ST. XAVIER'S COLLEGE, MAPUSA GOA

Report of Activity conducted in the Academic Year 2025-26

Name of Activity	Report on From College to Cloud – Lessons from Building, Testing and Migrating a Real Airline System
Date/ Duration	06.03.2026
Venue	Room no 219
Name of organizing Department/Cell	Department of Computer Science
In collaboration with	
Name/s of Faculty	Ms. Prajoti Chimulkar
Stratum of Event	College
Name & details of Resource Person/s i	Mr. Peter D'Souza,Team Lead (Software Engineering) for Canadian Electronics and Aviation.
Report	The session delivered by Peter D'Souza, an alumnus of the Department of Computer Science, St. Xavier's College (2008–2011), provided valuable industry insights into the evolution of a real-world airline crew rostering system. Drawing from his experience as a Team Lead in Software Engineering, he connected academic learning with practical challenges in modern cloud-based systems. The talk began with an overview of the airline crew rostering problem—ensuring the right crew is assigned to the right flight at the right time. Initially, the system followed a monolithic architecture, which gradually became a bottleneck. Long deployment cycles, difficulty in scaling individual features, and the risk of system-wide failures due to a single bug highlighted the limitations of monoliths. This established the need for architectural transformation. Mr. Peter D'Souza emphasized that architectural decisions are driven by "pain points" rather than trends. The team initially attempted a lift-and-shift migration to cloud infrastructure using multiple virtual machines, but challenges such as master node dependency and high scaling costs persisted. This led to a shift towards microservices architecture, where independent services improved resilience, scalability, and deployment flexibility—much like an ant colony where each unit operates independently.

	The migration roadmap included decomposing the monolith into smaller services, containerizing applications using Docker, orchestrating them using Kubernetes, and implementing automated CI/CD pipelines. Kubernetes played a crucial role as an operations manager, handling deployment, scaling, and fault recovery seamlessly. A significant portion of the talk focused on testing using FitNesse. It enabled collaboration between business and technical teams through readable, tabular test cases. These tests directly mapped to business rules, ensuring alignment and early detection of logic errors. An example of a flight booking system demonstrated how test failures could prevent faulty deployments, reinforcing the idea that "the best test fails before the customer notices." However, the speaker also discussed practical challenges such as flaky tests, complex test data management, and the need for disciplined maintenance. Real-world "war stories" highlighted issues like missing data in aggregation and large cache updates, where debugging skills, SQL knowledge, and quick response strategies proved essential. Towards the end, the session shifted to career guidance. Mr. Peter D'Souza clarified that companies do not expect freshers to master numerous technologies but rather to possess strong fundamentals, problem-solving ability, and effective communication skills. He encouraged students to focus on meaningful projects, understand system behavior through testing and logs, and always question "why" rather than just "how." Overall, the talk effectively bridged academic concepts with industry practices, offering both technical depth and career-oriented insights.
Brochure/Poster	https://xavierscollegegoa.ac.in/wp-content/uploads/2026/08/brochure-of-From-College-to-Cloud-—-Lessons-from-Building-Testing-and-Migrating-a-Real-Airline-System.pdf
Photographs	https://xavierscollegegoa.ac.in/wp-content/uploads/2026/08/pictures-of-From-College-to-Cloud-—-Lessons-from-Building-Testing-and-Migrating-a-Real-Airline-System.pdf
List of participants with signatures	NA
Certificate	NA