



## DESCRIPTION OF COURSEWORK

Course Code	SWE309
Course Name	Introduction of Cloud Computing
Lecturer	Mahdi H. Miraz
Academic Session	2025-04
Assessment Title	Assignment

### A. Introduction/ Situation/ Background Information

This assignment lets students consider the distinctions between the numerous cloud-service platforms available in the market and the pool of services they offer. For this assignment, each student is required to deploy a website on an appropriate cloud-service platform. The details of the assignment are given in Section F.

### B. Course Learning Outcomes (CLO) covered

At the end of this assessment, students are able to:

- CLO 1 Demonstrate understanding of the theory, concepts and principles of Cloud Computing.
- CLO 2 Evaluate cloud technology platform vendor(s) and propose solutions based on its merits.
- CLO 3 Display appropriate knowledge and understanding of Hadoop Cloud System and Open Stack.
- CLO 4 Display skills to develop Cloud based solutions for a given set of requirements.

### C. University Policy on Academic Misconduct

1. Academic misconduct is a serious offense in Xiamen University Malaysia. It can be defined as any of the following:

- i. **Plagiarism** is submitting or presenting someone else's work, words, ideas, data or information as your own intentionally or unintentionally. This includes incorporating published and unpublished material, whether in manuscript, printed or electronic form into your work without acknowledging the source (the person and the work).
  - ii. **Collusion** is two or more people collaborating on a piece of work (in part or whole) which is intended to be wholly individual and passed it off as own individual work.
  - iii. **Cheating** is an act of dishonesty or fraud in order to gain an unfair advantage in an assessment. This includes using or attempting to use, or assisting another to use materials that are prohibited or inappropriate, commissioning work from a third party, falsifying data, or breaching any examination rules.
2. All assessments submitted must be the student's own work, without any materials generated by AI tools, including direct copying and pasting of text or paraphrasing. Any form of academic misconduct, including using prohibited materials or inappropriate assistance, is a serious offense and will result in a zero mark for the entire assessment or part of it. If there is more than one guilty party, such as in case of collusion, all parties involved will receive the same penalty.

#### D. Instruction to Students

- The submission deadline is **Monday 14/07/2025, at 5:00 pm (MYT)**.
- This is an individual assignment.
- The assignment mark is 40% of the total of 100% of the coursework.
- The similarity index report should be attached too. The similarity report can be produced using the Turnitin submission point details of which will be provided separately. The similarity index should not be more than 10%. That being said, there should not be any complete or large part of a sentence directly copied from other sources. Exactly the same version of the assignment submitted for producing Turnitin report should be submitted for final grading. Any deviation will be

considered as serious academic misconduct.

- Use of generative AI, such as ChatGPT or QuillBot, is NOT acceptable and will be considered as plagiarism.
- Use the template assignment cover page and also attach the marking scheme at the end.
- The assignment should be submitted in a PDF file based on the following instructions:
  - Line-spacing (1.5)
  - The format of paragraphs should be justified.
  - Font: Times New Roman (Size 12)
  - Heading Font Size 13 (Bold)
  - Provide supporting tables/figures/images (if necessary).
  - Necessary captions of tables, figures, and images should be provided.
  - For the implementation part of the assignment, provide sufficient evidences by taking appropriate snapshots of your actions.

## E. Evaluation Breakdown

No.	Component Title	Percentage (%)
1.	Task 1	20
2.	Task 2	20
3.	Task 3	20
4.	Task 4	40
	<b>TOTAL</b>	<b>100</b>

## F. Task(s)

BriteShop is a fast-growing **UK-based online fashion retailer** specialising in sustainable clothing. Since its launch in 2020, BriteShop has expanded to serve **over 500,000 customers** across the UK and Europe, processing **10,000+ orders per day**. The company runs an **e-commerce website** and a **mobile app**, both requiring **high availability (24/7/365)** to handle customer purchases, inventory updates, and real-time analytics. BriteShop's vision is to become the **leading fashion retailer in the UK and expand into Europe**, including France and Germany. To support this growth, the company plans to **enhance its website** and evolve its mobile app into a **super app**, integrating additional services such as recommender system, digital payments, and delivery services with advanced features (e.g. real-time tracking, notification, etc.), inventory forecasting, etc. The platform must maintain **24/7/365 availability** with high reliability and scalability.

