Word Guessing Game

Project 1

CSC-48102

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Introduction

Game Title: Word Guessing Game

This is a word puzzle game similar to “Hangman” (or exactly like it).
The player will first be asked for the game difficulty. Depending on the difficulty, the player will have to guess the word that the computer randomly picks ranging from three to fifteen letter words.

The player will have to guess each letter - no clues. A total of ten guesses (or turn) per game and the player will lose if they run out of life (number of guesses) before they could figure out each letter of the word. The words are random and ranging from different varieties of themes, so do your best!

There is no timer (sadly), so take your time! If the player entered a letter that is already guessed previously, they will get another chance and there is no point deduction from their life. If they run out of life, the answered will be shown. If they figure out the word, they win! Yay!

Summary

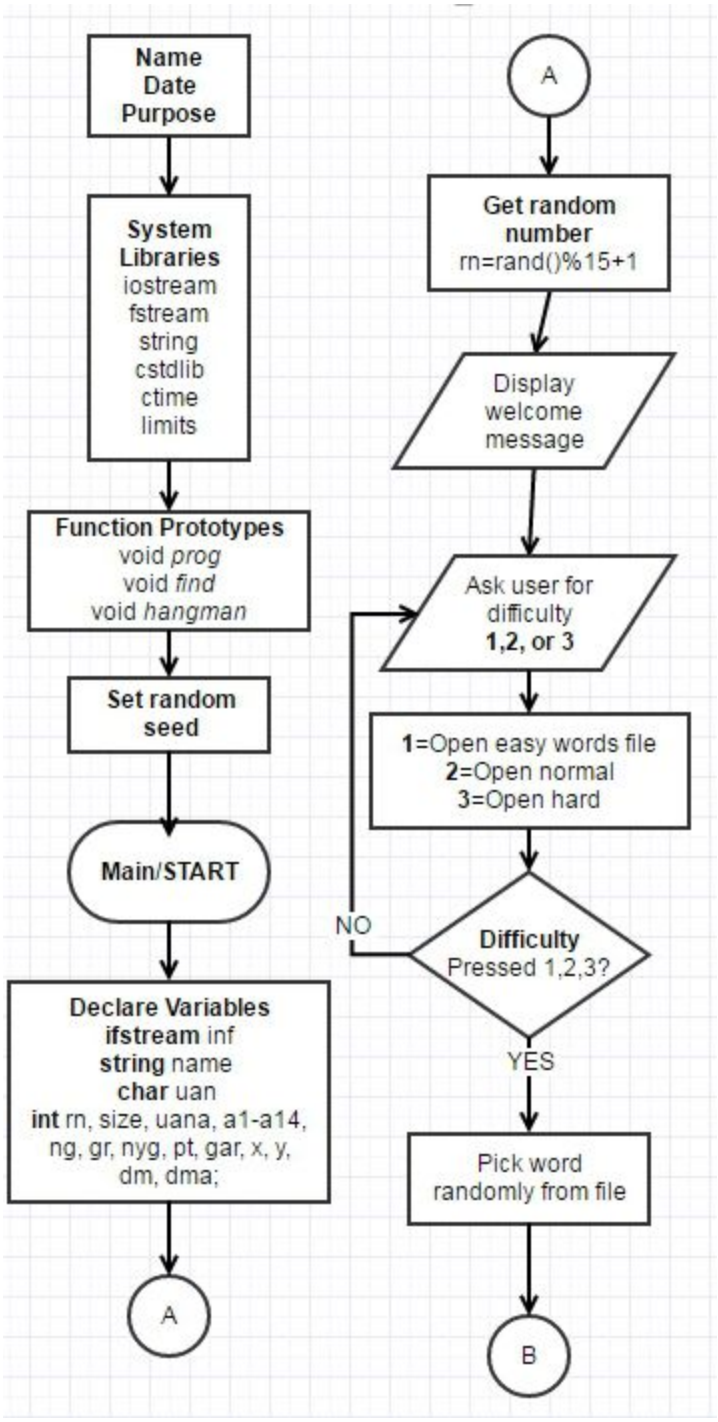
Project size: Main Code - 192 lines
Functions/Hangman drawing - 368 lines
Total - 560 lines

