Project 2

Title

Guessing Game
with Dice

Course

CIS-5

Section

41596

Due Date

6 February 2023

Author

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1 Introduction

A simple guessing game but with dice. This can help those who do not have physical dice around but would like to play a game with chance. The game's simplicity can be played by people of all ages, as long as they can read and count. The game's visuals also help see the number of dice rolled.

2 Game Play and Rules

Start by running the game. The title of the game should appear along with a message about how to play the game. This will allow the players to know the rules and input their name. This will start the game by picking their numbered targets from 1-21.

```
        Guessing game with dice
Pick your targeted amount
Proceed to roll as any dice to get your targeted amount
What is your name?
Dana
What number do you want to target to from 1-21?
```

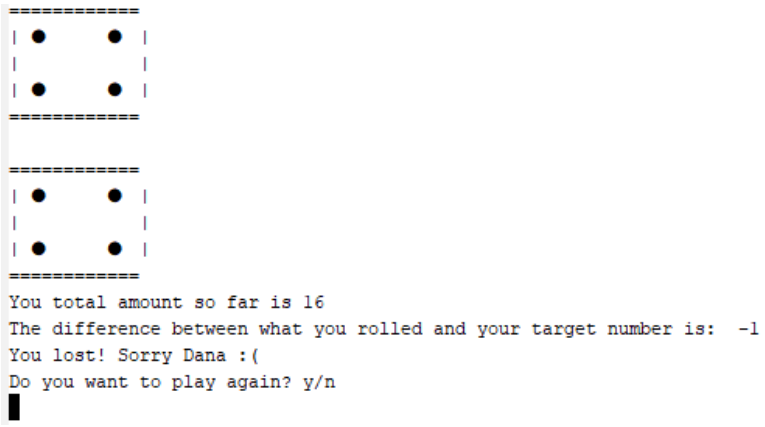
Once entered, you are asked if you want to roll either one or two dice. After the input of how many rolls, a visual of how many dice were picked is shown and accounted for. It first tells you the total so far of your rolls and then tells you the difference between what you rolled and the targeted amount. This can help with knowing how much more is left and allow the player to think to roll either one or two more dice left.

```
What number do you want to target to from 1-21?
15
Do you want to roll 1 or 2 dice?
2
=============
| ●         |
|     ●     |
|         ● |
=============

=============
| ●       ● |
|     ●     |
| ●       ● |
=============
You total amount so far is 8
The difference between what you rolled and your target number is:  7
Do you want to roll 1 or 2 dice?
```

Depending on how much you have left, it will continue to ask how many dice you would like to roll for the chance of winning. If rolled and your total is more than what you targeted, the difference would be in the negatives and would message you lost. If rolled and the total is what your target is, it will tell you, you won. After each game, it will ask if you would like to play

again and you have the choice to answer. If yes, it will ask again for your target number, but if not, it will say thank you for playing.



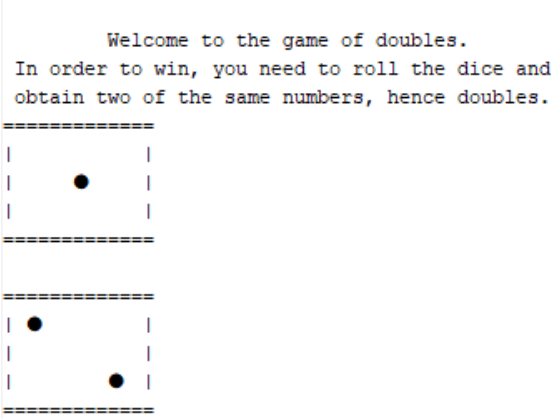
3 Development Summary

Lines of Code	243
Comment Line	72
Blank Lines (White Spaces)	26
Total Lines of File	319

I used NetBeans to run my code. There are four different versions of this game as it progresses from mistakes from each version. There still can be more improvement but in the amount of time I had and the mental sanity I have left, this is what I ended up with.

1.1.0

This version has the random number seed and the random seed variable. It also has the output of the image of the dice numbers 1 - 6.



1.2.0

With adding the game features to this version. Adding the number seed and input validation. It also asked how many dices you want to roll and the images. It has the option of entering 0 to end, but that does not work. It gave the total and difference of the amounts along with the message of winning and losing. It also asks if you want to play again. The problem with this version is that if you want to play again, and if you press yes, it asked for the targeted amount but then it bugs out and asks if you want to play again.

```
=============
| ●       ● |
| ●       ● |
| ●       ● |
=============

You total amount so far is 30
The difference between what you rolled and your target number is:  -5
sucks to sucks
Do you want to play again? y/n
y
What number do you want to target to from 1-25?
2
Do you want to play again? y/n
```

But if you don't want to play again, it thanks you for playing.

1.3.0

With this version, it kinda became like blackjack. This had a ton of errors in this version. Invalid input error after picking a number 1 -21 after the second round of playing. Asking if the user wants to play again after putting their targetted number amount. Remove '0' to exit since there was no way to exit without a bug. If you want to play again, it started to add from the previous game what the total sum was. After playing more, the losing message kept popping up but still ask for more rolls since you have not reached the targeted amount. After winning, it would ask how many dices to roll and then restart by asking the targetted amount.

```
What number do you want to target to from 1-21?
45
Invalid Input, Please enter a number from 1-21
45
Invalid Input, Please enter a number from 1-21
3
Do you want to play again? y/n
```

```
What number do you want to target to from 1-21?
12
Do you want to play again? y/n
```

1.4.0

Fix looping and nesting. Added switch case for messaging. Fixed amount when restarting loop. Final version.

