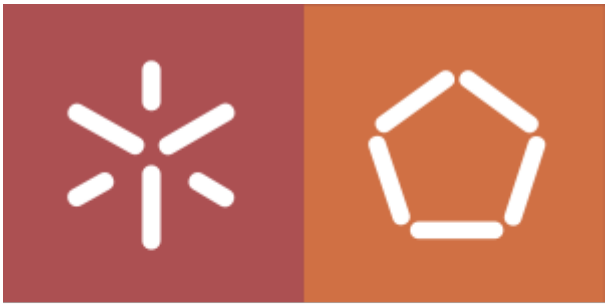

Universidade do Minho
Escola de Engenharia

Management Information of Systems

Architecture Design: Machine Learning (MLOps) and MicroServices

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1 Equipa

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Conteudo

2 InceptionIteration

2.1 Initiate Project

This phase, set the foundation for the rest of the project management process and ensure that everyone involved in the project understands its purpose, scope, and expected outcomes.

2.1.1 Define Vision

The vision of a project refers to the overarching goal or objective that the project aims to achieve. It's the guiding principle that directs all the actions and decisions made throughout the project's lifecycle.

A clear and well-defined project vision is essential for ensuring that all stakeholders are aligned and working towards the same goal. It provides a shared understanding of what the project aims to accomplish and helps to prioritize activities and resources.

A project vision should be specific, measurable, achievable, relevant, and time-bound. It should describe the desired outcome of the project, as well as any constraints or limitations that may impact its success.

In order to develop a strong project vision, it's important to involve all stakeholders in the process. This includes project sponsors, team members, and any other individuals or groups who will be impacted by the project's outcome.

Overall, the project vision serves as a roadmap for the project, guiding all activities and decisions towards the ultimate goal. With a clear and well-defined vision, the project team can stay focused and motivated, working together to bring the project to a successful conclusion.

2.1.1.1 StakeHolders The application itself its aimed, to all the people that finds out interesting or has some kind of curiosity in machine learning capabilities.

2.1.1.2 System Boundaries

2.1.1.3 Constraints

2.1.1.4 Features of the System Speaking about the features for the system, we want to talk mainly about the scalability and availability of the system. Also, we will support an web server that is capable to predict an number according to the user drawnings.

2.1.2 Plan Project

Plan Project involves developing the project in detail, including breaking it down into manageable tasks and creating a timeline. It also involves identifying and allocating resources and establishing a communication plan to ensure stakeholders are informed throughout the project. The project plan serves as a blueprint for the execution of the project, and it is critical in ensuring that the project is well-organized and that all team members are clear on their roles and responsibilities.

2.1.2.1 Team The team is composed by 3 elements: Dong Xoung, Pedro Silva and Tiago Martins. (PHOTOS)

2.1.2.2 Size and Scope The project itself would take ages. Since we will make an prototype, we can make it happen with the total members of this project. In this case 3. Regardless, we can spend something like an weak alone, single working in an perspective of our business prototype application. Since we are 3 members and we want to distribute equaly, someone will be charged to make the web interface app happen, another member will be responsible for the clustering network for kubernetes and lastly the final one will be responsible to create the web server that will receive the inputs and give an certain response to the client, which will be machine learning based.

2.1.2.3 Risks In MLOps microservices is important to indentify some potencial risks, such as:

Data inconsistency: Microservices architecture can make it challenging to maintain consistency in data used to train and test models, resulting in inaccurate predictions and models.

Scalability: Microservices architecture can make it easy to scale individual services independently, but it can be challenging to ensure that all services are scalable together. In an MLOps context, this can lead to performance issues and slower model training times.

Dependency issues: MLOps microservices rely heavily on inter-service communication, which can cause dependency issues. A single service going down can cause other services to fail, resulting in system-wide downtime.

2.1.2.4 Project LifeCycle

2.1.2.5 Costs and Value

2.1.2.6 Deployment Plan