## Step 1: Mapping of regular (strong) entity types

**Product**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Product\_ID | Brand | Description | Name | Category | Images | Num\_Products |

Product\_ID: INT

Brand: VARCHAR

Description: VARCHAR

Name: VARCHAR

Category: VARCHAR

Images: VARCHAR

Num\_Products: INT

**User**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| User\_ID | FName | LName | API\_Key | Password | Email |

User\_ID: INT

FName: VARCHAR

LName: VARCHAR

API\_Key: CHAR

Password: VARCHAR

Email: VARCHAR

**Vendor**

|  |  |  |
| --- | --- | --- |
| Vendor\_ID | Name | Website\_URL |

Vendor\_ID: INT

Name: VARCHAR

Website\_URL: VARCHAR

## Step 2: Mapping of weak Entities

**Listing**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Listing\_ID | Price | Currency | In\_Stock | Last\_Updated | Product\_ID | Vendor\_ID |

Listing\_ID: INT

Price: DOUBLE

Currency: CHAR

In\_Stock: tinyint

Last\_Updated: DATETIME

Product\_ID: INT

Vendor\_ID: INT

**Review**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Review\_ID | User\_ID | Rating | Date\_Created | Comments | Product\_ID | Listing\_ID |

Review\_ID: INT

User\_ID: INT

Rating:

Date\_Created: DATETIME

Comments: VARCHAR

Product\_ID: INT

Listing\_ID: VARCHAR

**Wishlist**

|  |  |  |
| --- | --- | --- |
| Wish\_ID | User\_ID | Listing\_ID |

Wish\_ID: INT

User\_ID: INT

Listing\_ID: INT

## Step 3: Mapping of Binary 1:1 Relationships

We have no relationships with a cardinality ratio of 1:1

## Step 4:Mapping of Binary 1:N Relationships

We will be using the Foreign Key approach to model our 1:N relationships.

Notes: Should I put the visualisation of the tables here of just list them here and say go to end if you want that ish

1. Product(Product\_ID) : Listing(Product\_ID)

The primary key Product\_ID in the Product entity is a foreign key in the Listing entity, where a Product\_ID may appear multiple times.

1. Vendor(Vendor\_ID) : Listing(Vendor\_ID)

The primary key Vendor\_ID in the Vendor entity is a foreign key in the Listing entity, where a Vendor\_ID may appear multiple times a Vendor may have multiple listings.

1. Listing(Listing\_ID) : Review(Listing\_ID)

The primary key Listing\_ID in the Listing entity is a foreign key in the Review entity, where a Listing\_ID may appear multiple times as different reviews for the same product.

1. User(User\_ID) : Review(User\_ID)

The primary key User\_ID in the User entity is a foreign key in the Review entity, where a User\_ID may appear multiple times as a user may review multiple times.

1. Listing(Listing\_ID) : Wishlist(Listing\_ID)

The primary key Listing\_ID in the Listing entity is a foreign key in the Wishlist entity, as a single listing may appear in many different users wishlists.

## Step 5: Mapping of M:N Relationsips

## Step 6: Mapping of Multi-valued Attributes

The strong entity Product contains a multi-valued attribute Images, this attribute will hold multiple image urls in the form of an array enclosed in the “[ ]” characters.

## Step 7:Mapping of N-ary Relationships

We do not have nay such relationships in our Relational Model.

## Step 8: Mapping of Specialisation and Generalisation

There exists a disjoint specialisation of the Super Class User into the Subclasses Customer and Admin. This specialisation means that each user can appear in at most one of the subclasses. This is also a Full specialisation as a user must appear in either of the subclasses.

## Diagram