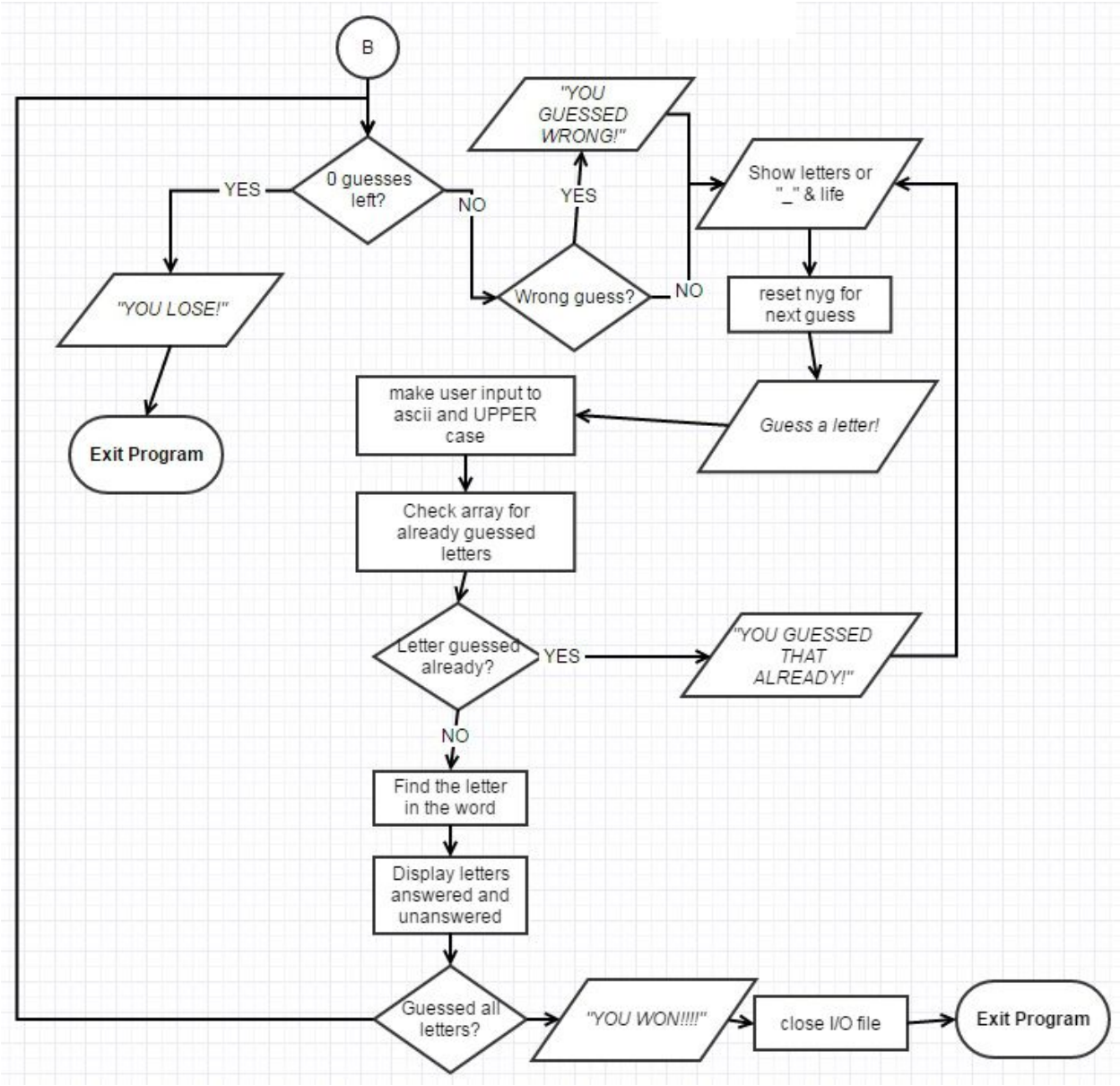
Variables: 29
Functions: 3

This project includes functions, random seed generator, random int, strings, switch statement, do-while loops, while loops, for loops, I/O stream files, if-else statements, array, and static-casting.

