
CAT THINGS

API Design

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Introduction

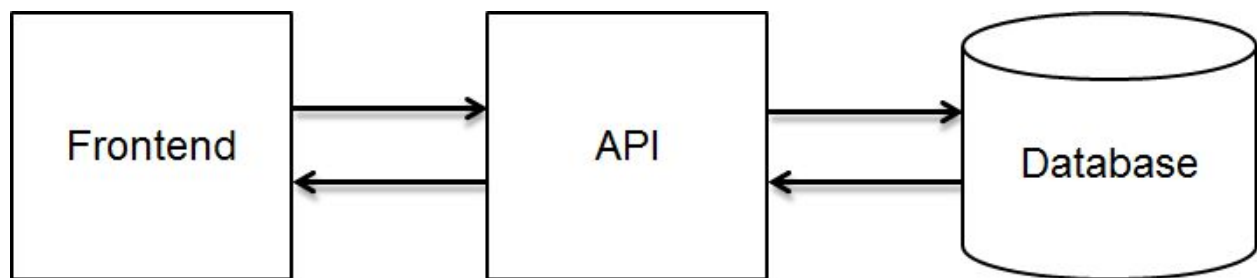
An API (Application Programming Interface) is a set of requirements that allows one application to talk to another. This is done by making some internal functions available to the outside world and share data without sharing code. API are like the digital “middleman” between programmers and application, ensuring that others can access the application but not modify it in any way. This is also beneficial for security purposes.

The purpose of this document is to detail the design for the API that will communicate with the frontend and database for THINGS.

Architecture

Introduction

The overall goal of this API is to allow web applications to access the inventory database for information. The following diagram illustrates the role of the API for THINGS:



As shown in the figure above, any frontend can make requests against the API which will get information from the database and package it into JSON format for the frontend to use. This also ensures that the database remains secured and no malicious intents can get through.

Modules

The API will allow for the following features:

- 1) Authenticate/Authorize
- 2) Generate Shopping List
- 3) Transaction History
- 4) Retrieve Item Details
- 5) Get Statistics
- 6) Check-in Item
- 7) Check-out Item
- 8) Add Item

Authenticate/Authorize

The API will use authentication to allow administrative access to the inventory. Upon validating the input username and password, it will generate a token, lasting for 6 hours, and allowing other API that depend on administrative access to be consumed.

Input	Output
Username and Password	Success: Success flag and a Token. Failure: Failure flag with error message.

Generate Shopping List

This API feature will determine items that are at or below their assigned thresholds. This is under the assumption that the user has been authenticated as administrator. This API will run SQL queries on the inventory database to get the items, package it as JSON, and return to the program that consumed this API.

Input	Output
None	Success: Success flag, number of items, and list of items and current qty that are at or below their thresholds. Failure: Failure flag and error message.

Transaction History

This API feature will communicate with the transaction log and return information about previous transactions depending on the parameters it receives. There are 4 ways that the API consumer may request for the transaction history:

- 1) Specify history of an item by:
 - a) Name (single item or collection)
 - b) Tag (all items with the tag)
- 2) Specify the number of transactions to return.
- 3) Specify period of time in which transactions occurred.
- 4) Return last 15 transactions if nothing is specified.

Input	Output
Name	Success: Success flag and all transactions concerning the input. Failure: Failure flag and error message.

Tag	Success: Success flag and all transactions concerning the tag. Failure: Failure flag and error message.
Number of Transaction	Success: Success flag and all previous transactions up to the number specified. Failure: Failure flag and error message.
Time Period	Success: Success flag and all transactions up the time period specified. Failure: Failure flag and error message.
None	Success: Success flag and the previous 15 transactions. Failure: Failure flag and error message.

Retrieve Item Details

This API feature searches for items in the inventory and returns it to the API consumer as a JSON package, assuming that the API consumer is authenticated as an administrator. This API will run SQL queries on the inventory database.

Input	Output
Name(s) OR Null for all item info	Success: Success flag and list of items requested. Failure: Failure flag and error message.

Get Statistics

This API feature will return statistics about a specific item and will only work for users authenticated as administrators. It will return the following statistics if it is able to calculate it:

- 1) Quantity per week
- 2) Date last in
- 3) Date last out

Input	Output
Name/UID	Success: Success flag with calculated statistics about the item. Failure: Failure flag with error message.

Graph data	Success: Success flag with transaction data for graphing purposes. Failure: Failure flag with error message.
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Check-in Item

This API feature will allow the administrator to check-in items back into the inventory. Given the name/UID of the item and the quantity being checked in, this API feature will run a SQL query to update the inventory with new count of the item.

Input	Output
Name/UID and Quantity of Item	Success: Success flag with updated item quantity in the inventory. Failure: Failure flag with error message.

Check-out Item

This API feature will allow both the administrator and general user to “check-out” items from the inventory, and thus, is not dependent on authentication. Given the name/UID of the item and quantity being checked out, this API feature will run a SQL query to update the inventory database with the new count of the item.

Input	Output
Name/UID and Quantity of Item	Success: Success flag with updated item quantity in the inventory. Failure: Failure flag with error message.

Add Item

This API feature allows new items to be added to the inventory. Given information about the item, this feature will run a SQL query to insert the item into the inventory database.

Input	Output
Name Description Initial Quantity (Default to 0) Price Tags Threshold (Default to 0)	Success: Success flag with message stating that it was added to the inventory. Failure: Failure flag with error message.

Expiration Date Consumable Expiration Date	
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