Project 2

Card-Jitsu

CIS-5

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TABLE OF CONTENTS

Introduction

Card-Jitsu made its debut in 2008 as a card game in the online multiplayer game Club Penguin. As Club Penguin's player base expanded, Card-Jitsu saw new card decks and new modes focusing on the three different elements. On March 30th of 2017, Club Penguin was discontinued.

I used this project to recreate as many elements of the card game as I could. The elements of the game that I was able to replicate were the literal Elements: Fire, Water, and Snow, as well as the numbered cards.

How to Play Card-Jitsu

Card-Jitsu uses a Rock Paper Scissors or Element Triangle system where each element counters another. For example, if player one chooses Fire and player two chooses Water, then Water will beat Fire and player two will be the victor. An image example:

In the original game, when both players chose the same element then the card with the highest number will win. Unfortunately, this is not present in my build of the game. Now, when two players have the same element, it will result in a draw. (Hopefully to be fixed in the next release)

The Project

Version 1

For the first version of my project 2, I first toyed around with implementing functions. At first I struggled to get them to work properly, but eventually I got it to work. I felt good about it because it made the code look so much cleaner

Version 2

The second version of the project was very simple as I only implemented an exit function and allowed the player to play the game as many times as they want as long as they enter Y (or y).

Version 2 ended with 154 lines of code.

Pseudocode

#include <iostream> //Input Output Library

#include <iomanip> //Formatting Library

#include <fstream> //File Stream

#include <cstdlib>

#include <ctime>

Function Prototypes:

String P1Cards(string), String P2Cards(string);

Set Random Number Seed

Declare Variables

Char con;

String player1, player2, first, second;

Ifstream inp;

String instru;

Output: "Welcome to Card-Jitsu"

Open File: "Instructions.txt"

Output: "Card-Jitsu is a 2 player card game. There are three elements: Fire, Snow, and Water. Each card contains one of these elements and a number 1-12. Fire beats Snow, Snow beats Water, and Water beats Fire. When both players select the same element, the card with the highest number will win."

Ask player to press any button to continue

Begin Player 1 Phase:

Call from function:

P1Cards(pcards)

Ask the player to select from the 5 cards.

Begin Player 2 Phase:

Call from function:

P2Cards(pcards);

Ask the player to select from the 5 cards.

For Player 1: Assign cards F1-F12 to "Fire", Assign cards S1-S12 to "Snow", Assign the rest of the cards to "Water".

For Player 2: Assign cards F1-F12 to "Fire", Assign cards S1-S12 to "Snow", Assign the rest of the cards to "Water".

If Player 1 and Player 2 choose the same card the outcome is a Draw.

If Player 1 chooses Fire and Player 2 chooses Snow{

Output: "Fire beats Snow. Player 1 Wins." }

If Player 1 chooses Snow and Player 2 chooses Fire{

Output: "Fire beats Snow. Player 2 Wins."}

If Player 1 chooses Water and Player 2 chooses Fire{

Output: "Water beats Fire. Player 1 Wins." }

If Player 1 chooses Fire and Player 2 chooses Water{

Output: "Water beats Fire. Player 2 Wins."}

If Player 1 chooses Snow and Player 2 chooses Water{

Output: "Snow beats Water. Player 1 Wins." }

If Player 1 chooses Water and Player 2 chooses Snow{

Output: "Snow beats Water. Player 2 Wins."}

If Player 1 and Player 2 choose the same element the outcome is a Draw.

String P1Cards(string cards){

Set random number seed

srand(static_cast<unsigned int>(time(0)));

Declare Variables

Unsigned short vC1, vC2, vC3, vC4, vC5;

Unsigned char nCards;

Fstream input;

String card1, card2, card3, card4, card5, file1, file2;

Initialize Variables

nCards=36;

vC1=rand()%nCards+1;

Initialize File Parameters

file1="card.dat";

input.open(file1.c_str(),ios::in);

Generate the Cards:

Do {

Randomize Cards

}While Card 1 and Card 2 are the same

Order the cards

Repeat the process until 5 cards are ordered.

