CS1530 “Software Engineering”

Final Assignment

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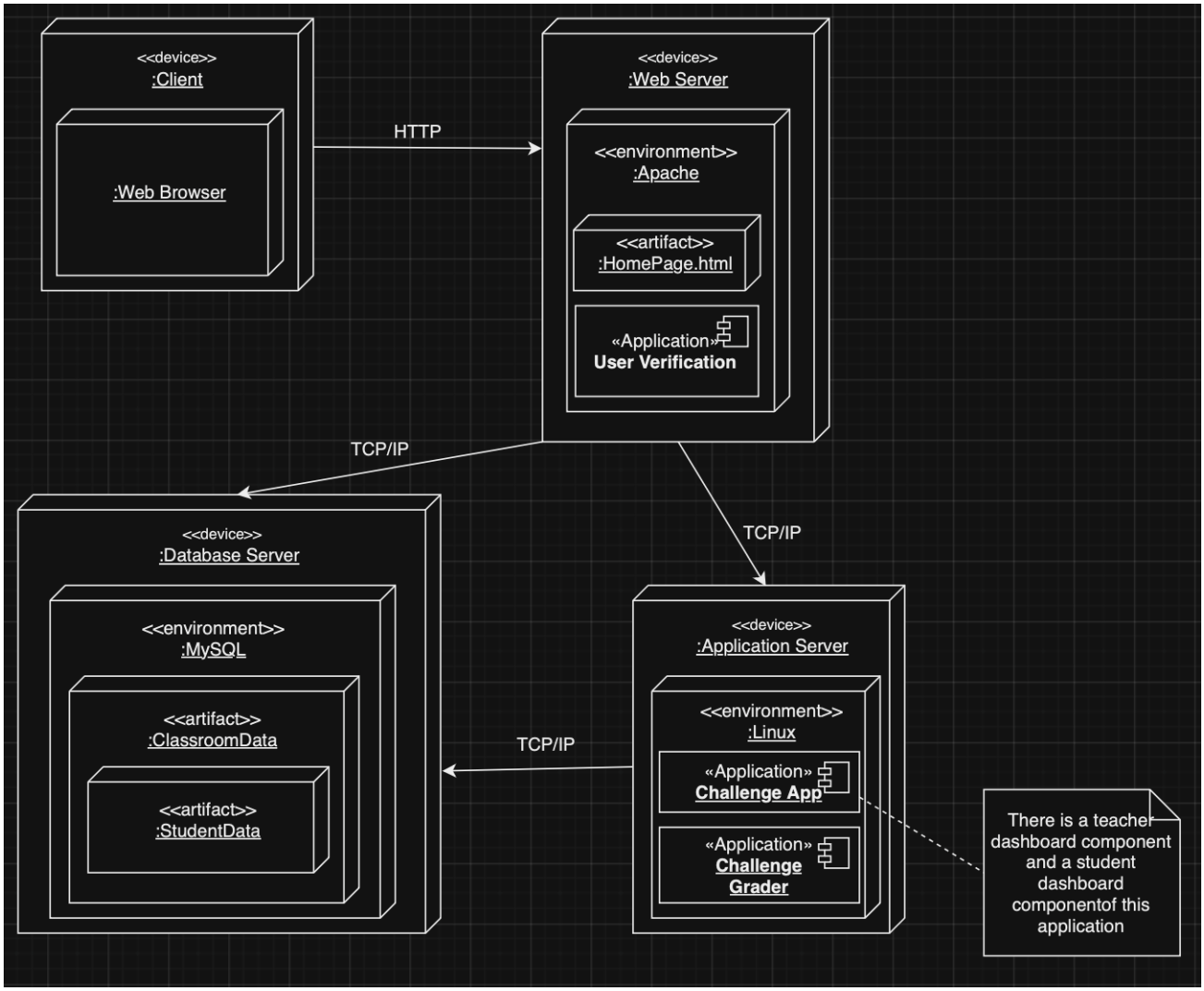
Deployment Diagram



Description

Our deployment diagram vividly illustrates the framework of a conventional three-tier architecture, delineating the integral components comprising a client tier, server tier, and data tier. This structured design is foundational to the seamless functionality and optimal performance of our system. This three-tier architecture not only exemplifies a systematic separation of concerns but also offers scalability, maintainability, and flexibility in system design. Each tier operates independently, allowing for modular development, updates, and enhancements. This architectural paradigm is instrumental in achieving a robust and efficient system, ensuring a cohesive and organized structure that aligns with industry best practices.

Client

On the client's end, the user can interact with the system through a web browser on their device of choice. This communication will take place through HTTP. Using a web browser ensures that usage of our system is not dependent on any additional software or installs.

