Student: Juan Rodriguez	**Instructor:** Mohan Sundaram	**Assignment:** HW-9-CH16-Decision Theory
Date: 05/08/21	**Course:** EBTM 350.002 SPRING 2021	

1. The DoorCo Corporation is a leading manufacturer of garage doors. All doors are manufactured in their plant in Carmel, Indiana, and shipped to distribution centers or major customers. DoorCo recently acquired another manufacturer of garage doors, Wisconsin Door, and is considering moving its wood door operations to the Wisconsin plant. Key considerations in this decision are the transportation, labor, and production costs at the two plants. Complicating matters is the fact that marketing is predicting a decline in the demand for wood doors. The company developed three scenarios and determined the total costs under each decision and scenario, which are given in the accompanying tables. Complete parts a through c.

Click here to view the scenarios.[1] Click here to view the total costs.[2]

a. What decision should DoorCo make using the aggressive strategy? Select the correct choice below and fill in the answer box to complete your choice.

- **A.** DoorCo should move to Wisconsin because it has the lowest minimum cost of $ ____.
- **B.** DoorCo should stay in Carmel because it has the lowest maximum cost of $ ____.
- **C.** DoorCo should stay in Carmel because it has the lowest minimum cost of $ ____.
- **D.** DoorCo should move to Wisconsin because it has the lowest maximum cost of $ ____.

b. What decision should DoorCo make using the conservative strategy? Select the correct choice below and fill in the answer box to complete your choice.

- **A.** DoorCo should move to Wisconsin because it has the lowest minimum cost of $ ____.
- **B.** DoorCo should stay in Carmel because it has the lowest maximum cost of $ ____.
- **C.** DoorCo should move to Wisconsin because it has the lowest maximum cost of $ ____.
- **D.** DoorCo should stay in Carmel because it has the lowest minimum cost of $ ____.

c. What decision should DoorCo make using the opportunity-loss strategy? Select the correct choice below and fill in the answer box to complete your choice.

- **A.** DoorCo should stay in Carmel because it has the lowest maximum opportunity loss of $ ____.
- **B.** DoorCo should stay in Carmel because it has the lowest minimum opportunity loss of $ ____.
- **C.** DoorCo should move to Wisconsin because it has the lowest maximum opportunity loss of $ ____.
- **D.** DoorCo should move to Wisconsin because it has the lowest minimum opportunity loss of $ ____.

1: Scenarios

1. Demand falls slightly, with no noticeable effect on production.
2. Demand and production decline 20%.
3. Demand and production decline 40%.

2: Total costs

	Slight Decline	20% Decline	40% Decline
Stay in Carmel	$990,000	$835,000	$865,000
Move to Wisconsin	$1,090,000	$980,000	$780,000

2. A leading manufacturer of garage doors recently acquired another manufacturer and is considering moving its wood door operations to the acquired plant. Key considerations in this decision are the transportation, labor, and production costs at the two plants. Complicating matters is the fact that marketing is predicting a decline in the demand for wood doors. The company developed three scenarios and determined the total costs under each decision and scenario, as well as the probability of each scenario occurring, which are given in the accompanying tables. Construct a decision tree and compute the rollback values to find the best expected value decision.

Click here to view the scenarios.[3] Click here to view the costs.[4]

Construct a decision tree of this problem that includes the decision for the manufacturer to keep its wood door operations in its current plant or move them to the acquired plant. Choose the correct answer below.

- Click view to view decision tree h.[5]
- Click here to view decision tree f.[6]
- Click view to view decision tree e.[7]
- Click here to view decision tree g.[8]

Compute the rollback value for the manufacturer staying in its current plant.

$ _____ (Round to the nearest dollar as needed.)

Compute the rollback value for the manufacturer moving to the acquired plant.

$ _____ (Round to the nearest dollar as needed.)

What is the best expected value decision?

The best expected value decision for the manufacturer is to (1) _____ with an expected value of $ _____.
(Round to the nearest dollar as needed.)

