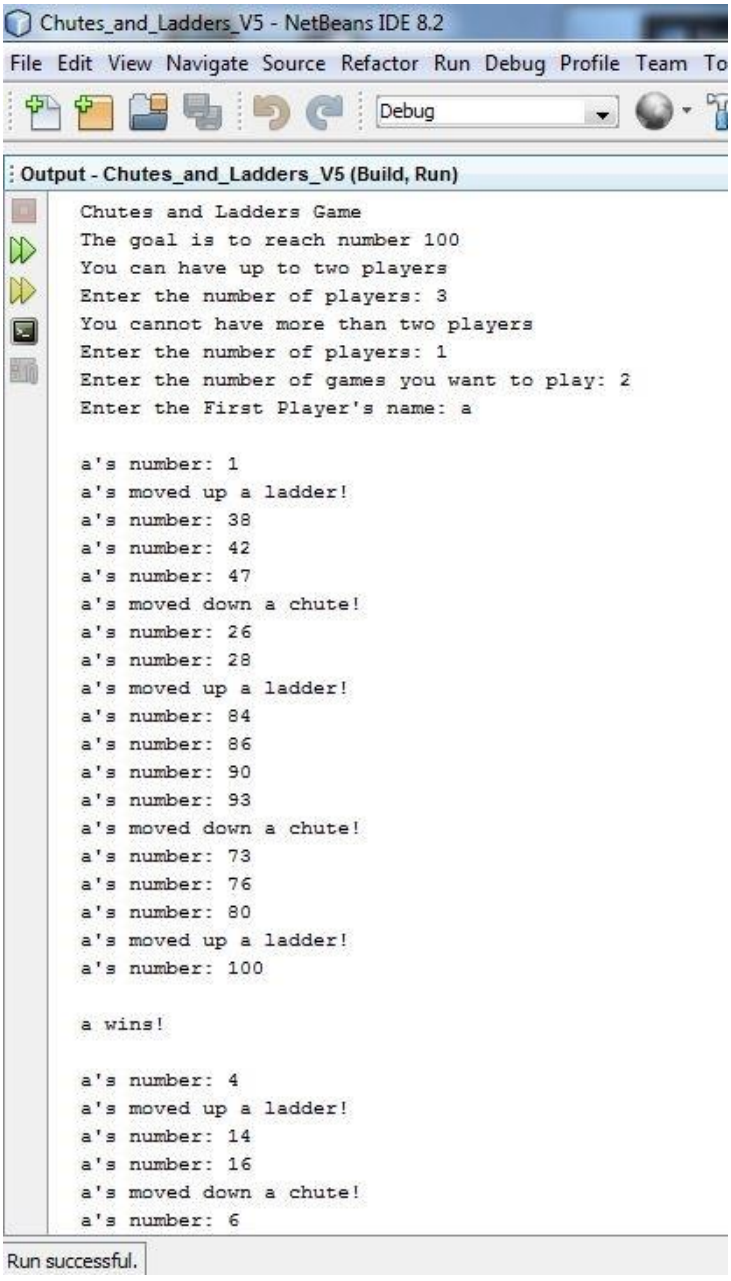
```
            //Second player's turn

                //Place cannot go over 100

                //Testing chutes and ladders

                //Output place2

                //Win Determination

                //End second player's turn

        //Display who wins

    //Output results

    //Output results to file

    //Exit stage right or left!
}
```

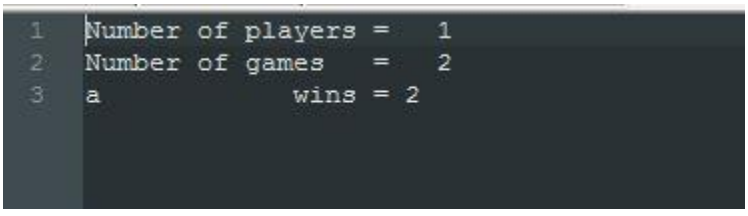
Screenshots




Chutes_and_Ladders_V2.5 - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile
Debug
Output - Chutes_and_Ladders_V5 (Build, Run)
a's number: 20
a's number: 24
a's number: 30
a's number: 31
a's number: 36
a's moved up a ladder!
a's number: 44
a's number: 49
a's moved down a chute!
a's number: 11
a's number: 12
a's number: 14
a's number: 17
a's number: 20
a's number: 24
a's number: 29
a's number: 34
a's number: 36
a's moved up a ladder!
a's number: 44
a's number: 46
a's number: 51
a's moved up a ladder!
a's number: 67
a's number: 73
a's number: 76
a's number: 80
a's moved up a ladder!
a's number: 100
a wins!
Number of players = 1
Number of games = 2
a wins = 2
RUN SUCCESSFUL (total time: 5s)
Output


Chutes_and_Ladders_V5 - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team To
Debug
Projects
Output - Chutes_and_Ladders_V5 (Build, Run)
Chutes and Ladders Game
The goal is to reach number 100
You can have up to two players
Enter the number of players: 2
Enter the number of games you want to play: 5
Enter the First Player's name: a
Enter the Second Player's name: b
a's number: 4
a's moved up a ladder!
a's number: 14
b's number: 2
a's number: 19
b's number: 8
a's number: 22
b's number: 9
b's moved up a ladder!
b's number: 31
a's number: 23
b's number: 33
a's number: 29
b's number: 39
a's number: 30
b's number: 43
a's number: 35
b's number: 48
a's number: 36
a's moved up a ladder!
a's number: 44
b's number: 50
a's number: 48
b's number: 51
b's moved up a ladder!
b's number: 67
a's number: 52
b's number: 68
a's number: 55


Chutes_and_Ladders_V5 - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team To
Debug
Output - Chutes_and_Ladders_V5 (Build, Run)
Chutes and Ladders Game
The goal is to reach number 100
You can have up to two players
Enter the number of players: 3
You cannot have more than two players
Enter the number of players: 1
Enter the number of games you want to play: 2
Enter the First Player's name: a
a's number: 1
a's moved up a ladder!
a's number: 38
a's number: 42
a's number: 47
a's moved down a chute!
a's number: 26
a's number: 28
a's moved up a ladder!
a's number: 84
a's number: 86
a's number: 90
a's number: 93
a's moved down a chute!
a's number: 73
a's number: 76
a's number: 80
a's moved up a ladder!
a's number: 100
a wins!
a's number: 4
a's moved up a ladder!
a's number: 14
a's number: 16
a's moved down a chute!
a's number: 6
Run successful.


1 Number of players = 1
2 Number of games = 2
3 a wins = 2

Output.dat