TEACHING COMPUTATIONAL SCIENCE (WTCS 2025) - **ICCS 2025**

Service-Oriented Architecture: Learning with Generative AI and AWS

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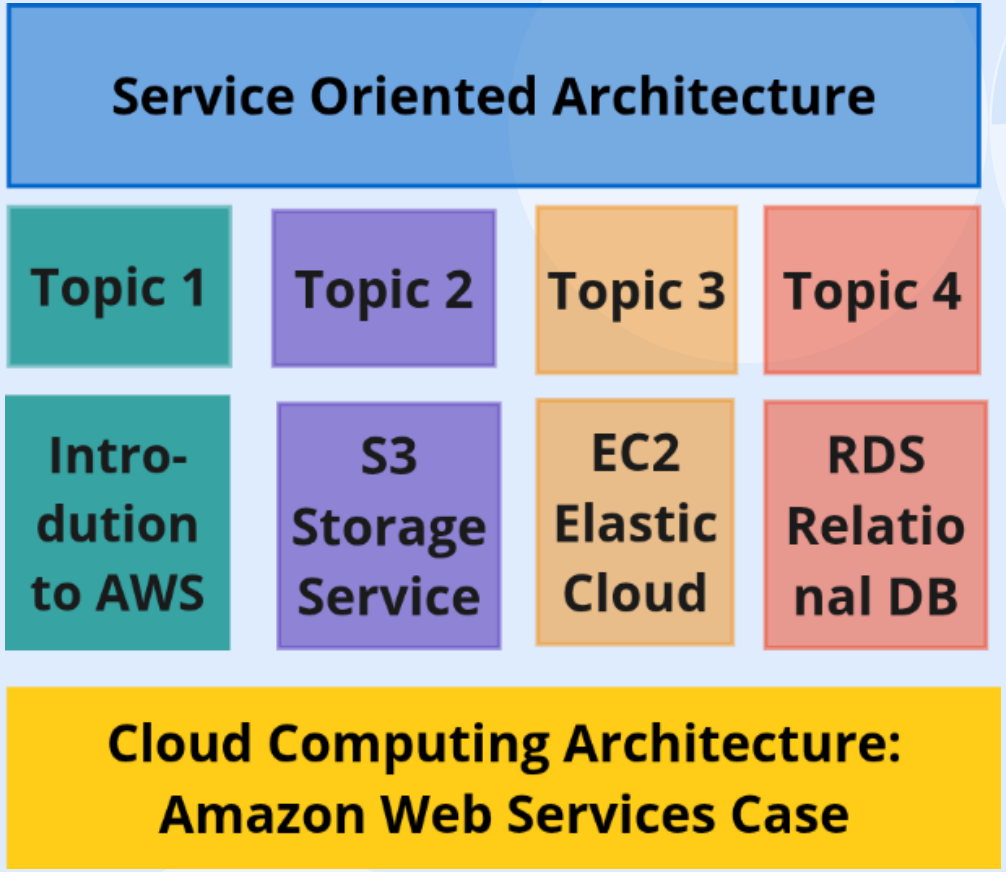
CURSE TOPICS

1. **Introduction to Cloud Service Architecture:** Fundamental concepts of cloud computing and service-oriented architectures.
2. **Storage Services**: Distributed storage systems, scalability, and read and write consistency.
3. **Compute Services:** Virtualized cloud computing, scaling, fault tolerance, and high availability.
4. **Database Services:** Management of relational and non-relational databases. Scalability and high availability.
5. **Architectural Case Studies:** Case-based learning to apply knowledge in real-world cloud scenarios.

