

<b>Title of Module</b>	<b>S21U10808 Database Enhancement Group Project</b>
<b>Title(s) of Assignment</b>	<b>Digital Artefact Part 1: Group Assessment</b>
<b>Weighting</b>	<b>80%</b>
<b>Module Team</b>	<b>Gareth Ward</b> <b>Amina Souag (Moderator)</b>
<b>Assignment Deadline</b>	<b>8 January 2024 at 14:00</b>
<b>Expected Feedback Date</b>	<b>29 January 2024</b>
<b>Location of Feedback</b>	<b>Via Turnitin on Blackboard</b>
<b>Assessment Type</b>	<b>Written Report and SQL Scripts</b>
<b>Where to Submit</b>	<b>Blackboard Submission Tool [1]</b>
<b>What to Submit</b>	<b>Group Report and SQL scripts</b>

[1] If you experience any problems with this system then please contact the Computing Administration Team ([computing@canterbury.ac.uk](mailto:computing@canterbury.ac.uk))

## Overview

A group of games developers have decided to link together and create an online marketplace to maximise their overall profits from sales of their videogames. Existing platforms, such as Valve Software's Steam, and EPIC's Game Store all take a percentage of sales revenue.

The games developers want to create their own platform so they receive all of the revenue from each game sold. They understand that they will still need to use other platforms to sell their games, but even a small number of sales on their own digital distribution platform will benefit their overall profits.

As a development team within Olympus Tech, you have been assigned the task of creating a back-end database that would be used to store details of the various games developers and their products.

## Assignment Instructions

This is a group assignment that assesses your ability to apply the techniques that have been delivered through this module.

There are four key aspects that you are expected to deliver on completion of this assignment:

1. A fully formed and annotated Logical Data Model;
2. A functional database that meets all set requirements outlined by the games developers and their representative;
3. SQL scripts that run user reports for the company;
4. A written report outlining your approach, methodology, testing and evaluation.

In addition, each group member must complete and submit an individual self and peer assessment form.

The initial database SQL script is available for you to download from the Assessment area on Blackboard and the associated ER Model has been provided in Appendix B.

**Note:** It is recommended that you review the full set of learning outcomes and the rubric to ensure that all of the required information is included in your assignment submission.

## Marketplace Requirements Gathering

Your first task is to capture and fully understand the requirements for the new marketplace.

It is recommended that you create and provide a succinct list of requirements that includes:

1. Requirement ID
2. Requirement Name
3. Requirement Description

Once you have gathered your requirements, you will need to use them to design a new logical data model. Your LDM will then be used to inform how you implement your database using SQL.

The requirements provided by the games developers in this assignment brief are *not* complete. Once you have analysed the provided requirements, you will need to email a business representative for the games developers group to finalise the full set of requirements.

The initial requirement descriptions provided are as follows:

- Customers; customers are required to sign up for an account. They will be able to create a username; registration will require an email.
- Products: Each games developer sells videogames across a range of different genres. We need to record some core information about the products alongside the need to keep track of the number of licences that have been generated and sold.
- Game developers; we need to store the game developer company names with brief descriptions. We will also need to store the customer support opening hours for each shop.
- Orders; when customers make an order we need to store this. We will need to record the order date and time, what the customer ordered and whether it is fulfilled.

As outlined above, part of your project is to gather requirements from the representative for the businesses that hired you. You will need to email Malcolm Bright in a professional manner to obtain the remaining requirements for the project.

Malcolm sits in the Operations Team within Olympus Tech and is keen to keep his clients and managers happy. His contact details are as follows:

**Malcolm Bright**  
Operation Manager  
mbright.olympustech@gmail.com

You will need to make a record of all communications with Malcolm and submit them as part of your final report submission. It is down to you to determine what the client needs, and you will need to do this through consistent communication with their representative.

Appendix C contains some useful FAQs about contacting the representative. Please note that the module lead will not give details of the missing requirements. You need to contact the representative using clear and professional email communications.

