

University of Lincoln Assessment Framework

Assessment Briefing Template 2022-2023

Module Code & Title: CMP1124M – Algorithms and Complexity
Contribution to Final Module Mark: 60%
<p>Description of Assessment Task and Purpose:</p> <p>Requirements</p> <p>This assignment asks you to design and implement a Search and Sort application. In particular, you are to create a Console Application using C#, which will help with the analysis of Road Traffic data. This assignment has mandatory (1-3) and additional (4-7) tasks, which will allow you to achieve highermarks.</p> <p>A set of files is provided: “Road_1_256.txt”, “Road_2_256.txt”, “Road_3_256.txt”, “Road_1_2048.txt”, “Road_2_2048.txt”, and “Road_3_2048.txt”.</p> <p>The files correspond to real data taken from three different A-Roads. The Road_1_*.txt, Road_2_*.txt, and Road_3_*.txt respectively correspond to the traffic of three networks as recorded over time. The 256 and 2048 numbers correspond to the number of data points stored in the files.</p> <p>Your Console Application should be able to provide the following functionality to the user:</p> <ol style="list-style-type: none"> 1. Read the files “Road_1_256.txt”, “Road_2_256.txt”, and “Road_3_256.txt”, into individual Arrays 2. Sort in ascending and descending order and display every 10th value of the selected Array(s). 3. Search the selected Array for a user-defined value, if the value exists, then provide its location (if it appears more than once then provide ALL the locations) otherwise provide an error message. 4. Repeat the previous task, but if the value does not exist then provide the value(s) and location(s) of its nearest value. 5. Your Console Application should be in position to input the files with length 2048. Then repeat Tasks 2 to 4 and display the corresponding values for all the selected arrays, for the 2048 length array(s) display every 50th value.

6. For additional marks, **Merge** the Road_1_256.txt and Road_3_256.txt files. Then repeat Tasks 2 to 4 and display the corresponding values.
7. For top marks repeat task 6 using the files with length 2048.

Enhancing your submission for top marks.

Undertake a comparative evaluation for all the searching and sorting tasks by using different Searching or Sorting algorithms. You should display the number of steps that each algorithm performed. You **should NOT use any built-in sorting and searching functions** from any built-in or external C# library.

Learning Outcomes Assessed:

On successful completion of this assessment item a student will have demonstrated competence in the following areas:

[LO1] Understand the time and space efficiency of algorithms and how to calculate/estimate/evaluate and improve them.

[LO2] Determine an appropriate algorithmic approach to a problem.

[LO3] Ability to select from a range of possible options, to provide justification for that selection, and to implement the algorithm in a particular context.

Knowledge & Skills Assessed: [See guidance notes for further information](#)

Subject Specific Knowledge, Skills and Understanding: e.g. Literature searching, Referencing, Numeracy, Project Planning, Techniques and Skills Subject-specific knowledge.

Professional Graduate Skills: e.g. independence and personal responsibility, adaptability, verbal communication, written communication, creativity, critical thinking, IT skills, self-reflection, problem solving, effective time management, working under pressure to meet deadlines, negotiation skills, leadership.

Emotional Intelligence: e.g. self-awareness, self-management, awareness of others, managing and supporting others, motivation, resilience, self-confidence.

Assessment Submission Instructions:

The deadline for submission of this work is included in the School Submission dates on Blackboard.

You should submit your work as a single “.ZIP” file to the “*Assessment 1 Supporting*” section, and a report (in .PDF format only) to the “*Assessment 1*” section. Use of other compression formats such as RAR files will be penalised.

- a) The ZIP file which is uploaded to *Assessment 1 Supporting* should contain the project files, accompanying input files, any output files, executable and source code files for your application. The project should be able to be opened in Visual Studio (or any other IDE that you have used – *Mono* for example).
- b) The pdf report to be uploaded to *Assessment 1* should contain:
 - a. **A contents page**

- b. A basic design for the application (1 page) including:**
 - i. A written description of the application.
 - ii. Comment about the implementation of tasks 2 to 7.
- c. A description of the algorithmic choices you made for the application (1 page) including:**
 - i. Justification of selecting and implementing particular searching and sorting algorithms for your application.
 - ii. An evaluation of the time and space efficiency of the searching, and sorting parts, as well as your program overall.
 - iii. Provide tables of the number of steps for the searching and sorting algorithms you used in respect to the size of the arrays.
- d. A Reference list showing items you have used in your learning that are correctly cited in the body of the report**

Date for Return of Feedback:

Format for Assessment:

You should submit your work as a single “.ZIP” file to the “*Assessment 1 Supporting*” section, and a report (in .PDF format only) to the “*Assessment 1*” section. Use of other compression formats such as RAR files will be penalised.

Feedback Format:

Written feedback via blackboard. Face to face feedback can be given upon request from student.

Additional Information for Completion of Assessment:

This assessment is an individually assessed component. Your work must be presented according to the Lincoln School of Computer Science guidelines for the presentation of assessed written work. Please make sure you have a clear understanding of the grading principles for this component as detailed in the accompanying Criterion Reference Grid. If you are unsure about any aspect of this assessment component, please seek the advice of a member of the delivery team.

Assessment Support Information:

Assessment Support workshops will take during the week(s) leading to the submission.

Important Information on Dishonesty & Plagiarism:

University of Lincoln Regulations define plagiarism as 'the passing off of another person's thoughts, ideas, writings or images as one's own...Examples of plagiarism include the unacknowledged use of another person's material whether in original or summary form. Plagiarism also includes the copying of another student's work'.

