# Roomie Radar

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Abstract

Overview: Every year, countless Villanova students face the nearly impossible task of securing a suitable roommate. Our project aims to alleviate this stress by automating their search using a web-based application. In it, each student can create profiles detailing themselves (i.e., hobbies, schedules, lifestyle habits), which will be filtered through an API to find compatible roommates. Once performed, the users can view the proposed matches and either confirm or decline them. If both paired users accept, they can use the in-app chat feature to learn more about each other before agreeing to become roommates.

Motivation: Each of the members of this team have lived with random roommates assigned by Villanova, which ended horribly. Through this project, we hope to help others avoid experiencing the same.
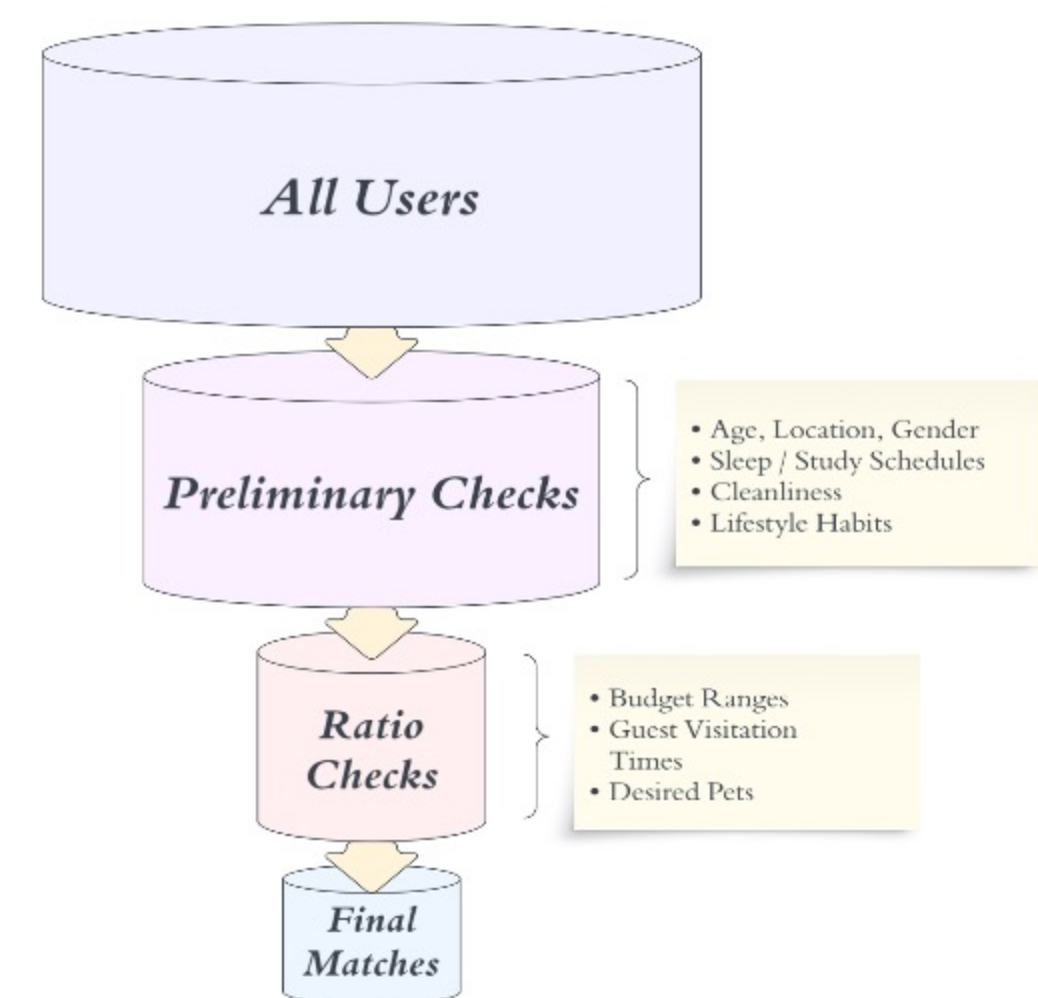
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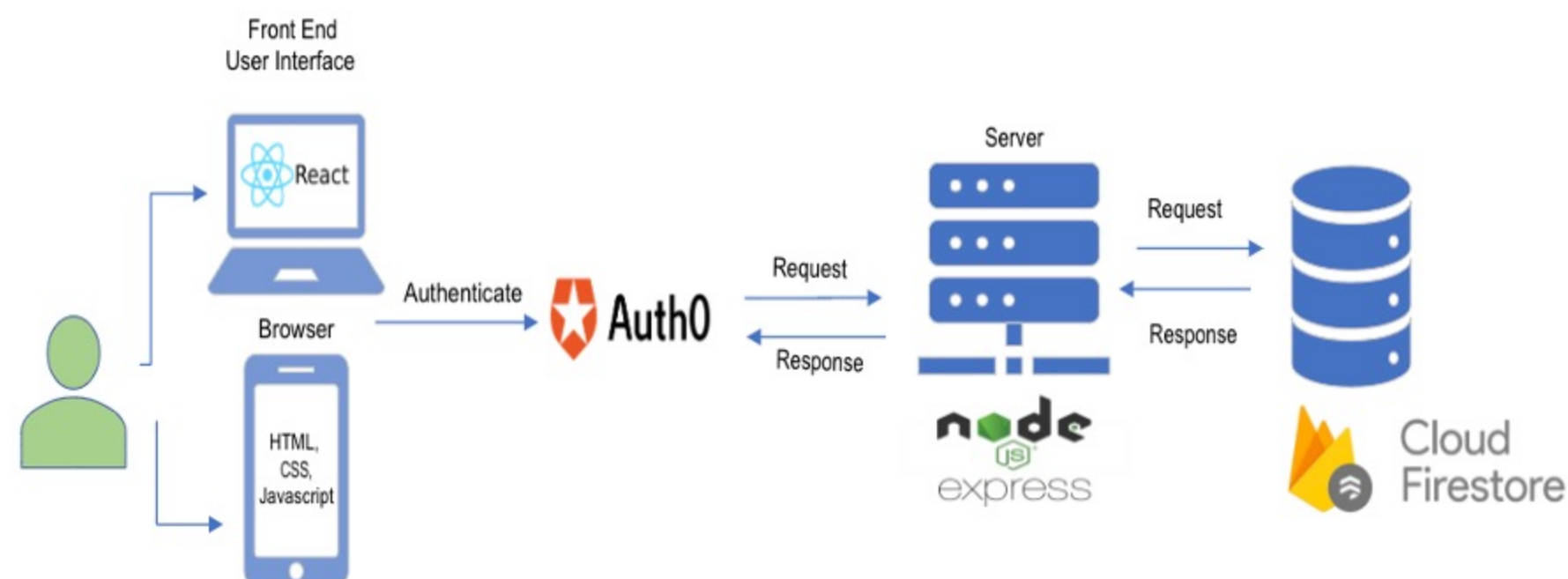
Security

Overview: A primary goal when developing our application was to ensure the confidentiality, availability, and integrity of our users' personal information. We implemented strong authentication and authorization security measures using auth0. We also required users to register and verify a Villanova email address before they could use the application. Additionally, we enforced strong data storage security rules and input validation and sanitization.

Matching Algorithm

Overview: In assisting users searching for their ideal roommates, the application employs a custom Application Programming Interface (API) to find other users with compatible traits. The API reads all users stored within the website's database and extracts their information from their profile page input and survey page responses. Once the API retrieves all relevant user information, it performs two compatibility checks before issuing a match result: preliminary and ratio. The preliminary checks are a series of Boolean functions to determine if two users are compatible on traits most likely to cause significant issues. The ratio checks compute a score based on compatible traits.

Project Flow