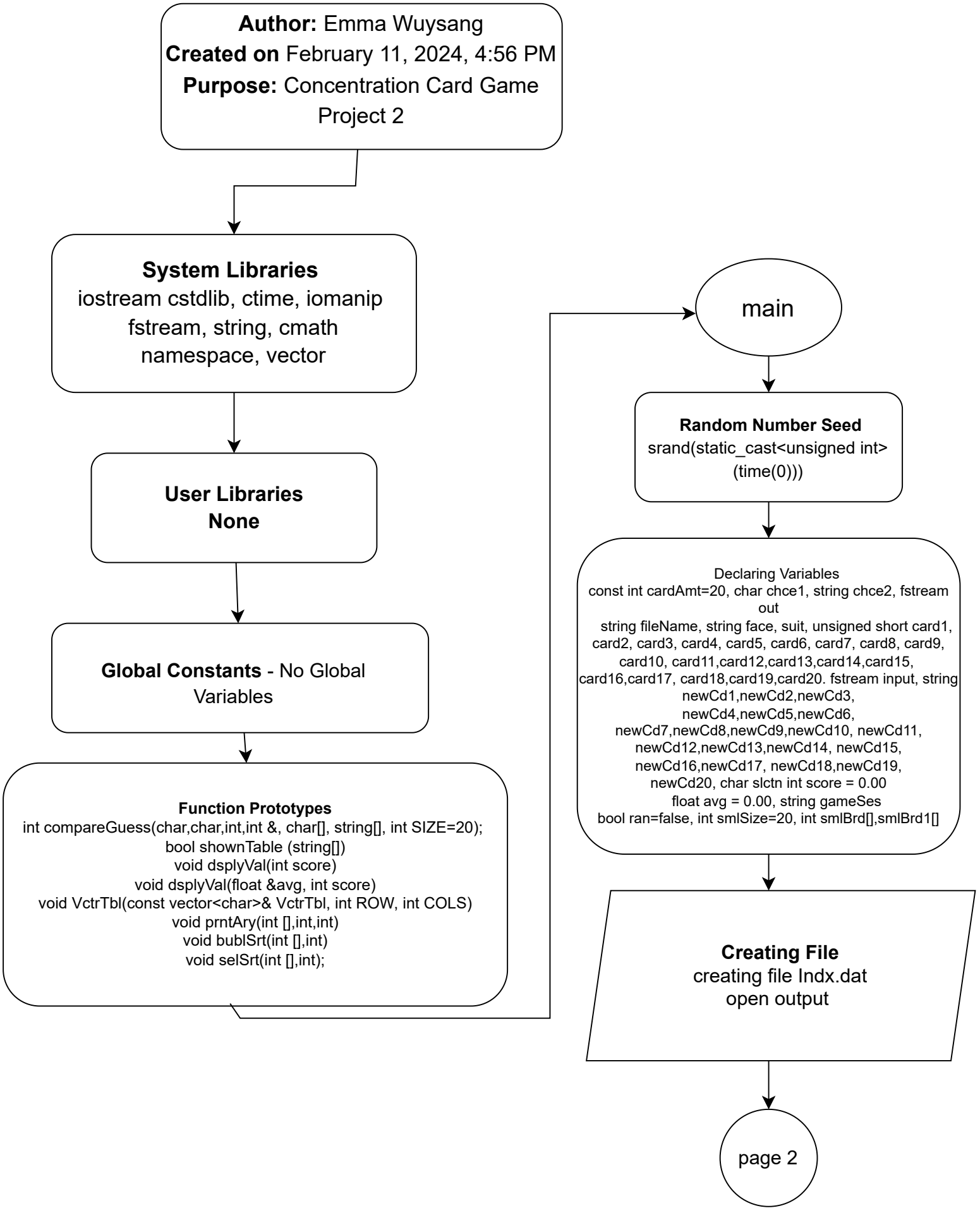
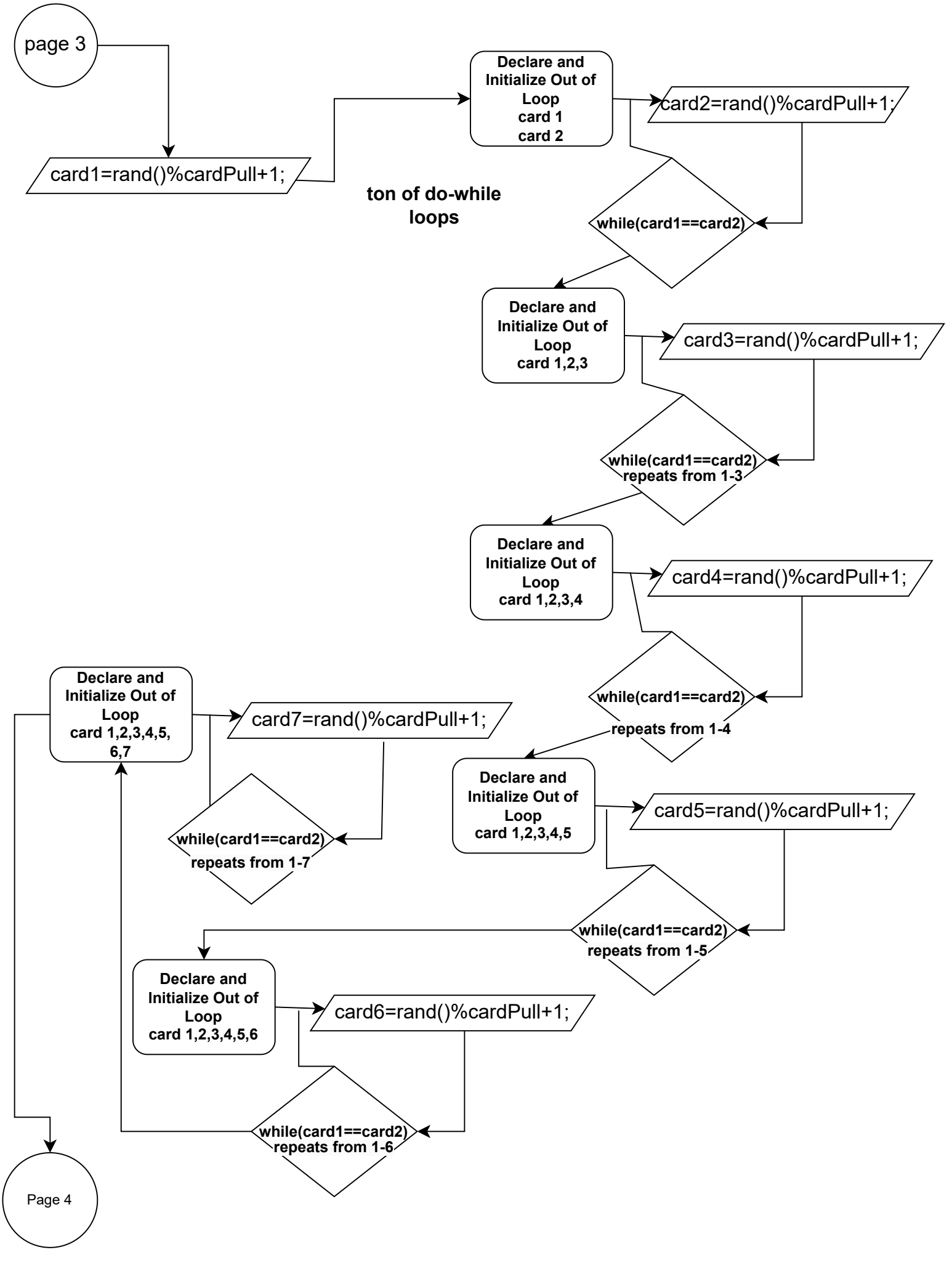
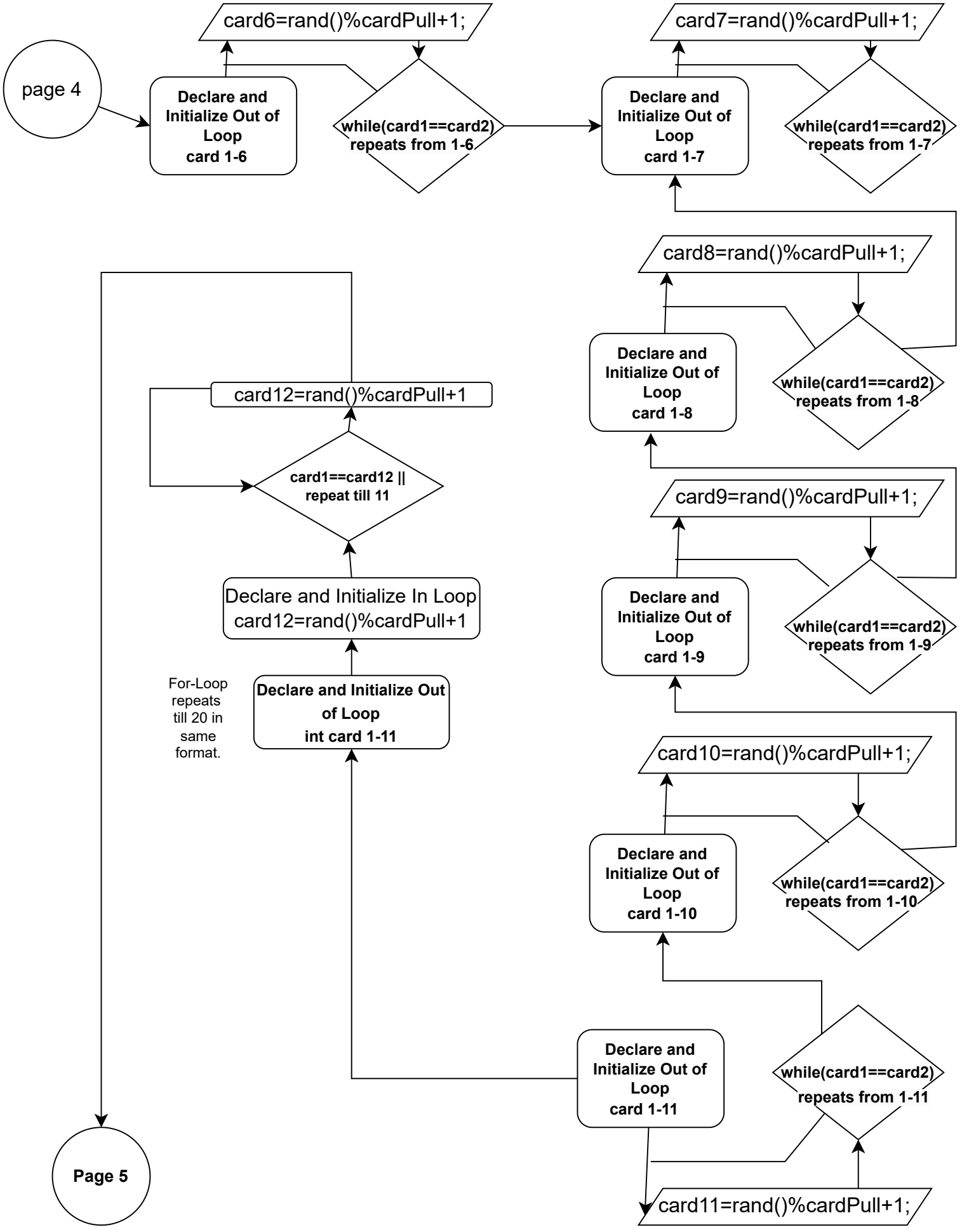
