STUDENTS CERTIFICATION MANAGEMENT (SCM): HYPERLEDGER FABRIC-BASED DIGITAL REPOSITORY
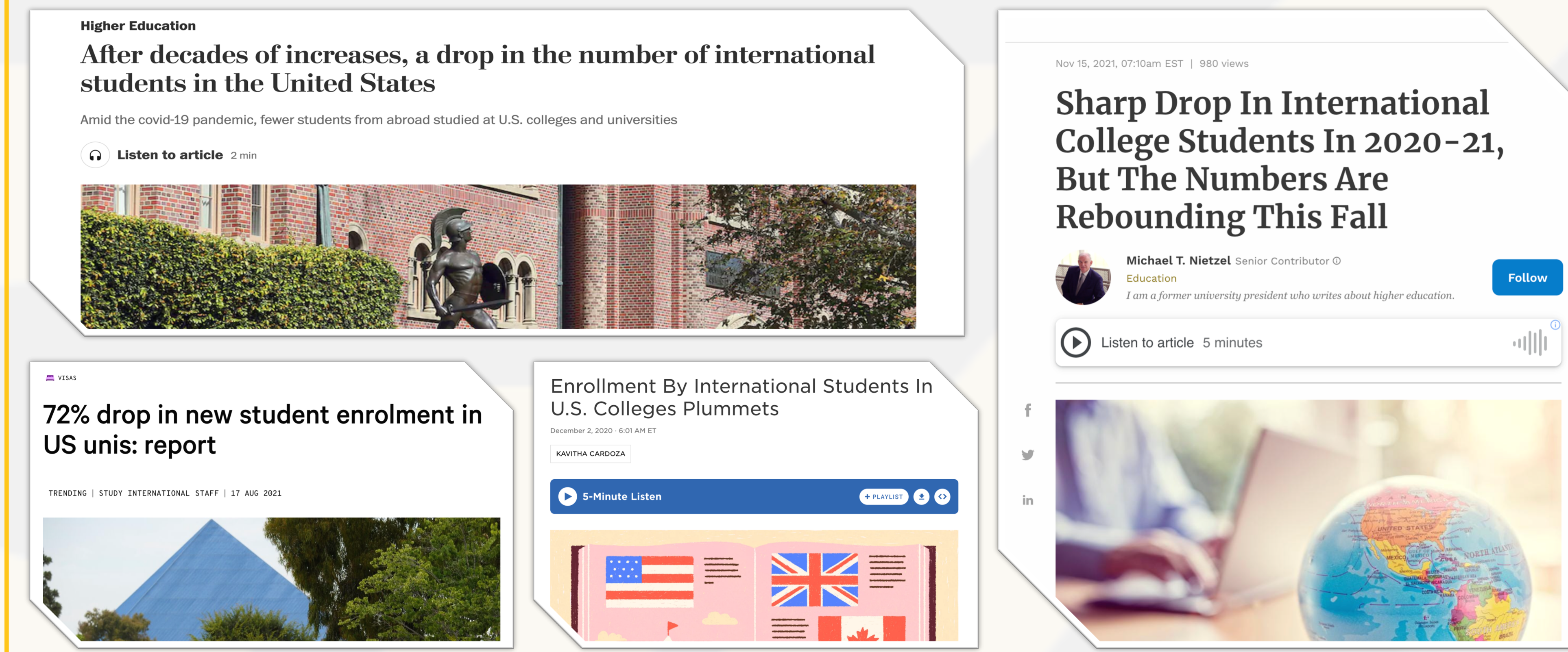
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BACKGROUND

- Within the current conventional approach, ensuring authentication of a candidate's credentials is costly and time-consuming which gives burdens to thousands of prospective students and potential employees.
- Candidates fail to secure opportunities for either delay or non-submission of credentials all over the world
- Finding cost-effective novel technology for storing and sharing student's credentials among academic institutions and potential employers is a demand.

