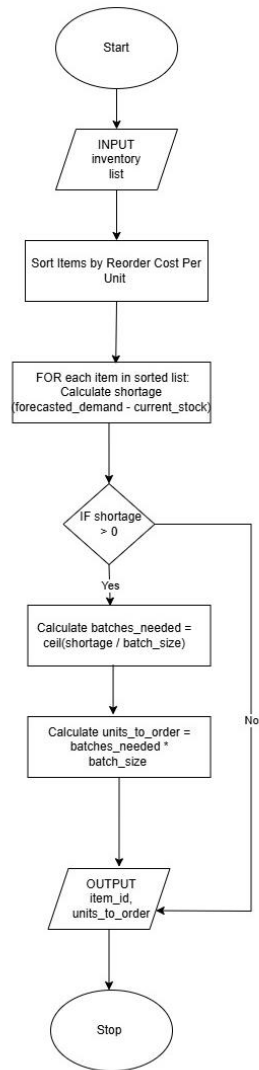


## Algorithm Development Task: Inventory Reordering System



Item ID	Current Stock	Forecasted Demand	Reorder Cost per Unit	Batch Size
A	50	100	5	10
B	80	90	3	5
C	20	60	4	10

### Step-by-Step Execution:

- Sorting Items by Reorder Cost per Unit (Ascending Order):
  - Order: B (3/unit), C (4/unit), A (5/unit)
- Processing Each Item:
  - Item B:
    - Shortage = 90 (demand) - 80 (stock) = 10
    - Batch Units Needed =  $\text{ceil}(10 / 5) = 2$
    - Total Units Ordered =  $2 \times 5 = 10$
  - Item C:
    - Shortage = 60 - 20 = 40
    - Batch Units Needed =  $\text{ceil}(40 / 10) = 4$
    - Total Units Ordered =  $4 \times 10 = 40$

- Item A:
  - Shortage =  $100 - 50 = 50$
  - Batch Units Needed =  $\text{ceil}(50 / 10) = 5$
  - Total Units Ordered =  $5 \times 10 = 50$

Item ID	Units to Order
B	10
C	40
A	50

**Stock Levels are Maintained:** Ensures no item goes out of stock.

**Minimized Reordering Costs:** Prioritizes cheaper items first.

**Batch Constraints are Considered:** Orders only in allowed batch sizes.