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Abstract

A research plan outlining the research questions and methods used for the MyWatchList project.

Research Plan

Individual Project

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# Introduction

In this document, I will be writing about the problem I am facing for the project and how I could come up with a solution. I will be using the DOT framework to help answer the various research questions.

# Problem Definition

MyWatchList should be able to handle a million concurrent users. There are various aspects that need to be addressed to allow this to happen. Some of these aspects are scalability and performance optimization. In this research plan, I want to learn more about how to make MyWatchList scalable and how to keep high performance.

# Research Questions

## Main Research Question

How can MyWatchList be effectively prepared for deployment while considering diverse factors such as scalability, and performance optimization?

## Sub Research Questions

Scalability:

1. What are the key principles and strategies for designing a scalable architecture and how can MyWatchList benefit from these?
2. What are the best practices for load balancing and auto-scaling configurations?
3. How can cloud-based infrastructure contribute to the scalability of MyWatchList?

Performance:

1. What are the common performance bottlenecks in web applications and how can they be mitigated in the MyWatchList application?
2. How can caching mechanisms and CDNs enhance MyWatchList’s performance?

# Research Methodology

Scalability:

1. What are the key principles and strategies for designing a scalable architecture and how can MyWatchList benefit from these?

Design pattern research (Library)

IT architecture sketching (Workshop)

1. What are the best practices for load balancing and auto-scaling configurations?

Best good and bad practices (Library)

Non-functional Test (Lab)

Benchmark test (Showroom)

1. How can cloud-based infrastructure contribute to the scalability of MyWatchList?

Available product analysis (Library)

Multi-criteria decision making (Workshop)

Performance:

1. What are the common performance bottlenecks in web applications and how can they be mitigated in the MyWatchList application?

Community research (Library)

Problem analysis (Field)

1. How can caching mechanisms and CDNs enhance MyWatchList’s performance?

Component testing (Lab)

Literature study (Library)

Prototyping (Workshop)

# Timeplan

Considering all of these topics are relatively new to me, the research might take a few weeks to complete. However, this timeframe may change depending on additional challenges. I would like to plan 2 weeks for scalability and 1 week for performance.