Name: **Session:**

Programming II

Lab Exercise 4.20.2021

In this lab you will create applications to solve the following problems. For each application, turn in your source code as well as a screen shot of your running application.

1. Write an application that displays a Haiku poem. A Haiku poem is written in 3 phrases. The first phrase has five syllables, the second has seven syllables, and the last phrase has five syllables. For example:

   Bright flash then silence
   My expensive computer
   Has gone to heaven

   Your application should define arrays of strings with seven phrases of five syllables and four phrases of seven syllables. Your program should use random number generation to select phrases that follow the 5 – 7 – 5 scheme to generate a random Haiku.

   a. Add the following global variables.

```
string[] five = new string[10];
string[] seven = new string[5];

Random r = new Random();
```

   b. Add the following code to the Form1_Load event handler.

```
five[0] = "Trying to hold on";
five[1] = "Nothing stays the same";
five[2] = "Garden Is dying";
five[3] = "Garden Is alive";
five[4] = "Fire ants are stalking";
five[5] = "My okra looks grand";
five[6] = "Please open the door";
five[7] = "Heavy eyelids droop";
five[8] = "Soft, light cooling breeze";
five[9] = "for this gift, thank you";

seven[0] = "So large and incredible!";
seven[1] = "they found food that's now walking";
seven[2] = "Easy, fast and light, so light";
seven[3] = "A garden seeks it's own way";
seven[4] = "Cool nighttime air drifts in";
```

c. Add the following code to the btnGenerate_Click event handler.

```
int rNumber;
string message = "";

rNumber = r.Next(0, 9);
message += five[rNumber] + Environment.NewLine;
rNumber = r.Next(0,4);
message += seven[rNumber] + Environment.NewLine;
rNumber = r.Next(0, 9);
message += five[rNumber];

lblHaiku.Text = message;
```

d. Test your program to endure that it works. Submit a screen shot of your running program.

2. Write an application that generates the child's game "My Grandmothers Trunk". In this game, players sit in a circle and the first player names something that goes in the trunk (i.e. In my grandmothers trunk, I packed a pencil). The next player restates the sentence and adds something new to the trunk: "In my grandmothers trunk, I packed a pencil and a red ball". Each player in turn adds something new to the trunk, attempting to keep track of all the items already there.

   You application should simulate 5 turns in the game. Starting with an empty string, simulate each players turn by concatenating a new word or phrase to the existing string and printing the result.

   a. Add the following global variables.

```
string strMessage = "In my Grandmother's Trunk I packed ";
bool first = true;
string test = "aeiouAEIOU";
int count = 0;
```

   b. Add the following code to the Form1_Load event handler.

```
lblBox.Text = strMessage;
```

c. Add the following code to the btnAdd_Click event handler.

```
count += 1;

if (first)
{
        //add first item
        if (test.Contains(txtAdd.Text[0]))
                strMessage += " an " + txtAdd.Text;    //word starts with vowel
        else
                strMessage += " a " + txtAdd.Text;     //word starts with consonant
        first = false;
}
else
{
        //add subsequent items
        if (test.Contains(txtAdd.Text[0]))
                strMessage += " and an " + txtAdd.Text;     //word starts with vowel
        else
                strMessage += " and a " + txtAdd.Text;     //word starts with consonant
}

lblBox.Text = strMessage;
txtAdd.Text = "";
txtAdd.Focus();

if (count == 5)
{
        lblBox.Text += ".";
        btnAdd.Enabled = false;
        txtAdd.Enabled = false;
}
```

d. Add the following code to the txtAdd_KeyDown event handler.

```
if (e.KeyCode == Keys.Enter)
{
        //Keep track of the number of items added to the trunk
        count += 1;
        if (first)
        {
                //add first item
                if (test.Contains(txtAdd.Text[0]))
                        strMessage += " an " + txtAdd.Text; //word starts with vowel
                else
                        strMessage += " a " + txtAdd.Text;   //starts with consonant
                first = false;
        }
        else
        {
                //add subsequent items
                if (test.Contains(txtAdd.Text[0]))
                   strMessage += " and an " + txtAdd.Text;   //starts with vowel
                else
                   strMessage += " and a " + txtAdd.Text;    //starts with consonant
        }

        //Add message to textbox
        lblBox.Text = strMessage;
        txtAdd.Text = "";
        txtAdd.Focus();

        //Finished adding items
        if (count == 5)
        {
                lblBox.Text += ".";
                btnAdd.Enabled = false;
                txtAdd.Enabled = false;
        }
}
```

e. Test your program. When it is working paste a screen shot into a word processing document and submit it.