CSC1300-002 / PROGRAM ONE
COOKING CONVERSION PROGRAM

ASSIGNMENT DETAILS

Assignment Date: Monday, September 11, 2017

Due Date: Monday, October 2, 2017

How to Turn in Your Code: Upload your source file (.cpp) to the PROGRAM ONE assignment folder.

Make sure to follow the **Programming Assignment Policy for CSC 1300** (available on ilearn under CLASS INFORMATION).

DESCRIPTION

You have some new chefs working for you and they are all animals. They do not know how to do cooking & baking conversions when given a recipe, but they are geniuses at running C++ programs. So, you are going to create a program for your animal chefs that will convert cooking & baking measurements.

WHAT YOU WILL PRACTICE

- Menu based programs
- Loops
- Branches
- Math Expressions

PROGRAM SPECIFICATIONS

MAKE YOUR CODE READABLE, MAKE YOUR OUTPUT READABLE

- Follow the document named **Programming Style in CSC1300.**
- Make sure that when you run your program that your output is not squished together. Put plenty of whitespace in your output.

KEEP TRACK OF HOW MANY CONVERSIONS MADE IN THE PROGRAM

You need to keep a running total of how many conversions are made in this program. This number will be printed at the end after the user decides to end the program.

THE MAIN MENU

Your MAIN MENU should look like mine (below). Display the menu. Then, ask the user to choose 1-4. Then, read in their choice and validate their choice. You may assume that the user entered in an integer, but you may not assume the user entered in a valid integer (1, 2, 3, or 4). If they entered an integer other than a 1-4 then your program should force the user to enter in a valid choice.

```
--MAIN MENU--

what kind of conversion do you need?

        1. Conversions for water, Fahrenheit, & Celsius
        2. Conversions for gallon, quart, pint, & cup
        3. Conversions for teaspoon, tablespoon, & cup
        4. End the program
CHOOSE 1-4:
```

CHOICE #1 – WATER, FAHRENHEIT, & CELSIUS

If the user selected #1, then your program will execute a loop to repeat the steps below until the user chooses to return to the main menu. Make sure to keep up with how many conversions are made.

1. Display the following information & menu:

```
--WATER, FAHRENHEIT, & CELSIUS--

Water boils at 100 degrees Celsius and 212 degrees Fahrenheit.
Water freezes at 0 degrees Celsius and 32 degrees Fahrenheit.

What do you want to do?
1. Convert a temperature from Celsius to Fahrenheit.
2. Convert a temperature from Fahrenheit to Celsius.
3. Go back to MAIN MENU.
CHOOSE 1-3:
```

2. Read in the user's choice & validate the user's choice. You may assume the user will enter in an integer, but you may not assume he or she will enter in a valid integer.
    a. Choice 1 – Ask user for temperature in Celsius, do the conversion, print the result.

```
What is the temperature in Celsius?
60

RESULT:  60 degrees Celsius is 140 degrees Fahrenheit.
```

    b. Choice 2 – ask user for temperature in Fahrenheit, do the conversion, print the result.

```
What is the temperature in Fahrenheit?
96.3

RESULT:  96.3 degrees Fahrenheit is 35.7222 degrees Celsius.
```

CHOICE #2 – GALLON, QUART, PINT, & CUP

If the user selected #2, then your program will execute a loop to repeat the steps below until the user chooses to return to the main menu. Make sure to keep up with how many conversions are made.

1. Display the following information & menu:

```
--GALLON, QUART, PINT, & CUP--

what measurement do you know?
1. I know how many gallons I have.
2. I know how many quarts I have.
3. I know how many pints I have.
4. I know how many cups I have.
5. Go back to MAIN MENU.
CHOOSE 1-5:
```

2. Read in the user's choice & validate the user's choice. You may assume the user will enter in an integer, but you may not assume he or she will enter in a valid integer.
   a. Choice 1 – ask user for gallons, do the conversions, print the results.

```
How many gallons do you have?
8.6

RESULT:  8.6 gallons is 34.4 quarts, 68.8 pints, or 137.6 cups.
```

   b. Choice 2 - ask user for quarts, do the conversions, print the results.

```
How many quarts do you have?
34.4

RESULT:  34.4 quarts is 8.6 gallons, 68.8 pints, or 137.6 cups.
```

   c. Choice 3 – ask the user for pints, do the conversions, print the results.

```
How many pints do you have?
68.8

RESULT:  68.8 pints is 8.6 gallons, 34.4 quarts, or 137.6 cups.
```

   d. Choice 4 – ask the user for cups, do the conversions, print the results.

```
How many cups do you have?
137.6

RESULT:  137.6 cups is 8.6 gallons, 34.4 quarts, & 68.8 pints.
```

CHOICE #3 – TEASPOON, TABLESPOON, & CUP

If the user selected #3, then your program will execute a loop to repeat the steps below until the user chooses to return to the main menu. Make sure to keep up with how many conversions are made.

1. Display the following information & menu:

```
--TEASPOON, TABLESPOON, & CUPS--

what measurement do you know?
1. I know how many teaspoons I have.
2. I know how many tablespoons I have.
3. I know how many cups I have.
4. Go back to MAIN MENU.
CHOOSE 1-4:
```

2. Read in the user's choice & validate the user's choice. You may assume the user will enter in an integer, but you may not assume he or she will enter in a valid integer.
   a. Choice 1 – ask user for teaspoons, do the conversions, print the results.

```
How many teaspoons do you have?
64.8

RESULT:  64.8 teaspoons is 21.6 tablespoons and 1.35 cups.
```

   b. Choice 2 - ask user for tablespoons, do the conversions, print the results.

```
How many tablespoons do you have?
21.6

RESULT:  21.6 tablespoons is 64.8 teaspoons and 1.35 cups.
```

   c. Choice 3 – ask the user for cups, do the conversions, print the results.

```
How many cups do you have?
137.6

RESULT:  137.6 cups is 6604.8 teaspoons and 2201.6 tablespoons.
```

CHOICE #4 – END THE PROGRAM

Before the program ends, print out how many conversions were made during the execution of the program.

```
Thank you for using the measurement program.
Hopefully you can cook something really special for me
 because you made 9 conversions!
```