Phase 1 Report | CS 6400 – Spring 2018 | Team077

Table of Contents:

Data types:

User

Attribute	Data Type	Nullable
username	string	Not null
password	string	Not null
First name	string	Not null
Last name	string	Not null

Admin user

Attribut	Data Type	Nullable
username	string	Not null
position	string	Not null

Item

Attribut	Data Type	Nullable
condition	string	Not null
description	string	Not null
item_name	string	Not null
Item ID	integer	Not null
returnable	boolean	Not null

List

Attribut	Data Type	Nullable
username	string	Not null
Item ID	integer	Not null
End time	date	Not null
Starting price	float	Not null

Min price	float	Not null
Get it now price	float	Nullable

Bid

Attribut	Data Type	Nullable
username	string	Not null
Item ID	integer	Not null
price	float	Not null
Auction length	integer	Not null

Rating

Attribute	Data Type	Nullable
rating	integer	Not null
time	date	Not null
comment	string	null
Item name	string	Not null
username	string	Not null

Category

Attribute	Data Type	Nullable
name	string	Not null
category_id	integer	Not null

Sold Item

Attribute	Data Type	Nullable
Sold itemId	int	Not null
Sold price	float	Not null
Sold time	date	Not null

| winner | string | Not null |

Business Logic Constraints:

1. Users who are new to GTBay must register first. Admin users can only be assigned by DB admin.

*   Quote from specification: *'The only way a user receives administrative rights is if the database administrator gives these permissions behind the scenes.'*

2. The table of User with the user information like the username, pwd, etc.can't be updated, namely, the user information can't be changed once inserted into the table.

*   Quote from specification: *'Figure 2 shows the new user registration form. All fields on this form are required and cannot be changed at a later time. Users who forget their passwords are just plain out of luck!'*

3. Auction price cannot be higher than buy it now price

4. The attribute of Condition in Item table can't be update

5. One user may only rate an item once

*   Quote from specification:*'Your system should make sure that a user may only rate an item once.'*

6. For the Item ratings page, the ratings are listed with the most recent rating listed first.

*   Quote from specification:' *Ratings are listed with the most recent rating listed first.'*

7. If one item doesn't have a Get it now price, this item won't be included in the rating average price.
*   Quote from specification:*'Keep in mind that some items may not have a Get It Now Price. They should not be included in the min, max, or average prices.'*

Log GTBay

Task Decomposition

    Lock Types: Read only
    Number of Locks: single
    Enabling Conditions: None

    Frequency : Moderate, everyday has 3000 login

    Consistency (ACID): Not critical. No transaction.
    Subtasks: Mother task is not needed. No decomposition needed

Abstract Code.

- User enters Username('$username'), password('$password') input fields

    IF data validation is successful for both username and password input fields:
- When **Login** button is clicked:

    IF user record is not found:
  - Go back to **Login** form page and prompt out error message 'Invalid username!'

  ELSE IF User record is found but User.password != '$password':
  - Go back to **Login** form page and prompt out error message 'Invalid password!'

  ELSE:
  - Store login information as session variable '$UserID' and go to menu page:

    IF user is admin:
    Show the following options:
        1. Position
        2. Search for Items
        3. List an Item for Sale
        4. View Auction Results
        5. View Category Report
        6. View User Report
    ELSE:
    Show the following options:
        1. Search for Items
        2. List an Item for Sale
        3. View Auction Results

New User Registration

Task Decomposition (no task decomposition because single write to database)

registration

Lock Types: Exclusive lock on row level in user table database
Number of Locks: single
Enabling Conditions: None
Frequency: Low
Consistency (ACID): not critical, order is not critical.
Subtasks: Mother Task is not needed. No decomposition needed.

Abstract Code
- User clicked **Register:**
- User **enters** first name ($fname), last name ($lname), username ($username), and password ($password). Re-enter password to confirm.
- IF all inputs are validate, such as no existing username in current database,
    - IF re-entered password mached.
        - When **Register** button is clicked:
            - User's information such as first name, last name, username, and password will be written in into database
            - Jump to **Log GTBay** page
        - When **Cancel** button is clicked:
            - Back to **Log GTBay** page
    - ELSE
        - Display error message that re-entered password no matching.
- ELSE
    - System return error code that user's inputs are not valid

Main Menu / Navigation Bar

Task Decomposition

Lock Types: Lookup User firstname and lastname, all are read only
Number of Locks: single
Enabling Conditions: Trigger by successful login
Consistency (ACID): not critical, order is not critical.
**Subtasks:** Mother Task is not needed. No decomposition needed.