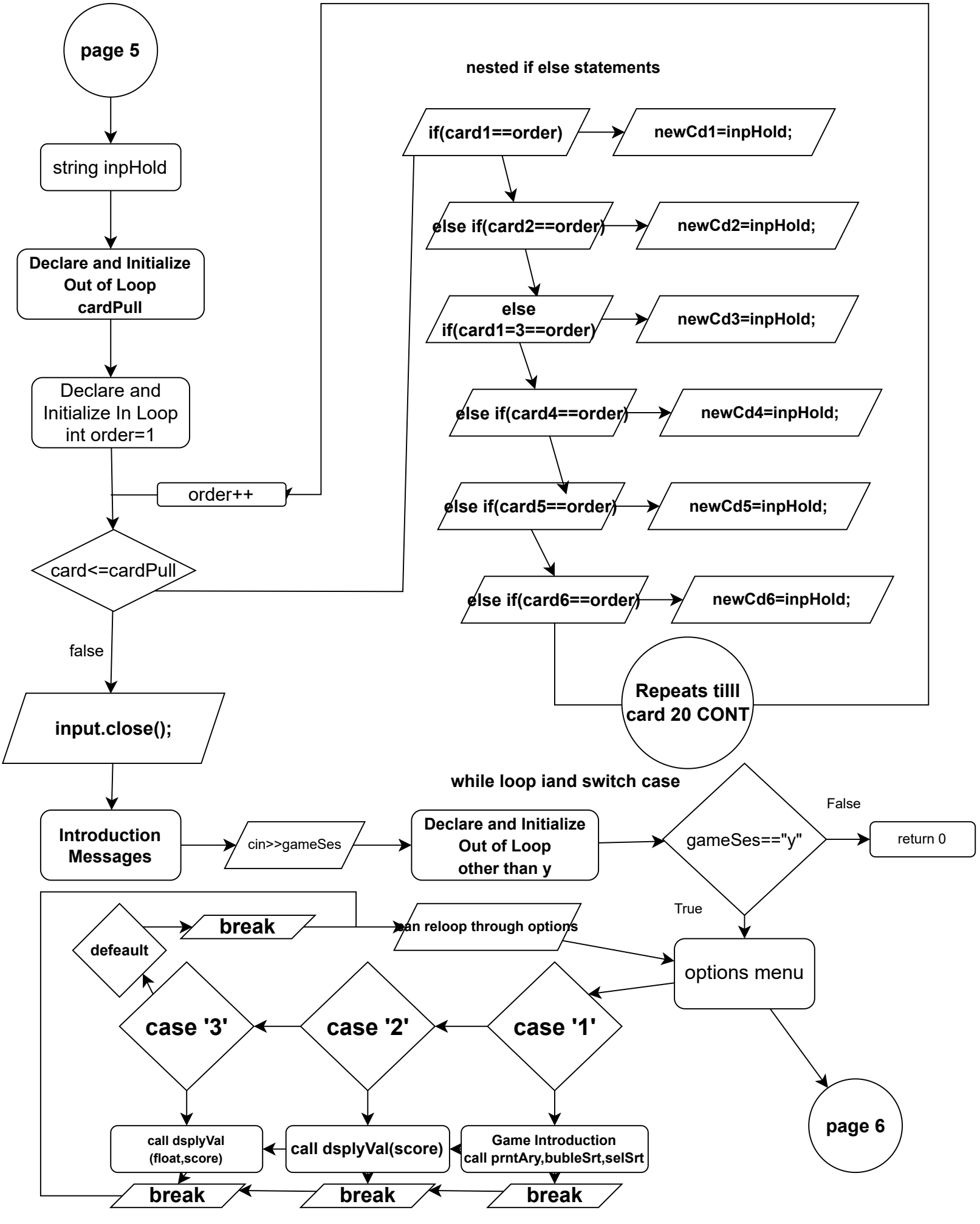
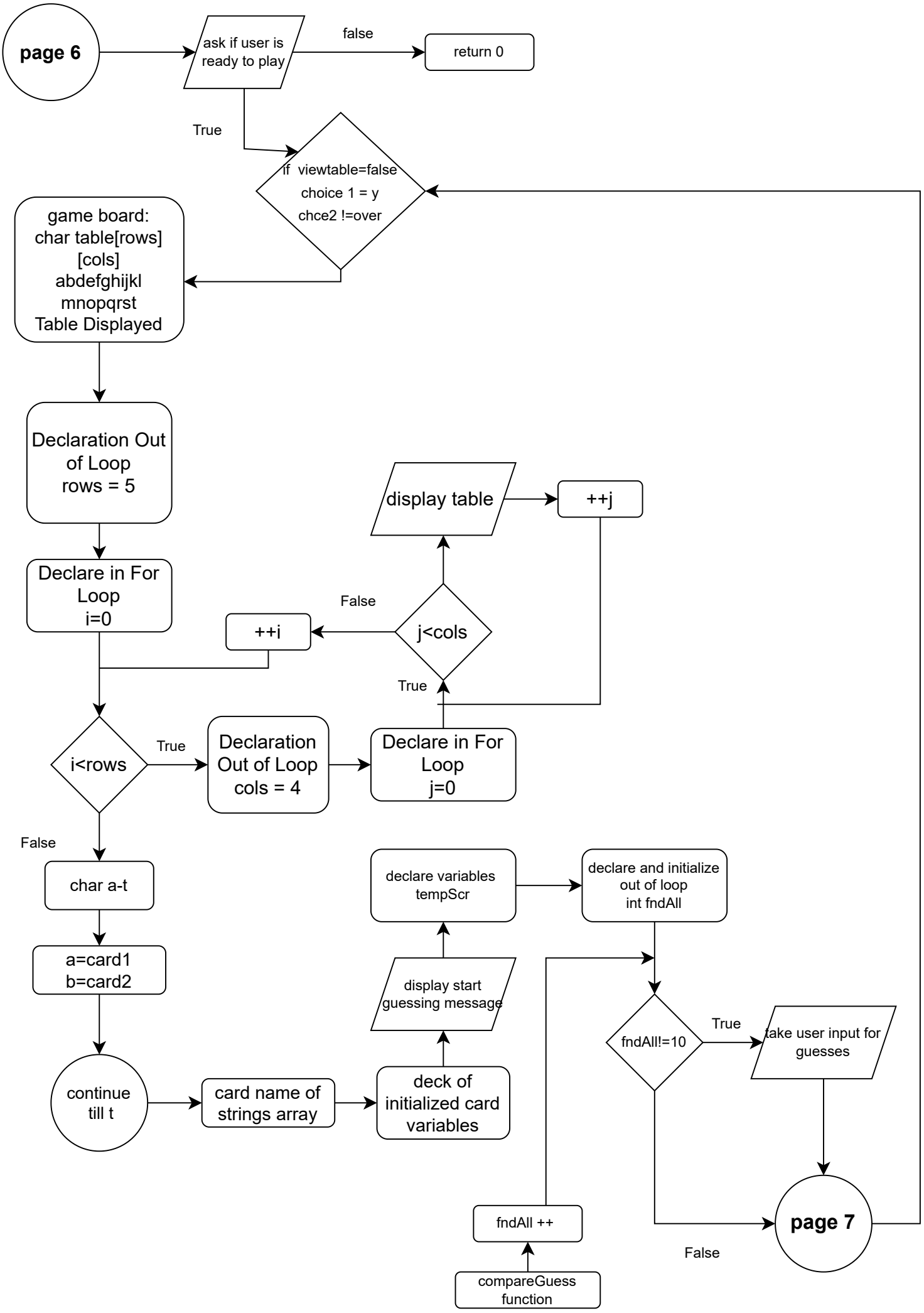

