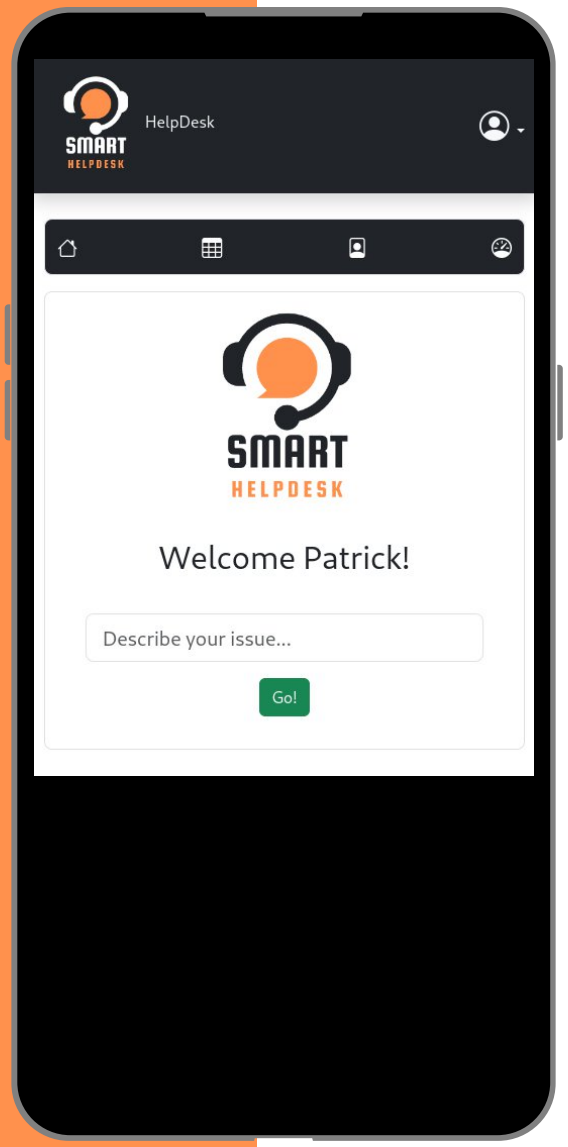

Smart Help Desk System

Project Introduction for *BSc (Hons) in Contemporary Software Development*, *2022/2023*

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Agenda

1. Introduction and Background
2. Purpose of the Project, Aims & Objectives
3. Design & Methodology
4. Implementation
5. Testing
6. Conclusion
7. Demo

Introduction and Background

What is a Help Desk system?

In this day and age Help Desk is often referred as a person or department that provides assistance and information for electronic or computer problems (Merriam-Webster, 2021).

The traditional Help Desk system

We have all interacted with Help Desk systems throughout our lives and certainly experienced positive and negative interactions. Throughout my career in IT, I have personally experienced frustration with existing systems that could be categorised as the following:

1. Slow response
2. No resolution steps for previously resolved issues
3. I was unaware of maintenances or known disturbances after the agent advised of such

During digital transformation, companies became the prominent driver for social change and economic growth (Brynjolfsson and Kahin, 2002).

In a 2022 survey conducted by Statista, worldwide retail e-commerce projected sales were forecasted to reach about 8.1 trillion US dollars by 2026, a 56% per cent increase from the 5.2 trillion US dollars worldwide in 2022 (Statista, 2022).

Introduction and Background

Evolution of Help Desk systems

As companies were forced to innovate through digital transformation to remain competitive, so did the Help Desk systems. As a result, a modern Help Desk system is no longer seen as a technical problem fixer but as a strategic tool and advisory in direct involvement and decision-making in development (Pancucci, 1995).

It has been proven in several studies that a modern Help Desk service provides several benefits if implemented correctly. In some companies, the benefits have translated into fewer technical issues, reduced technical costs and increased overall employee satisfaction (Firmansyah and Subriadi, 2022).

In agreement with previous studies (Wangenheim et al., 2007), an empirical study of the impact of employee satisfaction conducted in 2020 found evidence that employee job satisfaction has a significant effect on customer satisfaction (Kurdi, Alshurideh and Alnaser, 2020).

As noted earlier, digital transformation encouraged companies to innovate, and this effect was also seen in how Help Desks were perceived in modern companies.

