**Spartan Market**

**Team 17**

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Spartan Market Design Document - Team 17

1. Entity Sets
   1. *Users* – This set represents the ‘registered’ users in the application. By ‘registering’, the users provide us with personal data such as first name, last name, address, phone number and, set up a password for account creation.
   2. *PayingUsers* – Users become PayingUsers when they are in the middle of purchasing any items off the website. These users are asked to input their credit card information like, cardholder name, card number and address. An important point to note here, is that as PayingUsers have the same attributes as Users relation along with some attributes of its own, there is an ISA relationship between them.
   3. *Addresses* – This entity set collects all the addresses that are input in the website including, users’, paying users’ and suppliers’ addresses. Each entity in Addresses has a unique ID that will be used as foreign keys for its corresponding relationships.
   4. *Carts* – Every paying user needs to have a Cart associated with it, so the items can be put there before a purchase. An entity in Carts has information such as, primary key cartID, items (string of item names), total price and quantity.
   5. *Items* – This entity set represents all the items that are being sold in the website and have information like, name, description, stock, category, price, shipping days and is linked to a Supplier entity.
   6. *Suppliers* – This has information for all the suppliers who are selling the items on the website. Each entity is identified by a primary ID key, name, type of product associated with a supplier.
2. Relationships
   1. *HaveU, HavePU, HaveS* – These three relationships link a User, PayingUser and a Supplier to entities in Address, respectively. In our design, a User and a Supplier can have many addresses and also, the same address can be used by many Users, PayingUsers and Suppliers so, this is a Many-to-Many relationship.
   2. *Buy* – This relationship links a PayingUser to a Cart. This is a one-to-one relationship with rounded arrows on both ends, as each Cart is associated with a PayingUser and vice-versa.
   3. *Search* – This relationship is a Many-to-Many relationship between Users and Items as multiple Users can search a single Item and many Items can be searched by the same User.
   4. *In* – This links an Item to a Cart. This is a many-to-many relationship as many Items can be found in a single Cart. Also, many Carts can have the same Item.
   5. *Supply* – This relates a Supplier to an Item. This is many (Items)-to-one (Suppliers) with rounded arrow on Suppliers, as each item need a Supplier to be identified with. This relation also contains an attribute of its own, deliveryDelays that tracks how many days it takes for an item from a Supplier to reach a Spartan Market warehouse.
3. Schemas
   1. Users (User ID, Password, First Name, Last Name, Phone Number);
   2. Items (Item ID, Name, Description, Category, Stock, Price, Shipping Days);
   3. Payingusers (CardNumber, CardHolderName, Expiration, CardsAccepted);
   4. Addresses (ID, Street, City, State, Zip);
   5. Supplies (Supplier ID, Name);
   6. Supply (Cart ID, Items, Quantity, Total price);
   7. HaveU (User ID, AddressesID);
   8. HavePU (PayingUsersCardNumber, AddressesID);
   9. HaveS (SuppliserID, AddressesID);
   10. BuyIn (itemID, cartID);
   11. Buy (cartID, PayingUsersCardNumber);
   12. Search (userID, itemID);