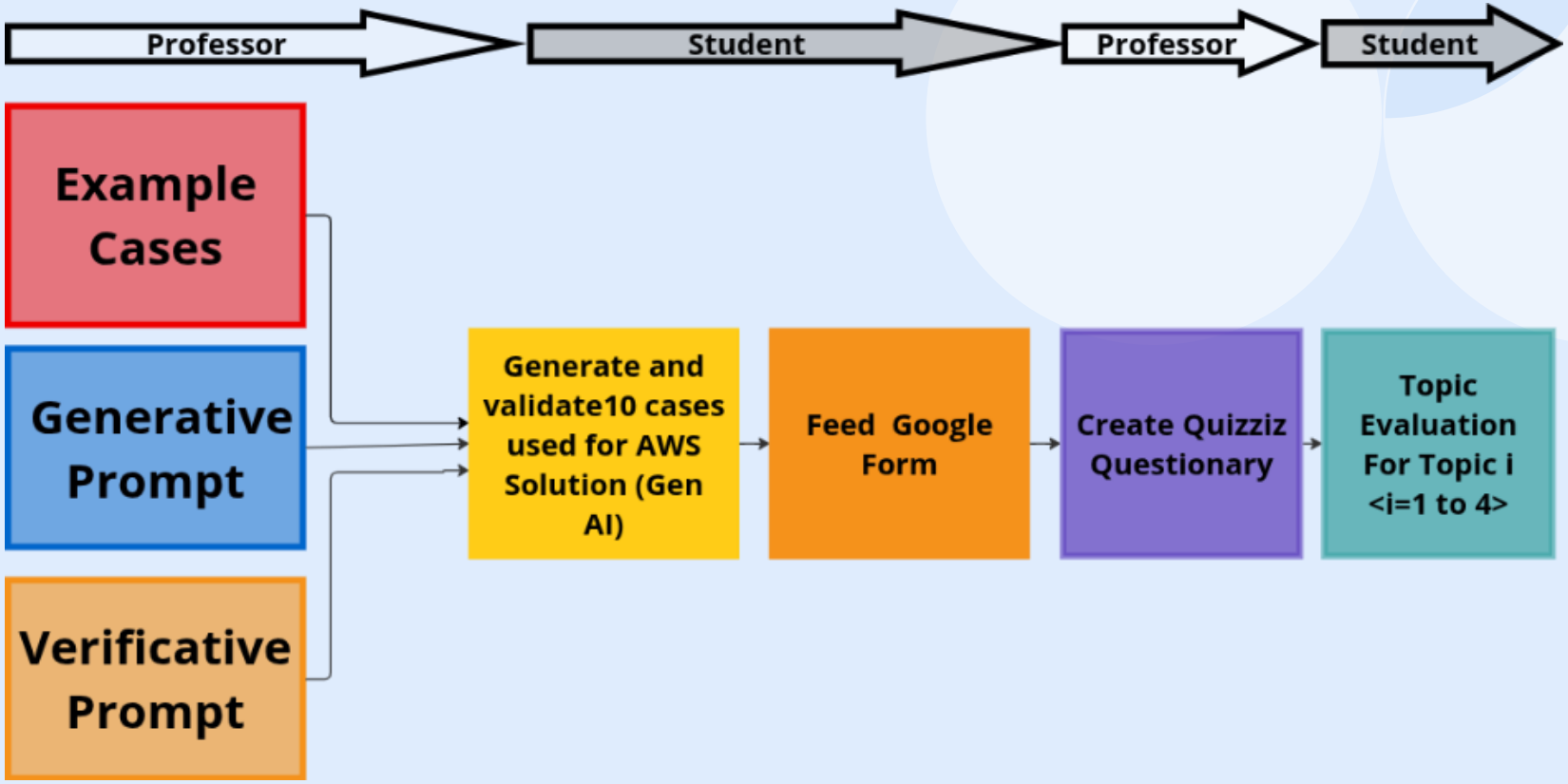
INNOVATIVE APPROACH FOR SOA: AWS USING IA

Align Key Topic To Amazon Web Service (AWS)	Use AWS architecture Certification	Use Generative AI tools: ChatGpt, Perplexiry, Copilot	Main AI tools are pretrained with AWS architecture cases and knowledge.
High Demanding Market Skill => motivate students	Use Standard and Public available Knowledge	Use of Cross-model to verification to reduce halucination and increase accuracy	Foster Engagement, curiosity, critical thinking