Purpose of the Project, Aims & Objectives

This project aims to develop a smarter Help Desk online system to improve the end-user experience, lower costs in human resources and improve metrics like Time to Resolution (TTR).

The system will automate troubleshooting steps to gather diagnostic data, make this data available for the Help Desk engineer and suggest possible solutions proactively.

Objectives

1. To evaluate APIs or Endpoints which can provide data and answer the following questions:
    - Is the service/system down?
    - Is the service/system accessible?
    - Is a specific component of the system accessible or experiencing a fault?

2. To identify diagnostic data which can be relevant in suggesting troubleshooting steps.

3. To identify measures of success.

4. To identify technologies needed to create a satisfying user experience by developing a responsive web application in HTML, CSS, JavaScript, Python and Databases.

As noted earlier, digital transformation encouraged companies to innovate, and this effect was also seen in how Help Desks were perceived in modern companies.

Design & Methodology

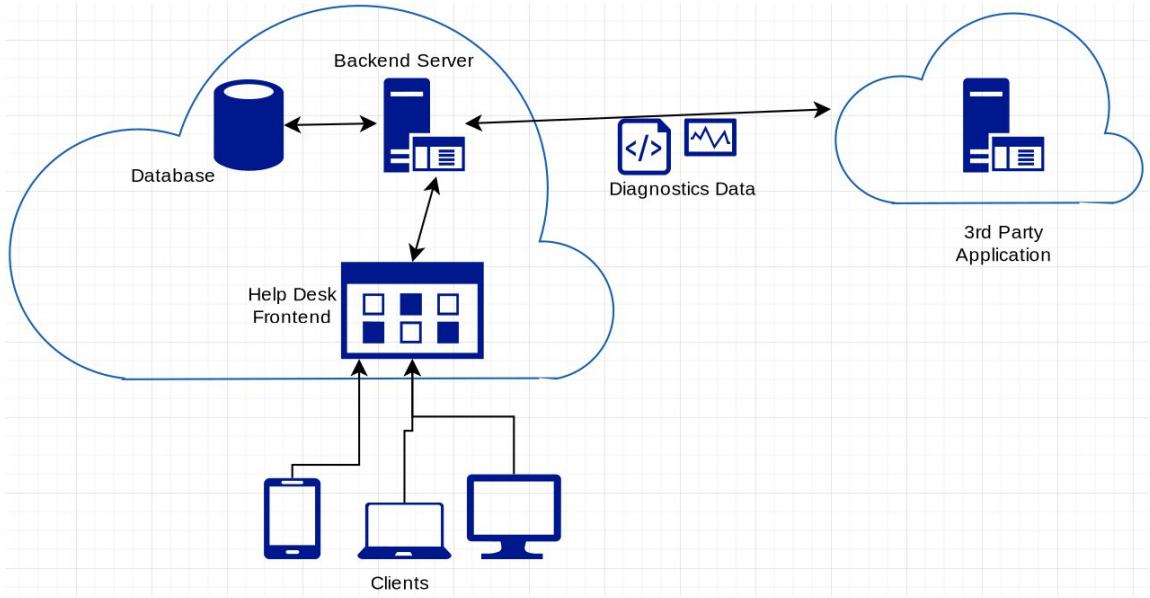
Functional and non-functional requirements

- Gathering User Stories as functional requirements was the first step to understanding the project's scope.
- The requirements for the Smart Diagnostics report were also explored for the selected third-party provider.
- Security, Reliability, Usability and Scalability were also explored to scope the project.

