Command-Line Inventory Management System

This is a command-line application for managing a parts inventory, built in Java. It serves as a practical demonstration of implementing a custom hash table from scratch for efficient data storage and retrieval.

Features

- **Add Parts:** Insert new parts with a unique part number, description, and quantity.
- **Remove Parts:** Mark parts for deletion from the inventory.
- **Find Parts:** Search for a part by its number to quickly retrieve its current quantity.
- **View Inventory:** Print a formatted list of all parts currently in stock.

Core Concepts Demonstrated

This project was built to showcase an understanding of fundamental data structures and algorithms:

- **Custom Hash Table:** The inventory is managed by a hash table built from the ground up using a Java array.
- **Linear Probing:** Implements linear probing as a collision resolution strategy to handle multiple parts hashing to the same index.

Technologies Used

- **Language:** Java
- **Build Tool:** Maven

How to Run Locally

To get this project running on your own machine, follow these steps.

Prerequisites

- Java Development Kit (JDK)
- Apache Maven

Steps

1. **Clone the repository:**
   Bash
   git clone https://github.com/haider2shah/DSA-Projects.git

2. **Navigate to the project directory:**
   Bash
   cd DSA-Projects/Command-Line Inventory Management System/Driver

3. **Build the project with Maven:**
   Bash
   mvn clean install

4. **Run the application:**
   Bash
   mvn exec:java -Dexec.mainClass="partslist.Driver"

Example Usage

Enter the number of parts you will enter: 2

Entry #1....
  Enter the part description: CPU
  Enter the part number: 1001
  Enter the part quantity: 50

Entry #2....
  Enter the part description: GPU
  Enter the part number: 2002
  Enter the part quantity: 30

PARTS INVENTORY

Desc.	Part#	Qty
CPU	1001	50
GPU	2002	30

Enter part number to search for: 1001
Quantity in Stock: 50.