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

XJTLU Entrepreneur College (Taicang) Cover Sheet

Module code and Title	**IOT304TC Cloud Computing**
School Title	**School of Internet of Things**
Assignment Title	**Coursework 1**
Submission Deadline	**11:59 PM China time (UTC+8 Beijing) on Sunday 12 May 2023**
Final Word Count	**N/A**
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**	

ASSIGNMENT TASK (INDIVIDUAL WORK)

SUBMISSION FORMAT INSTRUCTIONS

The assignment must be typed and submitted via Learning Mall Online to the correct dropbox. Only electronic submissions are accepted - no hard copies. The report should be submitted in a single PDF file and the format should follow the below structure:

- Cover page filled in with your student ID
- Your answer to each question
- List of references

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

LEARNING OUTCOMES

This assignment tests your ability to:
A. Demonstrate systematic understanding and critical awareness of well-defined concepts, models, and technologies for Cloud computing technologies and practices.
B. Demonstrate expertise in different Cloud models and mechanisms, including their strengths and weaknesses.
C. Adapt or combine the key elements of existing Cloud models and mechanisms to design cloud solutions to the real world application problems.

MARKING CRITERIA

The following criteria will be used to assess the assignment.

Outstanding: Assessment format is consistent throughout including heading styles, fonts, and margins, figure/table/diagram are correctly labelled, effectively interpreted and discussed, writing flows smoothly from one idea to another, information is presented in logical and interesting way, all information is located in the appropriate section, calculation process is clearly presented before arriving to the final answer or conclusion.

Appropriate: Assessment format is generally consistent, figure/table/diagram are properly interpreted, sentences are structured and word are chosen to communicate ideas clearly, information is presented in logical manner, information is located in the appropriate section, calculation process is properly presented before arriving to the final answer or conclusion.

Needs Improvement: Assessment format is inconsistent, figure/table/diagram are poorly interpreted and discussed, sentence structure and/or word choice sometimes interfere with clarity, information is hard to follow as there is very little continuity, many items are in the wrong section, some steps or procedures are missing before arriving to the final answer or conclusion.

Hard to Understand: Assessment format is inconsistent, figure/table/diagram are not used effectively, sentence structure and word choice make reading and understanding difficult, sequence of information is difficult to follow, lack of appropriate sections and many items are

in the wrong section, some steps or procedures are missing in the calculation process, the final answer and/or conclusion are incorrect.

No submission or Missing Section: No submission or missing section of the discussion in the report.

Question 1 **(20 marks)**

The Facts and Factors Institution report widely analyses the latest trends and developments in cloud computing technology for smart health applications. The report estimates that the global healthcare cloud computing market will increase from USD 39.1 billion in 2021 to USD 102.3 billion by 2028, at a CAGR of 17.4%, as shown in Figure 1.

Fig. 1: Global Healthcare Cloud Computing Market Size [1].

This increase in the cloud computing market for smart health reflects the growing recognition of the benefits of cloud computing technology. Please analyse why cloud computing technology could be a potential industry changer in transforming current smart health applications. The answer should be based on an analysis of relevant technology and business.

Question 2 **(30 marks)**

As an engineering student at Entrepreneur College, if you are a Cloud Computing Incubator company leader, you are requested to design a smart health cloud computing model. Your task involves drawing a Smart Health Cloud Computing Model diagram and explaining its workflow, the components, the cloud models and mechanisms, and the technology used in your design. Moreover, you have to analyse its strengths and weaknesses.

Question 3 **(20 marks)**

You are requested to design a resouce allocation strategy for Amazon Web Services (AWS). Please briefly describe what criteria you should try to avoid and why?

Question 4 **(30 marks)**

Now, you are recruited. AWS specifically asked you to implement your strategy using Partical Swarm Optimization (PSO) algorithm. Please briefly describe your algorithm step-by-step.