

## CST 180 Programming Assignment #2 (20 points)

**Purpose:** The purpose of this assignment is to use an IDE (Integrated development environment) to create a well-documented C++ program that utilizes expressions and interactivity.

**Specifics:** Don's Pizza needs a program to calculate the number of slices a pizza of any size can be divided into. The program should perform the following steps:



- a) Ask the user the diameter of the pizza in inches.
- b) Calculate the number of slices that may be taken from a pizza of that size.
- c) Calculate the cost of the pizza based on a pre-determined cost per square inch.
- d) Display a message telling the number of slices and the cost for the entire pizza.

To calculate the number of slices that may be taken from the pizza, you must know the following facts:

- a) Each slice should have an area of 14.125 inches.
- b) To calculate the number of slices, simply divide the area of the pizza by 14.125.
- c) The formula to calculate the area of the pizza is:  $area = \pi r^2$

To calculate the price for the whole pizza assume the price per square inch to be 10.5 cents (.105). Create a per square inch constant to use for this calculation.

**Note:**  $\pi$  is the Greek letter pi. 3.14159 can be used as its value and you should use a named constant to hold this value. The variable  $r$  is the radius of the pizza. Divide the diameter by 2 to get the radius. You will need to use the C++ `pow` function to raise the radius value to the 2<sup>nd</sup> power.

Make sure the output of the program provides sufficient information...construct a meaningful message for your customer. It should display the number of slices in floating point notation, rounded to one decimal place of precision. It should also display the pizza cost in currency format with a '\$' sign and two decimal places of precision.

## Planning Scenario

**Step 1:** Develop and document your program by writing pseudocode. Examine your pseudocode for logic errors and correct as needed. (Do this before you write the program!)

**Step 2:** Type your code into the IDE (e.g. Dev c++, visual studio, etc)

**Step 3:** Compile your code and execute. You may need to fix errors.

**Deliverables:** Submit the C++ source code to the **Program 2 Dropbox** within the Delta eLearning System.

Create a hardcopy for turn-in and grading containing the following:

- a) Title Page
- b) Pseudocode for program (If you don't know how to write pseudocode, look it up!)
- c) Source Code (copy and paste from your IDE)
- d) Screenshot of output

Upload the document **AND** the .cpp source code file for grading into the appropriate dropbox.