### Entity Relationships Summary

Here’s a concise summary of the relationships between your entities:

1. \*\*Product to Category\*\*

- \*\*Relationship Type:\*\* Many-to-One

- \*\*Direction:\*\* Bidirectional

2. \*\*Product to Specification\*\*

- \*\*Relationship Type:\*\* One-to-One

- \*\*Direction:\*\* Unidirectional

3. \*\*Product to ProductImage\*\*

- \*\*Relationship Type:\*\* Many-to-One

- \*\*Direction:\*\* Unidirectional

4. \*\*Category to Product\*\*

- \*\*Relationship Type:\*\* One-to-Many

- \*\*Direction:\*\* Bidirectional

5. \*\*User to Order\*\*

- \*\*Relationship Type:\*\* One-to-Many

- \*\*Direction:\*\* Unidirectional

6. \*\*Order to OrderItem\*\*

- \*\*Relationship Type:\*\* One-to-Many

- \*\*Direction:\*\* Bidirectional

7. \*\*OrderItem to Product\*\*

- \*\*Relationship Type:\*\* Many-to-One

- \*\*Direction:\*\* Unidirectional

### Entity Fields:

#### \*\*Product\*\*

- `productName`: Name of the product.

- `brand`: Brand of the product.

- `price`: Price of the product.

- `quantity`: Quantity of the product.

- `category`: Many-to-One relationship with `Category`.

- `specification`: One-to-One relationship with `Specification`.

- `productImage`: Many-to-One relationship with `ProductImage`.

#### \*\*Category\*\*

- `name`: Name of the category.

- `categoriesList`: One-to-Many relationship with `Product`.

#### \*\*User\*\*

- `username`: Username of the user.

- `firstName`: First name of the user.

- `lastName`: Last name of the user.

- `email`: Email of the user.

- `password`: Password of the user.

- `phoneNumber`: Phone number of the user.

- `role`: Role of the user.

- `products`: Many-to-Many relationship with `Product`.

#### \*\*Order\*\*

- `status`: Status of the order.

- `totalAmount`: Total amount for the order.

- `user`: Many-to-One relationship with `User`.

- `orderItems`: One-to-Many relationship with `OrderItem`.

#### \*\*OrderItem\*\*

- `quantity`: Quantity of the item.

- `price`: Price of the item.

- `product`: Many-to-One relationship with `Product`.

- `order`: Many-to-One relationship with `Order`.

#### \*\*ProductImage\*\*

- `filePath`: File path of the product image.

- `fileName`: File name of the product image.

- `isCover`: Boolean indicating if the image is a cover image.

- `product`: Many-to-One relationship with `Product`.

#### \*\*Specification\*\*

- Contains various fields related to the product specifications (e.g., CPU, GPU, RAM, etc.).

#### \*\*Address\*\*

- `addressLine1`, `addressLine2`, `city`, `state`, `zipCode`, `country`: Address fields.

- `user`: Many-to-One relationship with `User`.

### Bidirectional vs. Unidirectional Relationships:

- \*\*Bidirectional:\*\* Allows navigation from both ends of the relationship (e.g., `Product` to `Category` and `Category` to `Product`).

- \*\*Unidirectional:\*\* Navigation is only possible from one side of the relationship (e.g., `Product` to `Specification`).

Bidirectional relationships are useful when you need to navigate both ways, while unidirectional relationships are simpler and often used for less complex scenarios.