During WC 23rd October, your group will need to meet with the module lead to review your Logical Data Model and receive constructive feedback. It is vital that you organise and attend these meetings to ensure that your data model is not missing key information. Failure to attend may result in you creating an incorrect database.

You can alter and change your Logical Data Model after this date, these meetings are to ensure that you are progressing in the right direction.

Finally, you will need to submit evidence of having used normalisation to validate your Logical Data Model to at least 3NF (3rd Normal Form).

### **Creation of Your Database and User Reports**

Using your logical data model you will now be able to create SQL database creation scripts that, when run, will create the tables and relationships. This will be your opportunity to demonstrate your understanding of SQL and the translation of user requirements into a tangible product or output (IE database).

Sample data for the database is available via Blackboard. The data is in an Excel spreadsheet. You are required to generate insert scripts to place all of the data into your tables. These insert scripts are not required in your hand in. It will be clear from the data being present in your database that you have successfully been able to create the required inserts.

Once you have created your database and inserted all of the data, you will then be required to create five queries that can be run at different times and still produce meaningful results. The five queries are as follows:

1. Write a query, that can be repeatedly run, and will find the Username, First Name, Last Name, Email for all customers who registered in the last month. Order the output so that the oldest registrations are first.
2. Write a query that will display the Developer name and the total number of orders for each Developer. Order it so that the Developer with the most orders appears first.

3. Write a query that, given a Transaction Id, will find all associated orders, display the order number, the Developer name and whether they have been prepared.
4. Write a query that, given a Developer id, will display the Username and email of all customers who have made an order with them. Ensure that customers who have made repeated orders are only displayed once.
5. Write a query that will display the Developer Name, Product Name and Description and any Order notes, of all products in each Transaction.

You will need to write some basic instructions on how to use your queries. For example do any clauses need to be changed for the query to run? Some queries will require a variable to be provided to enable them to function correctly. You should provide guidance on where to put the variable in your query.

### **Project Report and Documentation**

You will be expected to provide a written report that documents your approach to gathering your requirements, how they have been implemented via your database and report scripts, how they have been tested for suitability and a final project evaluation.

One recommended report structure is as follows:

- Introduction
- Project Requirements
- Logical Data Model
- Testing
- Evaluation
- Appendix A: History of Communications

**Please note:** This is not indicative. You may decide to add, remove or change sections, as well as making use of additional appendices as you see fit.

### **Submission Guidelines**

You will need to submit a group report and a zip archive to the assessments area of the module on Blackboard.

The group report should be submitted as a Word document (.docx) or PDF, and include your logical data model as an appendix.

The zip archive should contain:

- Data Definition Language (DDL) creation scripts
- Reporting and/or Querying scripts

### **CCCU Late Submission Guidelines**

In the case of late submission of work for a component of assessment (including dissertations, extended essays and projects) without an approved extenuating circumstance, the work will be penalized.

The standard penalty will apply to all components of assessed work for all programmes, unless:

**EITHER:**

- (i) a special regulation has been approved by Academic Board;

**OR:**

- (ii) the work is marked on a pass/fail basis and it is not possible to give a numeric mark.

The standard penalty to be applied by all programmes will be 5% of the eligible marks, per day, for up to 7 days, after which a mark of 0 will be recorded.

The reduction of 5% will be applied to the total mark that the student can receive for the component of assessment and not to the mark that the student has earned. If, therefore, the component of assessment is marked out of 100 and the student has scored 50%, the student will lose 5 marks and receive 45%.

### **Mark Scheme/Rubric**

Please see page 7 for a detailed rubric.

### **Formatting of Submission**

You are expected to produce your report to a high professional standard. Any screen shots, tables, figures, charts, illustrations, etc. will not contribute towards the word count.

Your SQL scripts should include comments wherever relevant.

Your work must be adequately referenced throughout, using Harvard referencing style. Pears & Shields (2016) give a complete guide to Harvard referencing. Guidelines on using the Harvard Referencing style are available at:

<https://www.canterbury.ac.uk/library/docs/harvard.pdf>

<https://www.canterbury.ac.uk/students/docs/study-skills/resource-1-Harvard-Referencing-Guide.pdf>

The report must be submitted using the dedicated Blackboard grade centre submission bucket on or before the submission deadline.

