Workshop - 1

Workshop Value: 10 marks (5% 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 are to be performed by teams where each team member has an assigned task.
- Assigned work is due by 08:00 on the day of the lab.
- The videos are due by 23:59 the day after the lab period.
- You must successfully complete 8 workshops (if more than 8 are completed, the best 8 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

As a software developer/computer programmer, computational thinking is a critical skill that is used and applied all the time. For the exercise described below, apply the necessary computational thinking steps to solve the problem.

Workshop Details

[Logic 1]

Two students challenge each other to a basketball shootout. Before the challenge begins, a die will be rolled once by each student. The lowest number will determine which student goes first. If there is a tie, the game will repeat until a winner can be declared.

[Logic 2]

During the shootout they agree to limit the number of attempts to 3 throws each. The game will be constructed in two sessions. In the first session, the first student makes all 3 attempts and in the second session, the second student makes all 3 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, the game will be repeated until a winner can be determined.

[Logic 3]

The loser of the shootout will have to give the winner free coffee's (or tea's) for "X" days. The number of days will be determined by how many baskets are successfully made in the winning round. In the event that there were ties, the number of coffees is reduced by ½ coffee for every time and then rounded up to the nearest whole number of coffees.

Your Task

1. Apply the core components of the **computational thinking** approach to problem solving to help you synthesize a solution
2. **Group members 1-3** should describe the solution to the above scenario in a sequence of **detailed** step-by-step instructions using **pseudocode** (review the grading rubric for workshops and be sure to address each gradable component)
3. **Group members 1-3 test** your defined processes using test-cases and **refine** as necessary
4. **Group members 4-6** draw a **flowchart** to communicate the process (**should be easy to understand by non-technical business persons**) (review the grading rubric for workshops and be sure to address each gradable component)
5. **One Group member should present your solution**. You should prepare a video in which:
    a. You describe the problem and its solution in non-technical terms. You should assume your audience is non-technical and interested in using the solution you developed.
    b. You should then attempt to convince the audience that this is a good solution and that they should adopt it.

The following table summarizes the responsibilities of each group member.

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

For example, group member 1 will do the pseudo-code for Logic 1 worth 40% of the workshop mark. Then group member 1 will combine the pseudo-code with members 2 & 3 to make the combined pseudo-code. The combined pseudo-code is worth another 60% of the workshop mark and members 1-3 who participate will receive the same mark for this portion.

In addition, member 1 is doing one of the 2-3 videos he or she will make during the semester. Member 1 will describe the problem and solution in non-technical terms and then try to sell this solution to the viewers by arguing why it is an excellent solution to the problem.

Submission

Each group member should submit:

- A file called MemberName.pseudocode.txt or MemberName.flowchart.jpg containing their own work for the pseudocode or flow chart (.png is also an acceptable format)

The team as a whole should submit:

- A combined pseudo-code file called pseudocode.txt

- A combined flowchart called flowchart.jpg
- The video file for the presentation called video.mp4

All of these files should be attached to a subdirectory of your MS Teams group called “ws01”. Individual and team work on the pseudocode and flowchart is due by 08:00 on the day of your workshop. The video is due by 23:59 on the day **AFTER** your workshop.