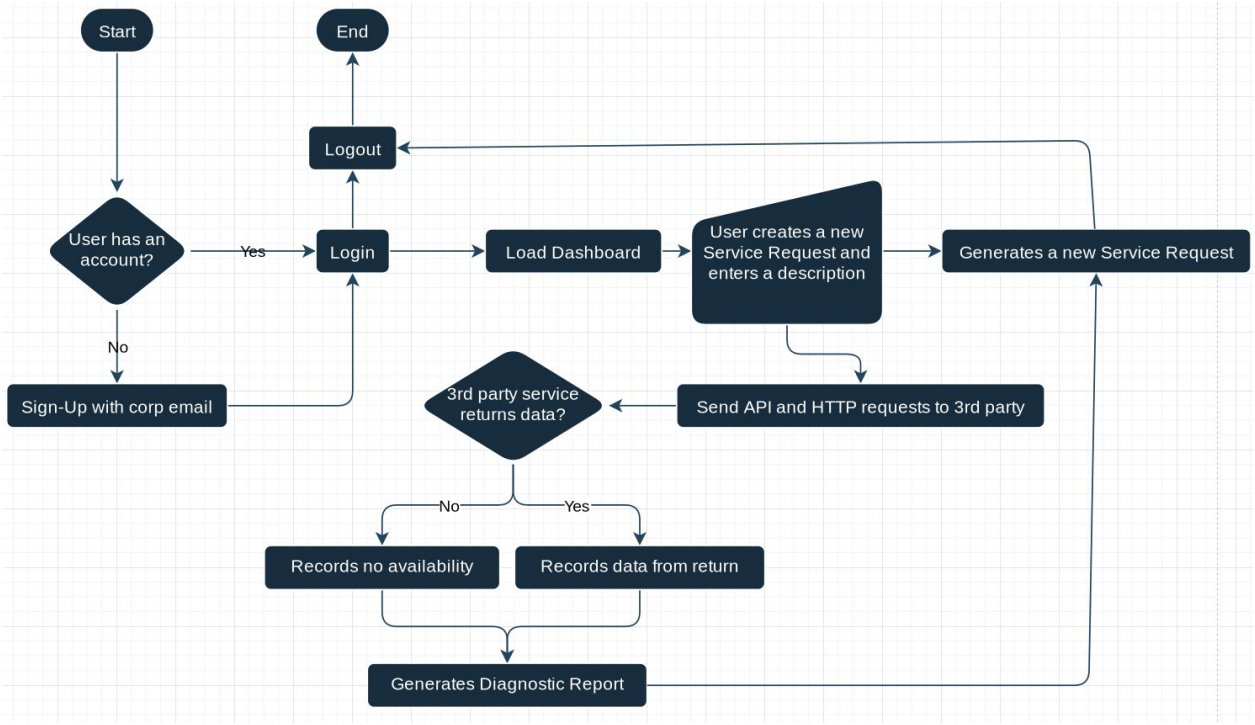
Use-Cases and Technical Design

- Software and Hardware requirements were explored by asking questions such as "Does this app need to be available 24/7 ?" and "Does it need to be available on any device, anywhere?"
- Use-case diagrams and use-case primary and alternative flows and flow of events diagrams were explored, using Agile methodology.

