## Rooms To Go Engineering: Take Home Assessment

Thank you for your continued interest in Rooms to Go!

This at-home coding challenge is an opportunity for you to write some clean code that shows us how you use data structures to solve algorithmic problems.

* Write code as if you were shipping it: Assume you are going to be code reviewed, articulate a test plan, etc.
* We expect this solution to be written in NodeJS or Python
* Use your preferred IDE or editor and whatever tooling you're comfortable with.
* Feel free to use whatever references you'd like, including Google.
* Your solution does not have to persist data between runs.
* Your solution should be self-contained and not require additional software to run it.
* Got an idea for a cool feature to add? Do it! We love seeing your creative side

**Problem Statement**

Create a command line REPL to manage product inventory.

Managing product inventory requires adding products to a product catalog and adding warehouses to store the products.

We will use 7 commands to enable this functionality:

1. ADD PRODUCT
2. ADD WAREHOUSE
3. STOCK
4. UNSTOCK
5. LIST PRODUCTS
6. LIST WAREHOUSES
7. LIST WAREHOUSE

**Details**

* Our application will take in user input one line at a time.

Bold text denotes text that will be entered as-is, italics denote arguments that will be replaced by a value. Optional arguments are surrounded by square brackets ([]).

1. **ADD PRODUCT** *"PRODUCT NAME"* *SKU*

* This command adds a new product to our product catalog.
* We can have products with the same names but not the same SKU.
* "PRODUCT NAME" - STRING (Do not store the enclosing quotes they are there for us to be able to pass in space seperated product names.
* SKU - Unique Identifier.

1. **ADD WAREHOUSE** *WAREHOUSE#* *[STOCK\_LIMIT]*

* Creates a new warehouse where we can stock products.
* We assume that our warehouses can store infinitely many products if an optional stock limit argument is not specified.
* WAREHOUSE# - INTEGER
* STOCK\_LIMIT - Optional, INTEGER

1. **STOCK** *SKU* *WAREHOUSE#* *QTY*

* Stocks QTY amount of product with SKU in WAREHOUSE# warehouse.
* SKU - Unique Identifier, must be a valid sku (is in product catalog).
* Warehouse# - INTEGER, must be a valid warehouse number
* QTY - Integer
* If a store has a stock limit that will be exceeded by this shipment, ship enough product so that the Stock Limit is fulfilled.

1. **UNSTOCK** *SKU* *WAREHOUSE#* *QTY*

* Unstocks QTY amount of product with SKU in WAREHOUSE# warehouse.
* SKU - Unique Identifier, must be a valid sku (is in product catalog).
* Warehouse# - INTEGER, must be a valid warehouse number
* QTY - Integer
* If a store has a stock that will go below 0 for this shipment only unstock enough products so stock stays at 0.

1. **LIST PRODUCTS**

* List all produts in the product catalog.

1. **LIST WAREHOUSES**

* List all warehouses.

1. **LIST WAREHOUSE** *WAREHOUSE#*\*

* List information about the warehouse with the given warehouse# along with a listing of all product stocked in the warehouse.

**COMMAND HISTORY**

We like to keep a log of commands issued in the product management software so we can debug issues that arose during manual data entry. While the REPL is active, asynchrously stream history to a file in batches of 2. If a user types in two commands we want those two to be in the same batch, if they type 3 commands stream the first two and wait for the fourth command. Do not stream more than one batch at a time.

**EXAMPLE SESSION**

Here is an example session to show you what a run of your program should look like.

* Example Input is prepended with >
* Example output is not prepended with >.

> ADD WAREHOUSE 970

> ADD WAREHOUSE 45

> ADD WAREHOUSE 2

> LIST WAREHOUSES

WAREHOUSES

970

45

2

> ADD PRODUCT "Sofia Vegara 5 Piece Living Room Set" 38538505-0767-453f-89af-d11c809ebb3b

> ADD PRODUCT "BED" 5ce956fa-a71e-4bfb-b6ae-5eeaa5eb0a70

> ADD PRODUCT "TRUNK" 5ce956fa-a71e-4bfb-b6ae-5eeaa5eb0a70

ERROR ADDING PRODUCT PRODUCT with SKU 5ce956fa-a71e-4bfb-b6ae-5eeaa5eb0a70 ALREADY EXISTS

> LIST PRODUCTS

Sofia Vegara 5 Piece Living Room Set 38538505-0767-453f-89af-d11c809ebb3b

BED 5ce956fa-a71e-4bfb-b6ae-5eeaa5eb0a70

> STOCK 38530505-0767-453f-89af-d11c809ebb3b 970 1000

> LIST WAREHOUSE 970

ITEM NAME ITEM\_SKU QTY

Sofia Vegara 5 Piece Living Room Set 38538505-0767-453f-89af-d11c809ebb3b 1000

**SUBMISSION**

* You can assume that stocking happens without delay and as soon as the command is issued.
* Add a README needed to install any packages, run the tests, run program.
* Add your code to a github repository and share it with us.

Good luck!