I used some concepts that we have not yet covered like arrays and limits(when user input a bad entry). Though not fully knowing them, I managed to learn from online tutorials and get my codes working.

This game has potential to be extended for the next project. For example, I wanted to implement a timer for when a user will have to guess a letter to have a little pressure and not a boring or relaxing game but I couldn't think of a way of doing it. Also there is one bug that I cannot fix. I do not know how to limit a user's input into just one character or letter. I hope in the next project I will be able to implement these things and improve this game or make an entirely new better game.


Name
Date
Purpose
System
Libraries
iostream
fstream
string
cstdlib
ctime
limits
Function Prototypes
void prog
void find
void hangman
Set random
seed
Main/START
Declare Variables
ifstream inf
string name
char uan
int rn, size, uana, a1-a14,
ng, gr, nyg, pt, gar, x, y,
dm, dma;
A
A
Get random
number
rn=rand()%15+1
Display
welcome
message
Ask user for
difficulty
1,2, or 3
1=Open easy words file
2=Open normal
3=Open hard
Difficulty
Pressed 1,2,3?
NO
YES
Pick word
randomly from file
B


B
0 guesses left?
YES
NO
"YOU LOSE!"
Exit Program
Wrong guess?
YES
NO
"YOU GUESSED WRONG!"
Show letters or "_" & life
reset nyg for next guess
Guess a letter!
make user input to ascii and UPPER case
Check array for already guessed letters
Letter guessed already?
YES
"YOU GUESSED THAT ALREADY!"
NO
Find the letter in the word
Display letters answered and unanswered
Guessed all letters?
"YOU WON!!!!"
close I/O file
Exit Program

Pseudo Code

Start
Generate random seed
Get a random number
Display welcome message

Difficulty
Ask user for difficulty (easy, normal, hard)
Get user input

If press 1
    Open Easy words list file
If press 2
    Open Normal words list file
If press 3
    Open Hard words list file
If input invalid
    Repeat til answer 1,2, or 3

Random word
Pick random word from the list
Set total points to how many letters the word has

Conditions
If 0 life
    Display "YOU LOSE"
    Exit Game
If guess wrong
    Display "You Guessed wrong!"

Subtract from life

If same letter

Display "You already guessed that letter!"

Do not subtract from life

Display

Display Hangman

Display life

Display each letter of the word

Ask user for a letter input

Process

Convert user's input char into ascii

If lowercase

Make the char uppercase - 32

If letter already guessed

Repeat ask user for another letter

Else

Store input into array

If user's letter is in the word

If not, subtract from life

Go to next line of array to store next input

Win

If points = number of letters in the word

Yes - display "YOU WIN!" and exit game

No - repeat to ask another guess

Variables

Type	Name	Description
ifstream	inf	Variable of file to open to get word
string	name	The word to be guessed
char	uan	User’s letter guess
int	rn	Random Number
	size	How many letters the word has
	uana	User's letter input converted to ascii
	a1-a14	Letter from 1-14
	ng	Number of guesses/Life
	gr	If they guessed wrong
	nyg	Letter not yet guess
	pt	Points
	gar	We store user's guesses(array)
	x	Number used to go through array when searching for already guessed letters
	y	Number used to switch array value to input user's guessed
	dm	User's difficulty choice
	dma	If user answer is valid from choosing difficulty

