Develop a Scalable, Reliable, and Efficient web application using Microservices Architecture for Healthcare

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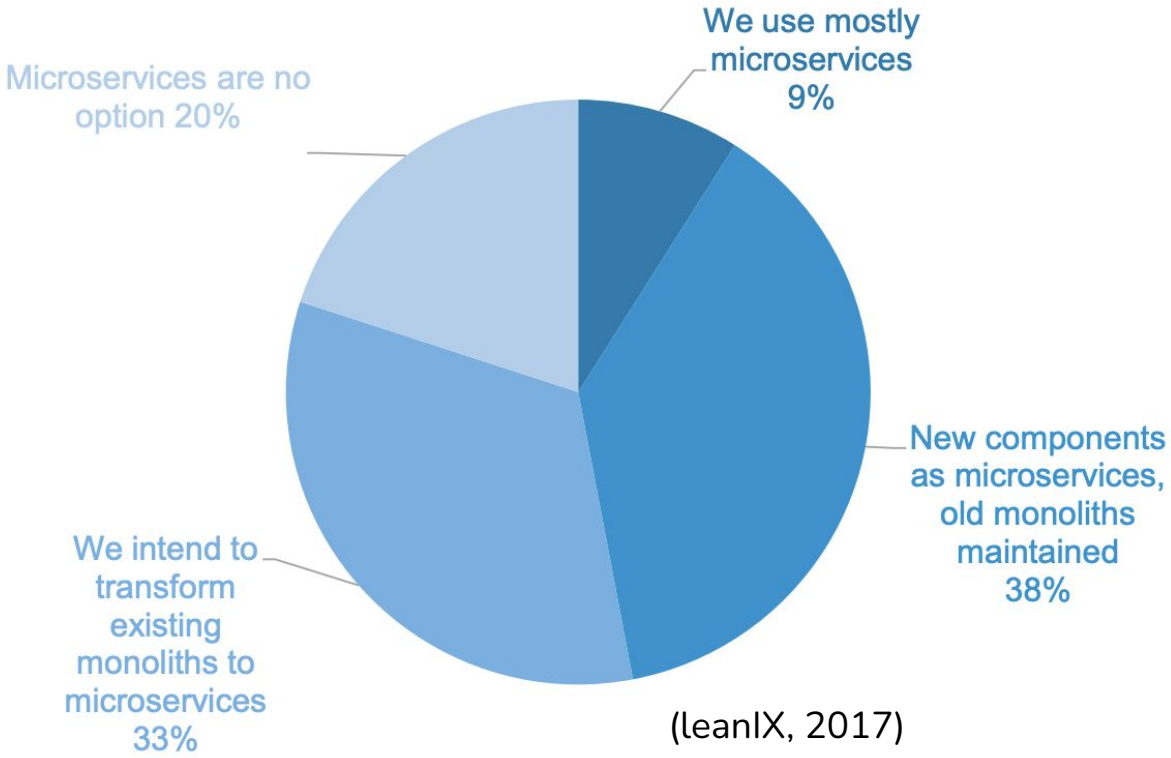
Nov 2022

Movitiation



(leanIX, 2017)

Significance/Knowledge Gap

- No way to distinguish the most situable approach

Research Questions

- How to determine the best fit approach for a current software development project?
- How to leverage and make tradeoffs between various approaches?

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Aims & Objectives

- To develop a strategic model for selecting the best fit approach for developing a web application for healthcare.
- Developing a web application prototype using the proposed model to select the best fit micrservices architecture approach.

Key Literatures

Author(s)	Focused area
Ianculescu, M. et al. (2019)	Scalability, Adaptability
Khoso, F. H. et al. (2021)	Performance, Reliability
Zaki, J. et al. (2022)	Availability, Performance
Cyran, M. A. (2018)	Reliability, Data Privacy