Pull Cards from file and match them to the random generated cards.

Return the string of 5 Cards;

String P2Cards(string cards){

Set random number seed

srand(static_cast<unsigned int>(time(0)));

Declare Variables

Unsigned short vC1, vC2, vC3, vC4, vC5;

Unsigned char nCards;

Fstream input;

String card1, card2, card3, card4, card5, file1, file2;

Initialize Variables

nCards=36;

vC1=rand()%nCards+1;

Initialize File Parameters

file1="card.dat";

input.open(file1.c_str(),ios::in);

Generate the Cards:

Do {

Randomize Cards

}While Card 1 and Card 2 are the same

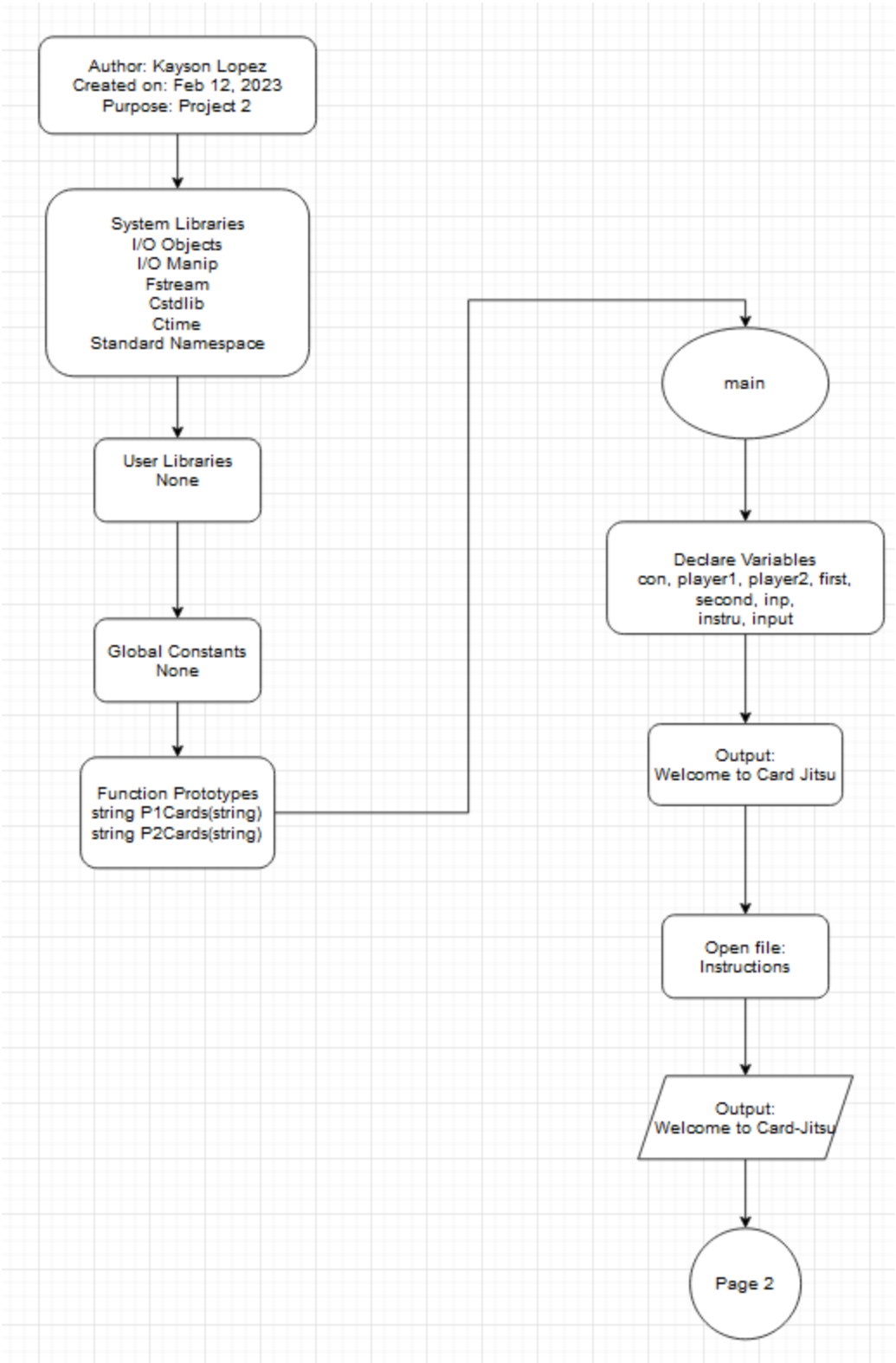
Order the cards

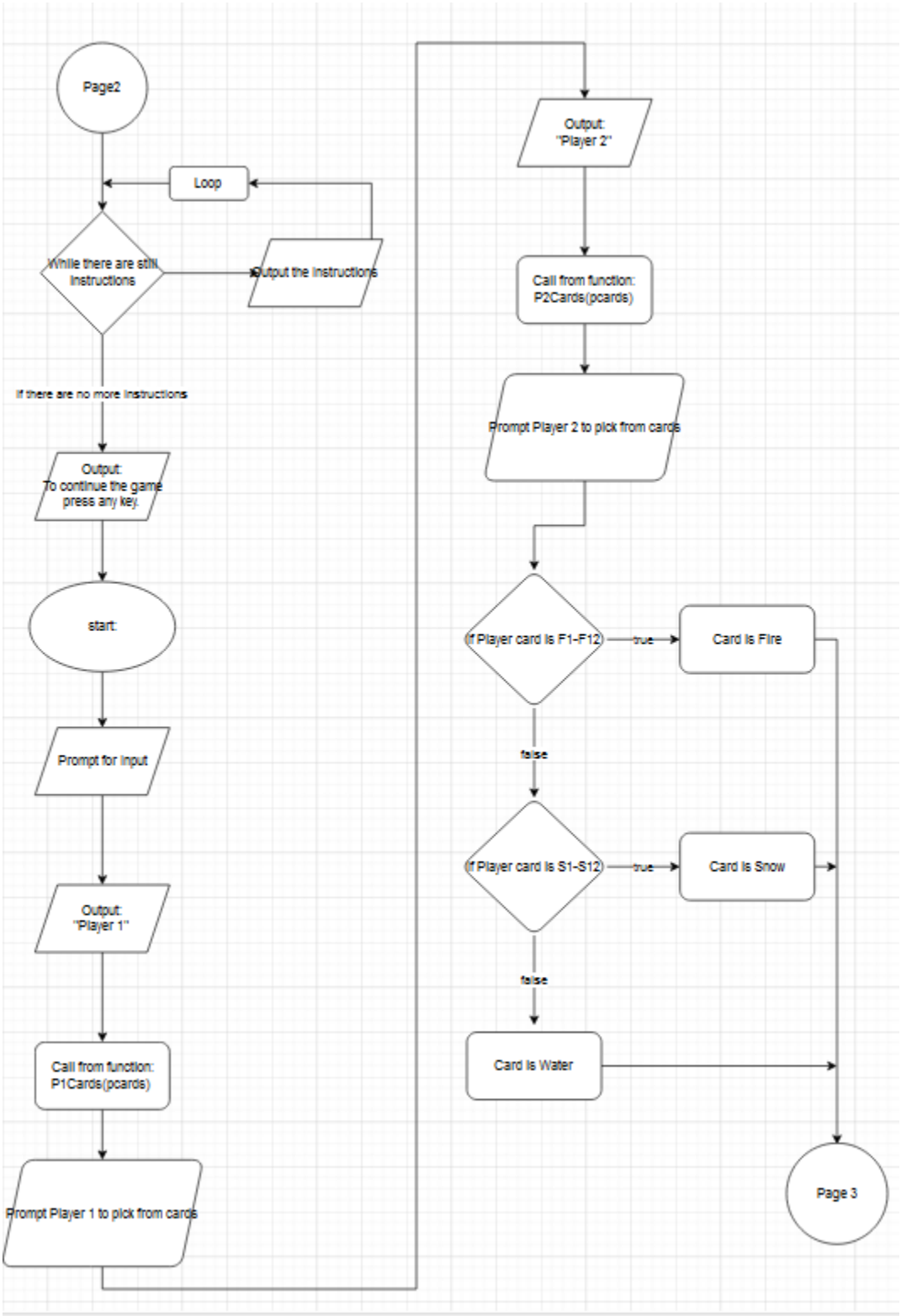
Repeat the process until 5 cards are ordered.