Program

```
//System Libraries
#include <iostream>     //Input/Output objects
#include <fstream>      //File I/O
#include <string>       //String Library
#include <cstdlib>      //Random Generator
#include <ctime>        //Time
#include <limits>       //Bad entry/input
using namespace std;    //Name-space used in the System Library

//Function prototypes
void prog(int,string,int,int,int,int,int,int,int,int,int,int,int,int,int,int);
void
find(int,string,int&,int&,int&,int&,int&,int&,int&,int&,int&,int&,int&,int&,int&,int&,int&
);
void hangman(int);

//Execution Begins Here!
int main(int argc, char** argv) {
   //Set random seed
   srand(static_cast<unsigned int>(time(0)));

   //Declaration of Variables
   ifstream    inf;                        //Open list of words from a file

   string  name;                           //Word that computer randomly picks from the list

   char    uan;                            //User's letter guess


   int     rn,                             //Random number
           size,                           //How many letters the word has
           uana,                           //User's letter input converted to ascii
           a1,                             //Letter 1-14
           a2,
           a3,
```

```
        a4,
        a5,
        a6,
        a7,
        a8,
        a9,
        a10,
        a11,
        a12=0,
        a13,
        a14,
        ng=10,                  //Number of guesses/Life
        gr=1,                   //If they guessed wrong
        nyg=0,                  //Letter not yet guess
        pt,                     //Points
        gar[25],                //We store user's guesses
        x=0,                    //Number used to go through array when searching for already
guessed letters
        y=0,                    //Number used to switch array value to input user's guessed
        dm,                     //User's difficulty choice
        dma=0;                  //If user answer is valid from choosing difficulty

   rn=rand()%15+1;                  //Random number from 1-15 to pick a random word
from the list of 15 lines from file

   cout<<"WELCOME TO THE \"WORD GUESSING
GAME\""<<endl<<endl<<endl<<endl<<endl;    //Start output

   do                                          //Repeat until answered correctly (pick
difficulty)
   {
      cout<<"Please select difficulty!"<<endl;                    //Ask user for difficulty
      cout<<"1=Easy(1-5 letters), 2=Normal(8-10 letters), 3=HARD(10+ letters)"<<endl;
      cin>>dm;

      switch(dm)                                   //Depending on answer, open file either
easy, normal, or hard
      {
         case 1: { inf.open("ewords.dat"); dma=0; break; }
```

```
        case 2: { inf.open("nwords.dat"); dma=0; break; }
        case 3: { inf.open("hwords.dat"); dma=0; break; }
        default: { cout<<endl<<"Please enter 1, 2, or 3!"<<endl; dma=1; break; }
      }

      while(cin.fail())                                    //If they answered invalid (not 1,2, or
3) do not accept
      {
        cin.clear();
        cout<<endl<<endl;
        cin.ignore(numeric_limits<streamsize>::max(), '\n');
      }

   }while(dma==1);

   for(int rn1=rn;rn1>0;rn1--)                                  //Goes through the list of words
from the file
   {
      inf>>name;
   }

   size=name.size();                                          //Get how many letters from the word

   do                                                   //Repeat until score is the same as the size
of the word to win
   {
      do                                                //Repeat until user guesses a new letter
      {
        if(ng==0)                                 //If number of guesses/Life is 0, show answer,
show they LOSE and exit game!
        {
          cout<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl;
          cout<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl;
          cout<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl;

          hangman(ng);                                  //Show hangman

          cout<<"YOU LOSE!!!"<<endl<<endl;                    //Lose, exit game!
          cout<<"The answer is: "<<name;
```

```
            exit(0);
        }

        cout<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl;
        cout<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl;
        cout<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl;

        hangman(ng);                                    //Show hangman

        if (gr==0)                                      //If wrong guess, subtract from life (number of
guesses), display warning
        {
            cout<<"YOU GUESSED WRONG!!! "<<ng<<" guesses left!"<<endl;
        }

        if (nyg==1) cout<<"YOU ALREADY GUESSED THAT LETTER! Try Again!"<<endl;
//If they guessed the letter already

        cout<<endl;
        cout<<"Number of Guesses left = "<<ng<<endl;                    //Show number of
guesses left
        prog(size,name,a1,a2,a3,a4,a5,a6,a7,a8,a9,a10,a11,a12,a13,a14);        //Show current
letters/unknown letters

        nyg=0;                                          //Reset value if they guessed already for
next input
        cout<<endl;

        cout<<"Guess a letter: ";cin>>uan;                  //Ask user to guess a letter

        uana=static_cast<int>(uan);                     //Turn user input char into ascii

        if(uana>60 && uana<123)                         //If lower case
        {
            uana-=32;                                   //Make it UPPERCASE
        }

        for(int m=size;m>0;m--)                         //Check answer if already guessed
previously!
```

```
        {
          if(gar[x]==uana)                    //Go through all 25 values in array with x
          {
            cout<<endl;
            nyg=1;                            //If answer exists within array, switch value for if
they guessed the letter already
            gr=1;                             //Make sure they don't get penalized when they
input the same answer
          }
          x++;                                //Increase x for next value in array
        }
        x=0;                                  //Reset x to go back to the beginning of the array
      }while(nyg==1);                                 //Repeat to ask user for another answer
if already guessed

      gar[y]=uana;                                    //Save the letter user guessed to array gar!

      gr=0;                               //Reset guess right or wrong

      find(uana,name,a1,a2,a3,a4,a5,a6,a7,a8,a9,a10,a11,a12,a13,a14,gr,pt);   //Find if answer is
in the word, if not, subtract life

      prog(size,name,a1,a2,a3,a4,a5,a6,a7,a8,a9,a10,a11,a12,a13,a14);        //Display letters
answered and unanswered

      if (gr==0)                            //If wrong guess, subtract from life, display
warning
        {
          ng--;
        }

      y++;                                            //Go to next line in array

    }while(pt<size+1);                                //Exit loop if they guessed all the
letters

    cout<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl;
    cout<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl;
    cout<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl<<endl;
```

```
    prog(size,name,a1,a2,a3,a4,a5,a6,a7,a8,a9,a10,a11,a12,a13,a14);
    cout<<endl;
    cout<<"YOU WON THE GAME!!!"<<endl;                    //Announce they wonn

    //Process values -> Map inputs to Outputs

    //Display Output


    inf.close();                                          //Close the file
    //Exit Program
    return 0;
}
```