4 Pseudocode

initialize variables
calculate random time seed
display the objective of game

do
ask user for targeted amount
while target is over 21 or under 1
display invalid input, ask user for targeted amount again
while sum is less or equal to target
ask user how many rolls they want
while rolls does not equal 0
if rolls equal to 1
calculate random dice number of dice #1
if dice#1 is equal to one
display dice input
add incremet sum of dice to total
if dice#1 is equal to two
display dice input
add incremet sum of dice to total
if dice#1 is equal to three
display dice input
add incremet sum of dice to total
if dice#1 is equal to four
display dice input
add incremet sum of dice to total
if dice#1 is equal to five
display dice input
add incremet sum of dice to total
if dice#1 is equal to six
display dice input
add incremet sum of dice to total
if rolls equal to two
calculate random dice number of dice #1
calculate random dice number of dice #2
if dice#1 is equal to one
display dice input
add incremet sum of dice to total
if dice#1 is equal to two

display dice input
add incremet sum of dice to total
if dice#1 is equal to three
display dice input
add incremet sum of dice to total
if dice#1 is equal to four
display dice input
add incremet sum of dice to total
if dice#1 is equal to five
display dice input
add incremet sum of dice to total
if dice#1 is equal to six
display dice input
add incremet sum of dice to total
if dice#2 is equal to one
display dice input
add incremet sum of dice to total
if dice#2 is equal to two
display dice input
add incremet sum of dice to total
if dice#2 is equal to three
display dice input
add incremet sum of dice to total
if dice#2 is equal to four
display dice input
add incremet sum of dice to total
if dice#2 is equal to five
display dice input
add incremet sum of dice to total
if dice#2 is equal to six
display dice input
add incremet sum of dice to total
calculate difference of target and sum
display total amount
display difference
if sum is equal to target
check 'w'
else if sum is greater than target
check 'l'
switch check

```
                case 'w'
                  display message you won
                  break
                case 'l'
                  display message you lost
                  break
        display play again
        ask user input
        if yes
          again is true
        else if no
          again is false
          display thank you message
while again is not equal to false

return 0;
```

5 Concepts Used

chapter — topic —— (points) —— where in line #

Chapter 2

- ☑ cout —— #34-36
- ☑ libraries (8) —— #10-13
- ☑ integers(3) ——#21
- ☑ characters(3)——#23
- ☑ strings(3)——#26
- ☑ floats(3)——#22
- ☑ bools(4)——#25
- ☑ variables 7 char>——#21
- ☑ comments 20% (5)——#40,43

Chapter 3

- ☑ cin——#42
- ☐ type casting(4)——
- ☑ formatting output(4)——#34
- ☑ strings(3)——#26
- ☑ math library(4)——#28

Chapter 4

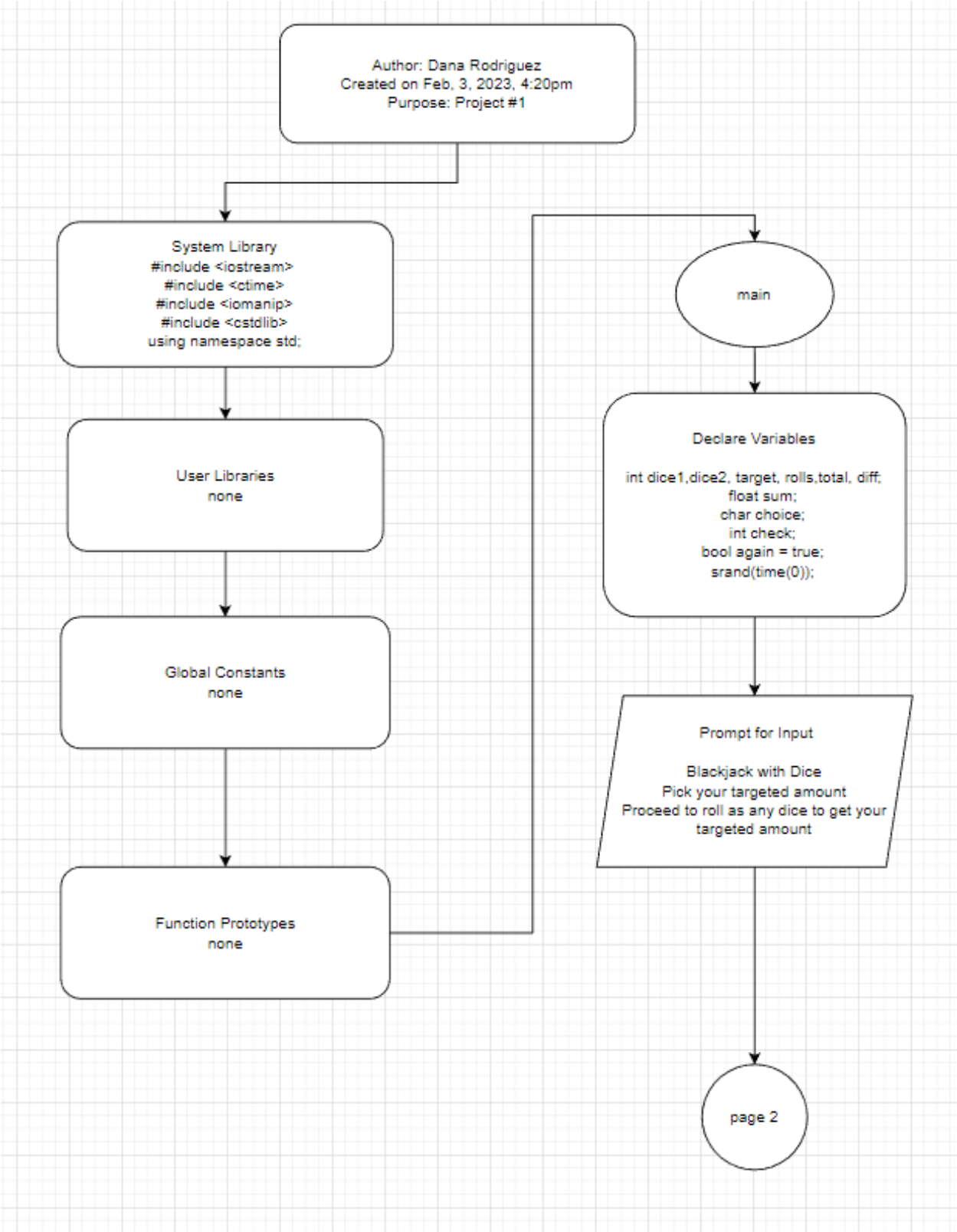
- ☑ if(4)——#50
- ☑ if-else(4)——#63
- ☑ nesting(4)——#54,56
- ☑ if-else if(4)——#296
- ☑ logical operator (4)——#44
- ☑ validating user input(4)——#45
- ☐ conditional operator(4)——
- ☑ swtich(4)——#283