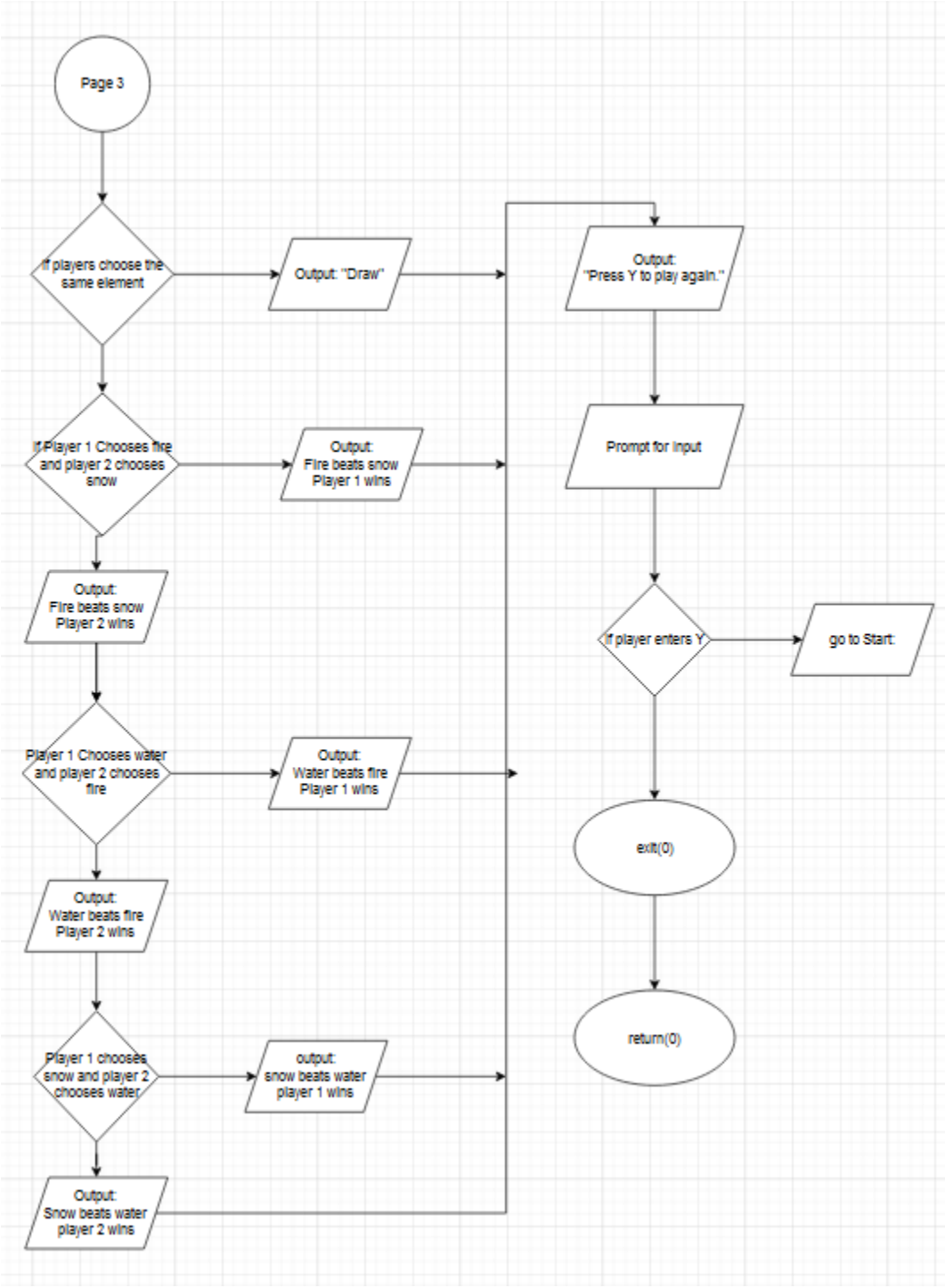
Pull Cards from file and match them to the random generated cards.