Author: Emma Wuysang
Created on February 11, 2024, 4:56 PM
Purpose: Concentration Card Game Project 2
System Libraries
iostream cstdlib, ctime, iomanip
fstream, string, cmath
namespace, vector
User Libraries
None
Global Constants - No Global Variables
Function Prototypes
int compareGuess(char,char,int,int &, char[], string[], int SIZE=20);
bool shownTable (string[])
void dsplyVal(int score)
void dsplyVal(float &avg, int score)
void VctrTbl(const vector<char>& VctrTbl, int ROW, int COLS)
void prntAry(int [],int,int)
void bublSrt(int [],int)
void selSrt(int [],int);
main
Random Number Seed
srand(static_cast<unsigned int>(time(0)))
Declaring Variables
const int cardAmt=20, char chce1, string chce2, fstream out
string fileName, string face, suit, unsigned short card1, card2, card3, card4, card5, card6, card7, card8, card9, card10, card11,card12,card13,card14,card15, card16,card17, card18,card19,card20. fstream input, string newCd1,newCd2,newCd3, newCd4,newCd5,newCd6, newCd7,newCd8,newCd9,newCd10, newCd11, newCd12,newCd13,newCd14, newCd15, newCd16,newCd17, newCd18,newCd19, newCd20, char slctn int score = 0.00
float avg = 0.00, string gameSes
bool ran=false, int smlSize=20, int smlBrd[],smlBrd1[]
Creating File
creating file Indx.dat
open output
page 2

