Xi'an Jiaotong-Liverpool University
西交利物浦大学

XJTLU Entrepreneur College (Taicang) Cover Sheet

Module code and Title	**IFB107TC Information Systems Management**
School Title	**School of Intelligent Finance and Business**
Assignment Title	
Submission Deadline	**11:59 PM 4ᵗʰ April 2023**
Final Word Count	
If you agree to let the university use your work anonymously for teaching and learning purposes, please type **"yes"** here.	

I certify that I have read and understood the University's Policy for dealing with Plagiarism, Collusion and the Fabrication of Data (available on Learning Mall Online). With reference to this policy I certify that:

- My work does not contain any instances of plagiarism and/or collusion. My work does not contain any fabricated data.

By uploading my assignment onto Learning Mall Online, I formally declare that all of the above information is true to the best of my knowledge and belief.

Scoring – For Tutor Use						
Student ID						

Stage of Marking	Marker Code	Learning Outcomes Achieved　(F/P/M/D) (please modify as appropriate)			Final Score	
		A	**B**	**C**		
1ˢᵗ Marker – red pen						
Moderation – green pen	**IM Initials**	The original mark has been accepted by the moderator (please circle as appropriate):			Y / N	
		Data entry and score calculation have been checked by another tutor (please circle):			Y	
2ⁿᵈ Marker if needed – green pen						
For Academic Office Use		**Possible Academic Infringement (please tick as appropriate)**				
Date Received	Days late	Late Penalty	☐ **Category A**		Total Academic Infringement Penalty (A, B, C, D, E, Please modify where necessary) _____	
			☐ **Category B**			
			☐ **Category C**			
			☐ **Category D**			
			☐ **Category E**			

General Information

1. **Submission Deadline:** 11:59 PM 4th April 2023.

2. **Weight:** 100%

3. **Assessment Type:** Individual

4. **Format Requirements:**

    •   Assignments must include the cover page with your student ID.

    •   The assignment format is a report comprising an executive summary, table of contents, introduction, body, conclusion, references, and appendices. The detailed structure of the report is in Appendix A.

    •   All assignments must be typed, proof-read, and professional in appearance

    •   The word font should be 'Times New Roman', 'Arial', or 'Calibri', and font size 12 with 1.5 spacing.

    •   The left and right margins should be 'Justified'.

    •   Harvard Referencing if citation and references apply.

5. **Submission Requirements:**

    •   All students should only submit the project report in PDF format (including the cover sheet) via Learning Mall Online to the correct drop box. Only electronic submission is accepted and no hard copy submission.

    •   Name each file as IFB107TC-CW-Your ID.

    •   All students must download their file and check that it is viewable after submission. Documents may become corrupted during the uploading process (e.g., due to slow internet connections). However, students themselves are responsible for submitting a functional and correct file for assessments.

    •   Please note that work submitted after the deadline above will be subject to the university's policy on late submissions.

6. **Word limit:**

    •   2,200 words (± 10%) excluding table of contents, tables, figures, appendices, bibliography/list of references, and Python/MySQL codes. Be succinct and use tables and charts to reduce your need for a high word count.

Assessment tasks:

The UK Department of Health and Social Care provides a multitude of medical services to people. The UK government is considering developing a new information system to get faster and better decision-support information. The government has limited experience with information system development, so it engages a consulting company to plan and implement it. You need to take the role of an employee of the consulting company and are in charge of this project. The first business process the government will implement is the hospital admission process.

The government looks after many public hospitals with a range of medical officers (MO) within different medical fields (Specialty). Whenever a patient is admitted, a record is created with an admission number (EpisodeNo), date and time, urgency of admission, as well as hospital, patient no., and other patient data. During the stay, all the procedures performed and costs are recorded. When patients are discharged, again the date and time, as well as the status get recorded.

At this stage, the government is providing you with test data only. The spreadsheet will be provided with different worksheets in which data are explained further.

Your project consists of a range of tasks, beginning with designing the database, implementing it, creating queries, documenting the design and implementation steps, and answering clients' questions. You are required to answer each of the following tasks in sequence:

(1) Conceptual Model (15 Marks)

You need to design a conceptual model (ER Model) for the given admission data. The aim is to design the database you will then implement in MySQL, and explain it in brief, including reasoning for your choices of entities.

Furthermore, explain the terms master data, transaction data, normalization, referential integrity, primary key in your own words and provide examples from your data.