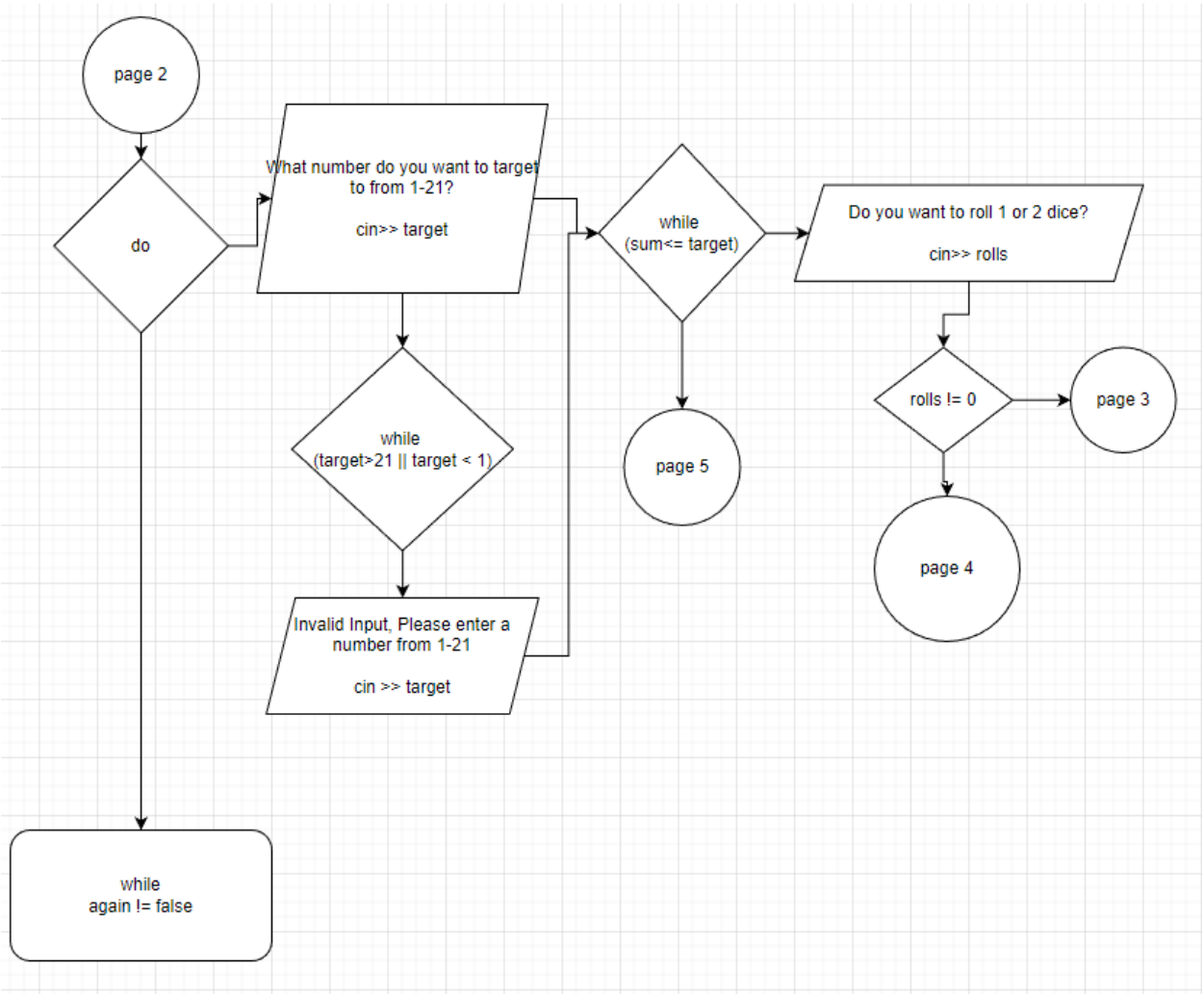
Chapter 5

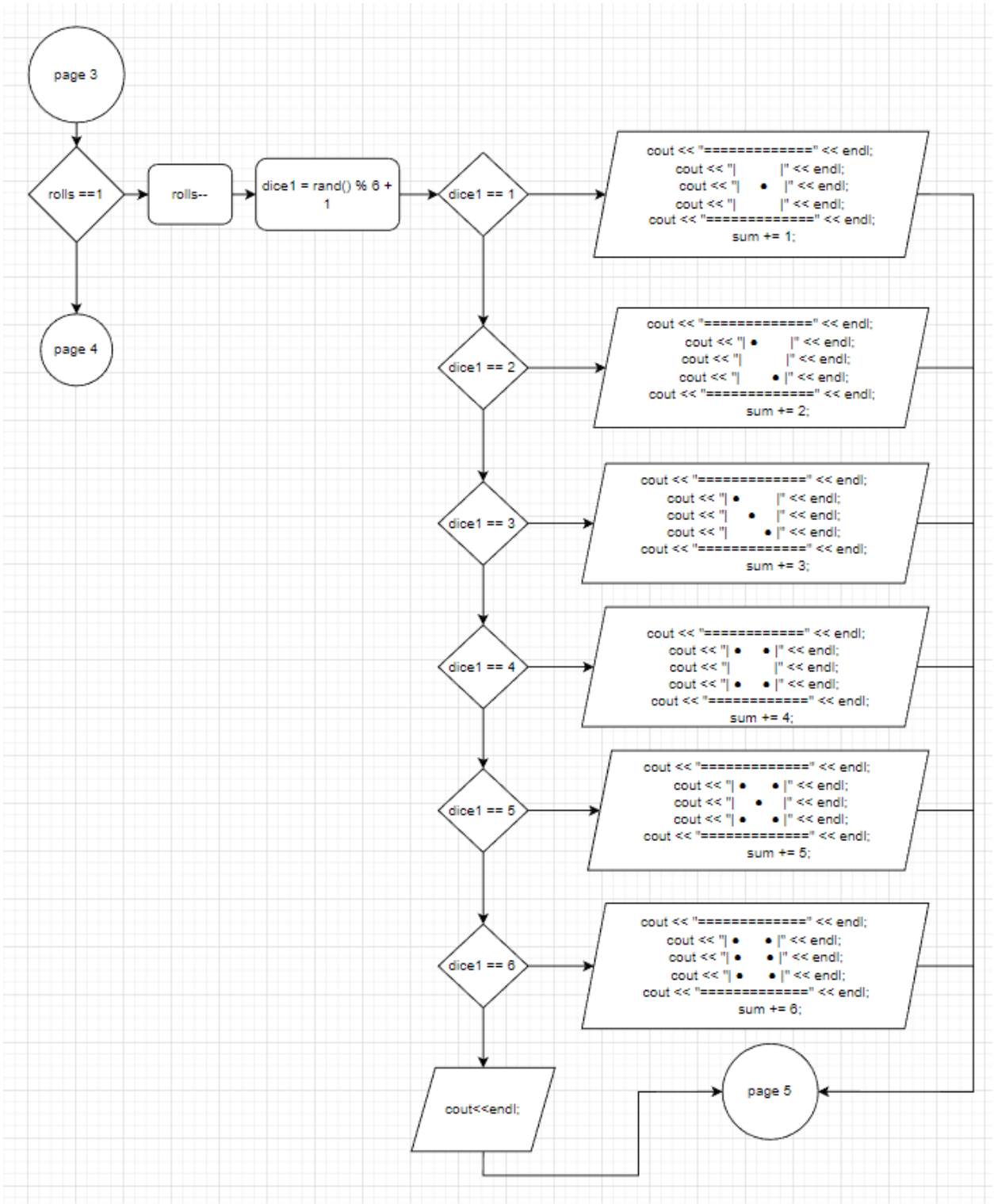
- ☑ incremet/decrement(4)——#144
- ☑ while(4)——#54
- ☑ do while(4)——#39,49
- ☐ for loop(4)——
- ☐ files input/output(8)——