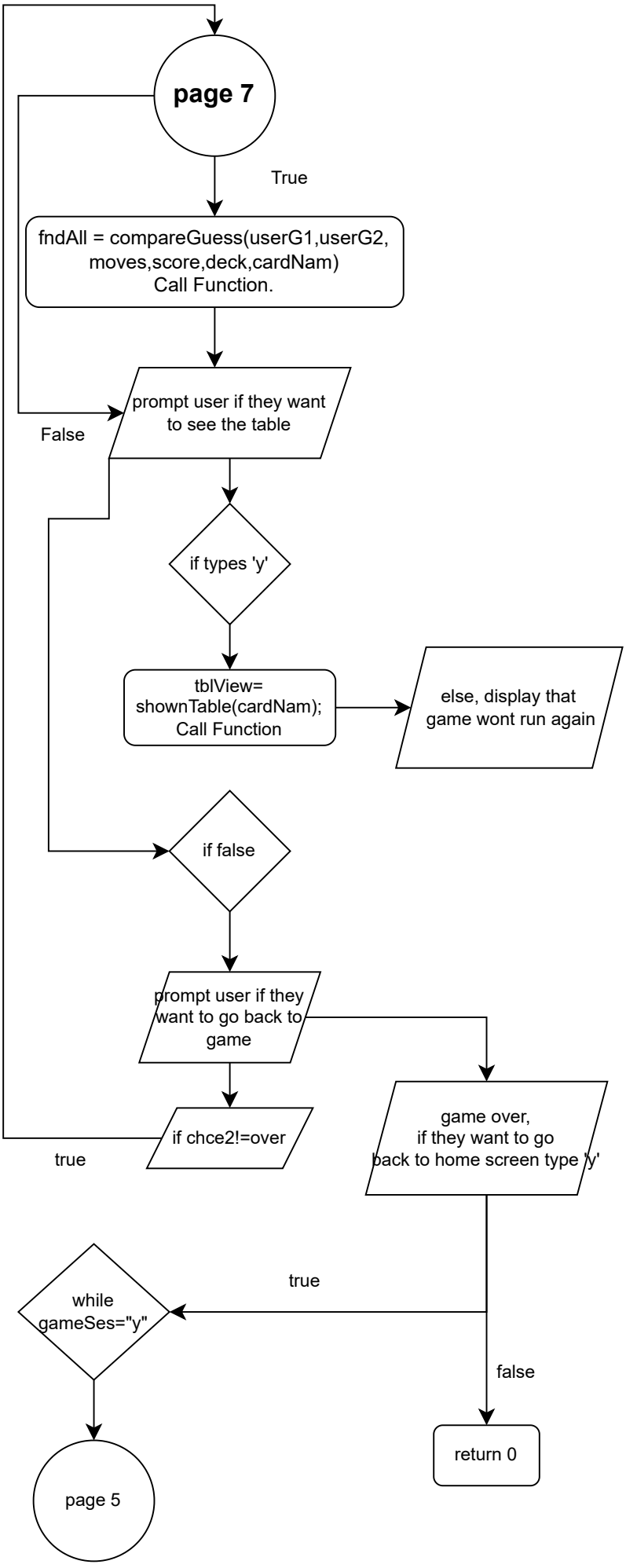
page 2
for loop
Declare and Initialize Out of Loop 20
Declare and Initialize In Loop int card=0
card++
card<=20
false
out.close
input.open(indx.dat)
int cardPull=20
page 3
if (card%10==0)
true
face="Ace";
false
if (card%10==1)
true
face="2";
false
if (card%10==2)
true
face="3";
false
if (card%10==3)
true
face="4";
false
if (card%10==4)
true
face="5";
false
if (card%10==5)
true
face="6";
false
if (card%10==6)
true
face="7";
false
if (card%10==7)
true
face="8";
false
if (card%10==8)
true
face="9";
false
else
true
face="10";
false
if (card/10==0)
true
suit="Spades"
false
else
true
suit="Hearts"
out<<face<<"of"<<suit

