

## LLP109 - Digital Application Development

Weighting                      100% of the module mark

*The coursework for this module consists of the two parts:*

- **Part 1. Report (40%)**

: Write a **2000-word technical report about your app.**

- **Part 2. App development mini-project (60%)**

: Develop an electronic bibliographic *information management system*

*Both the report (.pdf) and the software codes will be submitted electronically. You will be informed of the precise details of how to submit your assignment on the Learn Server and it will be explained in the lecture.*

For this coursework you are asked (1) to develop a computer program for the applications of a *data management system* either in Python or C and (2) write a technical report.

- Find technical solutions for practical problems by reasoning, deduction and implementing from initial ideas to a final product. **(10%)**
- Demonstrate the programming concepts and technical understandings learnt in LLP109. At least four different technical elements for coding should be used for the program. **(10%)**
- Analyse and discuss the approaches, results and logics of the codes. **(10%)**
- Abstract features from objects/problems and develop ideas into algorithms. **(10%)**
- Identify and utilise software tools, algorithms and functions for *digital application development*. **(10%)**
- Demonstrate necessary logical understanding to develop applications and provide a software package. **(10%)**
- Understand the concepts and use of coding techniques of *variables, data structures, input/output, loop, conditionals, (user-defined) functions, and operators* in the programming language chosen for the coursework. **(40%)**

**Hints on writing a report and codes:** Once you have done the basic review of the given project and have started to think about the big picture of your app, you should ask yourself how you can incorporate the techniques you have learnt in the module into the specific project. You will need to expand your abstract ideas to demonstrate how the technical concepts of *data structure*, *variables*, *functions*, *input/output*, *loop*, and *conditionals* are appropriately applied to the program that you develop in **either Python or C**. Going further on the basic ideas considered conceptually in general, you are to develop **your own algorithms** and **explore its potential application scenarios**. In addition, explain how the program was developed and how you designed the software in a report. To deliver your idea clearly, you can leave comments in the source codes.

## **Report structure**

Each report should contain the following sections for the corresponding project:

### ***Introduction***

You should research the context of the problem and give a clear overview of what your programs are intended to do. Your introduction to each part should also clearly explain where the program might be used in an industrial application and how it relates to the field of digital technologies in general.

### ***Program structure***

Explain in general how a program is structured. You can use a **block diagram** if you wish or any appropriate method to show how the program you are submitting is constructed. Explain this in terms of objects, flow diagrams or procedural code, depending on the language/method being used. It should be possible to read this section of your report alongside your program and fully understand how the program works at a basic level but without necessarily understanding how each individual function/object works.

### ***Program functionality***

Prove in this section that your codes actually work by showing the result of inputting test data and showing the output. Demonstrate clearly that the output you get is what would be expected.

### ***Application development***

Explain how the program was developed and how you designed the software. You will need to expand your explanation to demonstrate how the technical concepts, e.g. *pointer*, *structure*, and *array* in C or *tuple*, and *list* in Python, apply to the code you developed.

### ***Data processing and functions***

In this section you should demonstrate your understanding of how to use functions and commands of the computer language. Your code should be referenced alongside your explanation if needed. Try to give specific information about the code you wrote. Explain which functions you used and how they work, drawing on relevant theory where appropriate. The report should include approximately 2000 words (+10%). The word limit does not include the front page, list of contents, references, appendix, and the software code itself which can be any length.

### ***Conclusion and further work*** (in the end of the report)

Discuss critically what you have achieved, such as “Does the program work well in other computers? What are the limitations and expected errors? Are there any parts that do not fully work and need further development?”