



Instaventory

A convenience store inventory
management solution

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What is Inventory Management (software)?

- Inventory Management
 - The small or large scale control and overseeing of physical materials and goods.
 - Examples of use cases:
 - Helping to decide when to purchase new goods for retail
 - Calculating profits/margins
- Can be accomplished with paper records, spreadsheets, software, etc.



Instaventry, our solution

- Inventory Management software
 - Designed for individual, small scale stores
 - Gas stations
 - Convenience stores (7-Eleven, Liquor stores)
- Features
 - Save and load data records from a file
 - Add and delete data records
 - View ordered lists of records
 - View records ordered by profit margin
 - And more!

User Interface

- Menu / Option based
 - Navigation by choosing a number option
- Input validation
 - Can't enter invalid options/data - reason will be given and asked to retry



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Instainventory by Olivier Chan, Luis Guerrero, Hiren Rathod, and Yue Pan

Instainventory

[ MAIN MENU ]

[ 1 ] ADD ITEM
[ 2 ] DELETE ITEM
[ 3 ] SEARCH BY UID
[ 4 ] LIST DATA SORTED BY UID
[ 5 ] PRINT HASH TABLE
[ 6 ] PRINT BINARY TREE
[ 7 ] EFFICIENCY
[ 8 ] MARGINS AND PROFITABILITY
[ 9 ] QUIT

Choose an option:
```



How Products/Items are stored in file

- UID - Unique Identifier
- UPC - Universal Product Code
 - A.K.A. Barcode
- Name
- Size (Number, Weight, Volume)
- Category
 - Snacks
 - Drinks
 - Tobacco
 - Lottery & Scratch Cards
 - Miscellaneous
- Wholesale / Retail Price
- Quantity in Stock

```
<item>
    <UID>2000</UID>
    <UPC>049000418347</UPC>
    <name>Coca-Cola</name>
    <size>16oz</size>
    <category>2</category>
    <wholesale>1.50</wholesale>
    <retail>2.60</retail>
    <quantity>60</quantity>
</item>
```



Data Structures used in Instaventy

- Dynamic Array (`std::vector`-like)
 - Used as the primary structure for storing data
 - All other ADTs reference from the dynamic array
- Linked List
 - Used in general use cases
 - Used in hash table ADT for separate chaining
- Hash Table
 - Used to retrieve items by UID efficiently
- Binary Search Tree
 - Used to efficiently print items by sorted profit margins

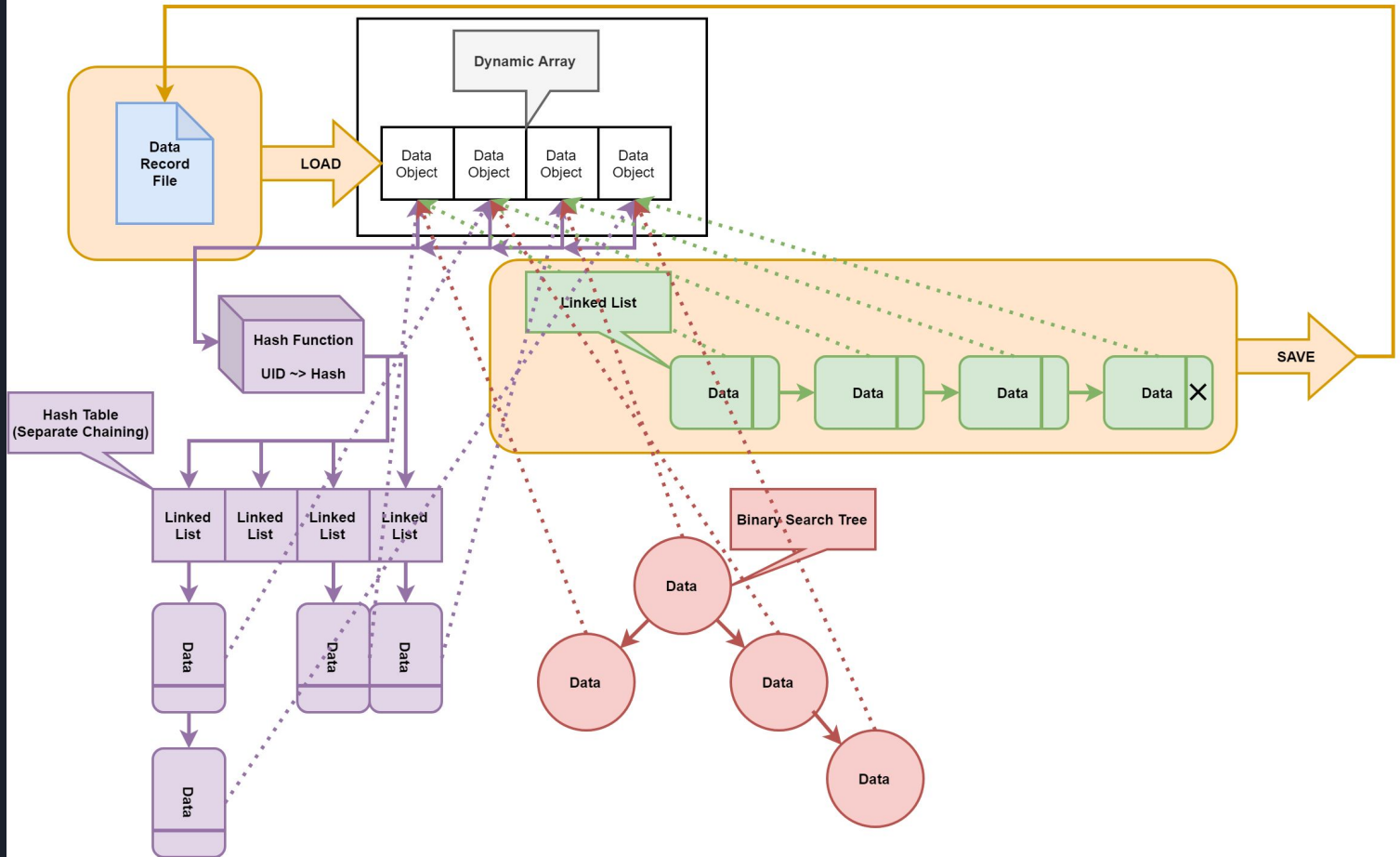


Efficiency Diagnostics

What counts as an operation?

- Does count as an operation:
 - Allocating or deleting dynamic memory
 - Accessing data objects
 - Search, edit, add, remove, insert, etc.
 - Traversing through nodes
- Does not count as an operation:
 - Direct or indirect access of primitive member variables, eg. `getCount()`, `getSize()`, etc.
 - Arithmetic
 - Next prime number
 - Modulo

Data Structure Diagram



Demonstration and Q&A

