Project Deliverable 1
Data Modeling

Presented to

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COMP-421 – Database Systems

By

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Project Topic

The topic chosen is a store where website members can sell World of Warcraft characters, items, and accounts. Website members can also post custom character levelling options and other members can buy their services.

This database will support a web site for World of Warcraft players who want to offer their game items and services. The web site acts as a neutral intermediate between users who want to participate in such transactions. The website owners would take a 20% cut of any transactions in exchange for guaranteeing the exchange and providing a means to connect demand and supply.

Note that we are aware of the irony.

1. Requirement Analysis

A. Data Requirements

1. Each user has a unique email address. Users have a password and credit card number.
2. Users make transactions with other users.
3. Each transaction has a date and time, a provider, a receiver, an amount and an offered entity.
4. Each offered entity is a custom character levelling, an item, a character or an account. It has an identification number, a name, a description, a price, and a user.
5. Characters and items can be tied to an account. Items would be tied to characters, which could be tied to accounts.
6. Each character has a sex, a race, a specialization, a class, and a level in addition to any feature it has as an offered entity.
7. A character can be equipped with items.
8. Each item is defined by its type (mount, armor, weapon, gold, pet, trinket, consumable, miscellaneous) in addition to any feature it has as an offered entity.
9. Each account has at least one character.
10. Each account has an expansion level. The default is no expansion.
11. A custom character leveling must have a level range and can optionally be characterized by a sex, a race, a class, and a specialization.

The default information for the account's expansion level cannot be accurately modeled by the E/R model but it will be part of the database creation commands. Also note that the inheritance relationship between offered entities and items, accounts, characters and character levellings is strict, i.e. there is no offered entities that is not explicitly a character or an item, etc.
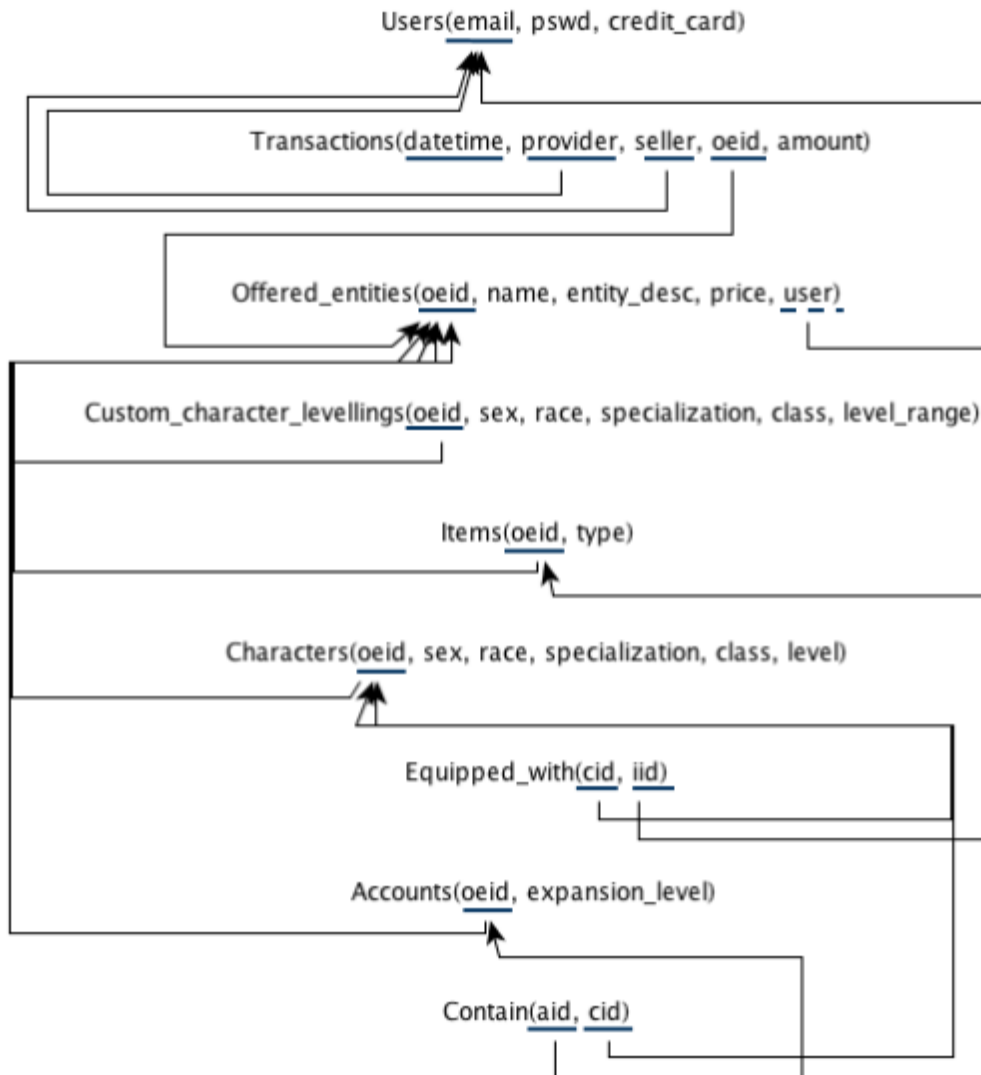
B. Functional Requirements