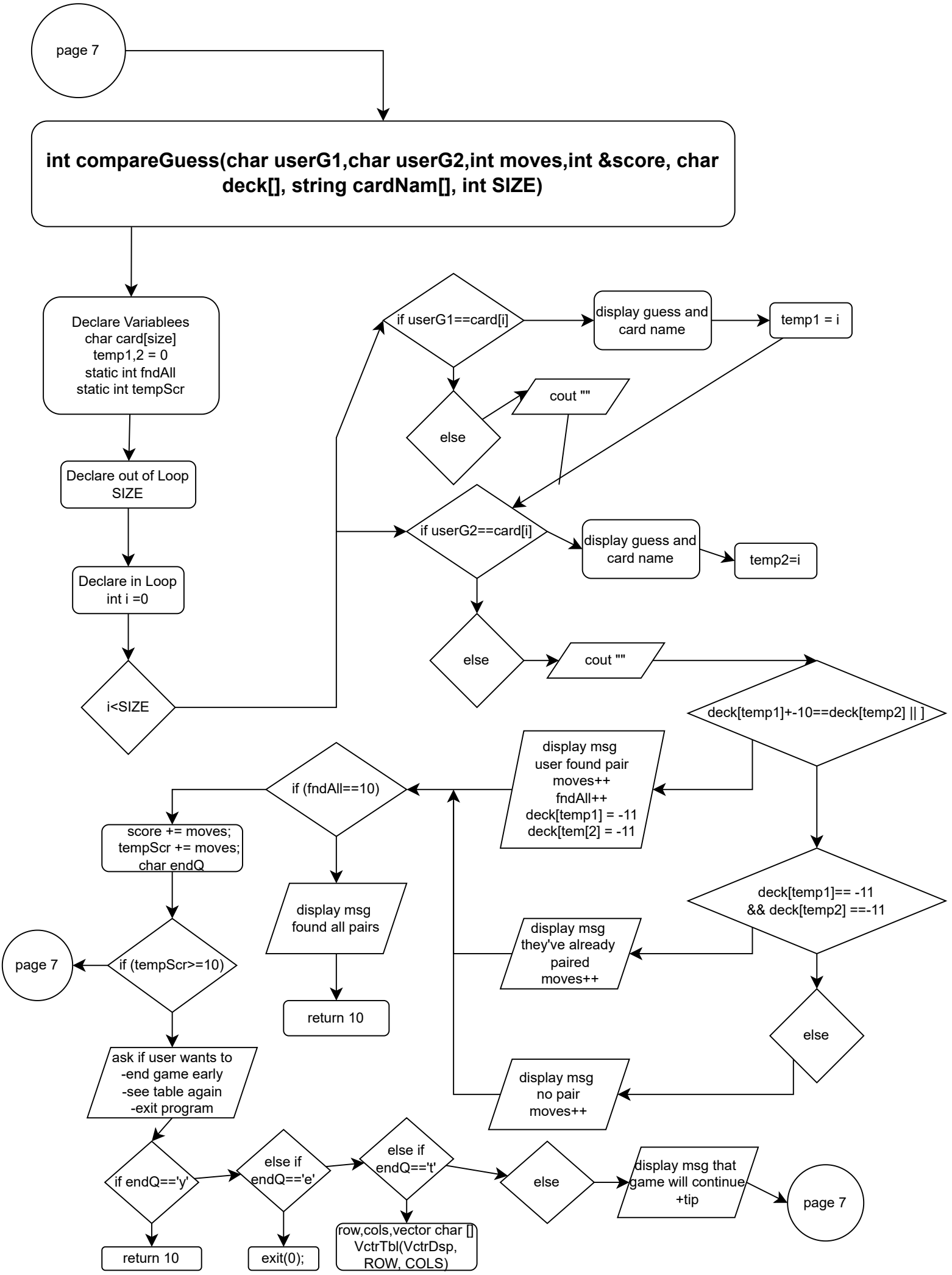

page 3
card1=rand()%cardPull+1;
Declare and Initialize Out of Loop card 1 card 2
card2=rand()%cardPull+1;
ton of do-while loops
while(card1==card2)
Declare and Initialize Out of Loop card 1,2,3
card3=rand()%cardPull+1;
while(card1==card2) repeats from 1-3
Declare and Initialize Out of Loop card 1,2,3,4
card4=rand()%cardPull+1;
while(card1==card2) repeats from 1-4
Declare and Initialize Out of Loop card 1,2,3,4,5
card5=rand()%cardPull+1;
while(card1==card2) repeats from 1-5
Declare and Initialize Out of Loop card 1,2,3,4,5,6
card6=rand()%cardPull+1;
while(card1==card2) repeats from 1-6
Declare and Initialize Out of Loop card 1,2,3,4,5, 6,7
card7=rand()%cardPull+1;
while(card1==card2) repeats from 1-7
Page 4

