Take-Home Task: “Feed Me What I Want” – A Taste-Driven Recommender Challenge

Hi Tim,

Thanks again for catching up earlier – it was great to meet you.

We’d love to get a deeper sense of how you think and approach problems, particularly when it comes to complex, ambiguous machine learning challenges in the hospitality space. So we’ve put together a short take-home task for you to tackle (we expect it to take around 2 hours max).

🍽️ Context

Imagine you’ve joined our team at **Buddy AI** – we’re building an AI-driven concierge and restaurant recommendation engine that helps users find, book, and pay at the perfect venue with a single voice prompt.

We’re sitting on some delicious data: thousands of customers, each with a rich history of restaurant visits, dish-level preferences, booking behavior, and feedback. Your task is to take a small (fictional but realistic) sample of that data and come up with a smart way to predict what types of dishes a customer might enjoy next – even if they haven’t tried them before.

This isn’t just collaborative filtering. We want to **infer latent taste preferences**, extract semantic meaning from dish descriptions, and ultimately build the foundation for a recommendation engine that feels like magic.

📂 What You’ve Got

We’ve provided a (fictional) CSV dataset with:

- `customer_id`
- `restaurant_id`
- `dish_name`
- `dish_description`
- `rating` (1–5)
- `timestamp`

🤔 What We'd Like You to Do

1. **Problem Framing**
   How would you *frame* this problem? What are the key challenges? What assumptions would you make? How would you define success?

2. **Approach & Architecture**
   Propose a machine learning pipeline/architecture to solve this problem. You can include preprocessing, embeddings (e.g., dish semantics), latent factor modeling, or anything else you think is interesting. Don't write full code – we want to see your thinking, not your PyCharm setup.

3. **Modeling Recommendations**
   Describe the types of models you'd consider (and why). How would you uncover latent preferences and relate them to dish semantics? How might your system generalize to cold start scenarios or new dishes?

4. **Interpretation & UX Angle**
   How would your model explain *why* a certain dish was recommended to a customer? Could we generate a simple explanation like:
   "You liked spicy Southeast Asian dishes with prawns, so we think you'll love this Tom Yum Goong."

🧠 What We're Looking For

- Structured thinking
- Ability to simplify complex problems
- Awareness of real-world ML limitations
- Creative use of NLP or semantic modeling
- Taste. (Not the food kind – the design kind.)

📅 Next Steps

Please send us back a short deck or PDF walking us through your thought process (slides, sketches, or plain text are all fine). We'll then set up a session next week where you can present your approach and we can dive deeper together.

We're excited to see where your brain takes this!
Kish