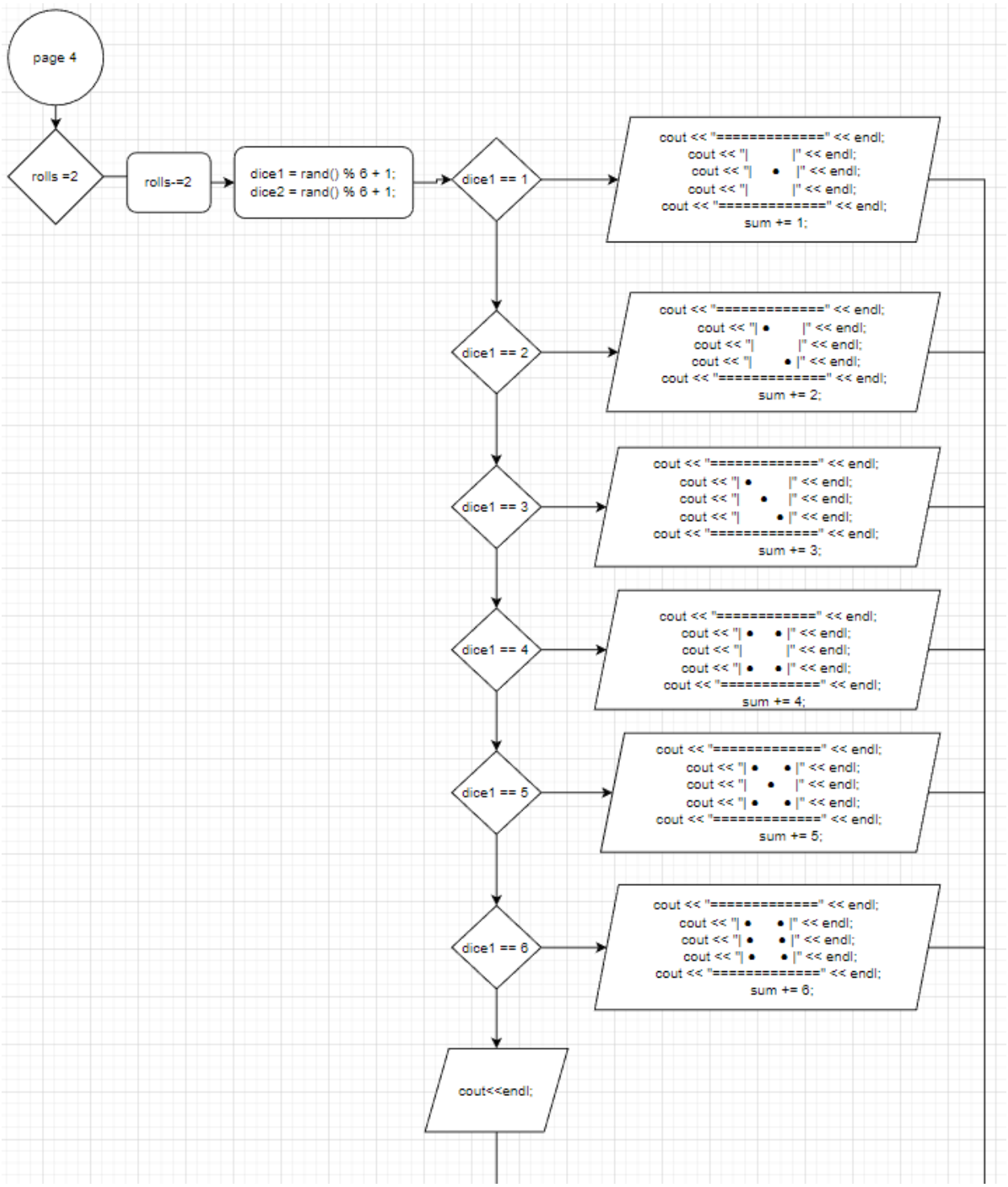
total: 80

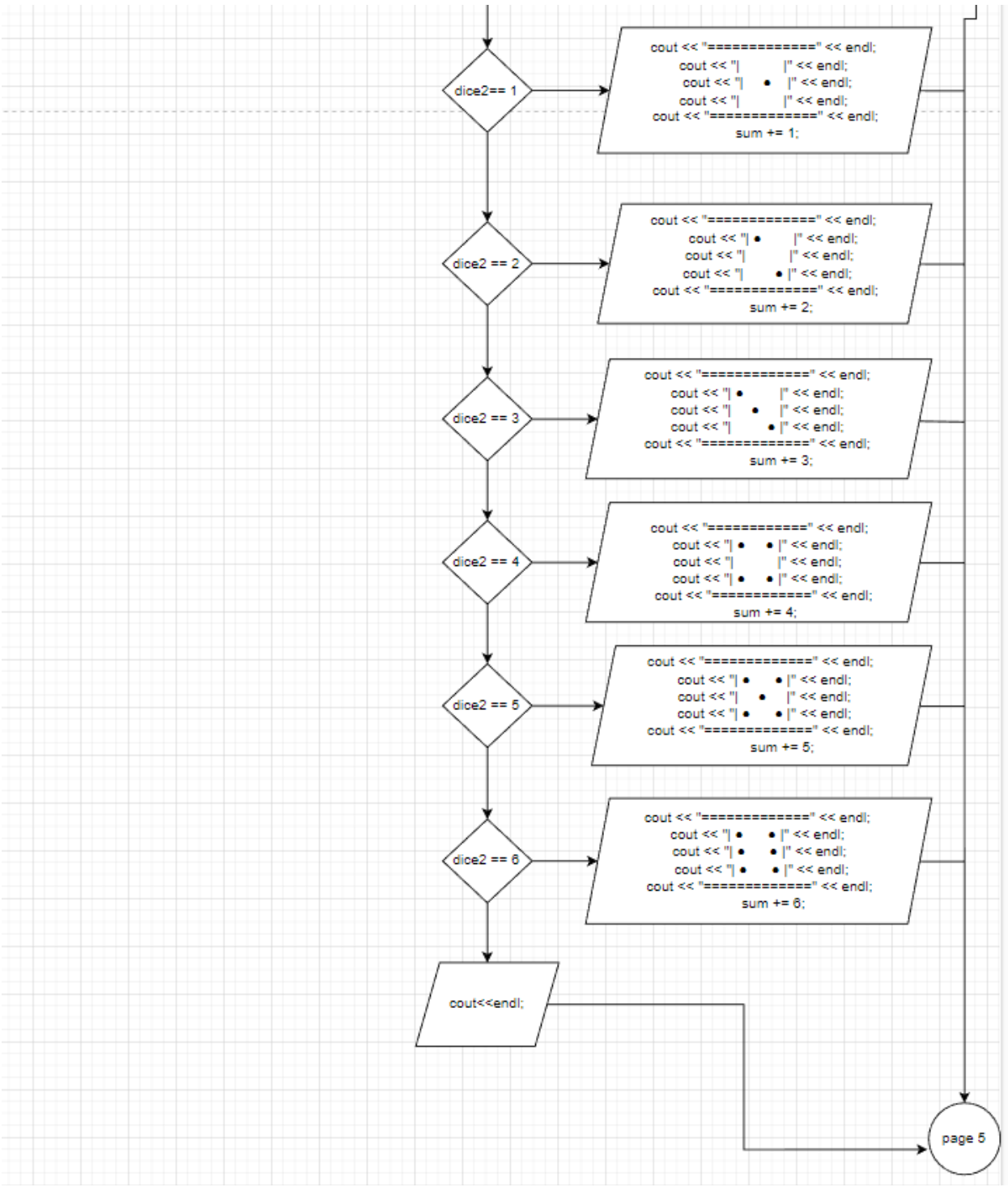
6 Flowchart

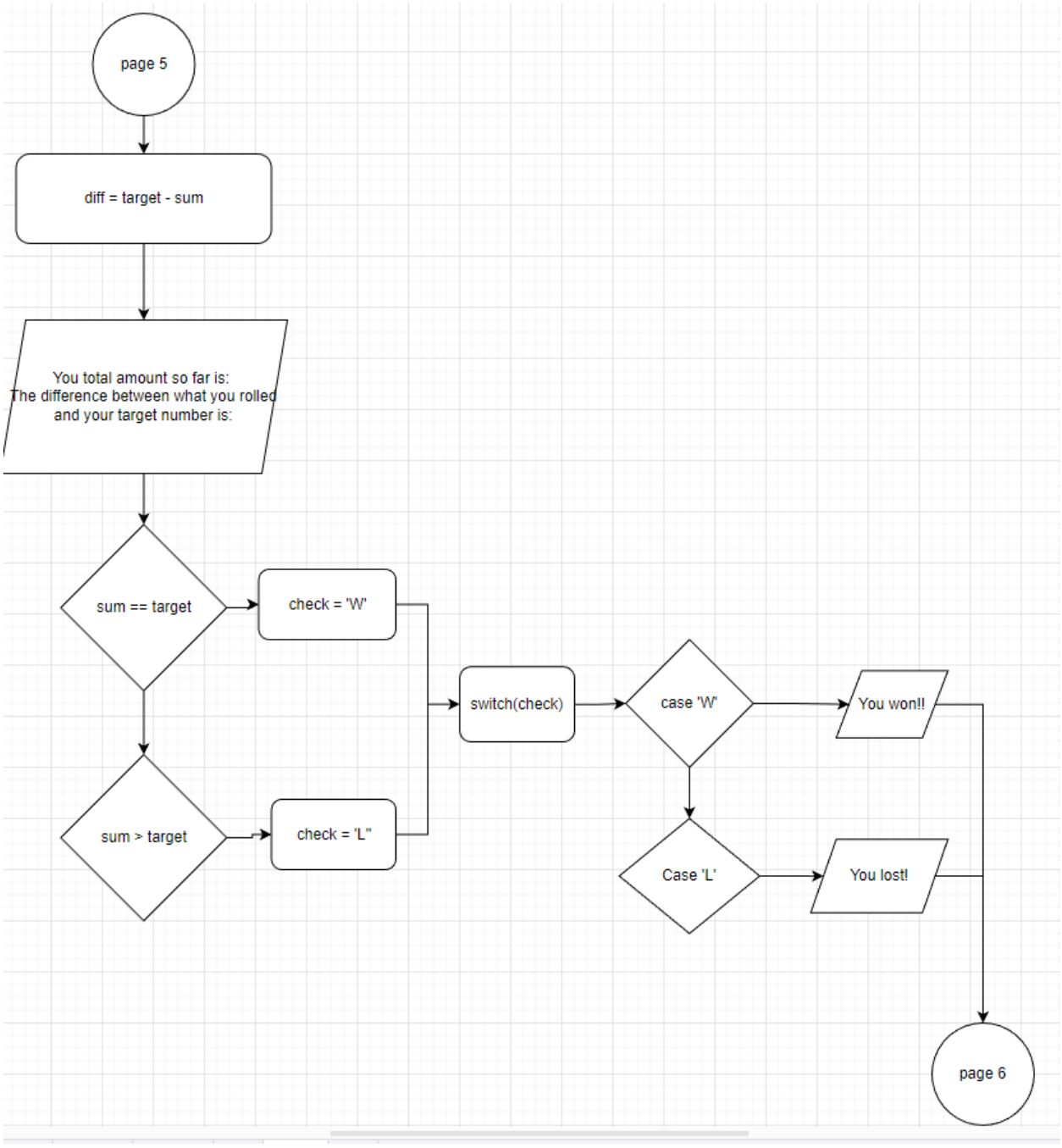

Author: Dana Rodriguez
Created on Feb, 3, 2023, 4:20pm
Purpose: Project #1
System Library
#include <iostream>
#include <ctime>
#include <iomanip>
#include <cstdlib>
using namespace std;