Design & Methodology

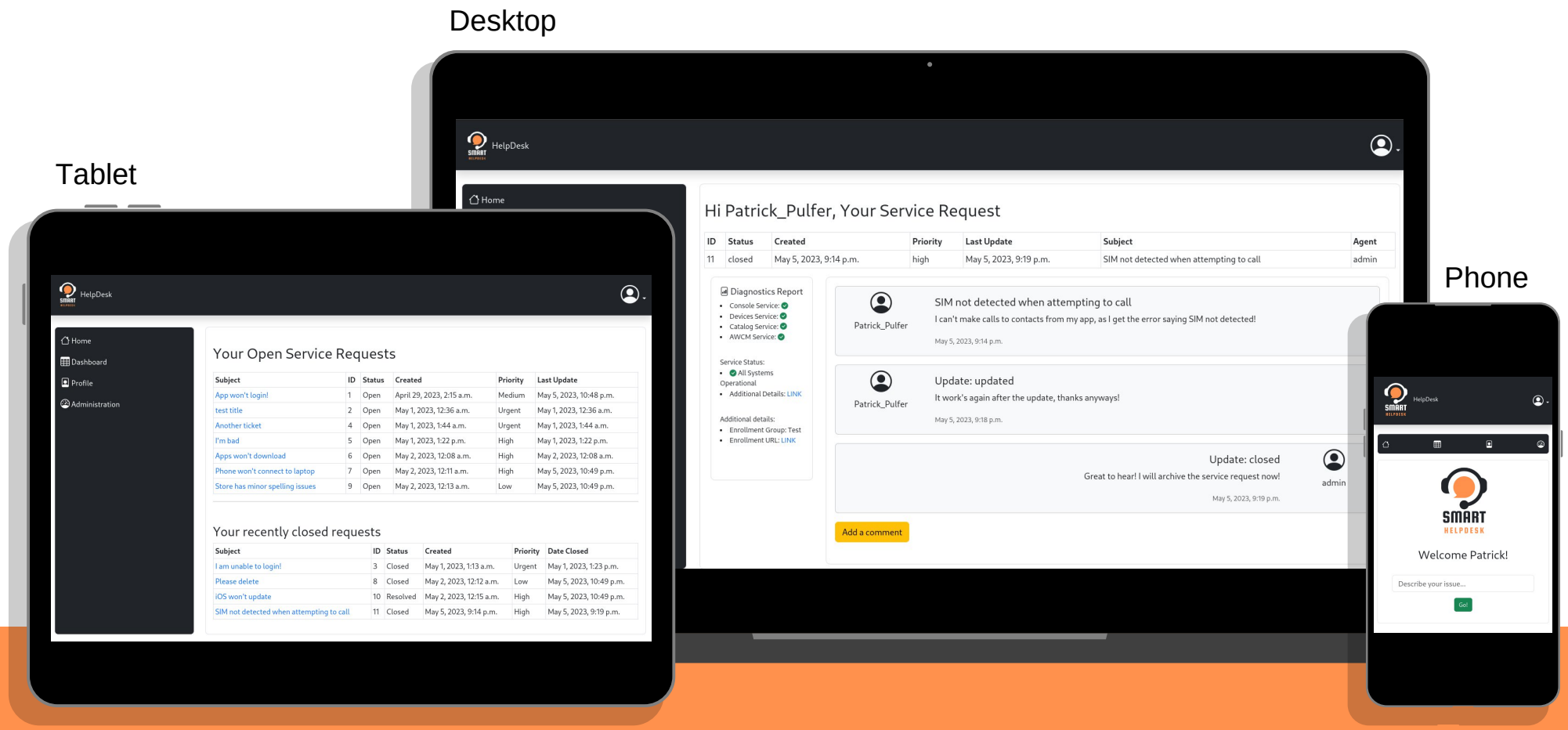


Architecture Design Diagram



Flow Chart events from end-user perspective

Design & Methodology



Implementation - Technologies Used

What combination of software “pieces” are required to achieve our goal?

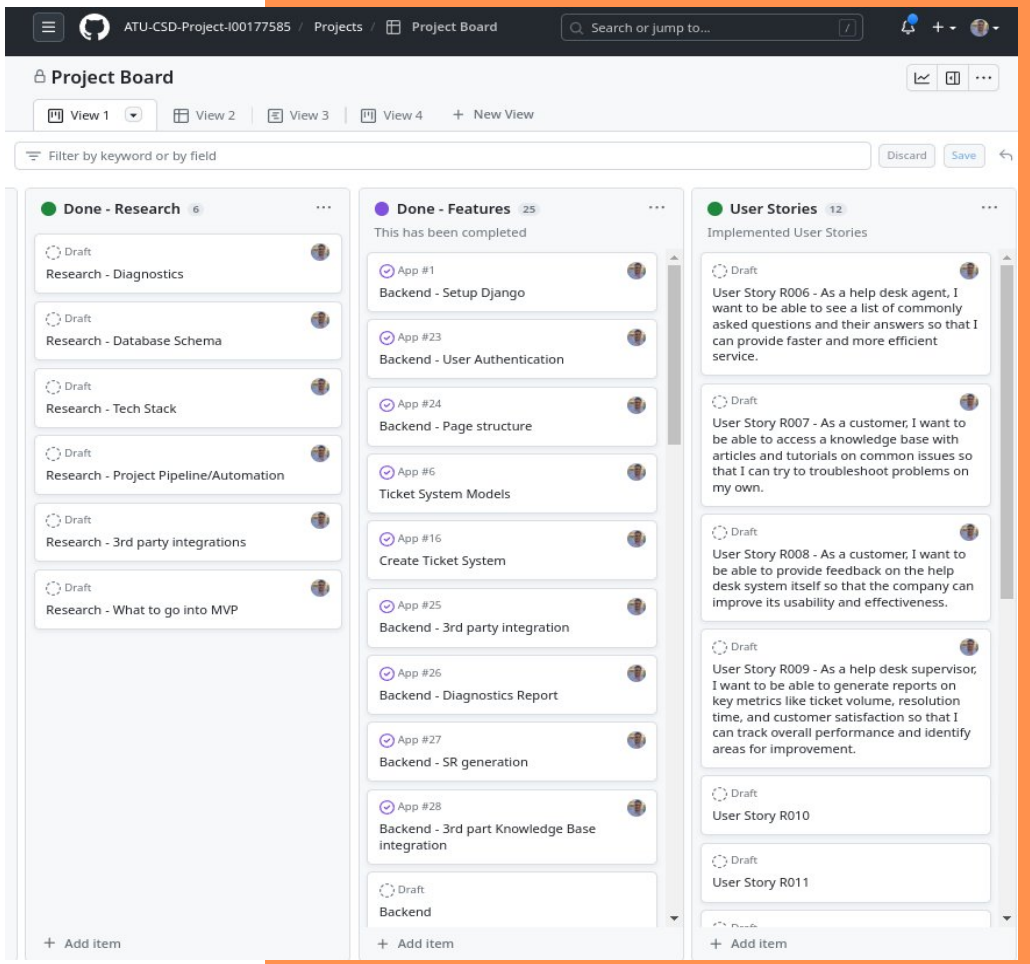
- Website as interface
- Django framework, Python
- Bootstrap UI toolkit
- SQL Relational Database
- Selenium WebDriver
- Modular System Design