**Based on this scenario, answer the following questions:**

1. Should BriteShop deploy its **website and super app** using **on-premise infrastructure or cloud computing?** Discuss your recommendation with justifications.

**[20 Marks]**

2. Demonstrate at **least four scenarios** where **Hadoop** could enhance BriteShop's services or business operations. Explain which Hadoop aspects/components

(e.g., HDFS, MapReduce, Hive, Spark) would be used and how. You may include **design and planning considerations** where applicable.

[20 Marks]

3. Select an **appropriate cloud service** (from AWS, Azure, GCP, or a private cloud) to host BriteShop's website and super app. Justify your choice by comparing it with alternatives, considering factors like cost, scalability, reliability, and security.

[20 Marks]

4. Practical Cloud Implementation: Using a **free-tier cloud account** (e.g. AWS/Azure/GCP) or a **local hypervisor** (e.g., VirtualBox for a private cloud simulation), complete the following tasks:

*Task 4.1 – Deploy a Basic Web Server*

- Set up a **virtual machine** or **cloud instance** (e.g., AWS EC2, Azure VM) as a web server.
- Host a simple **landing page** for BriteShop on this web server.

*Task 4.2 – Create and Connect a Cloud SQL Database*

- Create and configure a **SQL database** in the cloud (e.g., AWS RDS, Azure SQL Database, Google Cloud SQL).
- Connect it to the **web portal** hosted in 4.1.

*Task 4.3 – Implement a Cloud Storage Solution*

- Upload and retrieve **product images** using **cloud storage** (e.g., AWS S3, Azure Blob Storage).

*Task 4.4 – Optional Advanced Task*

- Configure a **load balancer** or **auto-scaling group** (if supported in the free tier on your chosen platform).
- You may demonstrate application of any other appropriate cloud services offered by your cloud service provider.

**Document your work with screenshots and a brief report (max 5 pages).**

**[40 Marks]**

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**Important Notes:**

- Submit a **PDF report** with answers to Tasks 1-3 and **evidence of Task 4 implementation** (A link to your hosted solution, code snippets, screenshots, configurations, etc.).
- **Do not use paid services**—only free-tier or trial accounts.
- Marks will be awarded for **technical correctness, justification, and execution quality**.
- All answers should be well-structured, clearly articulated, and supported by relevant technical concepts and examples.
- Ensure proper academic referencing if you consult external resources.

## APPENDIX 1

### MARKING RUBRICS

Component Title	Tasks #1-4					Percentage (%)	100	
Criteria	Score and Descriptors					Weight (%)	Marks	
	Excellent (5)	Good (4)	Average (3)	Need Improvement (2)	Poor (1)			
Migration to Cloud	<b>16-20</b> Provide comprehensive and correct analysis	<b>11-15</b> Provide mostly relevant and correct analysis	<b>6-10</b> Provide relevant analysis	<b>2-5</b> Unable to provide relevant analysis	<b>0-1</b> Unable to provide any suitable solution	20		
Hadoop	<b>16-20</b> Provide comprehensive and correct analysis	<b>11-15</b> Provide mostly relevant and correct analysis	<b>6-10</b> Provide relevant analysis	<b>2-5</b> Unable to provide relevant analysis	<b>0-1</b> Unable to provide any suitable solution	20		
Selection of cloud service provider	<b>16-20</b> Provide comprehensive and correct analysis	<b>11-15</b> Provide mostly relevant and correct analysis	<b>6-10</b> Provide relevant analysis	<b>2-5</b> Unable to provide relevant analysis	<b>0-1</b> Unable to provide any suitable solution	20		
Cloud-based web hosting and implementation of cloud services	<b>31-40</b> Provide comprehensive and correct implementation	<b>21-30</b> Provide mostly relevant and correct implementation	<b>11-20</b> Provide relevant implementation	<b>3-10</b> Unable to provide relevant implementation	<b>0-2</b> Unable to provide any suitable solution	40		
<b>TOTAL</b>						<b>100</b>		

Note to students: Please include the marking rubric when submitting your coursework.