



**Knight Foundation
School of Computing
and Information Sciences**

Knight Foundation School of Computing & Information Sciences

Spring 2023 Capstone 2

Sensor Data Visualization

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PROBLEM

The current system has two ways for users to interact: a mobile app made with Flutter, and a web app developed with Java Web Toolkit. For administration, a separate web app has been created using React.js, SASS, axios, and Spring Boot, with a MySQL backend server. This administrative tool can handle login requests, authenticate users, retrieve studies and surveys from the database, and display data in chart form. The Flutter app can also communicate with the server, store user data in the database, and visualize data using graphs, making it more user-friendly.

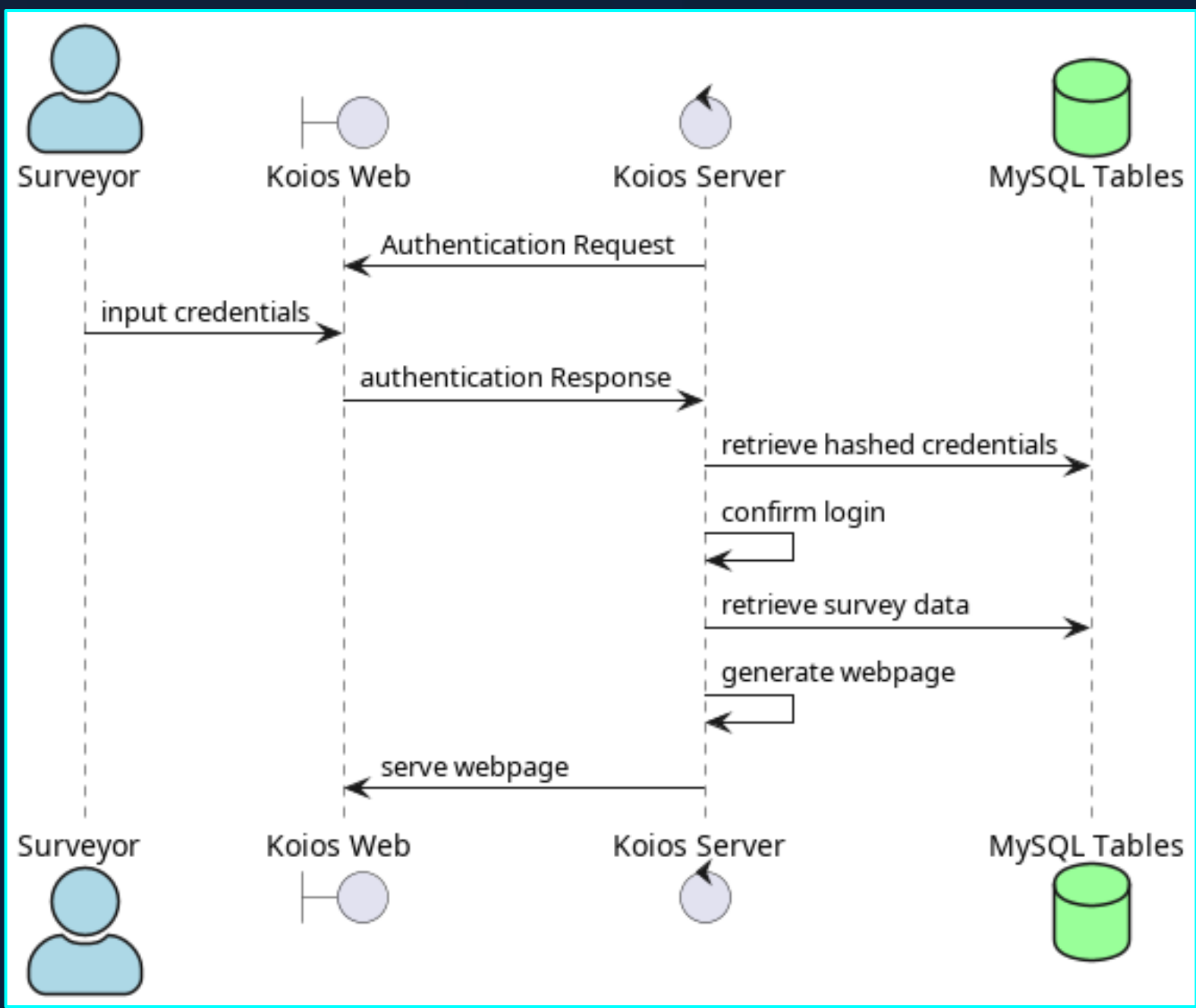
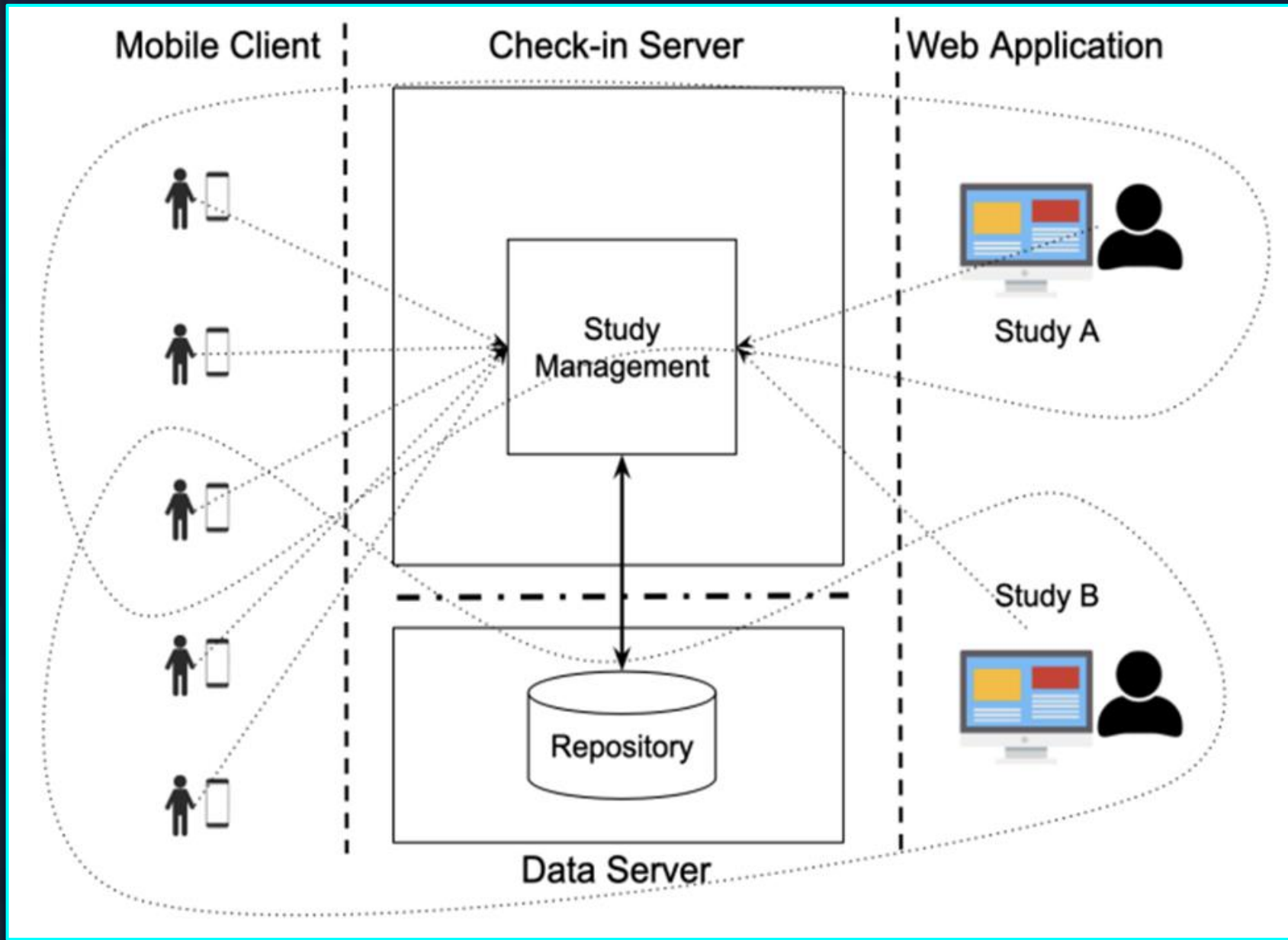
CURRENT SYSTEM

