Cloud Computing (Merged - CSIZG527/SEZG527) (S2-24)

Assignment Instructions

Objective: Each student must choose a research paper, carefully read it, create a handwritten report, and submit it as a PDF file.

Submission Requirements:

1. Research Paper: Each student must select one research paper.

2. Handwritten Report: Each student is required to create a handwritten report based on their chosen research paper, strictly limited to **two to three pages**. The report should cover the following key aspects:

- **Problem Statement**
- **Challenges**
- **Objectives**
- **Summarized Introduction**
- **Literature Survey**
- **Research Gap**
- **Methods Used**
- **Dataset**
- **Limitations**
- **Findings**
- **Results**
- **Contributions**
- **Practical Implications**
- **Applications**
- **Future Research**
- **Conclusions**

Each section should be **well-justified** with relevant details. These sub-topics serve as general guidelines and may be **adapted** based on the specific context of your selected research paper. The summary should be **clear, concise, and well-structured**—avoid unnecessary complexity while ensuring that key points are not omitted.

Thoroughly understand the content before writing, and **use your own words** to summarize the research. Additionally, ensure that your handwriting is **neat and legible** for readability.

Submission Format:

• File Format: Both the research paper and the hand written report must be in PDF format.

Topics for the Assignment:

Cloud Security & Privacy

1. Zero Trust Architecture in Cloud Computing
2. AI-Based Cloud Threat Detection
3. Blockchain for Secure Multi-Cloud Storage
4. Homomorphic Encryption in Cloud Security
5. Post-Quantum Cryptography for Cloud Computing
6. Insider Threat Detection in Cloud Using Machine Learning

Edge & Fog Computing with Cloud

7. Cloud-Edge Hybrid Architecture for IoT
8. Federated Learning in Edge-Cloud Continuum
9. Fog Computing Security Challenges
10. Energy-Efficient Task Scheduling in Edge Computing

Cloud Performance & Optimization

11. AI-Based Load Balancing in Cloud Environments
12. Serverless Computing Optimization
13. Cloud Resource Scheduling Using Reinforcement Learning
14. Green Computing in Cloud Data Centers
15. AI-Driven Dynamic Resource Allocation in Cloud

Big Data & AI in Cloud Computing

16. Federated Learning for Cloud-Based AI
17. AI-Enabled Cloud Service Orchestration
18. Cloud-Based Big Data Analytics Optimization
19. Cloud-Native AI Pipelines for Large-Scale Processing

Quantum & Next-Gen Cloud Technologies

20. Quantum Computing as a Cloud Service (QCaaS)
21. Quantum Cryptography for Cloud Security
22. Cloud-Based Digital Twins for Industry 4.0

Cloud Sustainability & Green Computing

23. Carbon-Neutral Cloud Computing
24. AI-Driven Energy Optimization in Cloud
25. Sustainable Cloud Infrastructure for Green IT

Identify a noteworthy journal article published in 2023 or later that pertains to your chosen topic. You may use the suggested resources (or other relevant sources) to find suitable papers, ensuring they are available as downloadable PDF files.

1. **IEEE Journals**

   IEEE Transactions on Cloud Computing (TCC)

   IEEE Transactions on Services Computing (TSC)

   IEEE Transactions on Network and Service Management (TNSM)

   IEEE Cloud Computing Magazine

   IEEE Internet of Things Journal (IoT-J) (Cloud computing applications in IoT)

2. **ACM Journals**

   ACM Computing Surveys (CSUR)

   ACM Transactions on Internet Technology (TOIT)

   ACM Transactions on Autonomous and Adaptive Systems (TAAS)

   ACM Transactions on Computer Systems (TOCS)

3. **Springer Journals**

   Journal of Cloud Computing: Advances, Systems and Applications

   Future Generation Computer Systems (FGCS)

   Cluster Computing

   Computing Journal

4. **Elsevier Journals**

   Journal of Parallel and Distributed Computing (JPDC)

Computer Networks (COMNET)

Information Sciences

Future Generation Computer Systems (FGCS)

5. **Wiley & Other Publishers**

Concurrency and Computation: Practice and Experience (Wiley)

International Journal of Cloud Computing (Inderscience)

Journal of Grid Computing (Springer)

Note: You are not restricted to the journals mentioned above; you may also refer to other relevant journals.

Analyze, Summarize, and Prepare the Report (NOT MORE THAN THREE PAGES)

- Report content
- BITS Student ID
- Name
- Title of the Research Paper & Author Name:
- Online Link: Provide the online link (pdf document) to the research paper.

Save Files as PDFs: Ensure both the research paper and the scanned handwritten report are saved in PDF format with the correct naming conventions.

Deadline: 9 th March 2025 11:59 P.M.

Evaluation Criteria:

- Completeness: All the important findings/points are included in the report.
- Accuracy: Information in the report accurately reflects the content of the research paper.
- Clarity: The report is well-written and easy to understand.
- Handwriting should be legible
- A penalty of 2 marks will be applied if the student misses the deadline.