**Objectives:**

* UML Diagrams
  + Use Case Diagram
  + Activity Diagram
* Create and run a C# Windows Form App.
* Declare string and numerical variables with correct data types.
* Create arithmetic logic to calculate the total volume of the sauce.
* Declare proper constants.

**References - Reading:**

* Basic Knowledge Slides
* GUI Design
* Lecture-4

**Problem Description:** Design a C# Windows Form Application to calculate the total volume of the sauce prepare for the upcoming Thanksgiving Dinner. Calculate the volume of one sauce container (cylinder) and calculate the total volume.

**GUI Design:** Follow the naming standards to name the GUI objects.

|  |  |
| --- | --- |
| U:\Personal\Fall 2018\15501\InLabs\CaptureInlab03.PNG  *Figure 1.* The output of *Total Volume* when clicked. | *Figure 2.* Cleared textboxes and cursor focus set to the radius textbox. |

**Named Constants:**

Declare the following constants below. The syntax for declaring named constant is:

private const double cPi = 3.14159;

**Total Volume Button:**

1. Declare variables with proper data type and meaningful names for each input data.
2. Declare variables to store the result of calculation.
3. Store the entered input in variables (Use Parse() method)
4. Do the required calculation.
5. Display the output: the radius (*real number)*, the height (*real number)*, the volume of an individual can (*real number)*, the number of cans (*whole number)* and the total volume (*real number)* as illustrated in *Figure 1*.

**Clear Button:**

When *Clear* is clicked, all textboxes is cleared and the cursor is focused to the *Radius* textbox.

**Exit Button:**

When *Exit* is clicked, the application closes.

**Diagrams**:

*Note*: Capture the diagrams by using the *Snipping Tool* and past the images on this document.

1. Draw a Use Case Diagram below to illustrate the functionalities of this application.
2. Draw an Activity Diagram to illustrate the steps in the click event of the ***Total Volume*** button.

**Deliverables:**

1. One image of the Use Case Diagram on this document.
2. One image of the Activity Diagram on this document.
3. Zipped folder of the finished Windows Form Application.