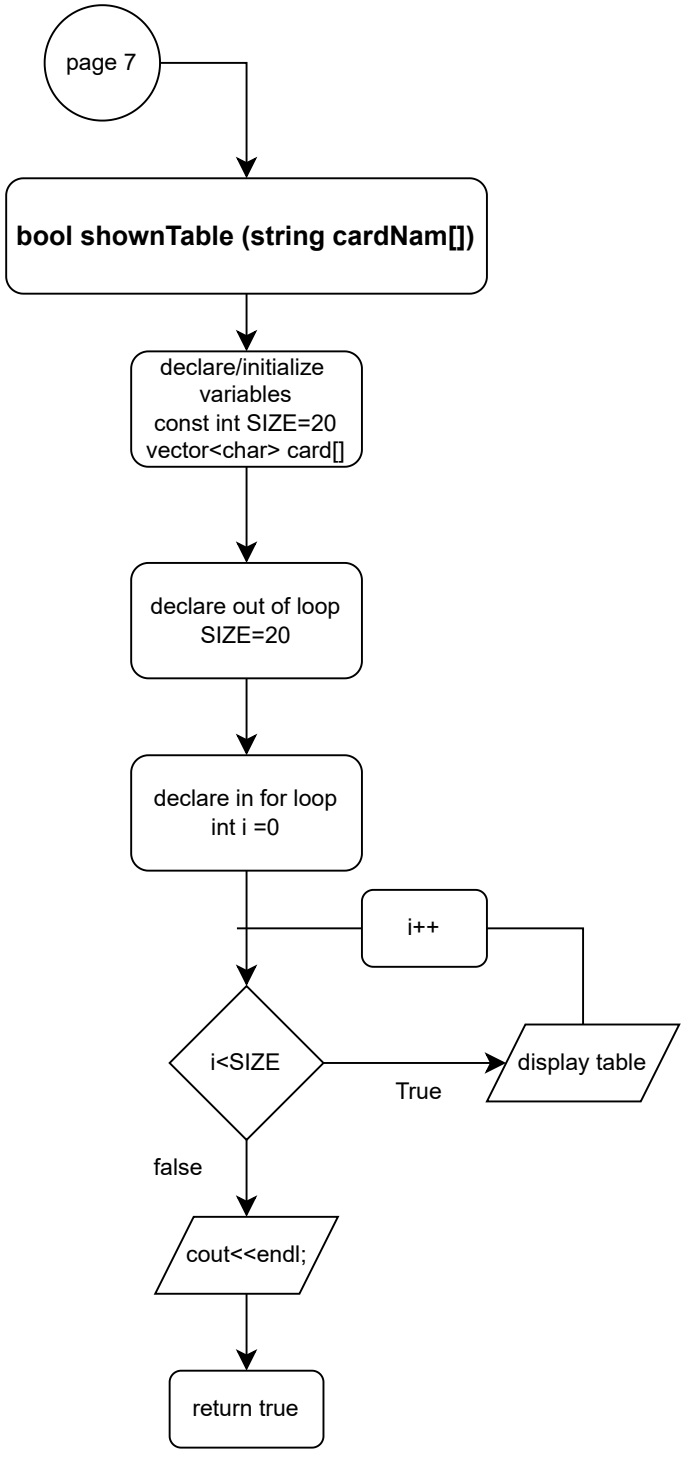

page 4
Declare and Initialize Out of Loop card 1-6
card6=rand()%cardPull+1;
while(card1==card2) repeats from 1-6
Declare and Initialize Out of Loop card 1-7
card7=rand()%cardPull+1;
while(card1==card2) repeats from 1-7
Declare and Initialize Out of Loop card 1-8
card8=rand()%cardPull+1;
while(card1==card2) repeats from 1-8
Declare and Initialize Out of Loop card 1-9
card9=rand()%cardPull+1;
while(card1==card2) repeats from 1-9
Declare and Initialize Out of Loop card 1-10
card10=rand()%cardPull+1;
while(card1==card2) repeats from 1-10
Declare and Initialize Out of Loop card 1-11
card11=rand()%cardPull+1;
while(card1==card2) repeats from 1-11
Declare and Initialize Out of Loop int card 1-11
For-Loop repeats till 20 in same format.
Declare and Initialize In Loop card12=rand()%cardPull+1
card12=rand()%cardPull+1
card1==card12 || repeat till 11
Page 5

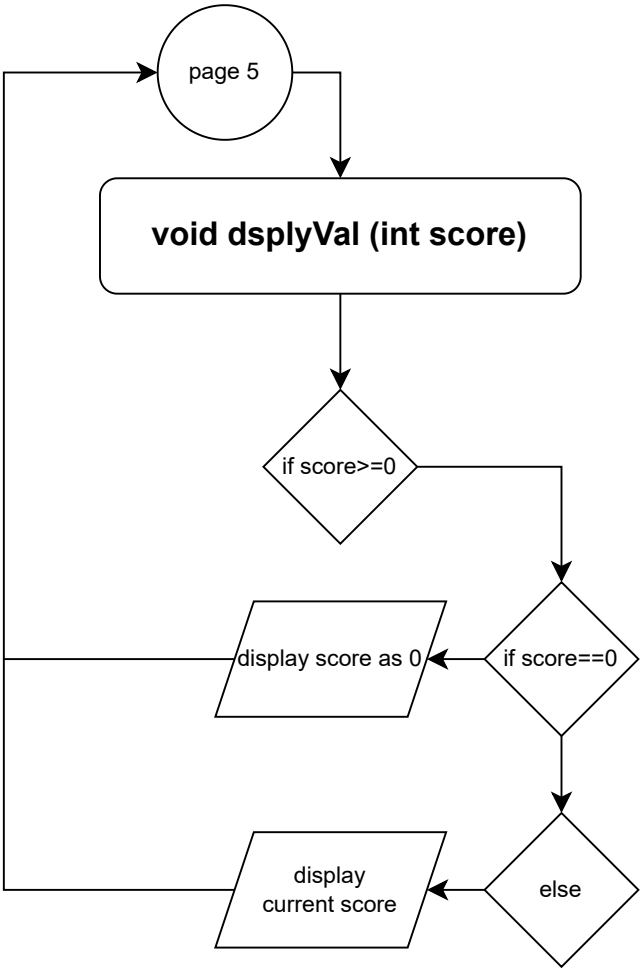

page 5
string inpHold
Declare and Initialize Out of Loop cardPull
Declare and Initialize In Loop int order=1
order++
card<=cardPull
false
input.close();
nested if else statements
if(card1==order)
newCd1=inpHold;
else if(card2==order)
newCd2=inpHold;
else if(card1=3==order)
newCd3=inpHold;
else if(card4==order)
newCd4=inpHold;
else if(card5==order)
newCd5=inpHold;
else if(card6==order)
newCd6=inpHold;
Repeats tilll card 20 CONT
while loop iand switch case
Introduction Messages
cin>>gameSes
Declare and Initialize Out of Loop other than y
gameSes=="y"
False
return 0
True
options menu
case '1'
case '2'
case '3'
defeault
break
can reloop through options
Game Introduction call prntAry,bubleSrt,selSrt
call dsplyVal(score)
call dsplyVal (float,score)
break
break
break
page 6

