DevOps in Action

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Objectives

DevOps, an innovative approach to software development and IT operations collaboration, presents both challenges and notable trends in the rapidly evolving tech landscape. One significant challenge is achieving seamless integration between traditionally siloed development and operations teams. Bridging this gap requires cultural shifts, fostering communication, and adopting automation tools to streamline workflows. Moreover, the complexity of managing diverse technologies and ensuring consistency across varied environments poses an ongoing challenge. On the flip side, a prevalent trend in DevOps is the rise of "DevSecOps," emphasizing the integration of security practices throughout the development lifecycle. Continuous integration and continuous delivery (CI/CD) pipelines continue to be at the forefront, enhancing agility and accelerating release cycles. Additionally, there's an increasing focus on AIOps, leveraging artificial intelligence and machine learning to optimize operations, detect anomalies, and improve overall system reliability. As DevOps continues to evolve, organizations strive to strike a balance between innovation and stability, adapting to new technologies and methodologies to stay competitive in the ever-changing landscape of software development and IT operations. In this project, our objective is to accomplish diverse use case scenarios highlighting the practical applications of DevOps, offering valuable insights for both practitioners and educators.

Keywords

Programming, software engineering, simulation.

Workplan

The workplan encompasses complementary tasks as presented below:

• T1 – Technological background study (0.5 months);

• T2 – Requirements analysis (0.5 months);

• T3 – Design and development (1 month);

• T4 – Testing and evaluation (1 month);

• T5 – The writing of the report (1 month).

	March	April	May	June
T1	X			
T2	X			
T3		X		
T4			X	
T5				X

Required Skills

Hard skills: Programming and software engineering skills.

Soft skills: Creative, proactive, responsible, resilient, willing to learn, and able to work in a team.

Deliverables

In this project work the following deliverables are expected:

- A validated computational tool;
- A report describing the method and the validation results.