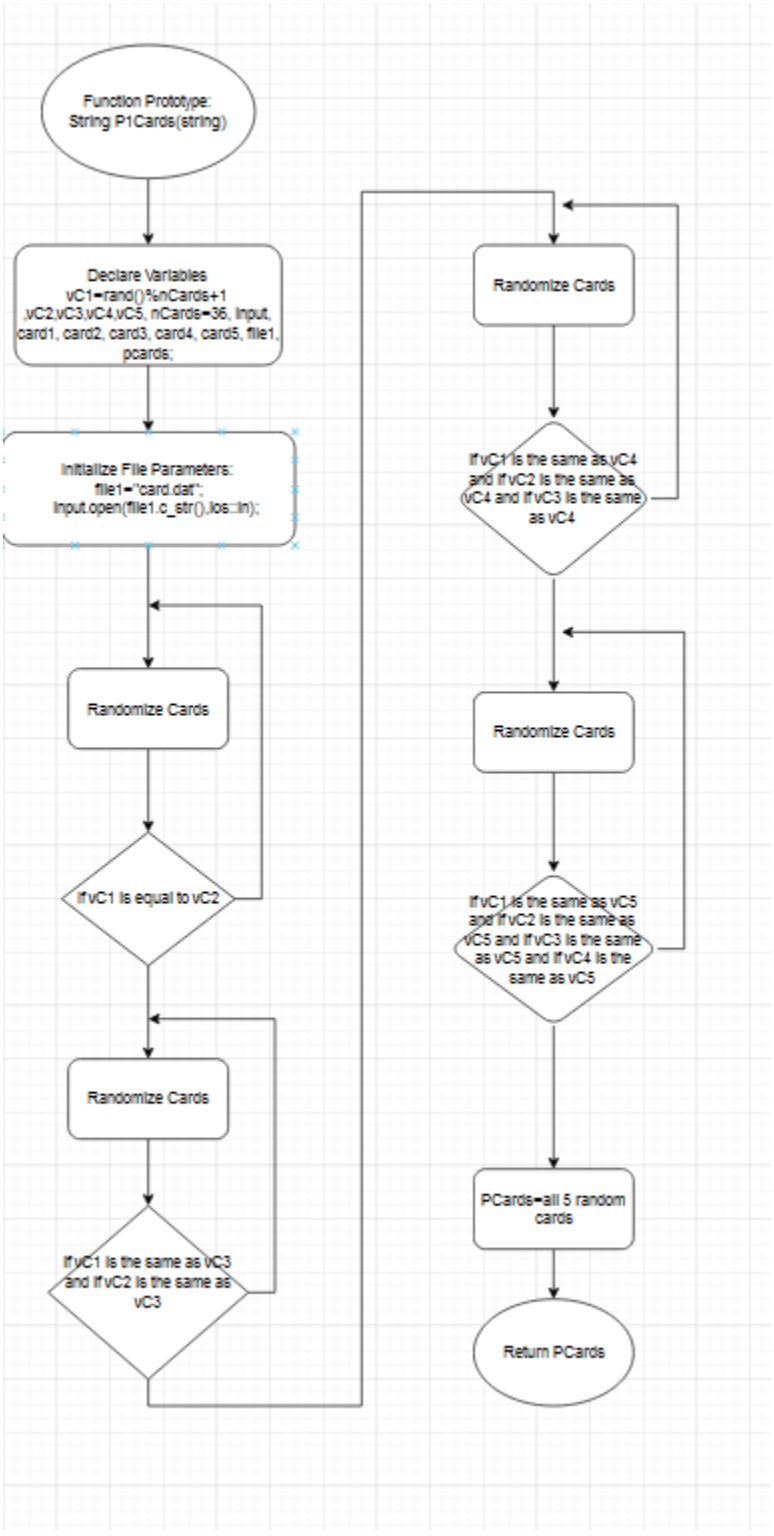
Return the string of 5 Cards;

