Project 1
Riddle Game
CIS-5
42641
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Introduction

This game was actually inspired by call-to-action banners on websites from the early 00s that forced you to click the OK button numerous times (or shut off the computer) to exit the website. This program will loop until the user is able to correctly solve 10 riddles. This game serves as an excellent brain exercise.

Gameplay & Rules

This riddle game requires the user to solve 10 riddles. The user has three tries per riddle and each riddle has a hint to aid the user. The riddles increase in difficulty as the game progresses. After the 10th riddle, there is a secret message. If the user fails to solve a riddle after 3 tries, the program loops and they must start from the beginning.

Development Summary

Project Size:
- 310 Lines
- 10 variables

I designed this project as a way to practice doing loops. Although I thought of many different ways of designing the code, I wanted to start with something simple, of my own design, and develop it further for the second project. As we progress throughout the course, I will be adding more to this project based on what I learn.

Flowchart
Can be found here: link to flowchart

Project Checkoff Sheet

Chapter	Section	Topic	Where in Code Line number
2	2	cout	34-38
	3	libraries	9-10
	4	variables/literals	44
	5	Identifiers	24-27
	6	Integers	41
	7	Characters	253
	8	Strings	95
	9	Floats No Doubles	
	10	Bools	47
	11	Sizeof *****	
	12	Variables 7 characters or less	24-27
	13	Scope ***** No Global Variables	
	14	Arithmetic operators	40
	15	Comments 20%+	10-11
	16	Named Constants	
	17	Programming Style ***** Emulate	
3	1	cin	43
	2	Math Expression	40
	3	Mixing data types ****	
	4	Overflow/Underflow ****	
	5	Type Casting	
	6	Multiple assignment *****	
	7	Formatting output	30
	8	Strings	91
	9	Math Library	
	10	Hand tracing ******	
4	1	Relational Operators	44
	2	if	44
	4	If-else	44-56
	5	Nesting	
	6	If-else-if	58-78
	7	Flags *****	
	8	Logical operators	116
	11	Validating user input	43-55
	13	Conditional Operator	
	14	Switch	
5	1	Increment/Decrement	40
	2	While	
	5	Do-while	31, 304
	6	For loop	40-56
	11	Files input/output both	
	12	No breaks in loops ******	
****** Not required to show			

Pseudo Code

```
//System Libraries //Input - Output Library
// input string answers & process strings
//Name-space under which system libraries exist

//User Libraries

//Global Constants

//Function Prototypes

//Execution begins here

//Declare and initialize variables

    //riddle number and answer for number answers
    //riddle number and answer for word answers
    //riddle number and answer for yes/no answer
    //completed program, continue to next statement
    //Input data

    //loop the program until user answers all 10 riddles correctly

//game introduction
//output riddle 1

//Map inputs to outputs or process the data

    //user has 3 tries to answer a riddle before the program loops to
beginning
        //input answer for riddle 1
    //program will continue to next riddle if user answers correctly
    //program will continue to next riddle if user has not used all 3
tries
        //program will not continue if user has used all 3 tries
        //output number of tries left
    //program continues if user answers previous riddle correctly,
otherwise, it loops to beginning
    //output riddle 2
        //input answer for riddle 2
```

```
    //program will continue to next riddle if user has not used all 3
tries; this is the same for all following riddles (riddles 3-10)
    //program will loop if user has used all 3 tries; this is the same
for all following riddles   (riddles 3-10)

//Output the transformed data

        //if user answers riddle 10 correctly, winning message will be
displayed
        //winning message will not be displayed if user uses all 3
tries
    //program will loop back to beginning if user uses all 3 tries
    //program will exit once user answers all 10 riddles correctly
    //loop the program if the user does not complete the 10 riddles
    //program will exit once user answers all 10 riddles correctly

//Exit stage right!
```

