Luminus Technical University College - Assignment Brief (RQF)

Higher National Diploma in

Student Name	Fuad Bader	**Language of assessment (Please tick)**	**Ar**	**En**
		Learner's ID (College)	19012719	
		Learner's ID (Pearson)		
Unit Number and Title	**1**	**Programming**		
Unit Assessor Name	**Lana Issa**	**Academic Year**	**2019-2020**	
Assignment number & Title	**1**	**Building a Software System**		
Issue Date (1st Submission)	**6/5/2020**	**Completion Date (1st Submission)**	**30/5/2020**	
Issue Date (2nd Submission)		**Completion Date (2nd Submission)**		
Internal Verifier Name	**Dr. Mohammad Eshtay**	**Approval Date**		
Internal Verifier Approval (Signature)				
Lead Internal verifier name and signature (in case of resubmission)	**Lana Issa**	**Approval Date**		

Submission Format:
You are to submit three types of files: .java code files for coding tasks, A4 word document pages for comprehensive tasks, and an mp4 video for the tasks that require recording a video. The choice of font face, font size and line spacing are left to your discretion. However, as a professional report, clarity and readability are critically important. You are encouraged to use diagrams, charts and graphics to help to explain the topics. Any material (images, drawings, diagrams, text) that is derived from other sources must be suitably referenced using a standard form of citation.

Unit Learning Outcomes:	
1	Define basic algorithms to carry out an operation and outline the process of programming an application
2	Explain the characteristics of procedural, object-orientated and event-driven programming.
3	Implement basic algorithms in code using an IDE.
4	Determine the debugging process and explain the importance of a coding standard.

Assignment Brief and Guidance:

A new bookstore is opening in Amman **(Golden Papers),** it needs a software solution to organize information about its stores, books and employees. It contacted the software development company (**Software House**) where you work as a Java Developer.

The executive management in **Golden Papers** believes that the business requirements have emerged and they need to invest in developing new technology. **Golden Papers** consists of set of stores that are located in different places. It wants to keep track of the books in the stock in each of its stores. Each store contains its own inventory of books, and has a manager who manages the store. The books have many details such as the title, isbn, number of pages, cost, price, and other information. **Golden Papers** also uses information about the publisher of the book as well as the author(s) to be used for many reasons such as marketing plans. Finally they need to manage the employees who work in stores of their bookstore. Each employee is working in a specific store and has information such as employee number, name, national ID, salary, and address.

Software House company accepted the offer of designing and developing a software solution for **Golden Papers**. Your manager assigned the task of designing and implementing this software solution to your team. Your brief is to develop a Java project with all the needed functionalities and satisfy all the requirements set by **Golden Papers**. The main tasks to be delivered are:

- Investigate the requirements of the system
- Implementation of the system
- Prepare user and technical documentations
- Make sure everyone in your team is familiar with the features and details of the programming language and tools you are using

Task(1)

The development phase of this project is about to start, you will lead on development of this project to make an example for your colleges, you will implement a software project using Java programming language that satisfies the previously discussed requirements, and taking care of the following points:

1- The client asked for a feature in the system to make him able to sort the books in the book store by their prices. Make sure to write a program that provides this feature to the client, by **implementing** a sorting algorithm that enables him to sort the books in the bookstore.
2- In order to make sure the interns have a clear understanding of the algorithm you are implementing. **Review** the implementation of an algorithm in a suitable language and the relationship between the written algorithm and the code variant.
3- **Use** a suitable IDE to manage the development process.
4- A group of interns joined your development team, you've handled the responsibility of making sure they are familiar with all the details needed in order to help with the development of this system. After introducing yourself, your team, and the project details. Start discussing technical matters to make sure they have clear understanding. The first thing you will do is that you will help them **define** what an algorithm is and **outline** process of programming an application to the interns. Also, **present** the steps of building a program, from writing code to execution. Use the feature in point 1 to do the needed presentation.
5- One of your interns asked to know more details about IDEs and why are they used. In order to help her, **Critically evaluate** the use of an IDE to develop software projects and what difference does it make from not using IDEs.