Methodology/Research Design

- Action Research Methodology
- Quantitative Questionnaire

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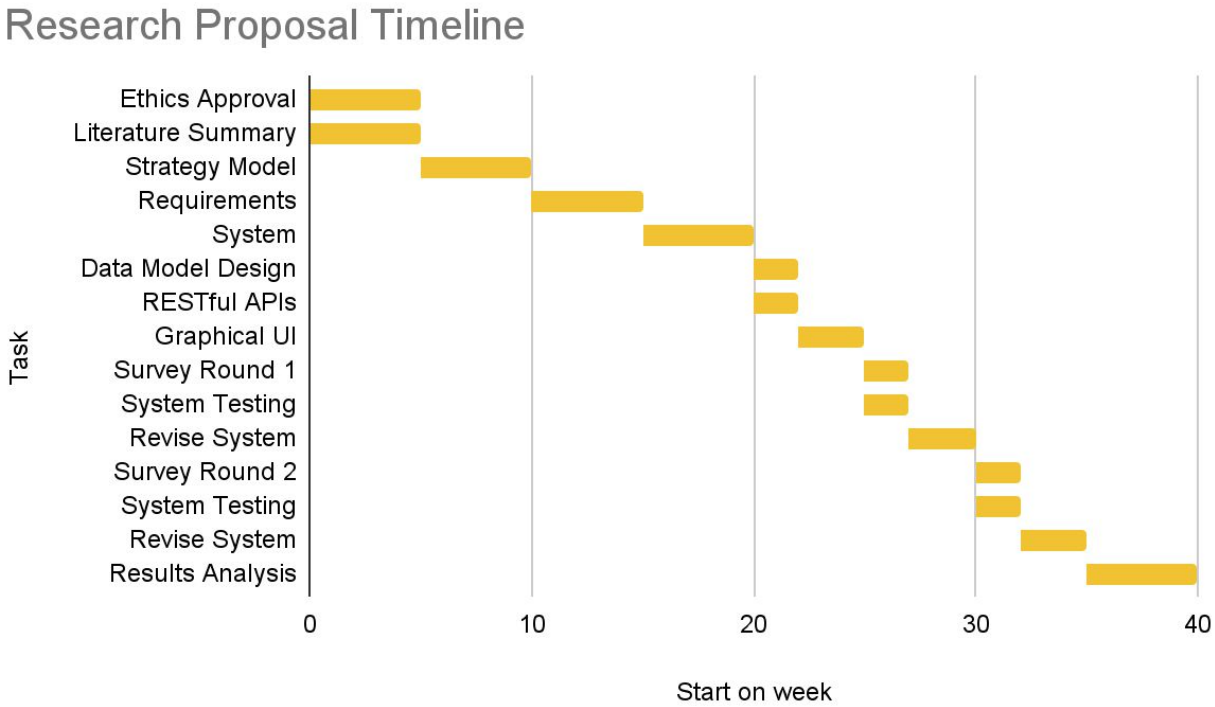
Ethical Considerations & Risk Assessment

- GDPR
- Data Privacy Act
- EHR Information
- Stakeholders

Artefacts

- System Design Diagram
- System APIs Design & Development
- Data Model Design
- Graphical User Interface

Timeline


Research Proposal Timeline
Ethics Approval
Literature Summary
Strategy Model
Requirements
System
Data Model Design
RESTful APIs
Graphical UI
Survey Round 1
System Testing
Revise System
Survey Round 2
System Testing
Revise System
Results Analysis
Task
0
10
20
30
40
Start on week

References

leanIX (2017) “SURVEY 2017BEYOND AGILE: IS IT TIME TO ADOPT MICROSERVICES?”. [online] Available at: https://info.leanix.net/hubfs/leanIX_Microservices-Study.pdf. [Accessed on 12 Nov 2022].

Ianculescu, M. et al. (2019) ‘Microservice-Based Approach to Enforce an IoHT Oriented Architecture’, in 2019 E-Health and Bioengineering Conference (EHB). [Online]. 2019 IEEE. pp. 1–4.

Khoso, F. H. et al. (2021) A Microservice-Based System for Industrial Internet of Things in Fog-Cloud Assisted Network. Engineering, technology & applied science research. [Online] 11 (2), 7029–7032.

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Zaki, J. et al. (2022) Introducing Cloud-Assisted Micro-Service-Based Software Development Framework for Healthcare Systems. IEEE access. [Online] 1033332–33348.

Cyran, M. A. (2018) Blockchain as a Foundation for Sharing Healthcare Data. Blockchain in Healthcare Today. [Online] 1.

Nogueira, J. M. et al. (2013) Leveraging the Zachman framework implementation using action - research methodology - a case study: aligning the enterprise architecture and the business goals. Enterprise information systems. [Online] 7 (1), 100–132.