Activity-Based Costing (ABC) - A costing approach that assigns resource costs to cost objects based on activities performed for the cost objects.

- **Designed to provide data in the use of internal decision making. This costing method differs from other methods (Job Costing, Process Costing) in the following ways:**
    - Non-Manufacturing as well as Manufacturing Costs may be assigned to products. In ABC you also include non-manufacturing costs that can be traced to products/services. In essence we are determining the entire cost of a product not just the cost to produce.
    - Some manufacturing costs may be excluded from product costs. In Activity based costing, costs are assigned if there is a good reason to believe that the cost would be affected by decisions made concerning the product
    - A number of overhead activity cost pools are used, each of which is allocated to products and other cost objects using its own unique measure of activity.

The ABC process consists of the following steps:

1. Identify and define activities, activity cost pools and activity measures
2. Assign overhead costs to the activity pools identified above (First Stage Allocation)
3. Calculate activity rates
4. Assign overhead costs to cost objects using the activity rates and activity measures (Second Stage Allocation)
5. Prepare management reports

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Activity Based Costing - Example

Generic Company currently applies overhead using a plant-wide predetermined overhead rate based on budgeted direct labour hours of 100,000. Estimated overhead costs for the year were $841,000. Bid prices are determined by adding a 60 percent markup to the anticipated full manufacturing costs for each proposed job.

In preparation for bidding on a new job, the following data about the job have been collected:

Direct materials	$30,000
Direct labour	$24,000
# direct labour hours	8,000
# of material moves	100
# of inspections	120
# of setups	24
# of machine hours	4,000

A. Required Calculate the bid price for the proposed job using the current overhead allocation method.

The accountant at Generic Company has suggested that activity-based costing might provide a more useful cost on which to base a cost bid price than the current method. They have grouped the overhead costs into four costs pools for which the information below has been prepared.

Activity Cost Pool	**Cost**	**Expected activity**
Maintenance	$510,000	60,000 machine hours
Materials handling	$250,000	20,000 material moves
Setups	$60,000	3,000 setups
Inspection	$21,000	12,000 inspections

B. Required: Calculate the bid price for the proposed job using ABC costing.

C. Which costing method should the company use for future bids?

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Activity Based Costing - Example

Generic Company distributes medical supplies to doctors' offices. The Company sets its prices by marking up its cost of goods sold by 5%. For years, they believed that the 5% markup covered its selling and administrative expenses and provided a reasonable profit. For example, if thy paid $100 for supplies from a manufacturer, they would sell the supplies for $105 to its customers. However, in the face of declining profits, the company decided to implement an ABC system to help improve its understanding of customer profitability. The company broke its selling and administrative expenses into five activities as shown below:

Activity Cost Pool	Activity Measure	Total Cost	Total Activity
Customer deliveries	Number of deliveries	$400,000	5,000 deliveries
Manual order processing	Number of manual orders	300,000	4,000 orders
Electronic order processing	Number of electronic orders	200,000	12,500 orders
Line item picking	Number of line items picked	500,000	400,000 line items
Other org sustaining costs	N/A	600,000	
Total selling and admin Exp.		$2,000,000	

The Company gathered the data below for two customers it serves. Both customers purchased a total quantity of goods that had cost $30,000 to buy from its suppliers.

Activity Measure	Activity Customer #1	Activity Customer #2
Number of deliveries	10	20
Number of manual orders	0	40
Number of electronic orders	10	0
Number of line items picked	100	260

Required:

a) Compute the activity rate for each activity cost pool.
b) Compute the customer margin for each customer in dollars and as a gross margin percentage. Use an income statement type format for your answer.

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Activity Based Costing - Example

Generic Clothing is a manufacturer of clothing. Its product line consists of trousers (45%), skirts (35%), dresses (15%), and other (5%). The company has been using a volume-based rate to assign overhead to each product; the rate it uses is $2.25 per unit produced. The results for the trousers line, using the volume-based approach, are as follows:

Number of units produced	10,000
Price (all figures in $)	20.525
Total revenue	205,250
Direct materials	33,750
Direct labor	112,500
Overhead (volume-based)	22,500
Total product cost	168,750
Non-manufacturing expenses	31,500
Total cost	200,250
Profit margin for trousers	5,000

Recently, Generic Clothing conducted a further analysis of the trousers line of product, using ABC. In the study, eight activities were identified, and direct labor was assigned to the activities. The total conversion cost (labor and overhead) for the eight activities, after allocation to the trousers line, is as follows:

Pattern cutting	22,000
Grading	19,000
Lay planning	18,500
Sewing	21,000
Finishing	14,300
Inspection	6,500
Boxing up	3,500
Storage	7,000

***Required*:** Determine the profit margin for the trousers line using ABC and comment on the difference in comparison to the volume-based calculations.

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Activity Based Costing - Example

Generic Company has been using direct labor costs as the basis for assigning overhead to its many products. Under this allocation system, product X has been assigned overhead of $11.60 per unit, while product Y has been assigned $4.10 per unit. Management feels that an activity based costing system will provide a more accurate allocation of the overhead costs and has collected the following cost pool and cost driver information:

Cost Pools	Activity Costs	Cost Drivers	Activity Driver Consumption
Machine Setup	$375,000	Setup hours	4,200
Materials Handling	$110,000	Pounds of materials	20,800
Electric Power	$45,000	Kilowatt-hours	41,000

The following cost information pertains to the production of products X and Y:

	X	Y
Number of units produced	4,200	20,500
Direct Materials Cost	$43,500	$56,100
Direct Labor Cost	$23,300	$40,700
Number of setup hours	420	230
Pounds of materials used	1,030	3,020
Kilowatt-hours	2,120	4,280

***Required*:**

a) Use activity -based costing to determine a unit cost for each product. Please show detailed breakdown of cost fully to show all primary and conversion costs. Also, please show unit costs on a per unit basis for each product broken out into
   a. Direct Materials
   b. Direct Labor
   c. Manufacturing Overhead
   d. Total cost per unit for each product

b) Use the current volume -based costing to determine a unit cost for each product. Compare your results with the ABC findings above.

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5-32 **Product-Line Profitability; ABC** Supermart Food Stores (SFS) has experienced net operating losses in its frozen food products line in the last few periods. Management believes that the store can improve its profitability if SFS discontinues frozen foods. The operating results from the most recent period are:

	Frozen Foods	Baked Goods	Fresh Produce
Sales	$120,000	$91,000	$158,175
Cost of goods sold	105,000	67,000	110,000

SFS estimates that store support expenses, in total, are approximately 20% of revenues.

The controller says that not every sales dollar requires or uses the same amount of store support activities. A preliminary analysis reveals store support activities for these three product lines are:

Activity (cost driver)	Frozen Foods	Baked Goods	Fresh Produce
Order processing (number of purchase orders)	10	45	100
Receiving (number of deliveries)	12	55	120
Shelf-stocking (number of hours per delivery)	2	0.5	4
Customer support (total units sold)	30,000	40,000	86,000

The controller estimates activity-cost rates for each activity as follows:

Order processing	$ 80 per purchase order
Receiving	110 per delivery
Shelf-stocking	15.25 per hour
Customer support	0.21 per item

Required

1. Prepare a product-line profitability report for SFS under the current costing system.
2. Prepare a product-line profitability report for SFS using the ABC information the controller provides.
3. What new insights does the ABC system in requirement 2 provide to SFS managers?