Project Management for Implementation

GitHub Projects, Actions and Code Repository

GitHub was the platform selected for the Project Management, Automated Pipeline and Software Version Control due to it’s excellent integration and ease of use.

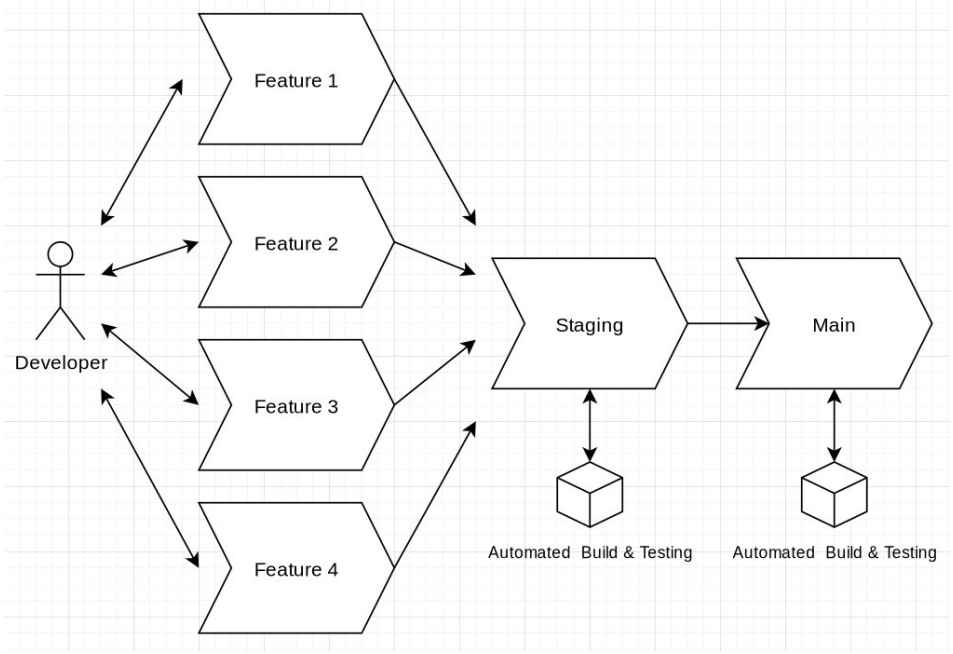
Software Version control is a system that manages changes to source code files, documentation and other project-related assets. Tracking, reviewing, reverting modifications and backup code to avoid data loss were ideal use cases for this project's scope.



Testing

Instructed Step by Step testing

Step-by-step instructions for testing have been designed for each user story to ensure the project's scope is appropriate.



Automated Tests performed on Code Merge

Automated Tests

Django Unit tests were written to test the planned HTTP requests to ensure availability and expected responses. If any of the following tests fail in the future, we can expect that the third-party provider has made changes, and the application will have to adapt to those changes.

Conclusion

In this proposal, I have outlined a comprehensive plan for developing the envisioned Smart Help Desk project, underscored its purpose and feasibility, and delineated its potential for driving efficiency and competitive advantage.