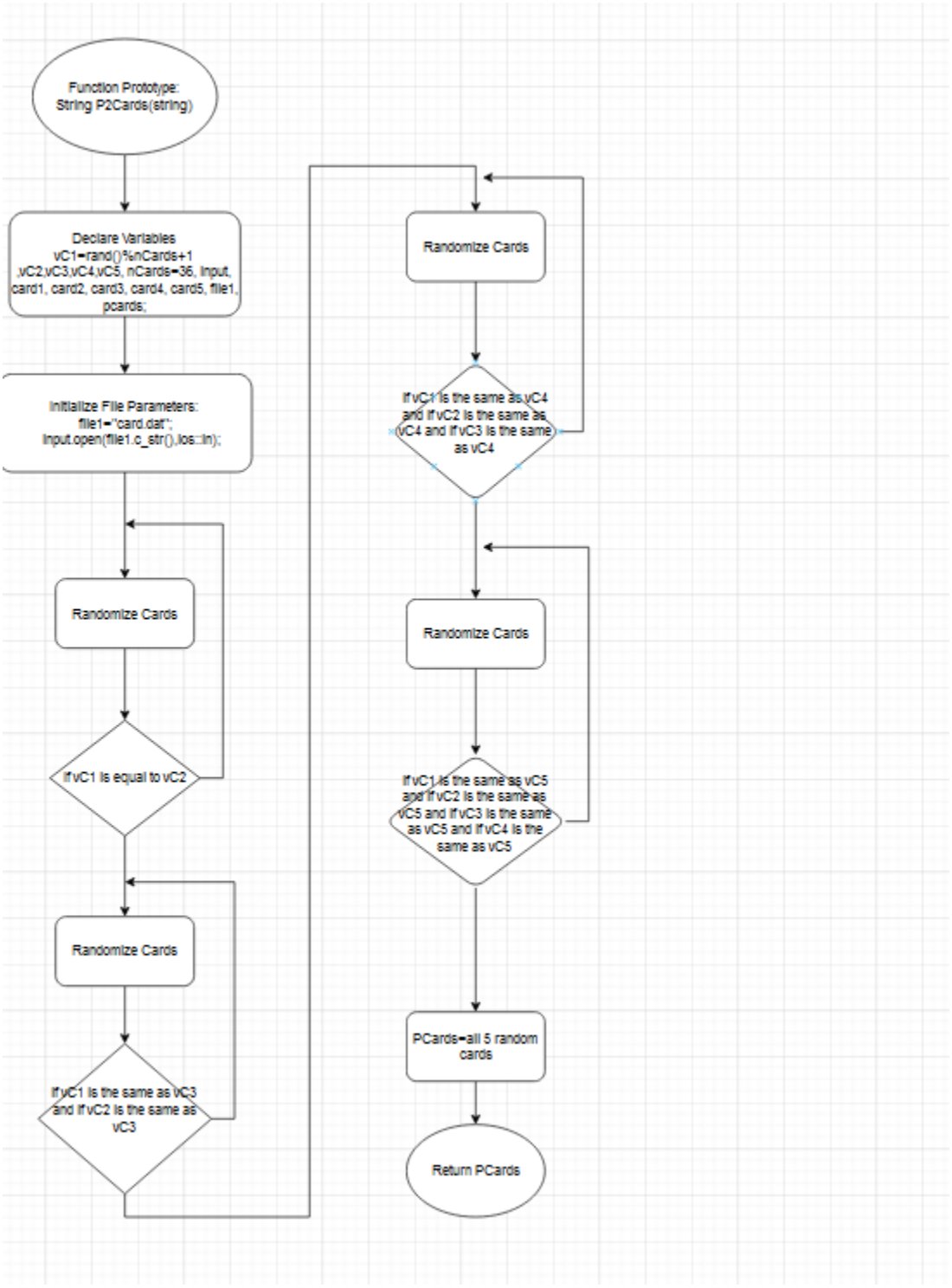
Flowchart


Author: Kayson Lopez
Created on: Feb 12, 2023
Purpose: Project 2
System Libraries
I/O Objects
I/O Manip
Fstream
Cstdlib
Ctime
Standard Namespace
User Libraries
None
Global Constants
None
Function Prototypes
string P1Cards(string)
string P2Cards(string)
main
Declare Variables
con, player1, player2, first,
second, inp,
instru, input
Output:
Welcome to Card Jitsu
Open file:
Instructions
Output:
Welcome to Card-Jitsu
Page 2


Page2
Loop
While there are still instructions
Output the instructions
If there are no more instructions
Output:
To continue the game press any key.
start:
Prompt for input
Output:
"Player 1"
Call from function:
P1Cards(pcards)
Prompt Player 1 to pick from cards
Output:
"Player 2"
Call from function:
P2Cards(pcards)
Prompt Player 2 to pick from cards
If Player card is F1-F12)
true
Card is Fire
false
If Player card is S1-S12)
true
Card is Snow
false
Card is Water
Page 3


Page 3
If players choose the same element
Output: "Draw"
Output: "Press Y to play again."
If Player 1 Chooses fire and player 2 chooses snow
Output: Fire beats snow Player 1 wins
Prompt for input
Output: Fire beats snow Player 2 wins
If player enters Y
go to Start:
Player 1 Chooses water and player 2 chooses fire
Output: Water beats fire Player 1 wins
exit(0)
Output: Water beats fire Player 2 wins
Player 1 chooses snow and player 2 chooses water