### **Resources You May Find Useful**

The majority of the resources you may need are accessible via the Database Enhancement Group Project course on Blackboard at <http://learn.canterbury.ac.uk>.

## Learning Outcomes Assessed (Fully or Partially)

LO	Description
1.	Effectively analyse and model the data for an existing/required system.
2.	Conceptually and logically design a database.
3.	Effectively implement and test a small relational database application.

## Graduate/Employability Skills Gained

This assessment is an opportunity to start to develop a portfolio of your work to show to employers. You will exhibit the ability to gather requirements and communicate professionally.

Adaptable:

You can gather requirements and adapt to changes in the requirements.

Digitally Literate:

- Confident in use of digital devices, applications and services. In particular, developing a database using a PostgreSQL Database and SQL scripting.

Effective Communicator:

- You will be required to communicate professionally with the representatives and within your group.

Informed:

- Aware of issues relating to social justice, ethics and wellbeing. In particular, ethics and law of storing potentially personal data.

Innovative:

- You are given the opportunity to develop a database that can be as innovative as you require.

Professional:

- You will need to communicate with the representatives in a professional manner.

Self-Aware

## Programmes of Study

BSc (Hons) Computing  
BSc (Hons) Computer Science  
BSc (Hons) Computer Forensics and Security  
BSc (Hons) Business Information Systems  
BEng (hons) Software Engineering

## APPENDIX A: MARK RUBRIC

Table 1: Database Enhancement Group Project Marking Rubric

		Weight	Referred	Pass	Good	Very Good	Excellent
<b>Implementation</b>							
Logical Data Model		15%	The model fails to show details of the tables to be implemented. There is no attempt to extend the existing tables.	The LDM extends from the initial Entity-Relation Model but further extension of additional entities is minimal. Data types are chosen, but may not be appropriate for the physical system or data. No normalisation has been evidenced.	As a pass, but there is additional references to nullability and defaults. Relationships are correctly detailed. The ER-Model is extended and additional entities are appropriately added and linked.	Entities and attributes are appropriately named, and data types are also wisely chosen. The relationships are all correctly detailed and all entities are related. Nullability and defaults are addressed. An attempt at validating the LDM using normalisation has been evidenced.	A fully formed LDM that fulfils all requirements for tables as communicated. All tables are appropriately named with correct relationships represented between them. Attributes are sensibly named, with suitable data types, defined nullability and any potential default values. Any limitations or weaknesses are explained. The LDM is fully validated using normalisation to 3NF.
Database Creation		25%	The script fails to run successfully if at all. There is a lack of connection between the data model and the script. A clear lack of understanding in how to create fully formed and functional tables.	The script may require some interference to run correctly. There is a lack of connection between the data model and the script; some entities detailed in the model are missing, or visa versa. The tables show some of the data controls that are detailed in the data model. Tables have a defined primary key.	Tables have defined primary keys and foreign keys have placeholders. Information on the data model is available in the script. The tables are created without interference from marker. There is evidence of some controls such as nullability and defaulting.	Tables are all created with the script running faultlessly. The tables have primary and foreign keys. Tables and attributes are named appropriately, data types are also suitable. There is evidence of data control.	The script runs faultlessly. The script corresponds with the Logical Data Model. All tables have appropriate Primary and Foreign Keys. Indexes are created where necessary. The data population scripts work as expected with the new database creation. Sequences are created and used to default primary keys. There is data control including nullability and defaulting.

