LIVERPOOL JOHN MOORES UNIVERSITY

Faculty of Engineering and Technology

Coursework Title: Referral / Deferral Coursework

Module Name:	Problem Solving for Multimedia Computing
Module Code:	4118COMP
Level:	4
Credit Rating:	20
Weighting:	100%
Maximum mark available:	100%
Lecturer:	Dr. Thar Baker
Contact:	Email: T.m.shamsa@ljmu.ac.uk Room: 635 Phone: 0151231 2371
Hand-out Date:	June/2019
Hand-in Date:	5th July 2019
Hand-in Method:	CANVAS Assignment Handler
Feedback Date:	Sep/2019

Introduction

Computers can be used to help us solve problems. However, before a computer can be used to solve a problem, the problem itself needs to be understood and the ways in which it could be solved need to be understood. Computational thinking allows us to do this. Through this coursework you are required to demonstrate an understanding of computational thinking, apply its processes to design the solution to a problem, and implement the designed solution and develop a test plan.

Learning Outcome to be assessed

After completing the module, the student should be able to:

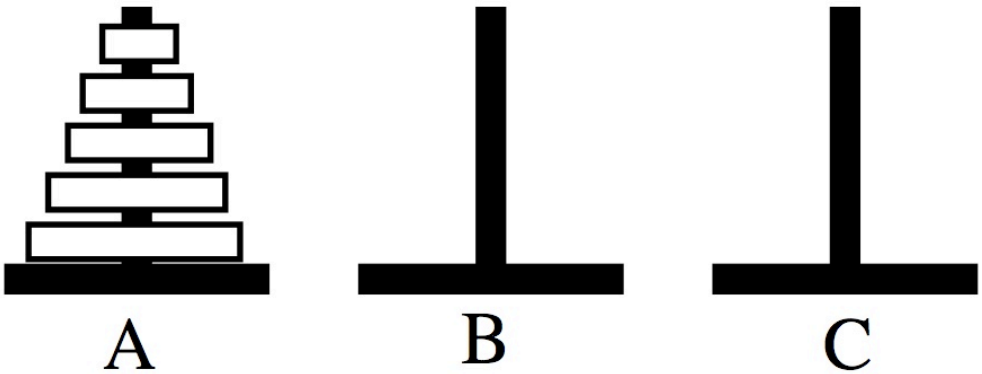
1. Use computational thinking to design solutions to problems.
2. Implement design solutions in a suitable programming language.
3. Develop test plans.

Details of the Tasks

The Tower of Hanoi is a one-player game, where there are five different sizes of discs on rods, and you have to move all the discs from one rod to another. There are specific rules to this game; such as you cannot place a larger disc on top of a smaller one. You start with all disks being on the left rod, as shown below. The goal is to get all disks to the right rod, but you can only move one disk at a time, and you can never put a disk on top of a smaller disk.

Part 1: ***Computational Thinking, Design Solution and Test Plan Report:*** Your report should identify the main processes that constitute Computational Thinking. You should also describe how certain processes are related and complementary. Your report should use appropriate examples of applications of the processes. You should then decompose the game into a series of components that could be used to develop a console-based game. Write appropriate algorithms and pseudo code that can be used later to develop the console-based game. Your report (**of approx. 1500** words) should contain appropriate sections and conclude with your overall thoughts on Computational Thinking.

Part 2: Implementation: You are to covert the designed algorithms and pseudo code, from Part 2, into a runnable console-based game using Java programming with Dr.Java.



What you should hand in

DELIVERABLE 1: A REPORT on Computational Thinking, Design Solution and Test Plan (approx. 1500 words), structured as indicated in the following Assessment Criteria. Though this represents neither a strict upper or lower limit. This report MUST be provided in electronic format, readable by Microsoft Word (e.g., .doc or .docx format). The report must be submitted via the **CANVAS Assignment Handler.**

DELIVERABLE 2: THE FULL CODE: A complete application folder, which comprises all the operational files for your application and asset files, MUST be submitted on a zip file via the **CANVAS Assignment Handler**.

Marking Scheme/Assessment Criteria

Assessment Criteria	% weighting for each problem part
Part 1 A Report on Computational Thinking, Design Solution and Test Plan	40
Technical content	5
Use of example	5
Decomposition of the problem	10
Appropriate algorithms	10
Test Plan	10
Part 2 Application development: Console based game	60

Recommended reading

- David Bernstein (2011), The Design and Implementation of Multimedia Software with Examples in Java. Jones and Bartlett Learning.
- Mark Guzdial and Barbara Ericson (2011), Problem Solving with Data Structure Using Java: A Multimedia Approach. Pearson.

Extenuating Circumstances

If something serious happens that means that you will not be able to complete this assignment, you need to contact the module leader as soon as possible. There are a number of things that can be done to help, such as extensions, waivers and alternative assessments, but we can only arrange this if you tell us. To ensure that the system is not abused, you will need to provide some evidence of the problem.

More guidance is available at https://www.ljmu.ac.uk/about-us/public-information/student-regulations/guidance-policy-and-process

Any coursework submitted late without the prior agreement of the module leader will receive 0 marks.

Academic Misconduct

The University defines Academic Misconduct as 'any case of deliberate, premeditated cheating, collusion, plagiarism or falsification of information, in an attempt to deceive and gain an unfair advantage in assessment'. This includes attempting to gain marks as part of a team without making a contribution. The Faculty takes Academic Misconduct very seriously and any suspected cases will be investigated through the University's standard policy (https://www.ljmu.ac.uk/about-us/public-information/student-regulations/appeals-and-complaints). If you are found guilty, you may be expelled from the University with no award.

It is your responsibility to ensure that you understand what constitutes Academic Misconduct and to ensure that you do not break the rules. If you are unclear about what is required, please ask.

For more information you are directed to following the University web pages:

- Information regarding ***academic misconduct***: https://www.ljmu.ac.uk/about-us/public-information/student-regulations/appeals-and-complaints
- Information on ***study skills***: https://www2.ljmu.ac.uk/studysupport/
- Information regarding ***referencing***: https://www2.ljmu.ac.uk/studysupport/69049.htm