Program Code

```cpp
//System Libraries
#include <iostream>  //Input - Output Library
#include <string> // allow user to input string answers & process strings
using namespace std; //Name-space under which system libraries exist

//User Libraries

//Global Constants

//Function Prototypes

//Execution begins here
int main(int argc, char** argv) {

    //Declare and initialize variables

    int r1Ans, r2Ans, r5Ans, r7Ans, r8Ans, r10Ans; //riddle number and answer for
number answers
    string r3Ans, r4Ans, r6Ans; //riddle number and answer for word answers
    char r9Ans; //riddle number and answer for yes/no answer
    bool comp, cont; //completed program, continue to next statement
    //Input data

  cout << "\nThis is the Ultimate Riddle Game. \n";
  do //loop the program until user answers all 10 riddles correctly
   {
```

```cpp
    cout << "\nAnswer all ten riddles to exit the game...\n...or be doomed to loop the
program forever...\n";

    cout << "Riddle 1: What number do you get when you multiply all of the numbers on
a telephone number pad? \n";
    cout << "HINT: multiply all numbers from 0-9.\n";

    //Map inputs to outputs or process the data

    for (int count = 3; count > 0; count--) //user has 3 tries
    {

        cin >> r1Ans;
        if (r1Ans == 0)
            {
                cout << "Correct!\n" ;
                cont = true; //program will continue to next riddle if user answers
correctly
                count = -1; //program will continue to next riddle if user has not
used all 3 tries
            }
        else
            {
                cont = false;  //program will not continue if user has used all 3
tries
                cout << "Wrong! You have " << count - 1 << " tries left.\n"; // tries
left are displayed

            }
    }

    if (cont == true) //program continues if user answers previous riddle correctly
    {
        cout << "Riddle 2: When was the latest year that is the same upside down?\n";
        cout << "HINT: it's after 1960.\n";

        for (int count = 3; count > 0; count--)
        {
            cin >> r2Ans;
            if (r2Ans == 1961)
                {
                    cout << "Correct!\n";
                    cont = true;
                    count = -1;
                } //program will continue to next riddle if user has not used all 3
tries; this is the same for all following riddles
            else
                {
```

```cpp
                            cont = false;
                            cout << "Wrong! You have " << count - 1 << " tries left.\n";
                } //program will loop if user has used all 3 tries; this is the same
for all following riddles
            }
        }

    if (cont == true)
    {
        cout << "Riddle 3: What is a seven letter word containing dozens of
letters?\n";
        cout << "HINT: Think of your local mailman.\n";



        for (int count = 3; count > 0; count--)
        {
            cin >> r3Ans;

            if (r3Ans == "mailbox")
                {
                    cout << "Correct!\n";
                    cont = true;
                    count = -1;
                }
            else
                {
                    cout << "Wrong! You have " << count - 1 << " tries left.\n";
                    cont = false;
                }
        }
    }

    if (cont == true)
    {

        cout << "Riddle 4: You walk into a room with a rabbit holding a carrot, a pig
eating slop, and a chimp holding a banana.\n";
        cout << "Which animal in the room is the smartest?\n";
        cout << "HINT: Consider all four animals present.\n";

        for (int count = 3; count > 0; count--)
        {
            cin >> r4Ans;

            if (r4Ans == "you" || r4Ans == "me")
                {
                    cout << "Correct!\n";
                    cont = true;
                    count = -1;
```

```cpp
                }
            else
                {
                    cout << "Wrong! You have " << count - 1 << " tries left.\n";
                    cont = false;
                }
        }
    }

    if (cont == true)
    {

        cout << "Riddle 5: How many eggs can you fit into an empty basket?(Enter an
integer).\n";
        cout << "HINT: The basket is no longer empty once you add eggs.\n";

        for (int count = 3; count > 0; count--)
        {
            cin >> r5Ans;

            if (r5Ans == 1)
                {
                cout << "Correct!\n";
                cont = true;
                count = -1;
                }
            else
                {
                    cout << "Wrong! You have " << count - 1 << " tries left.\n";
                    cont = false;
                }
        }
    }

    if (cont == true)
    {

