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**Readers’ guide document**

OFS Platform

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# Introduction

Mohammed Saleh Al Harbi, IT Fontys student. I have always been fascinated in technology since 2011, back then I broke my arm twice which resulted in me not doing sports anymore and began my first step in game development and my coding ability as hobby. Received scholarship after high-school graduation, studied English in the UK for a year. Joined Fontys university in Eindhoven in Netherlands, studied software engineering for a year and a half and artificial intelligence half a year, and have been doing AI related work with Insify for around 11 months.

This document aims to guide you to read my portfolio and refers to attached documents along the way.

# Project context and goal

The ultimate goal is to facilitate the process of providing freelancing services & reaching freelancing services in Oman.

The project addresses a problem that Omanis frequently face. Finding local freelance services and performing manual searches for common services are problems. The answer is a social platform application that makes it easier to access those services and promote availability freelancing.

OFS Platform shall facilitate the accessibility of certain local services based on user location and provides chance to promote freelancing service of a user. This means that the platform is a social application focused for Oman citizens which solves certain problems citizens are facing such as having to look up manual or local services to repair air conditions, fill up water tank and other common services and that wastes time and energy.

It is crucial for the platform to enable communication and alerts over time between service searchers and freelancers through a unified platform to identify specific local services. Over 178,000 persons, or 3.5 million residents, are in Oman's population between the ages of 18 and 29, which is higher than the country's overall population. We could anticipate about 200000 freelancers using OFS if the platform became popular in Oman because the majority of the 178k young people are working and the unemployment rate is approximately expected to be 14.58%.

# Research results

I kicked off the project by defining how the system should be and the requirements selected were scalability; the platform can handle over 200000 users with an average latency below 5 seconds, availability; it should have a downtime of maximum 5 minutes, cost-efficient; pay for what you use.

Based on those requirements I performed initial prototype research with given material. I have experienced with 2 different microservices software prototypes which I made from scratch to have some sense experience and take decisions wisely as I based my decisions on real prototypes I made. I experienced with **DigitalOcean** hosting using **dockerized** containers that I can continuously deploy to **dockerhub** and one downside in **DigitalOcean** is that you pay for idle which does not fit my non-functional requirements in OFS project. This prototype showed me how powerful and influential design choices of a software can be **before** the feedback Initial architecture for this prototype cost around 63$ a month and not fully reliable if database is down. The feedback given demonstrated the same idea but different choices can lead to free deployment & more scalable and highly available architecture. Additionally, this prototype introduced me to different testing tools which I am aware that now most of the simulation services are paid and I was recommended to use JMeter.

Apart from deployment pricing architectural design choices I wanted to get some experience on topic such as messaging between microservices and having an API Gateway and auto discovery. I managed to create 2 microservices which messages asynchronously and to prove that the API gateway balances the load automatically I printed the environment which changes from first running instance to second one based on load. This way I proved I can apply these ideas with the traditional approach even though those would probably not be enough to meet my non-functional requirements.

(Please check the prototypes research document present in learning outcome 2)

The addition of artificial intelligence is to predict freelancing service prices when users need exports contact to identify estimation of a service. By establishing the fact that freelancing services fall under verticals or categories which most of the time have no common pricing factors, we have decided to take a chaining models approach where each category or vertical has its own artificial intelligence model. Freelancers can create new verticals, freelancing services or offer their own in an existing freelancing service. This way it is possible to use natural language processing to process the service description and estimate prices.

(Please check the AI Pricing research document present in learning outcome 3)

# Requirements

The platform should be **scalable,** it should handle all youth unemployment section of Oman citizens as freelancers and potentially all youth portion. Thus, it should handle over 200,000 people with average latency below 5 second.

The platform should be **available,** It should be fault tolerant. Thus, it should have a maximum downtime of 5 minutes.

The platform should be **cost-efficient,** It should be only be pay for what you use. Thus, it the total cost of all services must equal each service usage cost.

(Please check the requirements document present in learning outcome 4)