Workshop - 4

Workshop Value: 10 marks (4.4% of your final grade)

Learning Outcomes

Upon successful completion of this workshop, you will have demonstrated the abilities:

- to decipher and identify a problem
- to analyze and decompose a problem
- to identify the required detailed steps to solve a problem
- to communicate the solution to fellow peers and non-technical business persons

Workshop Grading and Promotion Policy

Workshops for this course will be assessed using the following criteria:

- Workshops must be completed before the class time to be graded
- You must successfully complete 9 workshops (if more than 9 are completed, the best 9 will be used)
- Each student is expected to be a presenter of the workshop solution at least once by the end of the term
- Workshop solutions and presentations will be evaluated using the published workshop rubrics

Workshop Overview

Short games are often played among friends to quickly determine who should "go first" or for a winner to resolve some other dispute. It is ideal to have a game that doesn't require pieces or an investment ($) etc. This is where a game like "Rock-Paper-Scissors" comes in!

Workshop Details

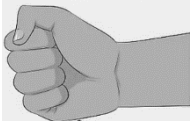
A complete description and set of rules for the "Rock-Paper-Scissors" game are available here: https://m.wikihow.com/Play-Rock,-Paper,-Scissors. However, the main concepts will be provided in this document as well.

A software developer wants to create a computer version of this game, however before considering the software approach, a thorough understanding of the game in its physical format is required. The rules for this game are very simple:

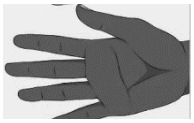
Game Rules and Requirements

- Two players are needed
- **[Logic 1]** A start routine is required to help synchronize the two players before revealing their play (usually a countdown of three). This will involve moving the fists three times so that they are moving synchronously.
- There are only three (3) possible plays (objects):

  1. Rock: Represented by making a "fist" with your playing hand



2. Paper: Represented by a "straight flat hand"



3. Scissors Represented by spreading your index and 2nd finger apart (mocking scissors)

- Each type can be defeated, but can also be a winner depending on the other players chosen object.

Rock	beats	Scissors (but rock loses to Paper)
Paper	beats	Rock (but loses to Scissors)
Scissors	beats	Paper (but loses to Rock)

- Two matching objects will "tie" and the game must be repeated

Your Tasks

1. Create the necessary processes to represent the rules and game play for "Rock-Paper-Scissors"
2. Define the solution applying what you know about the "computational thinking approach to problem solving"
3. Communicate the solution using pseudo code and a flowchart
4. One presenter from each team will create a video that describes the problem and solution in high-level terms and argues why this is a good solution to the problem.

[Logic 2] This will randomly select the object to be thrown. Most computer languages have a random function which you can call to yield a number from 1-3 which you can then map onto one of the three objects in the game.
[Logic 3] This will handle the determination of a tie and either handle it by playing another round or by determining a winner and ending the game.

Task	Subtask	Member(s)	Marks	Comments
Pseudocode	Logic 1	4	40%	
	Logic 2	5	40%	
	Logic 3	6	40%	
	Combined	4-6	60%	
FlowChart	Logic 1	1	40%	
	Logic 2	2	40%	
	Logic 3	3	40%	
	Combined	1-3	60%	
Video	Presentation	1 or 4	100%	Members rotate weekly