Limitations (opportunities for future releases/iterations)

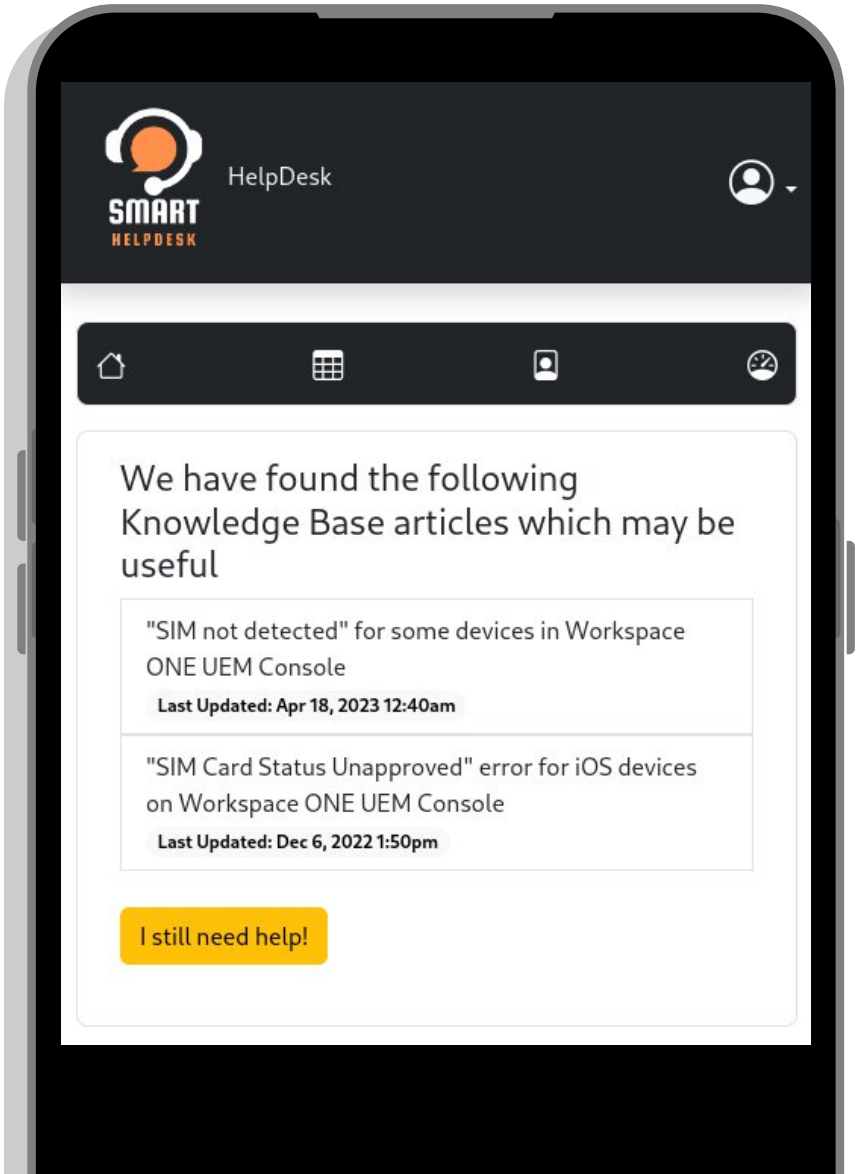
- The current third-party integration does not allow the system administrator to configure specifics such as what details to include in the diagnostics report.
- The current proposal's scope has been defined as a Smart Help Desk with knowledge base articles and diagnostics reports for a single third-party provider.
- It has been concluded that the mobile view has an opportunity for refinement, specifically around the display of tables with data.

Results

- ✓ The first iteration in our MVP approach has achieved 8 out of 9 positive results while testing user stories requirements. Similarly, 6 out of 7 diagnostics report details requirements have also been satisfied.
- ✓ The testing phase showed promising results, with positive feedback from users on ease of use and a clear and intuitive interface. For example, one of the users noted that he'd be more productive if such a system with diagnostic reports existed in his current workplace.

Significant learnings have been made while drafting this report and implementing the additional skills learned through the study.

A well-structured purpose and requirements chapter has immensely benefited the vision of code implementation, as well as avoiding the scope creep.


SMART
HELPDESK
HelpDesk
We have found the following Knowledge Base articles which may be useful
"SIM not detected" for some devices in Workspace ONE UEM Console
Last Updated: Apr 18, 2023 12:40am
"SIM Card Status Unapproved" error for iOS devices on Workspace ONE UEM Console
Last Updated: Dec 6, 2022 1:50pm
I still need help!

DEMO