



► **RAG-Powered LLM for UNC Housing Guidance**

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► Why did we choose this idea? Let's see!



#1

Existing tools list amenities, but don't interpret personal preferences



#2

Reviews on Reddit, YouTube tours, and housing pages are inconsistent and hard to compare



#3

Students often don't know what they value until they experience dorm life, especially in their first year and everything is new to them



#4

Many freshmen feel under-informed before housing selection, increasing uncertainty and stress during the transition.



#5

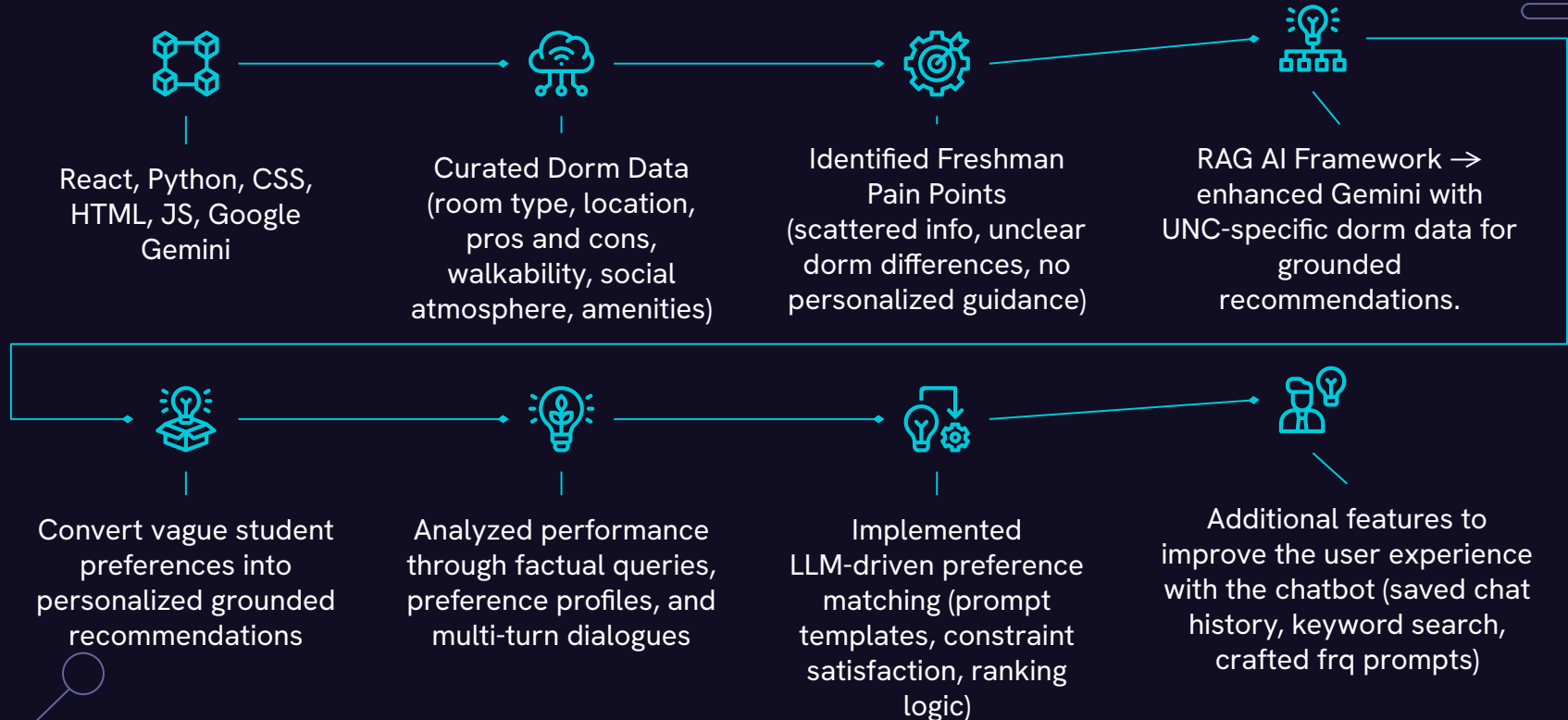
Students often struggle to compare dorms because features like vibe, noise levels, or community atmosphere are subjective and not captured in official descriptions



#6

Housing decision is multidimensional (location, social environment, room style, walkability, cost), and AI helps simplify this complexity by turning ambiguous, natural-language goals into clear recommendations.

System, Tech Stack Overview, and Timeline: How did we bring this idea to life?



► What did we learn and how would we expand on this idea?



INSIGHTS

Building this system showed how combining our curated dorm dataset with a RAG-based AI framework allowed Gemini to specialize to the UNC housing niche, enabling it to interpret vague student preferences and translate them into grounded, attribute-based recommendations that reflect real differences between residence halls.



OBSERVATIONS

Through testing and iterating on retrieval, prompt structure, and dataset organization, we gained insight into how AI handles subjective or ambiguous housing preferences, revealing strong contextual reasoning when information is well-defined, but also highlighting sensitivity to missing attributes and subtle phrasing changes.



FUTURE STEPS

This project revealed clear opportunities for expansion, including scaling the RAG dataset to support additional universities, integrating safety-focused information like well-lit paths and nearby emergency resources, interactive map features, calculator for finances, connecting to the bus schedule, and extending the system to off-campus apartments to create a comprehensive, personalized living-decision assistant for students.