Fashion-Retail Data-Warehouse Schema Proposal

(Star-schema style with surrogate keys for analytics-grade performance)

Table	Purpose	Key Columns	Other Columns (examples)	Foreign-Key Links
dim_employee	Who rang-up or restocked items	**employee_sk** *(PK, surrogate)* employee_id *(business key, UNIQUE)*	full_name, role, department, hire_date, status, load_ts	—
dim_customer	Shopper demographics & loyalty	**customer_sk** *(PK)* customer_id *(business key)*	full_name, email, gender, dob, loyalty_tier, address, signup_date, load_ts	—
dim_seller	External vendors / brands	**seller_sk** *(PK)* seller_id *(business key)*	seller_name, seller_type *(manufacturer, distributor, drop-ship …)*, country, contact_email, load_ts	—
dim_product	Items offered & on-hand (SCD-2 ready)	**product_sk** *(PK)* product_id *(business key)*	product_name, category, brand, color, size, current_price, stock_quantity, first_listed, last_modified, is_current, effective_from, effective_to, load_ts	**seller_sk** → dim_seller
dim_date	Calendar hierarchy for time analysis	**date_sk** *(PK)* calendar_date *(UNIQUE)*	day_num, month, quarter, year, fiscal_period, is_weekend, etc.	—

Table	Purpose	Key Columns	Other Columns (examples)	Foreign-Key Links
fact_sales	Atomic transactions at the register / web checkout	**sales_sk** *(PK)*	units_sold, extended_price, discount_amt, net_sales, transaction_ts, payment_type, …	**date_sk** → dim_date **product_sk** → dim_product **customer_sk** → dim_customer **employee_sk** → dim_employee
fact_inventory_activity *(optional)*	Stock movements (receipts, transfers, returns)	**activity_sk** *(PK)*	activity_type *('RECEIPT'/'SALE'/'RETURN'/'ADJUST')*, units_delta, activity_ts	**date_sk** → dim_date **product_sk** → dim_product **employee_sk** → dim_employee

Relationship highlights

- **Sales → Employee / Customer / Inventory(Product)**
  fact_sales carries employee_sk, customer_sk, and product_sk foreign keys, satisfying the requirement that sales connects to employee, customer-profile, and inventory tables.
- **Inventory → Employee / Seller**
  The fact_inventory_activity (or current-stock snapshot if you prefer a periodic snapshot fact) records which **employee** performed the stock action, while each dim_product row links to the **seller** that supplies the item.

Why this design?

- **Surrogate keys (..._sk)** decouple analytics from operational IDs, allow slowly-changing dimensions (SCD-2) and preserve historical truth.
- **dim_date** enables fast filtering/roll-ups without costly date functions.
- Splitting sellers from products avoids data duplication and supports multi-seller scenarios.
- **Facts are additive**—metrics such as revenue, unit-sales, on-hand quantity can be summed across any dimension grain.

You can expand attributes or add bridge/role-playing dimensions (e.g., dim_store, dim_promotion) as the business grows, but this core satisfies all stated linkage requirements while remaining lightweight and BI-friendly.