Abstract code
- After user login successfully：

- IF the user is **regular user**:
    - The page shows:
        1. *List new item* button
        2. *Search item* button
        3. *View Auction Results* button
        4. *Logout* button.

    ELSE:(the user is **admin user**)
    - The page shows:
        1. *List new item* button
        2. *Search item* button
        3. *View Auction Results* button
        4. *Logout* button
        5. *View Category Report* button
        6. *View User Report* button
        7. 'Position'

- Click **List new item** button jump to "List New Item for Sale" task
- Click **Search item** button, jump to "Item Search" task
- Click **View Auction Results** button, jump to "View Auction Reports" task
- Click **View Category report** button, jump to "Category Reports" task
- Click **View User report** button, jump to "User Reports" task
- Click **Logout** button, terminate login session and jump back to **Login GTbay** PAGE

Search Item

Task Decomp (mult-schemas involved)

Task decomposition is based on the rule of how many schema constructs needed.
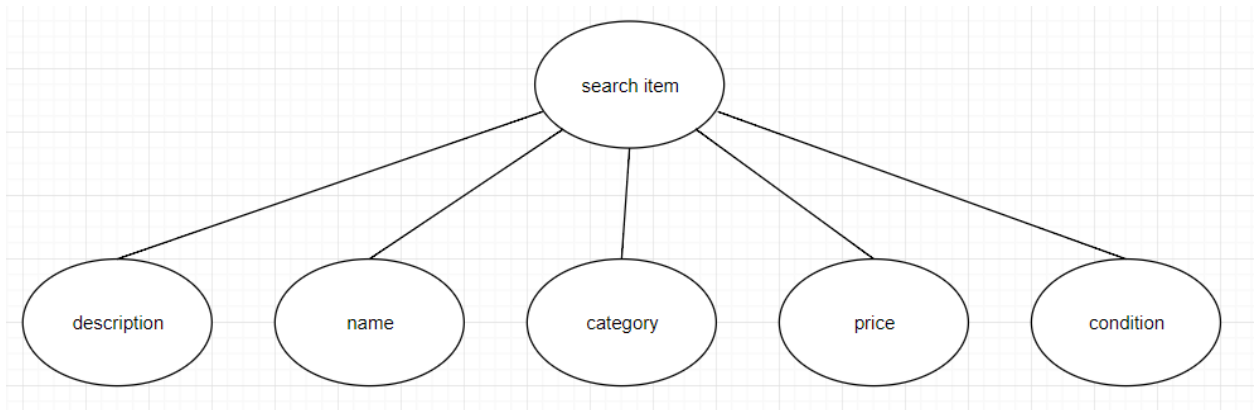
Lock Types: 5 read-only lookups of description, name, category, price, and condition information for a item
Number of Locks: Several different schema constructs are needed
Enabling Conditions: enabled by clicking the **Search for Item** from **Main Menu**
Frequency: High
Consistency (ACID): is not critical, even if the item is being edited by the user while a different user is search for the item.
Subtasks: All tasks must be done, but can be done in parallel. Mother task is required to coordinate subtasks. Order is not necessary.

Abstract Code
- User clicked on **Search for Items** button from **Main Menu**:
- Run the "Search" function: query for information about the items with matching criterias
    o Find the item with matching keyword;
    o Find the item with matching category;
    o Find the item with matching current bid;
    o Find the item with matching condition;
- IF all criterias mached,
    o Display item id, item name, current bid, high bidder, Get It Now Price, and Auction Ends

- ELSE
    o Return error message that no matching items.

