| System Design Architecture  UML  User Task Flow Diagram  Architecture Design |
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| Design Architecture Topology  A diagram of a software  Description automatically generated MicroservicesAuth Service  * + This is used as authentication for Staff, Students and university administrative staff   + This uses Amazon Relational Database. The database stores student data which contains student Id, email,   + Courses taken by student and other profile data related to student and staff  Upload Courses  * This service is responsible for storing data related to courses * The all the metadata related to like course professor, * Course Id, course code, course name is stored in DocumentDB (Mongo Db) * The course related details will also be stored in ElasticSearch which will power our fuzzy search * Amazon S3 will be used to store course syllabus, and other blob related items which are require heavy memory. * Amazon S3 can be later used to store assignments related to coursework, midterm exams and other books related to course    Search Courses and Register Courses  * Searching of Courses will be powered by ElasticSearch which will allow fuzzy search * Registration will store data in 2 tables one will be Relational Database and Cassandra * Relational Database will update student profile and store courses registered by the student , this will power queries like – Find all the courses taken by the student * Cassandra – This will store all the students registered in a courses . Since this an ever-increasing data and Cassandra is read and update optimized and a distributed storage. * This will power queries – Find all the students registered in the course, courseId will be the key and value can be studentId’s * Cache can persist frequent data like course details which will improve performance during peak registration time * It can also store results data related to all students registered in a course, during registration time for frequent access courses  Notification Service  * Used to send notifications to students or staff.  Consistency Model  * Eventual Consistency – The whole architecture is a event driven architecture where each microservice communicates with other through events which are passed in through kafka  UML  User Task Flow Diagram User Task Flow D~~i~~agram   Architecture Design   END |
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