Project I: Software Implementation and

Unit Testing

# Assignment #3

## Overview

This assignment should be done **individually**. Do your own work and **do not share** your work with others. Sharing work is an academic offense and is subject to penalty. Be aware that source code and documents are automatically checked by eConestoga against every other student's work in the course. Academic offenses will be reported to the College Registrar.

For this final assignment you will use Test-Driven Development (TDD), create a function to determine the outcome of a game of Rock, Paper, Scissors. You will use GitHub as source control for this assignment.

Please read this entire document carefully and take note of all the requirements.

## Project Setup

For this assignment, you will create a new solution in Visual Studio from scratch. You must link it to a new repository in your personal GitHub account.

*Please review your class notes and the previous two assignments for reminders of how to perform these setup tasks.*

## What to do

Recall that when utilizing TDD, you must write a failing test first. Then you must write the least amount of code required to pass the test. Once the test has passed, write a new failing test and repeat this process.

Perform one commit after you have created the application code to pass a test. You may perform additional commits at your own discretion.

Step 1: Build the Application

In this assignment, you are to build a single function in C using TDD that will determine the outcome of a game of Rock, Paper, Scissors. You do not need to build the actual game; your main() function does not need to be developed.

( <https://en.wikipedia.org/wiki/Rock_paper_scissors>).

Player1 and Player2 will each enter Rock, Paper or Scissors. Standard rules of who won any given match apply: Rock beats Scissors. Scissors beats Paper. Paper beats Rock. A Draw occurs if both players enter the same shape.

The requirements of the function are as follows:

* The function accepts two char arrays as input
* The function outputs a single char array
* The char arrays passed to the function can contain any series of characters (i.e. it accepts any word)
* The function's main role is to determine who won a game of Rock, Paper, Scissors The output char array of the function can be 1 of 4 words:
* *“Player1”* – This is the output if Player1 won the match
* *“Player2”* – This is the output if Player2 won the match
* *“Draw”* – This is the output if both players entered the same shape
* *“Invalid”* – This is the output if either of the players enter a word that is not Rock, Paper or Scissors.

Your check can be case-sensitive. That is, if you are checking for *“Rock”* and the player enters *“rock”*, you may mark this as invalid.

Step 2: TDD DevOps

To show you are following the TDD DevOps approach, you will be required to submit source code and several screenshots during the development of one or more of your test cases. Fill out the following form as your perform your TDD activities.

*Your Unit Testing Code:* Cut & Paste your unit test source code below. It should be clear from the test and the test name what you are testing.

Screenshot: Take a screenshot of the “Test Explorer” dialog in Visual Studio showing the test failing (or not compile). Upload your screenshot into the box below.

Production Source Code: Cut & Paste the production source code you have written (i.e. the game function) to allow the unit test cases to pass. Place the code in the box below.

Screenshot: Take a screenshot of the “Test Explorer” dialog box in Visual Studio showing the test passing. Upload your screenshot in the box below.

Step 3: Demonstrate use of GitHub

Once the application is complete, take a screenshot of the “Manage Branches” dialog box in Visual Studio to show the commits to your repository and upload it in the box below. The screenshot must show the commits and the entire source control process, including pushing to the GitHub repository.

# Rubric

See eConestoga for details.

# What to Hand In

Upload the following files to eConestoga using the Assignment #3 link

* A copy of this PDF form properly filled out
* A single compressed (.zip format) archive file containing **the entire Solution folder** of your source code (so I can run it as required).

Do not reformat this form in any way. Just fill it out, save it and upload it. Modifying this form will result in a 10% penalty.