        cout << "Riddle 6: What is a six letter word that tastes better than it
smells?\n";
        cout << "HINT: Think of the 5 senses.\n";

        for (int count = 3; count > 0; count--)
        {
            cin >> r6Ans;

            if (r6Ans == "tongue")
                {
                    cout << "Correct!\n";
                    cont = true;
                    count = -1;
```

```cpp
                }

            else
                {
                    cout << "Wrong! You have " << count -1 << " tries left.\n";
                    cont = false;
                }
        }
    }

    if (cont == true)
        {

            cout << "Riddle 7: What digit is the most frequent between the numbers 1
and 1,000 (inclusive)?\n";
            cout << "HINT: The digits 0 through 9 all follow the same pattern there is
exactly 1 occurrence of each digit for every ten numbers.\n";



        for (int count = 3; count > 0; count--)
        {
            cin >> r7Ans;

            if (r7Ans == 1)
                {
                    cout << "Correct!\n";
                    cont = true;
                    count = -1;
                }

            else
                {
                    cout << "Wrong! You have " << count - 1 << " tries left.\n";
                    cont = false;
                }
        }
    }

    if (cont == true)
        {

            cout << "Riddle 8: You are going to visit your grandmother on Mother's
day. You want to give her two cakes. However, to get to her house you must cross seven
bridges.\n;";
            cout << "At each bridge is a troll who demands ½ of all of your cakes as
the price to pass. However, this troll, being a nice troll, feels bad and gives you
back 1 of the cakes that he took.\n";
            cout << "HINT: Write and solve an equation for the first instance.\n";
```

```cpp
        for (int count = 3; count > 0; count--)
        {
            cin >> r8Ans;

            if (r8Ans == 2)
                {
                    cout << "Correct!\n";
                    cont = true;
                    count = -1;
                }

            else
                {
                    cout <<"Wrong! You have " << count - 1 << " tries left.\n";
                    cont = false;
                }
        }
    }

    if (cont == true)
    {

        cout << "Riddle 9: An ant gets onto one end of a tight rope that is 1 meter
long.\n";
        cout << "The ant is traveling at 1 centimeter per second, but the entire rope
is being stretched an extra 1 meter per second (it can be stretched forever).\n";
        cout << "Will the ant ever reach the other end of the rope (y/n)?\n";
        cout << "HINT: Both sides of the rope will stretch.\n";

        for (int count = 3; count > 0 ; count--)
        {
            cin >> r9Ans;

            if (r9Ans == 'y')
            {
            cout << "Correct!\n";
            cont = true;
            count = -1;
            }
            else
            {
                cout <<"Wrong! You have " << count - 1 << " tries left.\n";
                cont = false;
            }
        }
    }

    if (cont == true)
```

```cpp
        {

        cout << "Riddle 10: How many people do you need to have a 50% chance of two
people having the same birthday?(Enter an integer)\n";
        cout << "HINT: Calculate the probability for a sample group of n number of
people for 365 birthdays. \n";

        for (int count = 3; count > 0; count--)
        {
            cin >> r10Ans;

            if (r10Ans == 23)
               {
                   cout << "Correct!\n";
                   cont = true;
                   count = -1;
               }

            else
               {
                   cout << "Wrong! You have " << count - 1 << " tries left.\n";
                   cont = false; //winning message will not be displayed if user uses
all 3 tries
                   comp = false; //program will loop back to beginning if user uses
all 3 tries
               }
        }
    }

    //Output the transformed data

    if (cont == true)
    {
        cout << "CONGRATULATIONS! YOU'VE WON.\n";
        cout << "You get a cookie!\n";
        cout << "        . -  -  .\n";
        cout << "      .'       *   '.\n";
        cout << "     /  *           ' \n";
        cout << "    :                 ;\n";
        cout << "    |*      *    *   |\n";
        cout << "    :                 :\n";
        cout << "     `     *        /\n";
        cout << "      `.      *   .'\n";
        cout << "        `~  ~ ~  `\n";
        comp = true; //program will exit once user answers all 10 riddles correctly

    }
} while (comp == false); //loop the program if the user does not complete the 10
riddles
```

```
    //Exit stage right!
    return 0;

}
```