Functions

```
//000000011111111112222222222333333333344444444455555555556666666666777777777
7
//345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678
//************************  prog  ****************************************
//Purpose:  Display the known/guessed letters and unknowns (dash)
//Inputs:   Size       How many letters the word has in total
//          nm         The word itself
//          an1-an14   Each of the letters IF ALREADY GUESSED ranging from 1-14 (14 largest
word)
//Output:   We output/display each letter (if already guessed) or just display "_"
//*************************************************************************

void prog(int size, string nm, int an1, int an2, int an3, int an4, int an5, int an6, int an7, int an8, int
an9, int an10, int an11, int an12, int an13, int an14)
{
   if (size>=1)
   {
      if(an1==1) cout<<nm[0]<<" ";
      else cout<<"_ ";
   }
   if (size>=2)
   {
      if(an2==1) cout<<nm[1]<<" ";
      else cout<<"_ ";
   }
   if (size>=3)
   {
      if(an3==1) cout<<nm[2]<<" ";
      else cout<<"_ ";
   }
   if (size>=4)
   {
      if(an4==1) cout<<nm[3]<<" ";
      else cout<<"_ ";
   }
   if (size>=5)
```

```
{
   if(an5==1) cout<<nm[4]<<" ";
   else cout<<"_ ";
}
if (size>=6)
{
   if(an6==1) cout<<nm[5]<<" ";
   else cout<<"_ ";
}
if (size>=7)
{
   if(an7==1) cout<<nm[6]<<" ";
   else cout<<"_ ";
}
if (size>=8)
{
   if(an8==1) cout<<nm[7]<<" ";
   else cout<<"_ ";
}
if (size>=9)
{
   if(an9==1) cout<<nm[8]<<" ";
   else cout<<"_ ";
}
if (size>=10)
{
   if(an10==1) cout<<nm[9]<<" ";
   else cout<<"_ ";
}
if (size>=11)
{
   if(an11==1) cout<<nm[10]<<" ";
   else cout<<"_ ";
}
if (size>=12)
{
   if(an12==1) cout<<nm[11]<<" ";
   else cout<<"_ ";
}
```

```
   if (size>=13)
   {
      if(an13==1) cout<<nm[12]<<" ";
      else cout<<"_ ";
   }
   if (size>=14)
   {
      if(an14==1) cout<<nm[13]<<" ";
      else cout<<"_ ";
   }
}



//00000001111111111222222222233333333334444444445555555555666666666677777777
7
//34567890123456789012345678901234567890123456789012345678901234567890123456
//************************   find   ****************************************
//Purpose:  We find the user's letter guess if it is in the word, give point if
//          guessed correctly, then save that til end of game
//Inputs:   let         User's letter guess
//          nm          The word itself
//          an1-an14    Each of the letters ranging from 1-14 (14 largest word)
//          lf          If guess correctly then we change the value
//          p           Points if user's guess was right
//Output:   We change the values of an1-an14 for our prog function to display.
//          Also give points for each correct guess
//*************************************************************************

void find(int let, string nm, int& an1, int& an2, int& an3, int& an4, int& an5, int& an6, int&
an7, int& an8, int& an9, int& an10, int& an11, int& an12, int& an13, int& an14, int& lf, int& p)
{
   if (let==nm[0]) {an1=1; p++; lf=1;}
   if (let==nm[1]) {an2=1; p++; lf=1;}
   if (let==nm[2]) {an3=1; p++; lf=1;}
   if (let==nm[3]) {an4=1; p++; lf=1;}
   if (let==nm[4]) {an5=1; p++; lf=1;}
   if (let==nm[5]) {an6=1; p++; lf=1;}
   if (let==nm[6]) {an7=1; p++; lf=1;}
```

```
   if (let==nm[7]) {an8=1; p++; lf=1;}