1. A user can consult and sort his transactions by date, seller (user), buyer (user), and amount.
2. A user can create an offered entity.
    a. A user can create four types of offers
        i. Custom character levelling offers
        ii. Item offers
            1. There is a maximum of one item per item offer.
        iii. Character offers
            1. There is a maximum of one character per character offer.
            2. For characters that have items tied to them, the items will be part of the character offer, and will not appear as their own separate offers.
        iv. Account offers
            1. There is a maximum of one account per account offer.
            2. Characters tied to an account will be a part of the account offer, and will not appear as their own separate offers.
    b. A user can review his offered entities and modify their attributes.
    c. A user can cancel any of his offered entities.
3. A user can view all offered entities, and sort them by name, provider (user) and price.
    a. A user can further view only custom character levelling offers and same criteria as offered entities.
        i. A user can further sort custom character levelling offers by race, class, level range, and specialization.
    b. A user can further view only items and sort them by the same criteria as offered entities.
        i. A user can further sort items by type.
    c. A user can further view only characters and sort them by the same criteria as offered entities.
        i. A user can further sort characters by race, class, level, and specialization.
    d. A user can further view only accounts and sort them by the same criteria as offered entities.
        i. A user can further sort accounts by expansion level.
4. A user can buy/sell an offered entity from/to another user using his credit card number.
    a. Sold entities cannot be modified by the selling user.
    b. This action creates a transaction.

2. E/R Diagram
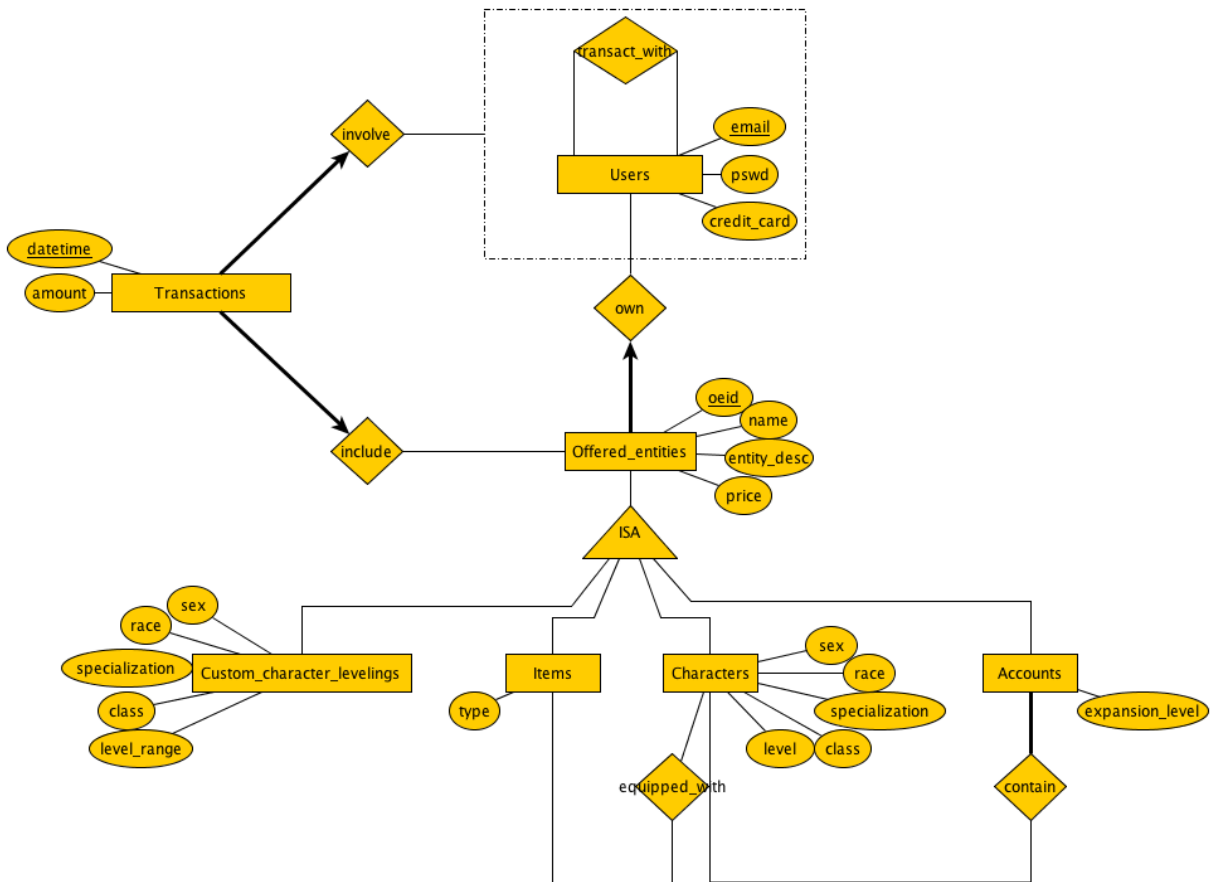
3. Relations

Note that cid, iid and aid are used here to refer to oeids with respect to their context. For instance, the oeid of a character is referenced as cid when it is used as a foreign key to distinguish it from the oeid of an item. The same is true for provider, seller and user which refer to email of Users. Here is a more visual representation of these relations:

Users(email, pswd, credit_card)

Transactions(datetime, provider, seller, oeid, amount)

Offered_entities(oeid, name, entity_desc, price, user)

Custom_character_levellings(oeid, sex, race, specialization, class, level_range)

Items(oeid, type)

Characters(oeid, sex, race, specialization, class, level)

Equipped_with(cid, iid)

Accounts(oeid, expansion_level)

Contain(aid, cid)

4.Inspirations

Websites that inspired us:
- e-Bay
- Amazon.com
- http://www.buymmoaccounts.com/ (a proud Canadian company)