(2) Implementation (10 Marks)

You need to implement the hospital admission data in MySQL according to the design of your ER Model and document some aspects of the implementation. In this task, you need to provide the following:

- For each data set (table) you create, the method of creation (imported/manually created) and data entry method (manual or loaded);

- The number of records in each table;
- Any assumptions made during the implementation process, as there was no/not enough specification given;
- Screenshots for all MySQL query definitions in the appendix to the report.

(3) Data Analysis (15 Marks)

You need to set up the database operating environment in Python and then use Python to answer and discuss the following questions:

- Admission count per hospital, by specialty, in a certain period of time;
- Average length of stay by hospital, by class, by medical officer;
- Average cost by hospital, by class, by age, by age group (age groups are 0-16, 17-38, 39-60, 61 and above);
- List of medical officer by hospital, by specialty, including information on attendance patterns;
- Elective and Emergency (urgency of admission) admission count by hospital, by sex.
- Select any two of the above questions and use Python to virtualize the results.
- Provide screenshots for all Python codes in the appendix to the report.

(4) Client's additional question one – Information systems technology (15 Marks)

The pandemic poses an enormous challenge to the global health system, and governments have taken active preventive and control measures. The UK government is exploring any information technologies to manage the pandemic.

Explain three health information technology-related measures or methods for managing the outbreak.

(5) Client's additional question two – Knowledge Graph (15 Marks)

The UK government has spent time developing customized templates that fit the electronic health record format. However, the system remained confusing, inefficient and failed to adequately capture the essence of patients' illnesses. The client has heard that deploying knowledge graphs in the healthcare services space has proven to be an effective method to map relationships between the enormous variety and structure of healthcare data.

Explain the concept of knowledge graph in brief and provide a summary of at least three

advantages of the use of knowledge graph in healthcare compared to the traditional relational database.

(6) Client's additional question three – Information Governance and Ethics (20 Marks)

Of all industry sectors, healthcare probably has the most intensive focus on information governance. The client wants you to provide a balanced, yet discriminating and critical, review of the topics of information governance and ethics in healthcare. You should consider the following:

- Why information governance and ethics is now a key area for healthcare;
- What information governance and ethics in healthcare is;
- How information governance and ethics can be systematically and effectively developed in healthcare industry.

You should reference the relevant literature and provide illustrative case examples.

Marking Scale and Recommended Word Counts Summary:

Marking Item	Marks	Recommended Word Counts
Task 1 Conceptual Model	15	100-200
Task 2 Implementation	10	50-100
Task 3 Data Analysis	15	100-200
Task 4 Information Systems Technology	15	400-600
Task 5 Knowledge Graph	15	450-650
Task 6 Information Governance and Ethics	20	500-700
Assignment Format/Presentation/Overall Impression	10	
Total	100	2000-2400

Appendix A: Report Structure

Title Page (Not included in the word count)	This page should have: • The report title • Your name and ID • Word Count
Executive Summary (Included in the word count)	A paragraph of up to 200 words that provides a quick overview of the entire report, including its purpose and major findings.
Table of Contents (Not included in the word count)	The table of contents lists the main headings used in the report, and includes the page on which the headings appear. Any tables, diagrams or illustrations should be listed separately in a Table of Figures which comes after the Table of Contents.
Introduction (Included in the word count)	The introduction should explain the purpose of the report, and the analysis/description that will be provided to the reader (it only needs to be brief).
Body (Included in the word count)	The body of the report contains the substance of the report. It should be separated into topic/discussion areas using numbered headings and subheadings. You may use broad level headings to separate different elements of analysis. Then use sub-headings to break down your analysis under each heading according to different issues/sub-topics. You will need to answer the six tasks in sequence.
Conclusion (Included in the word count)	Needs to provide an overview of key findings from the report discussion/body.
Reference List (Not included in the word count)	Please reference all material cited in the report using the Harvard Referencing style (make sure to include references to any images used).
Appendices (Not included in the word count)	The appendices should contain any additional supporting information (e.g., pictures, graphs, tables) that are relevant, but are included at the end of the report so as not to distract the reader from the ideas in the main section of the report. The appendices should be clearly set out and numbered in the order they are mentioned in the text.