Server

On the server's end, we've chosen to use the Apache architecture. This was chosen on account of the reliability and widespread use of Apache. With this architecture, we can handle incoming HTTP requests from the clients properly by serving the proper webpages and facilitating interactions with the client. This lets our server 'server' clients, acting as the entry point to our system. The server's underlying logic is separated into a Linux based server. This server runs all critical backend functions and operations. For instance, our Challenge App and Challenge Grader run through this system, each designed to handle the specific functionalities of the system. Running on a backend server ensures security, while leveraging Linux allows us to run a stable, lightweight system.

Data

Our data is managed through a MySQL database. This database houses all the necessary information for the other services to run. For instance, we have the StudentData and ClassroomData information here, which is crucial for the system's core functionality.

While external communication is done through HTTP, all internal communication is done over TCP/IP. This guarantees reliable and fast data transmission, as well as ease of modularity. Communication over this network protocol lets us scale and maintain each component individually, linking them through these network messages. This approach, coupled with the rest of our system design, demonstrates many widely used principles in system design that should work well for our application.

Product Backlog

Due to the time constraints imposed on the project, our product backlog was developed to focus on fulfilling the necessary requirements outlined in the project description. Our idea was to develop a "functioning" prototype of the backend application that would theoretically run on the "application server" described in the project deployment diagram, and thusly our goals reflect this mission statement.

Product Backlog (*Sprint 0/1*)
Started : 11/27/2023
Last updated : 12/01/2023

As a/an…	I want to…	So that…	Notes	Priority	Status
Student	See my challenge path	I can see what I'm progressing towards	We can implement this through the student dashboard view	1	Partially Complete
Student	Complete challenges in an efficient way	I don't get bored with my lessons	Grading should be snappy, latency in turn around loses interest	2	Done
Teacher	Be able to see my students progress	I can assist each student effectively	Implemented through the teacher dashboard view	1	Partially Complete
Teacher	Be able to easily edit my students challenge paths	Students stay positive, and don't get intimidated when learning new topics	implemented in the teacher dashboard logic	2	Done

Product Backlog (*Sprint 2*)
Started : 11/27/2023
Last updated : 12/06/2023

As a/an…	I want to…	So that…	Notes	Priority	Status
Student	See my unique challenge path	I understand what's expected of me as a student	Started in the first sprint, still needs a way to differentiate student data	1	Done
Student	Have my progress accurately recorded	I feel like I'm progressing towards a goal	Implement this through the unique student identifier	2	Done
Teacher	Be able to see my students individual progress in a visual way	I understand each students personal progress	Started in the first sprint, still needs a way to select and view individual student progress	1	Done
Teacher	Create unique challenges on a per student basis	Each student can learn as efficiently as possible	Implementing the creation of new challenges?	2	Done

CS1530 Final Project Timeline

19 NO SCHOOL	20 NO SCHOOL	21 NO SCHOOL	22 NO SCHOOL	23 NO SCHOOL	24 NO SCHOOL	25 NO SCHOOL
26 NO SCHOOL	27 Sprint Planning *(Sprint 0/1)*	28	29 Scrum Standup	30	DEC.1 Sprint Review *Refine Backlog*	2 Sprint Planning *(Sprint 2)*
3	4 Scrum Standup	5	6 Sprint Review *Refine Backlog*	7	8	9

NOV.27th “Sprint 1 Planning” : We decided who was to be the scrum master (Benson) and product owner (Todd). We also delegated which aspects of our project we wanted to focus on implementing for our final submission. With these in mind we delegated the required work amongst our group members, and created our initial product backlog.
NOV.29th “Sprint 1 Standup” : We met today to discuss the current state of the project. We spent some time discussing issues regarding our backend and how to properly organize our codebase.
DEC.1st “Sprint 1 Review” : Today we focused on reconciling our individual work to one cohesive project. We focused on refining our backlog through discussion of what our existing features needed to meet the product owners expectations. Our product owner was thoroughly impressed with our progress thus far and had minimal complaints aside from the lack of UI elements.
DEC.2nd “Sprint 2 Planning”: Today we discussed the current state of the project and what would be reasonable to implement by the project deadline. It was decided that we were going to focus on the UI elements as that was one thing the product owner wanted finished. We decided that Aidan would create a JUnit test application to ensure we met the project requirements.
DEC.4th “Sprint 2 Standup” : Minimal discussion about our individual assignments, everything seems to be going smoothly.
DEC.6th “Sprint 2 Review” : Today we presented our current product to the product manager, and in cooperation with them we determined that the next step to deploying our product would be focusing on the development of our “servers”.