STUDY OBJECTIVES

- To investigate a feasibility study to exploit the potential of Blockchain Technology in Education.
- To propose an advanced architectural model for Students Certification Management (SCM).
- To present consortium blockchain technology for designing and implementing a central Educational Certification Network within Hyperledger Fabric.
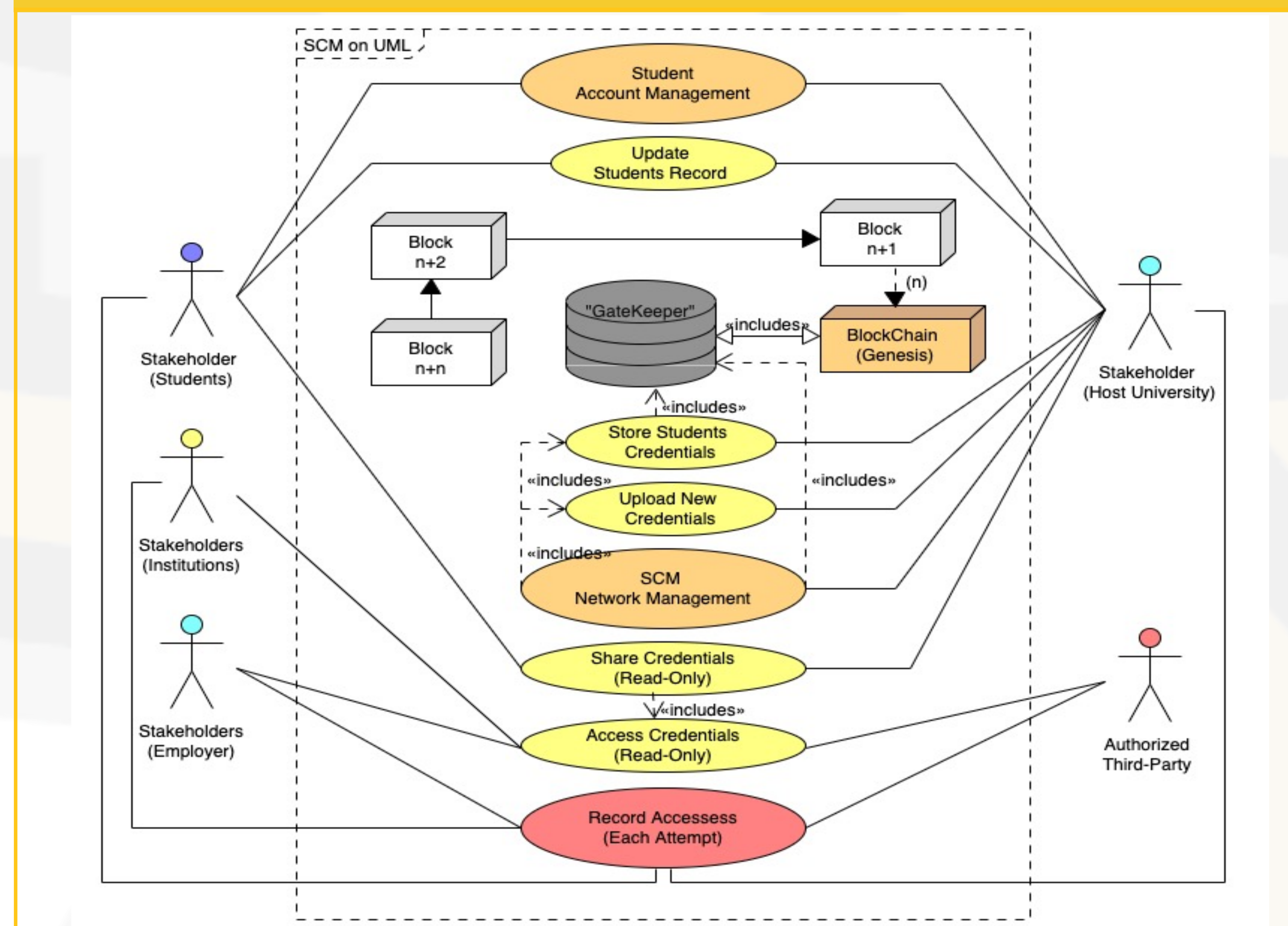
MATERIALS AND METHODS

- We conduct a preliminary survey among 30 students and recent graduate.
- We apply a feasibility study to exploit the potential of the technology using Hyperledger.
- We adopt the "4+1 view" architectural framework that reflects the scenario, logical, physical, process, and development views of the architecture.

PROBLEM DOMAIN

ARCHITECTURAL FRAMEWORK

Figure: Architectural Diagram for blockchain-based SCM system

RESEARCH FINDINGS

- Students Certification Management(SCM) can be the focal point for students by adopting Hyperledger Fabric that will offer a universal, tamper-evident, and immutable educational certificates storing and sharing network.
- The system record a timestamp to avoid tempering the stored data between a group of users authenticated in a predefined network protocol.
- The proposed system ensures data security and integrity while allow the choice for students & institutions to access the data seamlessly.

CONCLUSIONS

- **Current Essence:** In this study, we successfully introduced Hyperledger Fabric-based architectural framework that has competency in storing and sharing student's certificates in a secure blockchain network
- **Future Direction:** We aim to implement the proposed architecture and prototype on large-scale development, provide services country-wide.

REFERENCE CITED

[1]   H. Jobair, M. Valero, H. Shahriar, S. Sneha, S. Ahamed, M. Rahman. "Towards Blockchain-Based Secure Data Management for Remote Patient Monitoring". IEEE ICDH 2021, Full paper.

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