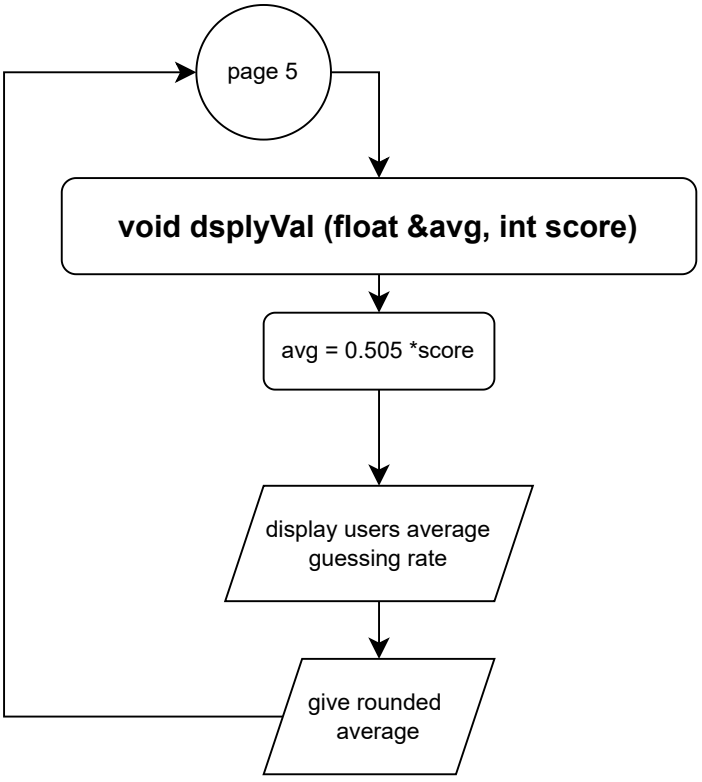

page 6
ask if user is ready to play
false
return 0
True
if viewtable=false
choice 1 = y
chce2 !=over
game board:
char table[rows]
[cols]
abdefghijkl
mnopqrst
Table Displayed
Declaration Out of Loop
rows = 5
Declare in For Loop
i=0
display table
++j
False
++i
j<cols
True
i<rows
True
Declaration Out of Loop
cols = 4
Declare in For Loop
j=0
False
char a-t
a=card1
b=card2
continue till t
card name of strings array
deck of initialized card variables
display start guessing message
declare variables
tempScr
declare and initialize out of loop
int fndAll
fndAll!=10
True
take user input for guesses
page 7
False
fndAll ++
compareGuess function


page 7
True
fndAll = compareGuess(userG1,userG2,
moves,score,deck,cardNam)
Call Function.
prompt user if they want
to see the table
False
if types 'y'
tblView=
shownTable(cardNam);
Call Function
else, display that
game wont run again
if false
prompt user if they
want to go back to
game
if chce2!=over
true
game over,
if they want to go
back to home screen type 'y'
while
gameSes="y"
true
false
return 0
page 5


page 7
int compareGuess(char userG1,char userG2,int moves,int &score, char deck[], string cardNam[], int SIZE)
Declare Variablees
char card[size]
temp1,2 = 0
static int fndAll
static int tempScr
Declare out of Loop
SIZE
Declare in Loop
int i =0
i<SIZE
if userG1==card[i]
display guess and card name
temp1 = i
else
cout ""
if userG2==card[i]
display guess and card name
temp2=i
else
cout ""
deck[temp1]+-10==deck[temp2] ||]
display msg
user found pair
moves++
fndAll++
deck[temp1] = -11
deck[tem[2] = -11
if (fndAll==10)
score += moves;
tempScr += moves;
char endQ
display msg
found all pairs
return 10
deck[temp1]== -11
&& deck[temp2] ==-11
display msg
they've already
paired
moves++
else
display msg
no pair
moves++
page 7
if (tempScr>=10)
ask if user wants to
-end game early
-see table again
-exit program
if endQ=='y'
return 10
else if
endQ=='e'
exit(0);
else if
endQ=='t'
row,cols,vector char []
VctrTbl(VctrDsp,
ROW, COLS)
else
display msg that
game will continue
+tip
page 7


page 7
bool shownTable (string cardNam[])
declare/initialize variables
const int SIZE=20
vector<char> card[]
declare out of loop
SIZE=20
declare in for loop
int i =0
i++
i<SIZE
True
display table
false
cout<<endl;
return true