User Libraries
none
Global Constants
none
Function Prototypes
none
main
Declare Variables
int dice1,dice2, target, rolls,total, diff;
float sum;
char choice;
int check;
bool again = true;
srand(time(0));
Prompt for Input
Blackjack with Dice
Pick your targeted amount
Proceed to roll as any dice to get your targeted amount
page 2

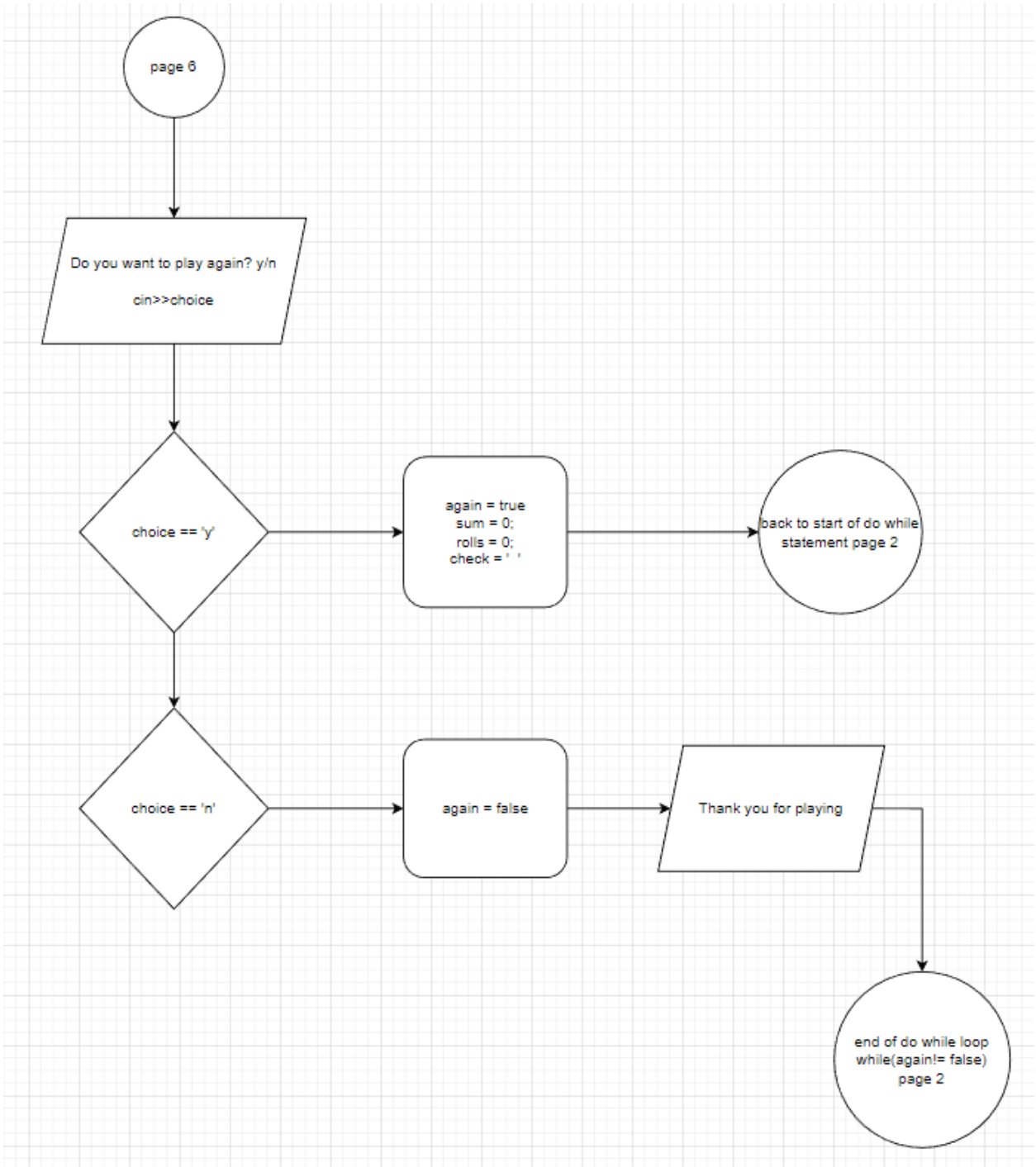

page 2
do
What number do you want to target to from 1-21?
cin>> target
while (target>21 || target < 1)
Invalid Input, Please enter a number from 1-21
cin >> target
while (sum<= target)
page 5
Do you want to roll 1 or 2 dice?
cin>> rolls
rolls != 0
page 3
page 4
while again != false