Item Bidding

Task Decomposition

Task decomposition based on the rule of lookup vs insert. There are multiple lookups, and insert needed.
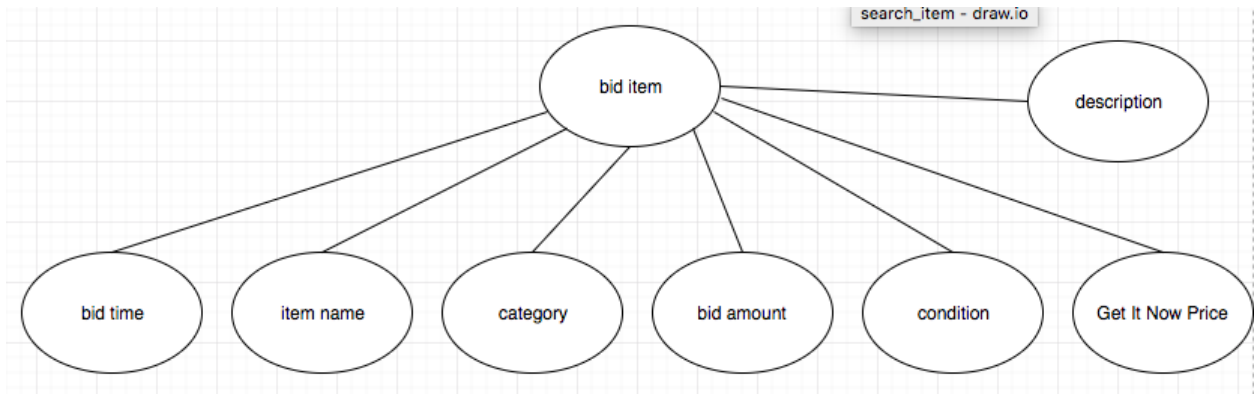
Lock Types: read-only lookup of item information. If user take the Get It Now Price or bid on the item, exclusive lock will apply to item for update.
Number of Locks: multiple locks
Enabling Conditions: enabled by user clicking the item from **search result** page
Frequency: Low, not as often as item searching
Consistency (ACID): only listed user can edit description, and this is only option to listed user. Other users can bid on times.
Subtasks: mother task needed because displays item information and updates item price

Abstract Code
- User clicked on **Item Name** button from **search result** page:
- Jump to **Item Description** page where displays item informaiton
  - IF user click on **Cancel** button, jump back to **search result** page
  - IF user is the listed user
    - Click description to edit the description
  - ELSE
    - Click View Rating button to see ratings and comment about the item
    - Click **Get It Now Price** button to purchase item if available
    - IF user put in amount to bid item
      - Amount must be at least one dollar higher than the current bid amount, also must be less than the **Get It Now Price**

- IF bit amount equal to the **Get It Now Price**, user immediatly becomes the winner of the item
- IF bit amount is higher than the **Get It Now Price**, an error message returns suggesting that the user click **Get It Now Price**

List New Item for Sale

Task Decomposition

Lock Types: Insert into Item table
Number of Locks: single
Enabling Conditions: can only be list new item after successful Login
Frequency: Moderate
Consistency (ACID): Not critical. No transaction.
**Subtasks:** Mother task is not needed. No decomposition needed

Abstract code

- After successfully Log into GTBay:

- Click **List an Item for Sale**, begin to fill the item for sale information:

    1. Listing User input $Item_Name
        o [mandatory input]

    2. Listing User input $Description
        o [mandatory input]

    3. Listing User input $Category
        o [mandatory input]
        o the domain of $Category is predefined

    4. Listing User input $Condition
        o [mandatory input]
        o the domain of $Condition is predefined

    5. Listing User input $Start_acution_bidding
        o mandatory input

    6. Listing User input $Minimum_sale_price
        o [mandatory input]
        o hidden for bidders

    7. Listing User input $Auction_ends_in
        o [mandatory input]
        o the domain of $Acution_ends_in is predefined

8. Listing User input $Get_it_now_price
   - [optional input]

9. Listing User input $Return_accepted
   - [mandatory input]

- Click **List My Item** button:
  IF application verify all required fields are filled in and that the data is valid:
  - Assign a unique numerical ItemID to the new listed item automatically, successfully record the new selling items on GTBay

  IF $Item_Name
    OR $Description
    OR $Category
    OR $Condition
    OR $Start_acution_bidding
    OR $Minimum_sale_price
    OR $Auction_ends_in
    OR $Return_accepted IS NULL:

    - Prompt out error message: *'Please fill in all the required form!'*
    - Return to the listing user to the form in order to make corrections

  IF $Minimum_sale_price < $Start_acution_bidding:
    - Prompt out error message: '*Minimum sale price should not be less than the start auction bidding*!'
    - Return to the listing user to the form in order to make corrections

  IF $Get_it_now_price < $Start_acution_bidding:
    - Prompt out error message: 'Get it now price should not be less than the start auction bidding price!'
    - Return to the listing user to the form in order to make corrections

  IF $Get_it_now_price < $Minimum_sale_price:
    - Prompt out error message: 'Get it now price should not be less than the minimum sale price!'
    - Return to the listing user to the form in order to make corrections

- Click **Cancel** button:
  - Go back to **menu page**.

