Kingston University Assignment Brief

School of Computer Science and Mathematics

Module Code	CI7250
Module Title	Software Architecture and Programming Models
Assessment Title	Practical report
Element Label	CWK Part 2
Type	Summative – 50% of module mark
Set by	
Assessment due date and time	18/12/2025
Formal feedback due date	

All assignments must be submitted by the date and time specified above.

You are required to submit an electronic copy of your completed assignment, in the file format(s) specified by the module team (e.g., Word, PDF, programme code files), via the Assignments section of Canvas and follow any specific instructions provided. Any change to this instruction will be advised via Canvas.

If files are shared outside of Canvas (where specified by the module team), you must ensure that the files are accessible and available for staff to access without the need to request additional access privileges.

In line with University Regulations coursework submitted up to a week late will be capped at **50%.** Coursework submitted after this time will receive 0%.

In case of illness or other issues affecting your studies please refer to the University Mitigating Circumstances and Extensions Regulations. Please note that once you have submitted your work you have judged yourself fit to undertake the assessment and cannot usually claim mitigating circumstances retrospectively. Please refer to the Mitigating Circumstances Regulations for more information.

Guidance on avoiding academic assessment offences such as plagiarism and collusion can be found in the Digital Learning and Tools module on Canvas – see Academic Integrity.

PURPOSE OF THIS ASSESSMENT / WHAT IS EXPECTED

Aim: Analysing and Building an Image Management System Software Using Component and Service Oriented Cloud Architecture

The Problem: In order to improve its services ABC Healthcare Group must update its IT infrastructure to reflect the recent advances in information and communication technology. This will require the design and implementation of an adaptable technology migration strategy. Currently, the Group IT system is a LAN based, able to be reached over the web using legacy software. Thus, the Group needs a migration strategy to a Cloud based system, however such a migration requires the consideration not only of the underlying Cloud service-oriented architecture, and its benefits, but also should reflect the main activities of the Group.
At the core of the Group's activities is its Image Management System (IMS). The system is to be used to manage the workflow of images, from image upload to diagnosis, and to integrate a financial system specifying the cost associated with each patient. The tasks (functions) within the workflow are essentially time-stamped records. Each patient account keeps track of the tasks and the associated cost and will have a set of attributes such as patient name, address, conditions, diagnosis, and details of the total cost reflecting the required efforts.

In addition to patients the IMS is expected to be used by medical staff such as radiologists, doctors etc which needs to be added to the system, and they are able to access patients' details, generate and confirm diagnostics reports. In addition, images can be classified as MRI images, CT images and Xray images, as well as by the type of diseases such as lung cancer, brain cancer etc.

Your task is to design new service/modular based architecture of the system. It is up to you how to go along the task. However, you have to take into account the distributed nature of the problem and the possibility of accessing patients details, on the server, using different clients and different graphical user interfaces. These interfaces are programmed so that they communicate with the server.
You define how patients' details are handled, one way of handling such details, is by putting them in a list in order of their date. Queries can be from a simple interface, can generate reports such as patients' history. All interactions with the system are achieved by creating and querying attributes. The system should ensure the privacy and confidentiality of patients.
The system should be able to perform a number of operations including creating an account for every patient and medical staff, holding details such as name and address, allocating a numeric code (ID) for every user etc. The system also should be able to add, delete patients/staff and work out the total number of patients and total cost.

LEARNING OUTCOMES

The following module learning outcomes and professional body learning outcomes are tested in this assessment:

- Apply technical proficiency in component, service and modular programming.
- The Implementation of the demo system using a service oriented/modular architecture and frameworks of your choice.
- Produce a presentation/demonstration to discuss the used technologies and show a working prototype.

Can I use Generative AI (GAI) as part of this Task?

Default use of GAI: you are permitted to use Generative AI for the following purposes:

- Support spelling, punctuation and grammar.
- Support ideation.
- Create a structure or outline for the assignment.
- Support research for the assignment (identifying sources, search).
- Take the role of a constructive critic.
- Aid understanding.
- Produce media artefacts to support the assignment where the artefacts are not the primary focus of the assessment.
- Perform basic image / media editing encompassing cropping, noise reduction, sharpening, enlarging, compression, changing format type and adjusting lighting.

Please note: all of the core writing, creativity, arguments, analysis and reasoning must be your own

For further details on this GAI Assessment category please see:

Student Guide to GAI at Kingston University 2025/6 in the Digital Learning and Tools module in Canvas (Generative AI section).

Do I need to declare my use of GAI tools?

Yes, if you use Generative AI for any part of your assessment, you must declare this. This applies to all assessments including those in the default and explicit categories.

For this assignment the declaration should be provided at the end of the submission with the heading 'Acknowledgement of GAI Contribution'. This declaration should include a statement on the use of generative AI including the extent of use, and how it was used as part of all stages in creating the final submission.

For assessments that fall into the explicit category (does not apply to the purposes listed in the Default category), any GAI content included in the assignment, e.g., a quoted paragraph of text or an image, should be properly cited as with any non-GAI source.

Further guidance on completing this acknowledgement is provided in the Digital Learning and Tools module in Canvas (Generative AI section).

The module team may also provide additional advice on the specific details required, depending on the nature of the GAI tool used.

You will also need to read and accept the similarity declaration when submitting an assignment in Canvas.

FURTHER INFORMATION ABOUT THIS ASSESSMENT

You will receive the feedback electronically using the feedback form.

MARKING CRITERIA

Assessment of your submission will be based on the following weighted assessment criteria as given below which relate to the specified module and PSRB learning outcomes. Assessment criteria are reproduced in Canvas in a rubric.

Specific Criteria (marking scheme)	Marks available
Implementation: You are asked to implement and construct your application using a programming language and programming environment that supports component/service-oriented paradigm.	**80%**
Presentation/demo: This should include a brief discussion of the deployed technologies and a working prototype of your program which should demonstrate good knowledge of fundamental service/component oriented and modular concepts.	**20%**
	Total = 100%

Implementation: Coding Fundamentals **(/30)**

**	VG	G	F	P	VP
Use of OO Concepts					
Use of classes					
Use of method invocation					
Use of storage					
Use of interaction and selection					
Variables/Header box/Comments/					

Implementation: Services/Components Integration **(/50)**

**	VG	G	F	P	VP
Functionality					
Completeness					
Use of service orientation					
Use of Components					
Use of Interfaces					

Presentation/demo (/20)

**	VG	G	F	P	VP
Quality					
Presentation					
Technology					
Traceability: from design to code					

Overall mark **(/100)**

****** VG: Very Good, G: Good, F: Fair, P: Poor, VP: Very Poor

ACADEMIC SKILLS SUPPORT

For help and advice on this assessment please contact the assessment setter/s or the module leader.