page 3
rolls ==1
rolls--
dice1 = rand() % 6 + 1
dice1 == 1
page 4
cout << "==========" << endl;
cout << "| |" << endl;
cout << "| ● |" << endl;
cout << "| |" << endl;
cout << "==========" << endl;
sum += 1;
dice1 == 2
cout << "==========" << endl;
cout << "| ● |" << endl;
cout << "| |" << endl;
cout << "| ● |" << endl;
cout << "==========" << endl;
sum += 2;
dice1 == 3
cout << "==========" << endl;
cout << "| ● |" << endl;
cout << "| ● |" << endl;
cout << "| ● |" << endl;
cout << "==========" << endl;
sum += 3;
dice1 == 4
cout << "==========" << endl;
cout << "| ● ● |" << endl;
cout << "| |" << endl;
cout << "| ● ● |" << endl;
cout << "==========" << endl;
sum += 4;
dice1 == 5
cout << "==========" << endl;
cout << "| ● ● |" << endl;
cout << "| ● |" << endl;
cout << "| ● ● |" << endl;
cout << "==========" << endl;
sum += 5;
dice1 == 6
cout << "==========" << endl;
cout << "| ● ● |" << endl;
cout << "| ● ● |" << endl;
cout << "| ● ● |" << endl;
cout << "==========" << endl;
sum += 6;
cout<<endl;
page 5


page 4
rolls =2
rolls-=2
dice1 = rand() % 6 + 1;
dice2 = rand() % 6 + 1;
dice1 == 1
cout << "=============" << endl;
cout << "| |" << endl;
cout << "| ● |" << endl;
cout << "| |" << endl;
cout << "=============" << endl;
sum += 1;
dice1 == 2
cout << "=============" << endl;
cout << "| ● |" << endl;
cout << "| |" << endl;
cout << "| ● |" << endl;
cout << "=============" << endl;
sum += 2;
dice1 == 3
cout << "=============" << endl;
cout << "| ● |" << endl;
cout << "| ● |" << endl;
cout << "| ● |" << endl;
cout << "=============" << endl;
sum += 3;
dice1 == 4
cout << "=============" << endl;
cout << "| ● ● |" << endl;
cout << "| |" << endl;
cout << "| ● ● |" << endl;
cout << "=============" << endl;
sum += 4;
dice1 == 5
cout << "=============" << endl;
cout << "| ● ● |" << endl;
cout << "| ● |" << endl;
cout << "| ● ● |" << endl;
cout << "=============" << endl;
sum += 5;
dice1 == 6
cout << "=============" << endl;
cout << "| ● ● |" << endl;
cout << "| ● ● |" << endl;
cout << "| ● ● |" << endl;
cout << "=============" << endl;
sum += 6;
cout<<endl;


dice2== 1
cout << "==========" << endl;
cout << "| |" << endl;
cout << "| ● |" << endl;
cout << "| |" << endl;
cout << "==========" << endl;
sum += 1;
dice2 == 2
cout << "==========" << endl;
cout << "| ● |" << endl;
cout << "| |" << endl;
cout << "| ● |" << endl;
cout << "==========" << endl;
sum += 2;
dice2 == 3
cout << "==========" << endl;
cout << "| ● |" << endl;
cout << "| ● |" << endl;
cout << "| ● |" << endl;
cout << "==========" << endl;
sum += 3;
dice2 == 4
cout << "==========" << endl;
cout << "| ● ● |" << endl;
cout << "| |" << endl;
cout << "| ● ● |" << endl;
cout << "==========" << endl;
sum += 4;
dice2 == 5
cout << "==========" << endl;
cout << "| ● ● |" << endl;
cout << "| ● |" << endl;
cout << "| ● ● |" << endl;
cout << "==========" << endl;
sum += 5;
dice2 == 6
cout << "==========" << endl;
cout << "| ● ● |" << endl;
cout << "| ● ● |" << endl;
cout << "| ● ● |" << endl;
cout << "==========" << endl;
sum += 6;
cout<<endl;
page 5


page 5
diff = target - sum
You total amount so far is:
The difference between what you rolled and your target number is:
sum == target
check = 'W'
sum > target
check = 'L"
switch(check)
case 'W'
You won!!
Case 'L'
You lost!
page 6


page 6
Do you want to play again? y/n
cin>>choice
choice == 'y'
again = true
sum = 0;
rolls = 0;
check = ' '
back to start of do while statement page 2
choice == 'n'
again = false
Thank you for playing
end of do while loop
while(again!= false)
page 2