As researchers strive to find an engaging way to present data that appeals to the human eye, they encounter the challenge of creating web-based solutions for clients whose actions are shaped by both data and code. Specifically, in the context of health-based observations, integrating Fitbit technology allows for precise data collection on individuals' sleep patterns, physical activity, and calorie consumption throughout the day. The objective of this project is to support researchers with a platform that offers both user and administrative functionalities for organizing, presenting, and analyzing data.

REQUIREMENTS

- Installing MySQL workbench to run the Koios Database.
- Install IntelliJ and VSCode to run the backend and frontend respectively
- Learning how to use React in VSCode to write frontend code.
- Learning how to use Spring in IntelliJ to write frontend code.
- Uploading all research to GitHub.

SYSTEM DESIGN / IMPLEMENTATION



SCREENSHOTS

Home Studies Login						
id	Name	Organization	Date	Status	View Study	View Surveys
1	FIU Test Study	Florida International University	2022-05-24 18:42:14	Open	<button>Study</button>	<button>Surveys</button>
2	Test_1	FIU	2022-05-31 09:08:27	Open	<button>Study</button>	<button>Surveys</button>
3	Test_2	FIU	2022-06-29 14:50:24	Open	<button>Study</button>	<button>Surveys</button>
4	FIU Fitbit Test Study	Florida International University	2022-07-20 15:48:33	Open	<button>Study</button>	<button>Surveys</button>
5	Test_3		2022-07-24 00:27:27	Open	<button>Study</button>	<button>Surveys</button>
6	Test_4		2022-07-24 22:36:55	Open	<button>Study</button>	<button>Surveys</button>
7	Speech Emotion Sensing Study	Florida International University	2022-09-16 17:23:27	Open	<button>Study</button>	<button>Surveys</button>
8	Running study	FIU	2023-01-16 18:23:27	Closed	<button>Study</button>	<button>Surveys</button>

In summary, we have created a complete full-stack application that simplifies research studies and provides many features, including handling user data and tracking health-related studies. Our development process has encompassed multiple stages, starting with planning and progressing to development, deployment, and security. We have also emphasized data visualization for diverse studies and kept end-users' needs in mind while building the mobile app. Furthermore, we have closely monitored the system post-deployment and identified future work required to guarantee the project's ongoing success.

Home Studies Login					
Select Version: 1					
#	Question	Type	Child Trigger	Parentid	Show Graph
1	Please enter your gender.	selection			<button>Expand</button>
2	Please specify your gender.	text	Other (please specify)	1	
3	How would you describe yourself:	choice			<button>Expand</button>
4	Please specify your previous answer.	text	Other (please specify)	3	
5	What is your age?	selection			<button>Expand</button>
6	Are you:	selection			<button>Expand</button>
7	What is your native language?	text			
8	What is your profession?	selection			<button>Expand</button>
9	Please specify your profession	text	Other (please specify)	8	
10	What is your rank/title?	selection	Law enforcement officer	8	<button>Expand</button>

REFERENCES

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7273223/>



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