Skills Assessment

Software Engineer

CASE

CENTER OF EXCELLENCE H&M

The Objective

Do you have this feeling that you don't know what to wear for an event, like Christmas or a Wedding? How cool it would have been if you can visit hm.com and just get a list of "recipes" which would include the full wardrobe suggestion for the event. For example, if you are going for a Christmas party in the winter, and if your budget is 300SEK, the "recipe" would include a suggestion of jacket, shirts, trousers, boots, accessories, etc., depending on various other preferences.

We do not have this tool now, but let's build it!

The Specifications

- Let's design a system which will recommend you a full course of dresses based on previous purchase history, similar choices from the similar demographic etc.
- Obviously, the recommendations will also take into consideration what we have in our stores, customer budget and add them automatically to the shopping cart.
- It will ask few questions and based on that system will show suggestions. Customer will be able to choose a foundation combination and then mix-n-match. Be creative on the user journey.
- Users can share their feedback on the recipes they get. The feedback can be used during the future improvements of the tool.
- Think about how we can enable the users to provide us feedback and collect data on how our users interact with the tool.
- Think about the feasibility of the tool in the long run, how do we know that the tool will increase sales and will be profitable.

CASE

The Expectations

Architecture & Design

- Identify the necessary modules for building this tool and present them in an architecture diagram.
- Prepare an ERD diagram for this design.

Coding Implementation

- Design and implement a small backend service that suggests an outfit based on a given event, user preferences, and available inventory. This service should include:
  - **User Input:** An endpoint to accept event type (e.g., "Wedding", "Christmas"), user preferences (e.g., budget, style), and so on. Feel free to include whatever inputs are deemed necessary as per your design.
  - **Inventory Filtering:** A mechanism to filter available inventory based on the input (event type, user preferences, etc.,).
  - **Recommendation Engine:** Logic to generate a set of outfit recommendations.
  - Implement an endpoint: **POST/recommendations:** Accepts user input and returns a list of outfit recommendations.
- Assumptions:
  - You can use any in-memory data structure for inventory (no need for a database).
  - Focus on backend logic; no need to implement a front-end.
  - Ensure your code is clean and well-documented.

CLARIFICATIONS

- We have divided this case study to two focus areas
    1. Your ability to design the tool and create an ERD based on the objective and expectations.
    2. Your coding skills.
- Use any tool you are comfortable with for creating the architecture diagram and ERD.
- The coding task focuses on developing key parts of the backend service that the tool requires. While your overall design might include multiple services, for this coding task, you only need to develop one specific endpoint.
- Please share your project in a public GitHub repository. Ensure that it is in a running state and free of errors.
- You are expected to use Java as the programming language. Feel free to choose any frameworks or libraries that you find suitable for implementing the endpoints.