**ChatGPT said:**

Great question — this involves designing the **workflow** and **data flow** of how cart items are added, based on user interaction and your existing schema. Here's how you'd **logically** get the product\_id and sku when a user wants to add an item to their cart:

**🔁 Logical Flow: How product\_id and sku Are Determined**

1. **User Browses Products**  
   The user interacts with your **frontend UI** (web or app), typically on a product listing page or product details page.  
   At this point, they are viewing:
   * A **Product** (e.g., "T-Shirt")
   * With several **Product Items** (e.g., "T-Shirt, Size M, Color Blue") — these are variants and contain sku.
2. **Frontend Has Product Context**  
   When the product page or product variant options are rendered, the frontend already fetched:
   * product\_id — the main product being viewed
   * product\_item\_id and/or sku — specific variant(s) the user can select (size, color, etc.)
3. **User Selects a Variant (Product Item)**  
   The user picks a specific **variant** (e.g., Size M, Color Blue) from a dropdown or option selector.  
   This selection corresponds to a **specific product\_item\_id and sku**, which are already known in the UI — either fetched when the product page was loaded or as the user interacted with it.
4. **User Clicks "Add to Cart"**  
   When the user clicks the "Add to Cart" button:
   * The frontend sends a request to the backend, typically including:
     + product\_id
     + product\_item\_id or sku
     + quantity
   * The user\_id is **not sent from the frontend** (for security); it's derived from the **session or auth token** on the backend.
5. **Backend Validates the Request**  
   The backend uses:
   * The user\_id from session/auth context
   * The product\_id and sku (or product\_item\_id) from the request  
     It may:
   * Look up the product\_item in the DB to verify it exists and is associated with the product\_id
   * Check inventory or business rules
   * Then, adds the item to the user's cart\_items array in the users collection

**✅ Key Insight:**

**The frontend must send product\_id and sku (or product\_item\_id) to the backend** when adding to cart, because the user interacts with those entities on the UI. The frontend already knows them and passes them along.