output: snow beats water player 1 wins
return(0)
Output: Snow beats water player 2 wins


Function Prototype:
String P1Cards(string)
Declare Variables
vC1=rand()%nCards+1
,vC2,vC3,vC4,vC5, nCards=36, Input,
card1, card2, card3, card4, card5, file1,
pcards;
Initialize File Parameters:
file1="card.dat";
Input.open(file1.c_str(),ios::in);
Randomize Cards
If vC1 is equal to vC2
Randomize Cards
If vC1 is the same as vC3
and if vC2 is the same as
vC3
Randomize Cards
If vC1 is the same as vC4
and if vC2 is the same as
vC4 and if vC3 is the same
as vC4
Randomize Cards
If vC1 is the same as vC5
and if vC2 is the same as
vC5 and if vC3 is the same
as vC5 and if vC4 is the
same as vC5
PCards=all 5 random
cards
Return PCards


Function Prototype:
String P2Cards(string)
Declare Variables
vC1=rand()%nCards+1
,vC2,vC3,vC4,vC5, nCards=36, Input,
card1, card2, card3, card4, card5, file1,
pcards,
Initialize File Parameters:
file1="card.dat";
Input.open(file1.c_str(),ios::in);
Randomize Cards
If vC1 is equal to vC2
Randomize Cards
If vC1 is the same as vC3
and if vC2 is the same as
vC3
Randomize Cards
If vC1 is the same as vC4
and if vC2 is the same as
vC4 and if vC3 is the same
as vC4
Randomize Cards
If vC1 is the same as vC5
and if vC2 is the same as
vC5 and if vC3 is the same
as vC5 and if vC4 is the
same as vC5
PCards=all 5 random
cards
Return PCards