View Auction Report

Task Decomposition

Task decomposition is based on the rule of mother task needed in order to display all information.
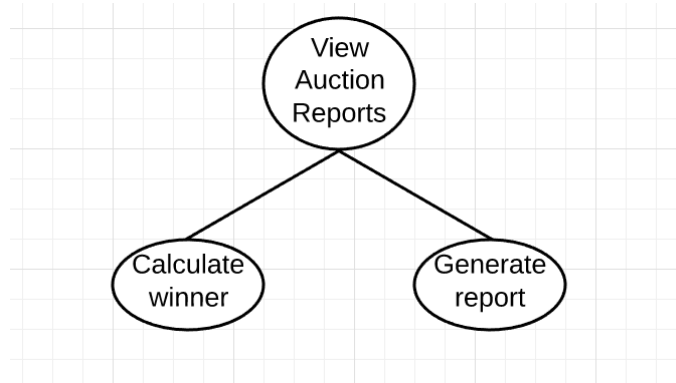
Lock Types:
Number of Locks: Several different schema constructs are needed
Enabling Conditions: Upon user click View Auction Reports button from main menu
Frequency: Low- All 2 have the same frequency
Consistency (ACID):
Subtasks: All tasks must be done, Calculating winner must be done first. Mother task is required to coordinate subtasks.

Abstract Code
- User clicked on **View Auction Results** button from **Main Menu**:
- Run the "calculate" function: query to update the winners of the auctions which have ended based on the current time but haven't had a declared winner
    > IF the item was purchased using Get It Now option, then the sale price is the **Get It Now Price,** record the Username as winner and the current time as purchased time;
    > ELSE IF when the auction is over, the highest Bid is greater than or equal to the **Minimum Sale Price**, then the sale price is the value of the highest Bid and the winner is the Username of the person with the high Bid,
    > ELSE no one purchased the item using the Get It Now option, and if the highest Bid is still lower than the Minimum Sale Price, then both the sale price field and the winner field should be left blank, no winner.
- After the calculate function finished, generate report:
    - Find and display all the finished auction **Item Name** and **Item ID;**
    - Find and display the **Item ID** related **sold price, sold time** and **Winner;**

- List the auction results by the end time with most recently ended auction first;
- If item didn't sold, the sale price and winner would be blank;

Item Rating

Task Decomposition

Task decomposition is based on the rule of how many schema constructs needed.

Lock Types: read-only look-up for item table and exclusive lock for insertion table of item
Number of Locks: multiple locks
Enabling Conditions: trigger by clicking view rating

Frequency : As high as listing new Item

Consistency (ACID): Each user can only rates one item one time; user can delete their own rating and comment until they made the rating and comments; average rating is based on the previous ratings after
Subtasks: view rating task(display item ID/name, view average rating) must be done, but can be done in parallel. Delete my rating task need to check if the session name is equal to the username, if yes then this option is available.

Abstract Code

- User clicked on **View Ratings** button from **Item for Sale** page:
- Find the current Item and Display Item ID and Item name;
- Find and display the current Item average rating;
- Find and display the list of rating and comments and rating time which listed the most recently rating first ;
- Run the task:
    - IF the user hasn't rating on this item:
      Delete my rating option will not show up, and allow the User to give a rating from 0 to 5 start and make comments;

- **ELSE** User has already rating this Item before, **Delete** my rating option will show up and don't allow the user rate this Item again;
  - **IF** the user hasn't added comment, he can still add a common for the Item.
  - **ELSE** the user cannot add more than one comment.

After the user finishes the whole rating process, the user can click **Rate This Item** button to save all the changes(the system will record the user who made the Rating, the Number of Stars, the Comment, and the Date and Time of the Rating) or the user can click the Cancel button at any time to go back the **Item Description** page

View Category Report

Task Decomposition

Task decomposition is based on the rule of how many schema constructs needed.
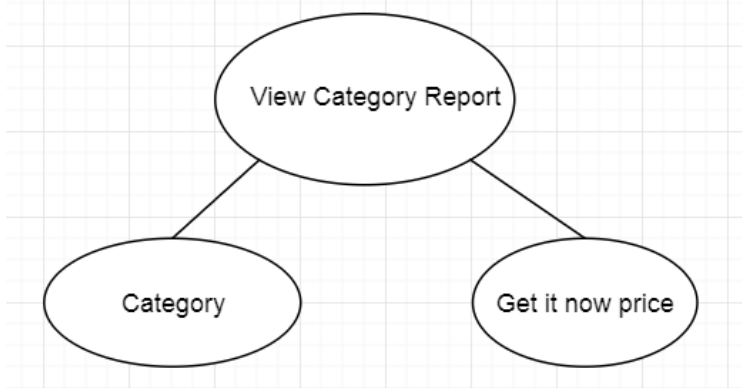
Lock Types: read only
Number of Locks: single
Enabling Conditions: Only when Admin user logged in successful can have this option
Frequency : Low, only admin user can have this option
Consistency (ACID): not critical, order is not critical.

