Workshop - 1

Workshop Value: 10 marks (4.375% 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 businesspersons

Please review the following documents:

1. Workshop **Grading Policies**
2. Workshop **Submission Procedures**
3. Workshop **Group Breakdown**

Workshop Overview

Computational thinking to a software developer/computer programmer, is a critical skill that is applied all the time. This workshop requires you to develop a **phone application** that simulates a basketball shootout game. For the exercise described below, apply the necessary computational thinking steps to solve the problem.

Workshop Details

Logic 1 (members 1 & 4)

The losing player of the shootout will have to give the winner **money**! The amount of $ is determined by the total number of baskets made by the winner less the total number of baskets made by the losing player. For every tied game (if there were any tied games), the number of dollars is reduced by 50 cents. If the final calculated number of dollars has a decimal value, it should be rounded up to the nearest whole number!

Example: If the player-1 made a total of 9 baskets, and player-2 made a total of 7, and they had 3 tied games, the amount owed would initially be 9-7=2, but reduced by 3 X 0.5=1.5, making the owed number of dollars $0.50 which must be rounded up to $1.00.

If there are many tied games that contribute towards a negative number of dollars owed, then the losing player must give $1.00.

Logic 2 (members 2 & 5)

Two students challenge each other to a basketball shootout. Before the challenge begins, a simulated die will be rolled once by each student. The **highest number** will determine which student goes first. If there is a tie, the game will repeat until a winner can be declared (this can potentially repeat many times).

Logic 3 (members 3 & 6)

The students agree to limit the number of ball throw attempts to **4 throws each**. The first player will make all 4 throw attempts (keep track of the successful baskets made where the ball goes into the basket). After the first player makes all four shots, the second player will make all 4 throw attempts. The student who makes the most baskets (gets the ball in the hoop) will be declared the winner. In the case of a tie (keep track of the number of ties), the game will be repeated (do not repeat Logic-1) until a winner can be determined.

Your Task

Individual Logic Assignment

1. Determine your individual assigned logic part based on your member# (see **Group Breakdown** link at the beginning of this document)
2. Where applicable, apply the core components of the **computational thinking** approach to problem solving to help you synthesize a solution
3. Submit your individual assigned part to your professor (see **Submission Procedures** link at the beginning of this document)

Group Solution

1. In the week the workshop is scheduled, you will be working in your assigned sub-group. See **Group Breakdown** link at the beginning of this document for details on how the sub-groups are determined.
2. Please review what is expected as described in the **Grading Policies** link at the beginning of this document.
3. Submit your group solution to your professor (if you are handing in physical paper answers, follow the directions as set by your professor, otherwise, refer to the **Submission Procedures** link at the beginning of this document)

Presentation

Decide among yourselves which member among you in the **sub- group** will be doing a presentation. Priority should be given to those who have not yet done one. Refer to the **Grading Policies**, and **Submission Procedures** links for details on deadlines, expectations and how to submit your work.