**ABC Analysis**

ABC analysis is an inventory categorization technique often used in supply chain management and operations. The method divides items into three categories (A, B, and C) based on their importance:

1. **Category A**: These items are the most valuable, typically accounting for a small percentage of the total number of items but a large percentage of the total inventory value. They are high-priority items that require tight control and management. Regular review and accurate forecasting are crucial for these items.
2. **Category B**: These items are of moderate value, representing a middle ground between A and C items. They require less frequent monitoring and less stringent control than A items but more than C items. They usually constitute a moderate percentage of the total inventory value and quantity.
3. **Category C**: These items are the least valuable, accounting for a large percentage of the total number of items but a small percentage of the total inventory value. They are low-priority items and require the least amount of management and control. Simplified control policies and less frequent reviews are typical for these items.

**Steps to Conduct ABC Analysis**:

1. **Identify and List Items**: Create a list of all inventory items with their associated metrics, typically annual consumption value or sales.
2. **Calculate Annual Consumption Value**: For each item, calculate the annual consumption value by multiplying the annual usage quantity by the unit cost.
3. **Sort Items**: Sort the items in descending order based on their annual consumption value.
4. **Cumulative Calculation**: Calculate the cumulative consumption value and the cumulative percentage for each item.
5. **Categorize Items**: Divide the items into A, B, and C categories based on cumulative percentage:
   * **A items**: Top 70-80% of the total consumption value.
   * **B items**: Next 15-25% of the total consumption value.
   * **C items**: The remaining 5-10% of the total consumption value

**Example Inventory Data**

Suppose a company has the following ten inventory items with their annual consumption values:

|  |  |
| --- | --- |
| **Item** | **Annual Consumption Value ($)** |
| A | 50,000 |
| B | 30,000 |
| C | 20,000 |
| D | 10,000 |
| E | 8,000 |
| F | 5,000 |
| G | 4,000 |
| H | 2,000 |
| I | 1,000 |
| J | 500 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Annual Consumption Value ($)** | **Cumulative Value ($)** | **Cumulative Percentage (%)** | **Category** |
| A | 50,000 | 50,000 | 38.31417625 | A |
| B | 30,000 | 80,000 | 61.30268199 | A |
| C | 20,000 | 1,00,000 | 76.62835249 | B |
| D | 10,000 | 1,10,000 | 84.29118774 | B |
| E | 8,000 | 1,18,000 | 90.42145594 | B |
| F | 5,000 | 1,23,000 | 94.25287356 | C |
| G | 4,000 | 1,27,000 | 97.31800766 | C |
| H | 2,000 | 1,29,000 | 98.85057471 | C |
| I | 1,000 | 1,30,000 | 99.61685824 | C |
| J | 500 | 1,30,500 | 100 | C |
|  | 1,30,500 |  |  |  |