

E-COMMERCE DATABASE GROUP ASSIGNMENT.

DATA FLOW, ENTITY TYPES, AND ATTRIBUTES.

1. brand
 - brand_id: INT, PK, AUTO_INCREMENT
 - name: VARCHAR(100), NOT NULL, UNIQUE
 - description: TEXT, NULLABLE
2. color
 - color_id: INT, PK, AUTO_INCREMENT
 - name: VARCHAR(50), NOT NULL, UNIQUE
 - hex_value: CHAR(7), NOT NULL
3. product_category
 - category_id: INT, PK, AUTO_INCREMENT
 - name: VARCHAR(100), NOT NULL, UNIQUE
 - description: TEXT, NULLABLE
4. size_category
 - size_category_id: INT, PK, AUTO_INCREMENT
 - name: VARCHAR(50), NOT NULL, UNIQUE
5. size_option
 - size_option_id: INT, PK, AUTO_INCREMENT
 - size_category_id: INT, FK → size_category(size_category_id)
 - value: VARCHAR(20), NOT NULL
6. attribute_type
 - attribute_type_id: INT, PK, AUTO_INCREMENT
 - name: VARCHAR(50), NOT NULL, UNIQUE
7. attribute_category
 - attribute_category_id: INT, PK, AUTO_INCREMENT
 - name: VARCHAR(100), NOT NULL, UNIQUE
8. product
 - product_id: INT, PK, AUTO_INCREMENT
 - name: VARCHAR(150), NOT NULL
 - brand_id: INT, FK → brand(brand_id), NOT NULL
 - category_id: INT, FK → product_category(category_id), NOT NULL
 - base_price: DECIMAL(10,2), NOT NULL
 - description: TEXT, NULLABLE
9. product_image
 - image_id: INT, PK, AUTO_INCREMENT
 - product_id: INT, FK → product(product_id)
 - image_url: VARCHAR(255), NOT NULL
 - alt_text: VARCHAR(255), NULLABLE
10. product_variation
 - variation_id: INT, PK, AUTO_INCREMENT
 - product_id: INT, FK → product(product_id)
 - color_id: INT, FK → color(color_id), NULLABLE
 - size_option_id: INT, FK → size_option(size_option_id), NULLABLE
11. product_item
 - product_item_id: INT, PK, AUTO_INCREMENT
 - product_id: INT, FK → product(product_id)

- variation_id: INT, FK → product_variation(variation_id)
- sku: VARCHAR(100), NOT NULL, UNIQUE
- price: DECIMAL(10,2), NOT NULL
- stock_quantity: INT, NOT NULL DEFAULT 0

12. product_attribute

- attribute_id: INT, PK, AUTO_INCREMENT
- product_id: INT, FK → product(product_id), NOT NULL
- attribute_type_id: INT, FK → attribute_type(attribute_type_id), NOT NULL
- attribute_category_id: INT, FK → attribute_category(attribute_category_id), NOT NULL
- name: VARCHAR(100), NOT NULL
- value: VARCHAR(255), NOT NULL

DATA FLOW:

1. product

Receives:

```
brand_id ← brand
product_category_id ← product_category
```

Provides:

```
product_id → product_image
product_id → product_item
product_id → product_variation
product_id → product_attribute
```

2. brand

Provides:

```
brand_id → product
```

Independent: Brand details exist independently; products link to brands.

3. product_category

Provides:

```
Category_id → product
```

4. product_image

Receives:

```
product_id ← product
```

5. color

Provides:

```
color_id → product_variation
```

6. size_category

Provides:

```
size_category_id → size_option
```

7. size_option

Receives:

```
size_category_id ← size_category
```

Provides:
size_option_id → product_variation

8. product_variation

Receives:
product_id ← product
color_id ← color
size_option_id ← size_option

Provides:
variation_id → product_item

9. product_item

Receives:
product_id ← product
variation_id ← product_variation

Represents a specific purchasable variant of a product.

10. product_attribute

Receives:
product_id ← product
attribute_type_id ← attribute_type
attribute_category_id ← attribute_category

11. attribute_category

Provides:
attribute_category_id → product_attribute

12. attribute_type

Provides:
attribute_type_id → product_attribute