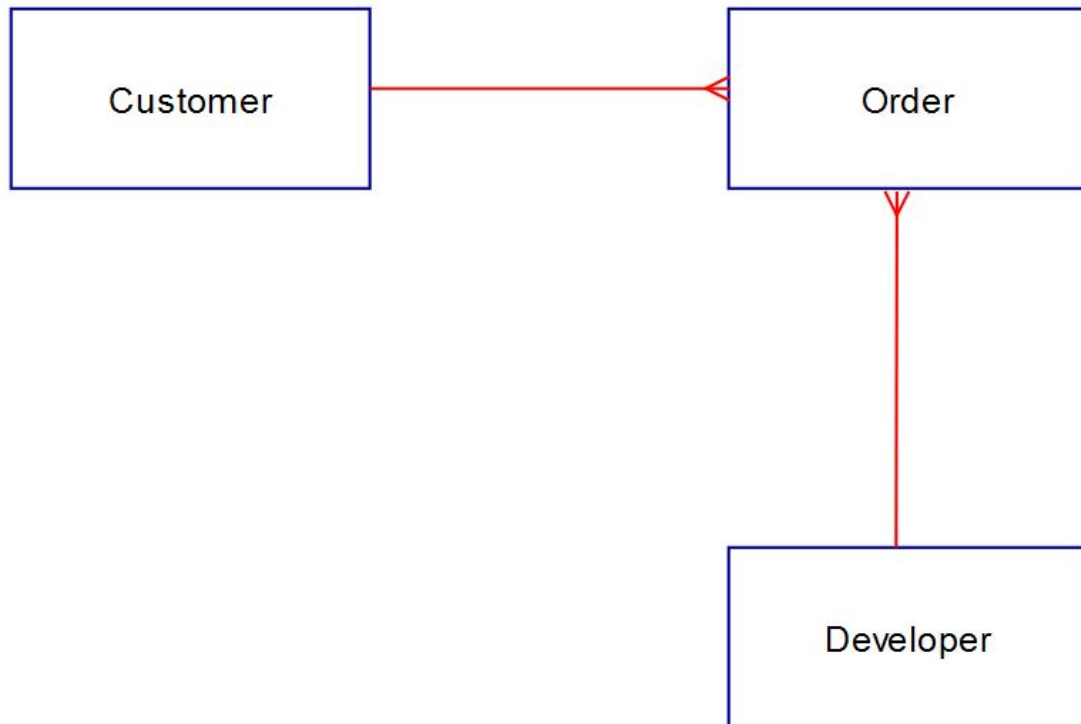
	Weight	Fail	Pass 40-49%	Good 50-59%	Very Good 60-69%	Excellent 70-100%
Query Scripts	20%	The script fails to run without significant interference. There is a lack of understanding in the formation of queries. An attempt has been made, but if data is retrieved it is not filtered as expected.	The script may require some interference to run correctly. The queries may not be complete, or the formatted correctly, but they are readable and there is evidence of understanding. The data retrieved is correct, but there may be duplication and additional attributes.	The script runs with minimal interference. The queries are formatted correctly if not complete. Additional data may be retrieved that may busy the queries. The data retrieved is correct, but there may be some duplications.	The script runs without any interference and ultimately retrieves the required information. There may be more attributes than necessary. The data retrieved is correct.	The script runs as expected and outputs results for the user in a readable and clear manner. Appropriate data is selected to provide the necessary information to answer the customer queries. The scripts can be run multiple times. Result columns are appropriately named.
<b>Group Report</b>						
- Approach	5%	There is no section detailing the groups approach to the project.	The groups approach has been mentioned but there is no significant insight into the details.	The groups approach is mentioned, and some details are given on how the team decided to attempt the project.	A section has detailed the groups approach to project. A look at the different aspects of the project is made, including each of the members roles.	A detailed section about how the team approached the project. Discussion about team roles, project planning and how they decided to approach the communication with the representatives. A plan for how to get the correct requirements and narrow them down is also detailed.
- Testing	10%	No approach to testing is detailed and therefore it is assumed that no testing has been done.	Testing is mentioned and any results of the testing are also detailed, however there is no coherent plan or evidence to accompany this.	Testing is mentioned and there is a rudimentary approach to the plan. The test cases cover the basics and ensure the scripts work as expected.	A test plan is formed to an industry standard. There is testing scripts included in the hand in. The tests cover the main cases and issues that might arise with the script. There is little coverage for exceptional cases.	A fully formed testing framework that follows an industry standard such as 'positive/negative'. Test cases go beyond the immediate requirements and investigate how the system could break and what steps are in place to prevent that. Any test scripts are included in the hand in.