Appendix B: Marking Rubric

Marking item	Marks	Exceed Criteria (70%-100%)	Meets Criteria (40%-69%)	Criteria not yet met (0%-39%)
Task 1 Conceptual Model	15	Comprehensively and succinctly describes the Entity Relationship (ER) model that is tailored for the organization. Design of ER model is comprehensive with completely correct use of symbols and naming conventions. Persuasively justifies why the ER model design is appropriate for the organization. Comprehensively and succinctly discusses the terms and provide comprehensive examples from case organization.	Describes an Entity Relationship (ER) model that is tailored for the organization. Design of ER model is adequate but could be more comprehensive. Design has partially correct use of symbols and naming conventions. Justifies why the ER model design is appropriate for the organization. Discusses the terms and provide comprehensive examples from case organization.	Does not comprehensively and succinctly describe the Entity Relationship (ER) model that is tailored for the organization. Design of ER model is not comprehensive and/or has incorrect use of symbols and/or incorrect naming conventions. Does not persuasively justify why the ER model design is appropriate for the organization. Does not discuss the terms and does not provide comprehensive examples from case organization.
Task 2 Implementation	10	Implementation model is completely aligned with the ER model. Correctly specify all tables required in MySQL including keys, field properties and linage of tables. Correctly mentions method of creation of table	Implementation model is mainly aligned with the ER model. Correctly specify some tables required in MySQL including keys, field properties and linage of tables. Correctly mentions method of creation of table	Implementation model is not completely aligned with the ER model. Does not correctly specify some tables required in MySQL including keys, field properties and linage of tables. Does not correctly mention method of creation of table

		(imported/manually), method of data entry (manual or loaded) and correct number of records in all tables. Persuasively justifies why the files were changed or additional files were created.	(imported/manually), method of data entry (manual or loaded) and correct number of records in all tables. Justifies why the files were changed or additional files were created.	(imported/manually), method of data entry (manual or loaded) and correct number of records in all tables. Does not persuasively justify why the files were changed or additional files were created.
Task 3 Data Analysis	15	Correctly set up the database operating environment in Python. Comprehensively and succinctly answer the questions by using correct Python codes.	Correctly set up the database operating environment in Python. Answer the questions by using partially correct Python codes.	Does not correctly set up the database operating environment in Python. Does not comprehensively and succinctly answer the questions by using correct Python codes.
Task 4 Information Systems Technology	15	Provides a comprehensive, correct, and succinct explanation of health information technology-related measures or methods and provides comprehensive examples.	Provides an explanation of health information technology-related measures or methods and provides some examples.	Does not provide a comprehensive, correct, and succinct explanation of health information technology-related measures or methods and does not provide comprehensive examples.
Task 5 Knowledge Graph	15	Provides a comprehensive, correct, and succinct explanation of the advantages of the use of knowledge graph.	Provides an explanation of the advantages of the use of knowledge graph.	Does not provide a comprehensive, correct, and succinct explanation of the advantages of the use of knowledge graph.

Task 6 Information Governance and Ethics	20	Provides a comprehensive, correct, and succinct review of the required topics with case examples and references the comprehensive relevant literature.	Provides a review of the required topics with case examples and references some relevant literature.	Does not provide a comprehensive, correct, and succinct review of the required topics with case examples and does not reference the comprehensive relevant literature.
Assignment Format/Presentation /Overall Impression	10	Communication is clear, concise, and precise. The assignment is very well written, structured, and presented in a professional and coherent manner. Minimal grammatical/ spelling/ punctuation errors. Excellent use of visual material (tables, graphs, etc.) that is professionally integrated with text. Various reliable sources are used to inform the analysis. The Harvard referencing method is applied consistently with no errors. The assignment contains the correct cover page, page numbers and the word count is adhered to up to 10% over/under word limit.	Communication is generally clear and concise, making it easy for the reader to understand. The assignment is well written, structured, and presented in a neat and coherent manner. Some grammatical/ spelling/ punctuation errors. Good use of visual material (tables, graphs, etc.) that is professionally integrated with text. A few reliable sources are used to inform the analysis. The Harvard referencing method is applied consistently with a few errors. The assignment contains the correct cover page, page numbers and the word count is adhered to up to 10% over/under word limit.	Communication is unclear making it difficult for the reader to understand the ideas being presented. This may be the result of errors in written communication, imprecise language, confusing use of diagrams, and/or poor structure. Many grammatical/ spelling/ punctuation errors. Presentation appears unprofessional or unfinished. Minimal or no reliable sources are used to inform the analysis. The Harvard referencing method is applied incorrectly. The assignment does not contain the correct cover page, page numbers and/or the word count is adhered to more than 20% over/under word limit.