Task (2):

During the development process, in order to give the interns the professional experience of coding, they should be introduced to some coding related matters such as the debugging process and the coding standard. Your job is to provide them with the needed knowledge to familiarize those concepts to them, you were asked to perform a training session for your interns to discuss the following:

1- **Outline** the debugging process and explain the debugging facilities available in the IDE.
2- **Assess** how the debugging process can be used to help develop more secure, robust applications.
3- **Justify** why a coding standard is necessary in a team as well as for the individual.
4- **State** the coding standard you have used in your code

Task (3):

Since your company is specialized in building software solutions for clients using Java programming language, it is used as the main language of building the system you are working on. Before the interns finish their internship period, they asked you as their mentor, to guide them to find an understanding about different programming paradigms by considering the following:

1- **present** to your interns what procedural, object-orientated and event-driven

paradigms are; their characteristics and the relationship between them.

2- **Compare and contrast** the procedural, object orientated and event driven paradigms used in given source code of an application and provide the needed examples and details for the interns to deeply understand the comparison
3- **Compare** the source code of an application which implements the procedural, object-orientated and event driven paradigms, in terms of the code structure and characteristics.

LO1 Define basic algorithms to carry out an operation and outline the process of programming an application		
P1 Provide a definition of what an algorithm is and outline the process in building an application.	M1 Determine the steps taken from writing code to execution.	D1 Evaluate the implementation of an algorithm in a suitable language and the relationship between the written algorithm and the code variant.
LO2 Explain the characteristics of procedural, objectorientated and event-driven programming		
P2 Give explanations of what procedural, objectorientated and eventdriven paradigms are; their characteristics and the relationship between them.	M2 Compare and contrast the procedural, object orientated and event driven paradigms used in given source code of an application	D2 Critically evaluate the source code of an application which implements the procedural, object-orientated and event driven paradigms, in terms of the code structure and characteristics.
LO3 Implement basic algorithms in code using an IDE		
P3 Write a program that implements an algorithm using an IDE.	M3 Use the IDE to manage the development process of the program.	D3 Evaluate the use of an IDE for development of applications contrasted with not using an IDE.

LO4 Determine the debugging process and explain the importance of a coding standard		
P4 Explain the debugging process and explain the debugging facilities available in the IDE. P5 Outline the coding standard you have used in your code.	M4 Evaluate how the debugging process can be used to help develop more secure, robust applications	D4 Critically evaluate why a coding standard is necessary in a team as well as for the individual.

Plagiarism

Plagiarism is a particular form of cheating. Plagiarism must be avoided at all kinds and students who break the rules, however innocently, may be penalised. It is your responsibility to ensure that you understand correct referencing practices. As a student in a university college level, you are expected to use appropriate references throughout and keep carefully detailed notes of all your sources of materials for material you have used in your work, including any material downloaded from the Internet. Please consult the relevant unit teacher if you need any further advice.

Student Declaration

Date Received 1st submission		**Date Received 2nd submission**	
Student declaration I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice. **Student signature:** **Date:**			

<table>
<tr><td colspan="3">Assessor Feedback: (Please provide holistic guidance to the students on how they have met the learning outcomes and assessment criteria)</td></tr>
<tr><td colspan="3">*Please note that constructive and useful feedback should allow students to understand:

a) Strengths of performance
b) Limitations of performance
c) Any improvements needed in future assessments

Feedback should be against the learning outcomes and assessment criteria to help students understand how these inform the process of judging the overall grade.

Feedback should give full guidance to the students on how they have met the learning outcomes and assessment criteria.</td></tr>
<tr><td>Grade:</td><td>Assessor Signature:</td><td>Date:</td></tr>
<tr><td colspan="3">Resubmission Feedback:</td></tr>
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<tr><td colspan="3">Internal Verifier's Comments:</td></tr>
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* Please note that grade decisions are provisional. They are only confirmed once internal and external moderation has taken place and grades decisions have been agreed at the assessment board.