	Weight	Fail	Pass 40-49%	Good 50-59%	Very Good 60-69%	Excellent 70-100%
- Evaluation	10%	No evaluation has been provided, or what has been provided does not address the project deliverables.	An evaluation of the project has been provided that looks at the implementation and report, but has no mention of strengths, weaknesses and/or limitations.	An evaluation of the project has been provided that includes several recommendations for future improvements to the implementation, as well as mention of some strengths, weaknesses and how these may be overcome.	The evaluation is well structured, including a review of the implementation, supporting documentation and where limitations are described, potential solutions have been presented. Potential challenges when handing over to the client have also been addressed.	A fully formed and thorough evaluation of the project as a whole, reviewing the strengths and weaknesses of the implementation and supporting documentation. A robust range of potential solutions and future developments have been presented, including challenges with solutions that may arise when the handed to the client.
- Overall Format, Content and Grammar	5%	The report lacks a cohesive writing style and is unformatted.	There is little formatting, but there is an understandable writing style	There is a general style used throughout the report but minimal sectioning. The writing is uniform and reads well.	The report is written in a coherent way and there is generally good grammar.	The report is well written in a universally coherent way. Grammar is good and reads well. The report is formatted in a consistent style with clear headers and sections.

	Weight	Fail	Pass 40-49%	Good 50-59%	Very Good 60-69%	Excellent 70-100%
<b>Collaboration</b>						
Representative Communication	5%	The databases requirements have not been expanded on and there has been little to no communication with the representative. The communication was not clear and may have been unprofessional.	Communication was made, but not enough to expand the requirements in a fully realised way. The communication was clear and professional but may not have been as continuous as possible.	Communication was made and was effective to retrieve most of the requirements. There may have been some inconsistencies when communicating.	Communication was clear and professional. There may have been some questions that could have been asked in a clearer way. The representative was reminded if there were delays in responses. Students provide the full email train of communication in the report.	Consistent and clear communication. Full email train is available in group report that corresponds to the representative's email train. Communication is professional and all requirements were fully realised. The right questions were asked to retrieve the full requirements.
Group Work	5%	The group fails to work together in a cooperative and friendly manner. There is clearly evidence that the group are unable to work well with others.	The group works together but struggles to create a successful working environment. Tasks may be finished but they are rarely performed as a team, but rather individually. There may be discomfort for some of the students in the team.	The group does work together, and they function well. The environment is one that the group can voice their opinions. There may have been some missteps in working together, but overall, there was a successful working environment.	The group worked well together, and there was a healthy environment where members were listened to. There may have been some missteps when coming together on tasks, but overall, the group was successful.	The group worked together in a positive and encouraging way where all voices were heard, and opinions noted. The members comfortable working together. All communications are included in the appendix of the report. Communications are clear and professional.

## APPENDIX B: EXISTING DATABASE ER-MODEL



## **APPENDIX C: FAQ REPRESENTATIVE COMMUNICATION**

**We need information about <topic>, how do we know what questions to ask?**

You need to open a dialogue with the representative to better understand where their expertise lies. Be sure to ask questions; if they do not know the answer they will direct you to someone who can answer the question.

**We have emailed Malcolm and they have not responded, what should we do?**

The client is communicating with you as well as working their everyday jobs; they are busy! As a result your email may be lost amongst their vast inbox. It is therefore vital that you persist in your correspondents. If you are waiting for a reply; send another prompt to ask if they have read your last email. Try setting the importance of your mail; use High Importance. (Note, if you set all your mails as High Importance, they may filter them out. Ensure that you use this only for the most vital emails).

**Do we have face-to-face meetings with “Malcolm”?**

There will be no face-to-face meetings, rather you will be required to communicate with the University Instructors who will act as an intermediary.