University of Westminster
School of Computer Science and Engineering

7SENG004C Coursework 1(2021/22)

Module leader	Mr. Saman Hettiarachchi
Unit	Coursework 1
Weighting:	50%
Qualifying mark	**35**%
Description	Object-Oriented Modelling
Learning Outcomes Covered in this Assignment:	**LO1** be able to use object-oriented techniques to analyse the high-level architecture of software systems, and to document this architecture using suitable graphical notations. **LO2** demonstrate a critical understanding of the syntax, meaning and use of the range of notations provided by a typical object-oriented design method. **LO3** work as a team to produce, implement and critically evaluate designs of an application using a typical object-oriented language.
Handed Out:	5th November 2022
Due Date	10th December 2022 1pm (LK time)
Expected deliverables	Electronic document
Method of Submission:	online via Blackboard

Type of Feedback and Due Date:	written feedback and marks 15 working days (3 weeks) after the submission deadline, the week starting Monday 30th November. **All marks will remain provisional until formally agreed by an Assessment Board.**

Assessment regulations

Refer to section 4 of the "How you study" guide for undergraduate students for a clarification of how you are assessed, penalties and late submissions, what constitutes plagiarism etc.

Penalty for Late Submission

If you submit your coursework late but within 24 hours or one working day of the specified deadline, 10 marks will be deducted from the final mark, as a penalty for late submission, except for work which obtains a mark in the range 40 – 49%, in which case the mark will be capped at the pass mark (40%). If you submit your coursework more than 24 hours or more than one working day after the specified deadline you will be given a mark of zero for the work in question unless a claim of Mitigating Circumstances has been submitted and accepted as valid.

It is recognised that on occasion, illness or a personal crisis can mean that you fail to submit a piece of work on time. In such cases you must inform the Campus Office in writing on a mitigating circumstances form, giving the reason for your late or non-submission. You must provide relevant documentary evidence with the form. This information will be reported to the relevant Assessment Board that will decide whether the mark of zero shall stand. For more detailed information regarding University Assessment Regulations, please refer to the following website:http://www.westminster.ac.uk/study/current-students/resources/academic-regulations

Coursework Description

Introduction

A tour company in London would like you to design part of an application designed ot make it easier for people to find out what they can see and do around London. The aim of the part of the system you are to design is to have a list of attractions, and, for each attraction, find out the price of admittance (if any), the opening time and the closing time (in 24 hour clock time, e.g, 1900 or 2300).

The kind of attractions available to start with are parks, museums and theatres. Parks have free admittance, some musuems (but not all) have free admittance, and theatres charge. Opening times and closing times depend upon the particular attraction.

Question 1 (30 marks)

The tour company want the application to be able to deal with attractions in a uniform manner. That is, they want to write code that can ask an object representing an attraction for its price, no matter what kind of attraction it is. Discuss how you might use generalization to allow different attractions to be dealt with in a uniform manner. Your discussion should describe the main concepts to be models (you can include description of key attributes and operations that can be identified), and their relationships. You should include in your explanation which relationships are generalizations and why.

Question 2 (30 marks)

Present a class diagram that uses generalization to allow attractions to be dealt with uniformly. Include any methods that are appropriate.

Question 3 (40 marks)

Implement your class diagram in C++, and include a main function that demonstrates your code. The main function should create a vector or list of attractions and find, by iterating over the list, which attractions are open after 1900 and which cost less than £5.

Discuss any problems or issues that arose from implementing your class diagram., and explain how you solved them.

Submission

Your submission for this coursework will be a report. The report should be in PDF format. Please try to keep the length of the body of the report to less than 10 (but this is not a hard requirement, just a request for brevity).

Finally

All work must be done on an individual basis - group work is NOT sanctioned.

If you need any clarification about any of these issues, please contact me by email or in the tutorials or make an appointment to see me in my office.

Coursework Marking scheme

The Coursework will be marked based on the following marking criteria:

Criteria	Mark per component	Mark provided	Comments
Question 1 (of which):	**30%**		
- main concepts properly appropriately identified	15%		
- appropriate generalisations identified and clearly explained	10%		

- attributes and behaviour of concepts identified	5%		
Question 2 (of which):	**30%**		
- class diagram fully captures key concepts and relationships	15%		
- good choice of attributes and operations	5%		
- appropriate use of generalisation	10%		
Question 3 (of which):	**40%**		
- C++ code fully captures UML model	20%		
- good choice of implementation strategies for class relationships	10%		
- C++ correct and program works	10%		

Total **100%**