TOPICS RELATED TO CLOUD COMPUTING



COURSE STRUCTURE AND METHODOLOGY



IMPLEMENTATION AND RESULTS

Course 1º Semester 2025

24 Students – 6 Grups

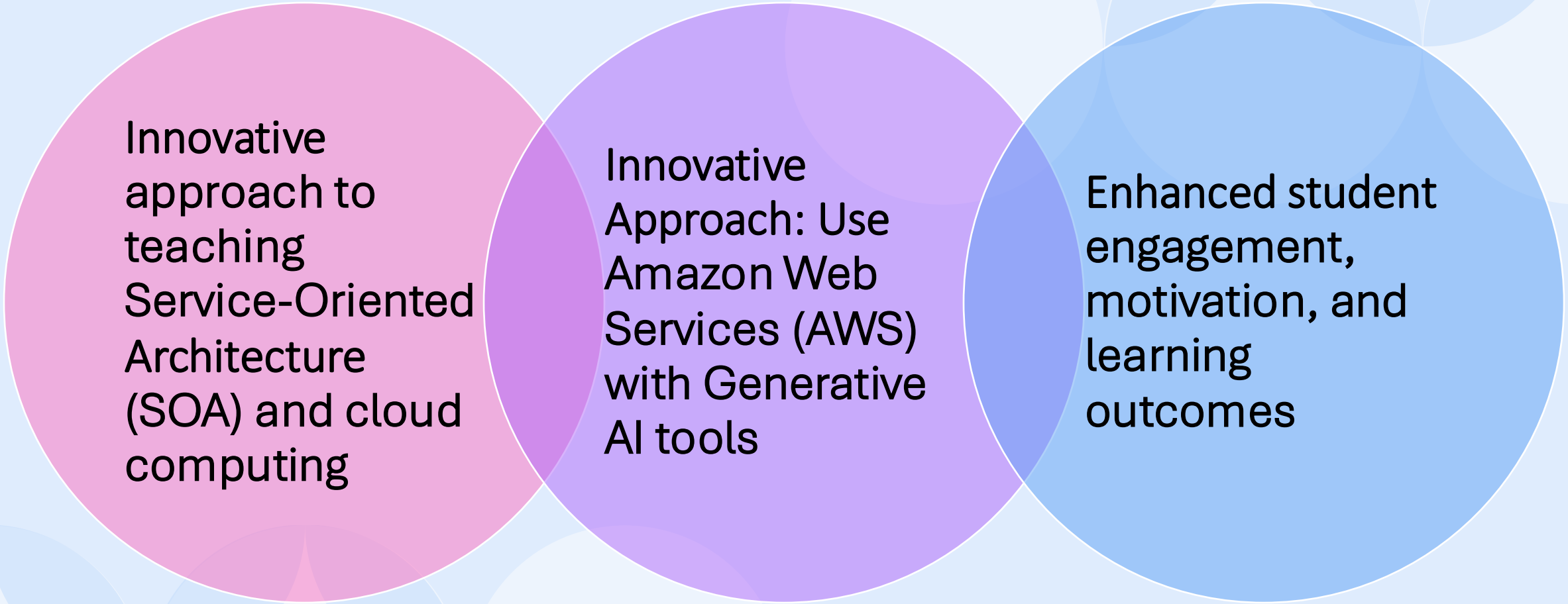
AI To ChatGPT (Preferred), Perplexity, and Copilot

60 Question Collected, 10 removed due to low quality or redundance

12% Increase attendance and participation. Good Timely submission of all course activity

4.10/5 to 4.25 Average Course Evaluation

CONCLUSIONS



FUTURE WORK

Automating the case study validation process to ensure higher quality outputs

Developing AI-driven customized lab exercises that adapt to individual student needs

Implementing systematic evaluation of different Generative AI tools (ChatGPT, Perplexity, and Copilot) to assess their comparative effectiveness in generating accurate, non-hallucinated case studies.