Checklist

Chapter	Section	Topic	Where Line #'s	Pts	Notes
2	2	cout			
	3	libraries	Lines 9-13	5	iostream, iomanip, cmath, cstdlib, fstream, string, ctime
	4	variables/literals			No variables in global area, failed project!
	5	identifiers			
	6	integers	118&219	1	
	7	Characters	119&220	1	
	8	Strings	121,122,222,223	1	
	9	Floats No Doubles		1	Using doubles will fail the project, floats OK!
	10	Bools		1	
	11	Sizeof *****			
	12	Variables 7 characters or less			All variables <= 7 characters
	13	Scope ***** No Global Variables			
	14	Arithmetic operators			
	15	Comments 20%+	throughout	2	Model as pseudo code
	16	Named Constants			All Local, only Conversions/Physics/Math in Global area
	17	Programming Style ***** Emulate			Emulate style in book/in class repository
3	1	cin			
	2	Math Expression			
	3	Mixing data types ****			
	4	Overflow/Underflow ****			
	5	Type Casting	117-218	1	
	6	Multiple assignment *****			
	7	Formatting output		1	
	8	Strings	121,122,222,223	1	
	9	Math Library		1	All libraries included have to be used
	10	Hand tracing ******			
4	1	Relational Operators			
	2	If	69-75	1	Independent if
	4	If-else	79-83	1	
	5	Nesting	202-208	1	
	6	If-else-if		1	
	7	Flags *****			
	8	Logical operators	54-66	1	
	11	Validating user input		1	
	13	Conditional Operator	69-110	1	
	14	Switch		1	
5	1	Increment/Decrement		1	
	2	While	37	1	
	5	Do-while	140	1	
	6	For loop	202	1	
	11	Files input/output both	228	2	
	12	No breaks in loops ******			Failed Project if included
***** Not required to show			Total	30	

Chapter	Section	Topic	Where Line #"s	Pts	Notes
6		Functions			
	3	Function Prototypes	22-23,116&218	4	Always use prototypes
	5	Pass by Value	46&51	4	
	8	return	214	4	A value from a function
	9	returning boolean		4	
	10	Global Variables		XXX	Do not use global variables -100 pts
	11	static variables		4	
	12	defaulted arguments		4	
	13	pass by reference	46&51	4	
	14	overloading		5	
	15	exit() function	113	4	
7		Arrays			
	1 to 6	Single Dimensioned Arrays		3	
	7	Parallel Arrays		2	
	8	Single Dimensioned as Function Arguments		2	
	9	2 Dimensioned Arrays		2	Emulate style in book/in class repositiory
	12	STL Vectors		2	
		Passing Arrays to and from Functions		5	
		Passing Vectors to and from Functions		5	
8		Searching and Sorting Arrays			
	3	Bubble Sort		4	
	3	Selection Sort		4	
	1	Linear or Binary Search		4	
****** Not required to show			Total	70	Other 30 points from Proj 1 first sheet tab

Code at Work

```
Welcome to Card-Jitsu!
Card-Jitsu is a 2 player card game. There are three elements: Fire, Snow, and Water. Each card contains one of these elements and a number 1-12. Fire beats Snow, Snow beats Water, and Water beats Fire. When both players
 select the same element it will result in a draw.
To continue to the game press any key.
f
Player 1: S5 S7 S9 F7 F11
S5
Player 2: S9 F3 F10 W2 W5
S7
Draw.
Press Y if you would like to play again.Y
Player 1: S11 F5 F12 W3 W7
S11
Player 2: S1 S2 S4 W1 W4
S1
Draw.
Press Y if you would like to play again.n

RUN SUCCESSFUL (total time: 15s)
```

```
Welcome to Card-Jitsu!
Card-Jitsu is a 2 player card game. There are three elements: Fire, Snow, and Water. Each card contains one of these elements and a number 1-12. Fire beats Snow, Snow beats Water, and Water beats Fire. When both players
 select the same element it will result in a draw.
To continue to the game press any key.
f
Player 1: S1 S6 S11 F2 W9
S6
Player 2: S9 F8 F10 W1 W9
F10
Fire melts Snow
Player 2 Wins.
Press Y if you would like to play again.n

RUN SUCCESSFUL (total time: 7s)
```