   if (let==nm[8]) {an9=1; p++; lf=1;}
   if (let==nm[9]) {an10=1; p++; lf=1;}
   if (let==nm[10]) {an11=1; p++; lf=1;}
   if (let==nm[11]) {an12=1; p++; lf=1;}
   if (let==nm[12]) {an13=1; p++; lf=1;}
   if (let==nm[13]) {an14=1; p++; lf=1;}
}


//00000001111111111222222222233333333334444444445555555555666666666677777777
7
//34567890123456789012345678901234567890123456789012345678901234567890123456
//************************  HANGMAN  ***********************************
//Purpose:  Display Hangman every time/every screen
//Inputs:   life          User's number of guesses left
//Output:   Display Hangman depending on the number of guesses left
//*****************************************************************************

void hangman(int life)
{
   switch(life)
   {
      case 10:
      {
         break;
      }

      case 9:
      {
         cout<<"          "<<endl;
         cout<<"          "<<endl;
         cout<<"          "<<endl;
         cout<<"          "<<endl;
         cout<<"          "<<endl;
         cout<<"          "<<endl;
         cout<<"          "<<endl;
         cout<<"          "<<endl;
         cout<<"          "<<endl;
```

```
    cout<<"          "<<endl;
    cout<<"          "<<endl;
    cout<<"          "<<endl;
    cout<<"     "<<endl;
    cout<<"          "<<endl;
    cout<<"          "<<endl;
    cout<<"          "<<endl;
    cout<<"          "<<endl;
    cout<<"******************     "<<endl;
    break;
}

case 8:
{
    cout<<"     *"<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *       "<<endl;
    cout<<"     *              "<<endl;
    cout<<"******************     "<<endl;
    break;
}

case 7:
{
    cout<<"     **************"<<endl;
    cout<<"     *          "<<endl;
```

```
    cout<<"     *          "<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *       "<<endl;
    cout<<"     *              "<<endl;
    cout<<"******************     "<<endl;
    break;
}

case 6:
{
    cout<<"     **************"<<endl;
    cout<<"     *          *"<<endl;
    cout<<"     *          *"<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *       "<<endl;
    cout<<"     *              "<<endl;
    cout<<"******************     "<<endl;
```

```
    break;
}

case 5:
{
    cout<<"     **************"<<endl;
    cout<<"     *            *"<<endl;
    cout<<"     *            *"<<endl;
    cout<<"     *         *****"<<endl;
    cout<<"     *        *******"<<endl;
    cout<<"     *        *******"<<endl;
    cout<<"     *         *****"<<endl;
    cout<<"     *            "<<endl;
    cout<<"     *            "<<endl;
    cout<<"     *            "<<endl;
    cout<<"     *            "<<endl;
    cout<<"     *            "<<endl;
    cout<<"     *          "<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *       "<<endl;
    cout<<"     *              "<<endl;
    cout<<"******************      "<<endl;
    break;
}

case 4:
{
    cout<<"     **************"<<endl;
    cout<<"     *            *"<<endl;
    cout<<"     *            *"<<endl;
    cout<<"     *         *****"<<endl;
    cout<<"     *        *******"<<endl;
    cout<<"     *        *******"<<endl;
    cout<<"     *         *****"<<endl;
    cout<<"     *            *"<<endl;
    cout<<"     *            *"<<endl;