Plagiarism is a serious offence and is treated by the University as a form of academic dishonesty. Students are directed to the University Regulations for details of the procedures and penalties involved.

For further information, see www.plagiarism.org

University of Lincoln Assessment Framework Assessment Briefing Template

2019-2020 **Guidance Notes**

Overview

The assessment briefing template is designed to ensure that all students are given information, advice and support to successfully complete their module assessments and to reach their full academic potential. Consistency and clarity of communication are the guiding principles for completion of assessment briefings, and it is for these purposes that this template has been devised. There are naturally differences in wording and expression in different subject disciplines, as well as different standards and competencies as defined by Professional Statutory and Regulatory Bodies (PSRBs). Therefore, identical documents are not expected. However the good practice guidance provided is seen as a **minimum** for assessments across the institution.

Assessment briefings should be made available to all students and staff involved in the assessment cycle as well as the relevant external examiners. Briefings, where possible should be made face-to-face with a student cohort and as a minimum included in the Module Briefing/Handbook. In addition to information on written briefings, appropriate support should be made available for students completing assessments to clarify and explain. An important facet of successful assessment is the promotion of assessment literacy amongst the student body. All efforts should be made to ensure that students are aware of the nature and purpose of assessments in a timely fashion and have chance to complete them in the formative mode.

Good educational practice also requires those conducting assessment to ensure that their assessment briefings are as clear as possible to the student body. Partnership working with students to review briefings and ensure they are fit for purpose is to be encouraged.

These guidance notes are to be read alongside the policy and practice documents that comprise the University of Lincoln Assessment Framework. It is expected that all staff with oversight and involvement in assessment will have read these documents.

Completion of Assessment Briefing Template

Module Code & Title: Give Module Code and Title as per current Programme Specification.

Contribution to Final Module Mark: Specify the contribution made by the mark of this assessment to the final module mark as a percentage.

Description of Assessment Task and Purpose: Information provided here should represent a clear and concise answer to the students' common question – "What do we have to do and why this type of assessment?" Examples may include:

"You are required to submit an essay, in no more than 2,000 words, that discusses the potential benefits of using stem cells in medical treatments. The purpose of this assessment is to judge your knowledge of the subject area, an ability to find and evaluate accurate and reliable information/evidence and present it in a clear, concise and scientific manner."

You are required to prepare and deliver an oral presentation on the social and political contexts of the English Civil War (1642-1651). The presentation should be of 10 minutes duration and you should be prepared for a 5 minute period to answer questions from the audience. The purpose of this assessment is to judge your knowledge of the subject area and your ability to communicate your understanding to an audience of your peers.

Learning Outcomes Assessed: Specify the Module Learning Outcomes assessed as per the current Programme and Module specifications. This section may also be used to explain the linkage of learning outcomes to any PSRB standard or competency.

Knowledge & Skills Assessed: Here it is important to inform students of the contribution of this assessment to the development and acquisition of knowledge, skills and behaviours that are key outcomes of the module and programme. Refer to the following when providing this information.

Subject Specific Knowledge, Skills and Understanding: e.g. Literature searching, Referencing, Numeracy, Health and Safety, Project Planning, Techniques and Skills Subject-specific knowledge.

Professional Graduate Skills: e.g. independence and personal responsibility, adaptability, verbal communication, written communication, creativity, critical thinking, IT skills, self-reflection and life-long learning, problem solving, group or team skills, effective time management, working under pressure to meet deadlines, negotiation skills, leadership.

Emotional Intelligence: e.g. self-awareness, self-management, awareness of others, managing and supporting others, motivation, resilience, self-confidence.

Career-focused Skills: An understanding of the range of graduate careers, skills and attributes required by employers, a range of strategies to present skills and attributes to employers.

Assessment Submission Instructions: Here the purpose is to describe as clearly as possible, the date for submission of the assessment as well as how students will submit their work. For example: “you are required to submit your assessment before 3pm on Thursday 11th July 2019 using the online assessment submission facility on the Module Blackboard site. Pay careful attention to instructions provided at the time of submission” *or* “your presentation will take place on Monday 8th July in the xxx, you should submit your PowerPoint slides to xxx at least one week in advance to ensure that presentations run smoothly on the day.”

Date for Return of Feedback: Insert a date on or before the 15-day deadline for feedback return

Format for Assessment: Here in this section you are able to clearly specify the format expected for the submitted work, such as file type, media type, fonts, spacing, margins, layouts and referencing conventions accepted. If there are exemplars of the assessment available, this is the place to provide a link to clarify the formatting instructions.

Marking Criteria for Assessment: This is one of the most important components of an effective assessment briefing. Students should be provided ideally with a set of generic marking criteria employed by the School or Subject Discipline as well as a criterion reference grid that shows the criteria utilised in awarding the different categories of pass marks for the assessment in question (which may relate to either award classifications or percentage ranges).

Feedback Format: It is important that our students are aware of the format of the feedback they will receive on their assessments. In this section you should lay out the nature of the feedback e.g. verbally in teaching session (give date), one-to-one with tutor, attached feedback sheet, video or audio. Good practice suggests that face to face feedback is the gold standard.

Additional Information for Completion of Assessment: Here is the place for any further guidance for students to prepare them for the completion of the assessment task. This may include links to learning resources either in print or online. Common resources may relate to subjects such as Essay Writing, Reading and Language Skills and Referencing techniques.