page 5
void dsplyVal (int score)
if score>=0
if score==0
display score as 0
else
display
current score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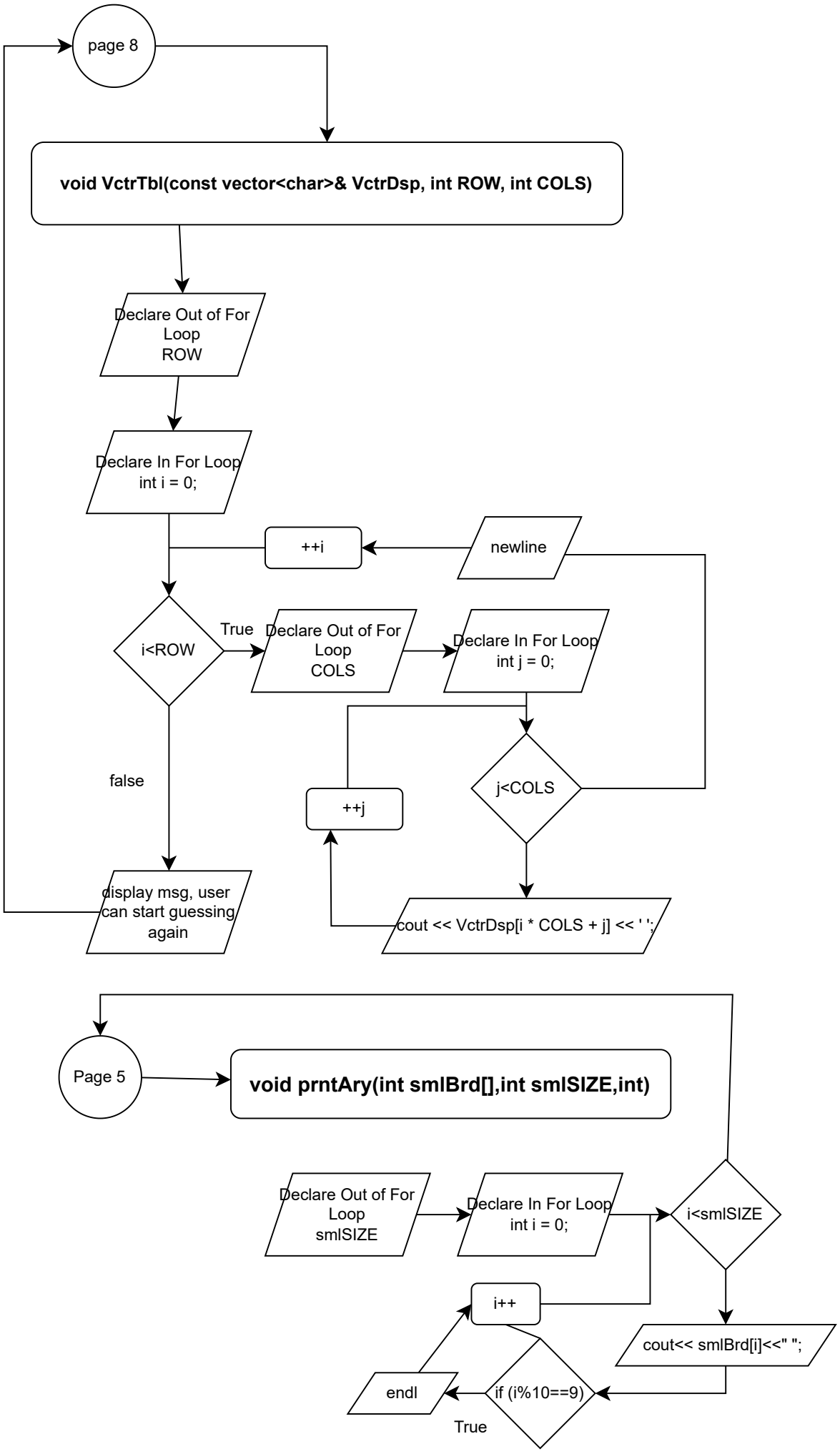
void dsplyVal (float &avg, int score)
avg = 0.505 *score
display users average
guessing rate
give rounded
average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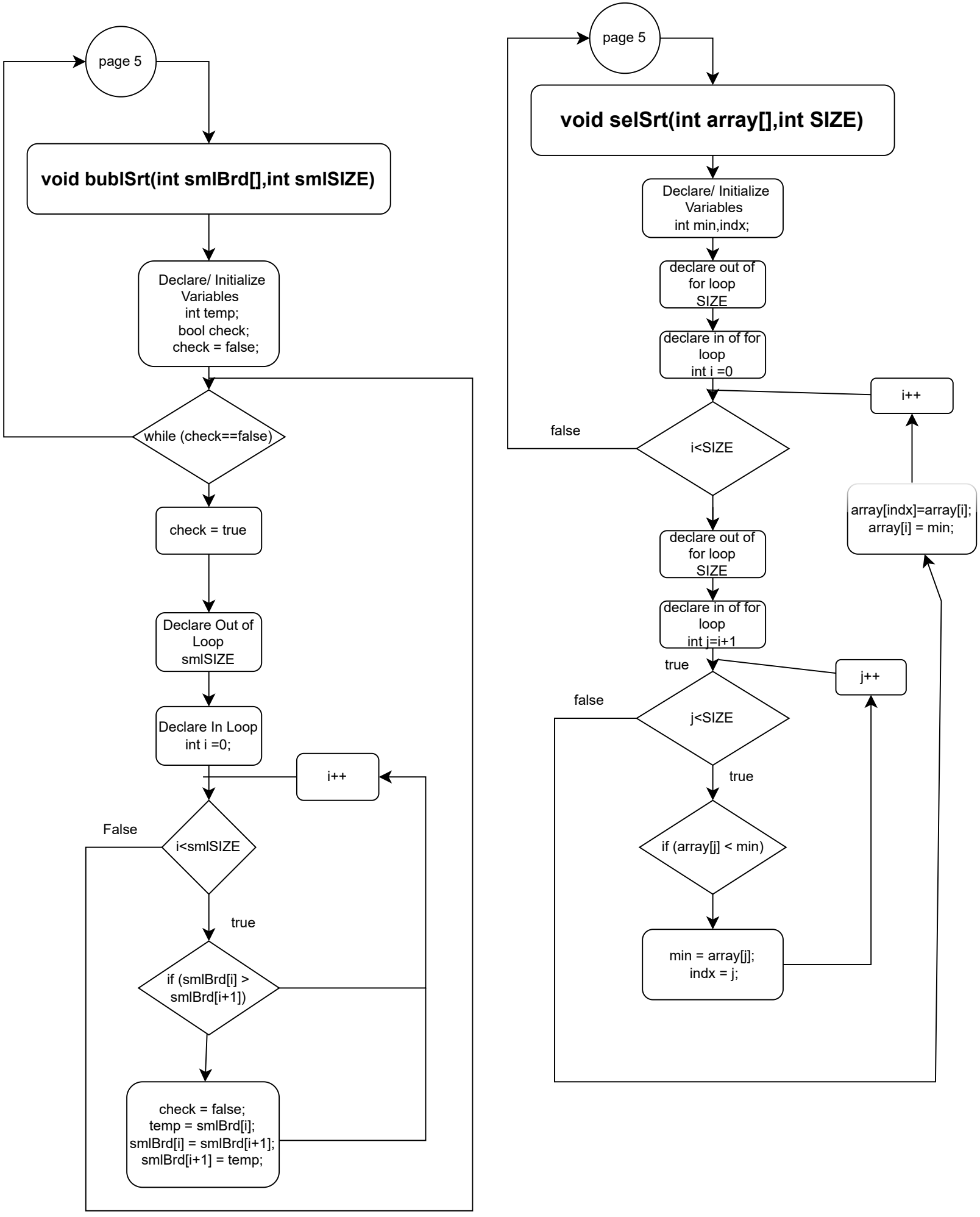
void VctrTbl(const vector<char>& VctrDsp, int ROW, int COLS)
Declare Out of For Loop
ROW
Declare In For Loop
int i = 0;
++i
newline
i<ROW
True
Declare Out of For Loop
COLS
Declare In For Loop
int j = 0;
false
++j
j<COLS
display msg, user can start guessing again
cout << VctrDsp[i * COLS + j] << ' ';
Page 5
void prntAry(int smlBrd[],int smlSIZE,int)
Declare Out of For Loop
smlSIZE
Declare In For Loop
int i = 0;
i<smlSIZE
i++
cout<< smlBrd[i]<<" ";
endl
if (i%10==9)
True


page 5
void bublSrt(int smlBrd[],int smlSIZE)
Declare/ Initialize Variables
int temp;
bool check;
check = false;
while (check==false)
check = true
Declare Out of Loop
smlSIZE
Declare In Loop
int i =0;
i++
False
i<smlSIZE
true
if (smlBrd[i] > smlBrd[i+1])
check = false;
temp = smlBrd[i];
smlBrd[i] = smlBrd[i+1];
smlBrd[i+1] = temp;
page 5
void selSrt(int array[],int SIZE)
Declare/ Initialize Variables
int min,indx;
declare out of for loop
SIZE
declare in of for loop
int i =0
i++
false
i<SIZE
array[indx]=array[i];
array[i] = min;
declare out of for loop
SIZE
declare in of for loop
int j=i+1
true
j++
false
j<SIZE
true
if (array[j] < min)
min = array[j];
indx = j;