    cout<<"     *            *"<<endl;
    cout<<"     *            *"<<endl;
```

```
    cout<<"     *          *"<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *       "<<endl;
    cout<<"     *      "<<endl;
    cout<<"     *             "<<endl;
    cout<<"******************     "<<endl;
    break;
}

case 3:
{
    cout<<"     **************"<<endl;
    cout<<"     *          *"<<endl;
    cout<<"     *          *"<<endl;
    cout<<"     *        *****"<<endl;
    cout<<"     *       *******"<<endl;
    cout<<"     *       *******"<<endl;
    cout<<"     *        *****"<<endl;
    cout<<"     *          *"<<endl;
    cout<<"     *          **"<<endl;
    cout<<"     *          * *"<<endl;
    cout<<"     *          *  *"<<endl;
    cout<<"     *          *   *"<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *       "<<endl;
    cout<<"     *      "<<endl;
    cout<<"     *             "<<endl;
    cout<<"******************     "<<endl;
    break;
}

case 2:
{
    cout<<"     **************"<<endl;
    cout<<"     *          *"<<endl;
    cout<<"     *          *"<<endl;
    cout<<"     *        *****"<<endl;
```

```
    cout<<"     *       *******"<<endl;
    cout<<"     *       *******"<<endl;
    cout<<"     *        *****"<<endl;
    cout<<"     *         *"<<endl;
    cout<<"     *        ***"<<endl;
    cout<<"     *        * * *"<<endl;
    cout<<"     *       *  *  *"<<endl;
    cout<<"     *      *   *   *"<<endl;
    cout<<"     *         "<<endl;
    cout<<"     *        "<<endl;
    cout<<"     *       "<<endl;
    cout<<"     *      "<<endl;
    cout<<"     *            "<<endl;
    cout<<"******************     "<<endl;
    break;
}

case 1:
{
    cout<<"     ***************"<<endl;
    cout<<"     *         *"<<endl;
    cout<<"     *         *"<<endl;
    cout<<"     *        *****"<<endl;
    cout<<"     *       *******"<<endl;
    cout<<"     *       *******"<<endl;
    cout<<"     *        *****"<<endl;
    cout<<"     *         *"<<endl;
    cout<<"     *        ***"<<endl;
    cout<<"     *        * * *"<<endl;
    cout<<"     *       *  *  *"<<endl;
    cout<<"     *      *   *   *"<<endl;
    cout<<"     *         *"<<endl;
    cout<<"     *        *"<<endl;
    cout<<"     *       *"<<endl;
    cout<<"     *      *"<<endl;
    cout<<"     *            "<<endl;
    cout<<"******************     "<<endl;
    break;
}
```

```
        case 0:
        {
           cout<<"     **************"<<endl;
           cout<<"     *          *"<<endl;
           cout<<"     *          *"<<endl;
           cout<<"     *        *****"<<endl;
           cout<<"     *       *******"<<endl;
           cout<<"     *       *******"<<endl;
           cout<<"     *        *****"<<endl;
           cout<<"     *          *"<<endl;
           cout<<"     *         ***"<<endl;
           cout<<"     *        * * *"<<endl;
           cout<<"     *       *  *  *"<<endl;
           cout<<"     *      *   *   *"<<endl;
           cout<<"     *         * *"<<endl;
           cout<<"     *        *   *"<<endl;
           cout<<"     *       *     *"<<endl;
           cout<<"     *      *       *"<<endl;
           cout<<"     *              "<<endl;
           cout<<"******************     "<<endl;
           break;
        }
     }
}
```