Abstract Code
- Admin Users logged in successfully will have the two more options **View Category Report** and **View User Report**.
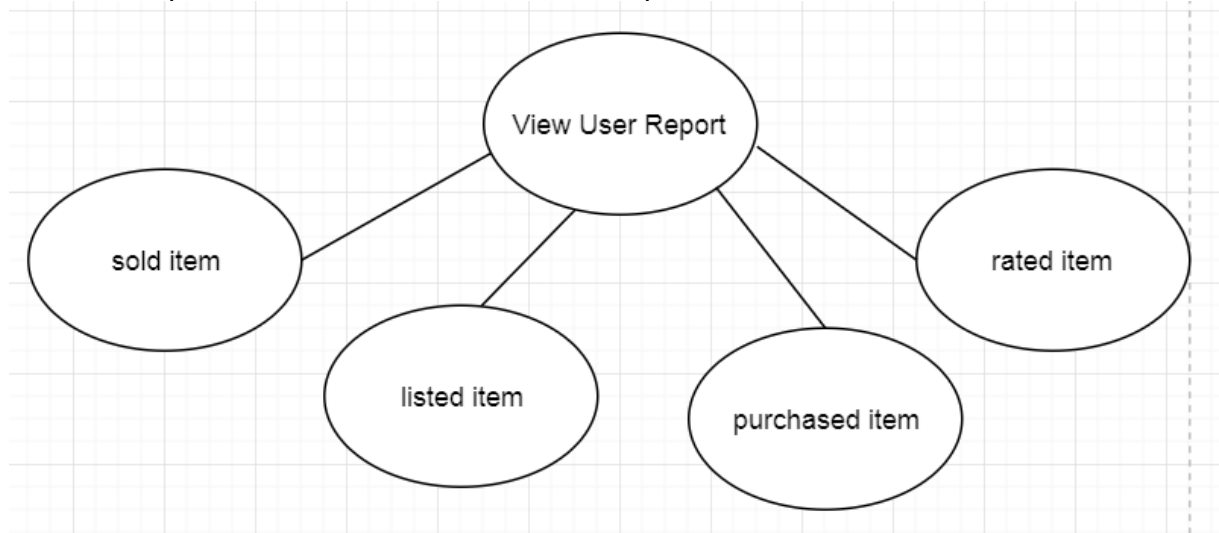 Admin User clicked on ***View Category Report*** button**:**
    - Run the **View Category Report** task , then
      - Find and display all the Categories, listed in alphabetical order;
      - Find and display the total number of items in the category;
      - Find the minimum **Get It Now Price** across all items in the category and display under **Min Price** column.(If one item doesn't have a **Get It Now Price** don't include this item.)
      - Find the maximum **Get It Now Price** across all items in the category and display under **Max Price** column.(If one item doesn't have a **Get It Now Price** don't include this item.)
      - Calculate the average **Get It Now Price** across all items in the category and display it under **Average Price** column.(If one item doesn't have a **Get It Now Price** don't include this item in calculation.)
  When finish, click ***Done*** button go back to the **Admin User Main menu** Page.

View User Report

Task Decomposition

Task decomposition is based on the rule of lookup vs insert.

Lock Types: read only
Number of Locks: single
Enabling Conditions: Only when Admin user logged in successful can have this option
Frequency : Low, only admin user can have this option
Consistency (ACID): not critical, order is not critical.

Abstract Code

Admin User clicked on *View User Report* button**:**
- Run the **View User Report** task , then
    - o Find and display all the **Username**, listed in total number of listings(descending) order;
    - o Find and display the total number of items listed by the **Username**;
    - o Find the the total number of items sold by the username display under **Sold** column;
    - o Find the the total number of items purchased by the username display under **Purchased** column;
    - o Find the the total number of items rated by the username display under **Rated** column.
    When finish, click *Done* button go back to the **Admin User Main menu** Page.