7 Program Code

```
/*
 * File:   main.cpp
 * Author: danak
 * Created on Feb 2, 2023
 * Purpose: Project #1
 */
//System Lib

#include <iostream> //Input Output Library
#include <ctime>
#include <iomanip>
#include <cstdlib>
#include <string>
using namespace std;


int main(int argc, char** argv) {

    //variables

    int dice1,dice2, rolls,total, diff;
    int sum = 0; // sum of the dices
    char choice; // choice of either yes or no
    int check; // to know if they win or lose
    string name; // players name
    int target; // target number

    bool again = true;

    // random number seed
    srand(time(0));

    cout<<endl;

    //introduction to the game

    cout<< " \t Guessing game with dice\n";
    cout<< "Pick your targeted amount"<<endl;
    cout<< "Proceed to roll as any dice to get your targeted amount"<<endl;
    cout<< "What is your name?"<<endl;
    cin>> name;

    do{
        //asking the user how many they want to target & user inputs answer
        cout<< "What number do you want to target to from 1-21?"<<endl;
            cin >> target;
```

```
// input validation
while (target>21 || target < 1){
   cout<<"Invalid Input, Please enter a number from 1-21"<<endl;
   cin >> target;
}
//if sum of the dice is less than the target, continue
while (sum<=target){
   cout<< "Do you want to roll 1 or 2 dice?"<<endl;
   cin >> rolls;

      // if rolls does not equal zero
      while(rolls != 0){
         // if roll equal to one
         if (rolls == 1){
            //subtract one
            rolls--;
            //dice #1 and randomize the number
            //value of dice #1 (1-6)
            dice1 = rand() % 6 + 1;
               if (dice1 == 1)
               {
                  cout << "=============" << endl;
                  cout << "|           |" << endl;
                  cout << "|     ●     |" << endl;
                  cout << "|           |" << endl;
                  cout << "=============" << endl;
                  // adds to sum
                  sum += 1;
               }//if
               else if (dice1 == 2)
               {
                  cout << "=============" << endl;
                  cout << "| ●         |" << endl;
                  cout << "|           |" << endl;
                  cout << "|         ● |" << endl;
                  cout << "=============" << endl;
                  // adds to sum
                  sum += 2;
               }//else if
               else if (dice1 == 3)
               {
                  cout << "=============" << endl;
                  cout << "| ●         |" << endl;
                  cout << "|     ●     |" << endl;
                  cout << "|         ● |" << endl;
                  cout << "=============" << endl;
                  // adds to sum
                  sum += 3;
```

```
        }//else if
        else if (dice1 == 4)
        {
           cout << "=============" << endl;
           cout << "| ●     ● |" << endl;
           cout << "|           |" << endl;
           cout << "| ●     ● |" << endl;
           cout << "=============" << endl;
           // adds to sum
           sum += 4;
        }//else if
        else if (dice1 == 5)
        {
           cout << "==============" << endl;
           cout << "| ●      ● |" << endl;
           cout << "|     ●     |" << endl;
           cout << "| ●      ● |" << endl;
           cout << "==============" << endl;
           // adds to sum
           sum += 5;
        }
        //else if
        else if (dice1 == 6)
        {
           cout << "==============" << endl;
           cout << "| ●      ● |" << endl;
           cout << "| ●      ● |" << endl;
           cout << "| ●      ● |" << endl;
           cout << "==============" << endl;
           // adds to sum
           sum += 6;
        }
        //else if

        cout << endl;

        }
    //dice #2
    else if (rolls == 2){
       rolls -= 2;
       //value of dice #1 (1-6)
       dice1 = rand() % 6 + 1;
       //value of dice #2 (1-6)
       dice2 = rand() % 6 + 1;

        if (dice1 == 1)
        {
           cout << "==============" << endl;
           cout << "|           |" << endl;
```

```
    cout << "|     ●    |" << endl;
    cout << "|          |" << endl;
    cout << "==========" << endl;
    // adds to sum
    sum += 1;
}//if
else if (dice1 == 2)
{
    cout << "==========" << endl;
    cout << "| ●        |" << endl;
    cout << "|          |" << endl;
    cout << "|        ● |" << endl;
    cout << "==========" << endl;
    // adds to sum
    sum += 2;
}//else if
else if (dice1 == 3)
{
    cout << "==========" << endl;
    cout << "| ●        |" << endl;
    cout << "|     ●    |" << endl;
    cout << "|        ● |" << endl;
    cout << "==========" << endl;
    // adds to sum
    sum += 3;
}//else if
else if (dice1 == 4)
{
    cout << "==========" << endl;
    cout << "| ●     ● |" << endl;
    cout << "|          |" << endl;
    cout << "| ●     ● |" << endl;
    cout << "==========" << endl;
    // adds to sum
    sum += 4;
}//else if
else if (dice1 == 5)
{
    cout << "==========" << endl;
    cout << "| ●     ● |" << endl;
    cout << "|     ●    |" << endl;
    cout << "| ●     ● |" << endl;
    cout << "==========" << endl;
    // adds to sum
    sum += 5;
}//else if
else if (dice1 == 6)
{
    cout << "==========" << endl;
```

```
    cout << "| ●      ● |" << endl;
    cout << "| ●      ● |" << endl;
    cout << "| ●      ● |" << endl;
    cout << "==============" << endl;
    // adds to sum
    sum += 6;
}//else if

cout << endl;

if (dice2 == 1)
{
    cout << "==============" << endl;
    cout << "|           |" << endl;
    cout << "|     ●     |" << endl;
    cout << "|           |" << endl;
    cout << "==============" << endl;
    // adds to sum
    sum += 1;
}//if
else if (dice2 == 2)//
{
    cout << "==============" << endl;
    cout << "| ●         |" << endl;
    cout << "|           |" << endl;
    cout << "|         ● |" << endl;
    cout << "==============" << endl;
    // adds to sum
    sum += 2;
}//else if
else if (dice2 == 3)
{
    cout << "==============" << endl;
    cout << "| ●         |" << endl;
    cout << "|     ●     |" << endl;
    cout << "|         ● |" << endl;
    cout << "==============" << endl;
    // adds to sum
    sum += 3;
}//else if
else if (dice2 == 4)
{
    cout << "==============" << endl;
    cout << "| ●      ● |" << endl;
    cout << "|           |" << endl;
    cout << "| ●      ● |" << endl;
    cout << "==============" << endl;
    // adds to sum
    sum += 4;
```

```
            }//else if
            else if (dice2 == 5)
            {
               cout << "==============" << endl;
               cout << "| ●      ● |" << endl;
               cout << "|     ●     |" << endl;
               cout << "| ●      ● |" << endl;
               cout << "==============" << endl;
               // adds to sum
               sum += 5;
            }//else if
            else if (dice2 == 6)
            {
               cout << "==============" << endl;
               cout << "| ●      ● |" << endl;
               cout << "| ●      ● |" << endl;
               cout << "| ●      ● |" << endl;
               cout << "==============" << endl;
               // adds to sum
               sum += 6;


            }//else if
         }
      }
// what they need to target amount

diff = target - sum;

   // states total amount
   cout <<"You total amount so far is " <<sum<<endl;
   cout << "The difference between what you rolled and your target number is:  "<<diff<<endl;
   // to find out what they need to go to left

   //to use switch case
   //if the sum is the target go to 'w'
   if(sum==target){
      check = 'W';

   }
   //if the sum is greater than the target, go to 'l'
   else if (sum>target){
      check= 'L';

   }
   //the message to the player of what their results are
   switch(check){
      case 'W':
         cout << "You won " <<name<<"!!! :D "<<endl;
```

```
                    break;
                case 'L':
                    cout << "You lost! Sorry "<<name<<" :( "<<endl;
                    break;
            }

        }
        //asking if they want to play again
        cout<<"Do you want to play again? y/n"<<endl;
        cin>> choice;
        if (choice == 'y'){
                // go back to loop
                again = true;
                    sum = 0;
                    rolls =0;
                    check = ' ';
                }
        //ends game
        else if(choice == 'n'){
                again = false;
                    cout<< "Thank you for playing "<<name<<"!!!!"<<endl;
                }

    }while (again != false);

  return 0;
}
```