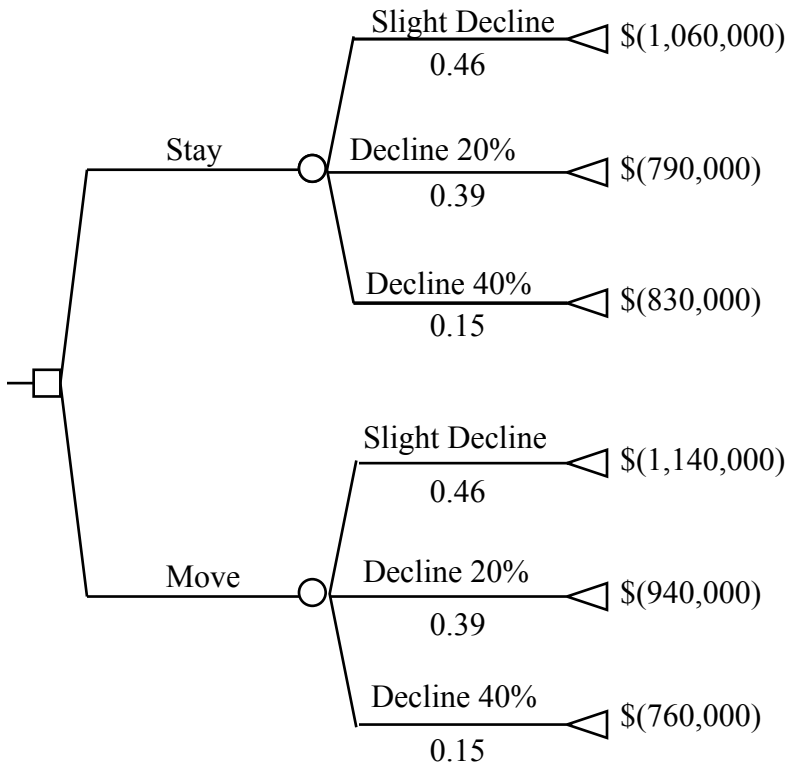
3: Scenarios

1. Demand falls slightly, with no noticeable effect on production.
2. Demand and production decline 20%.
3. Demand and production decline 40%.

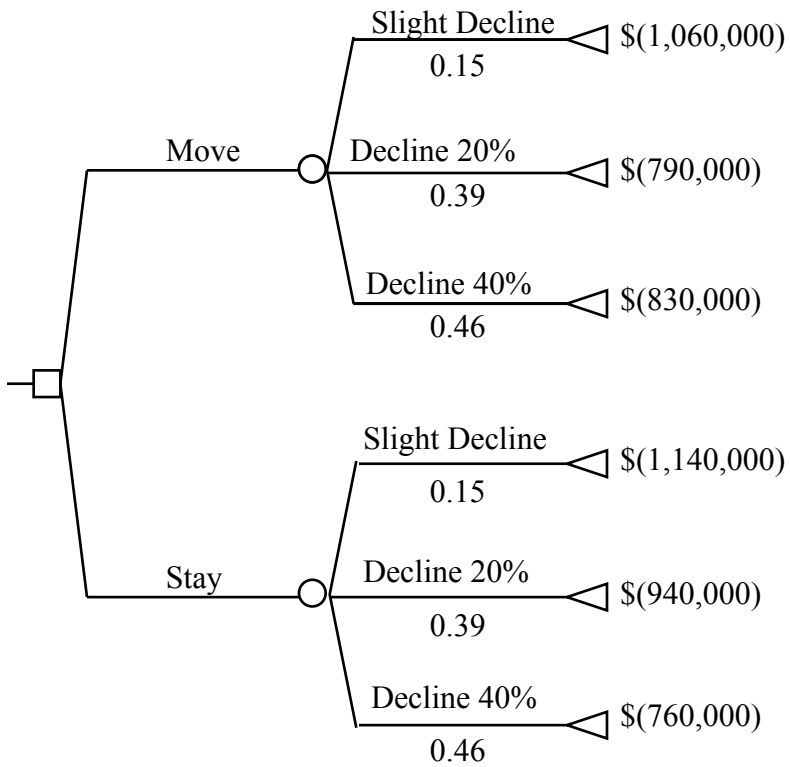
4: Total costs

	Slight Decline	20% Decline	40% Decline
Stay	$1,060,000	$790,000	$830,000
Move	$1,140,000	$940,000	$760,000
Probability	0.15	0.39	0.46

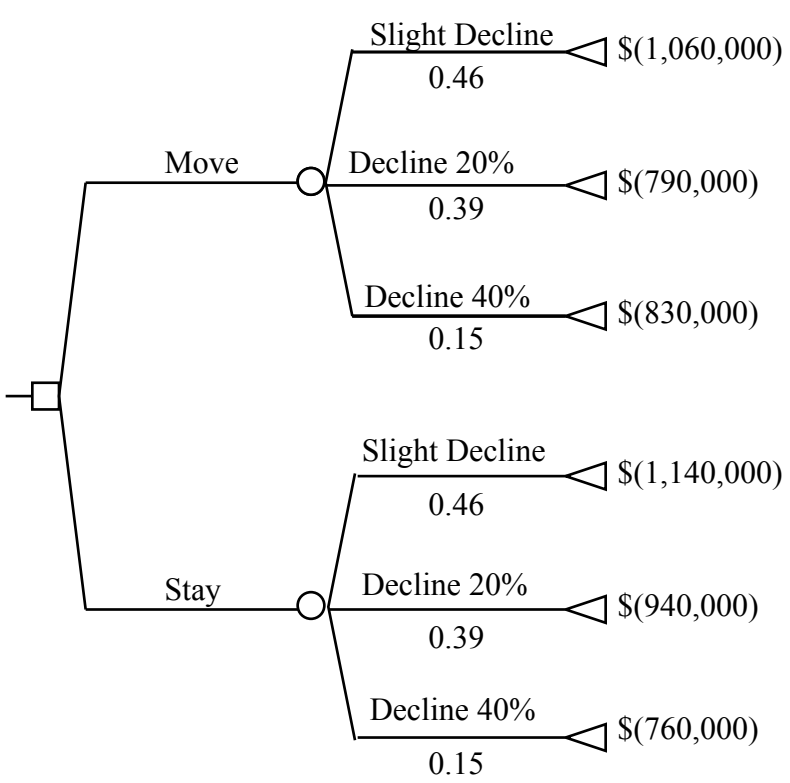
5: Decision tree h



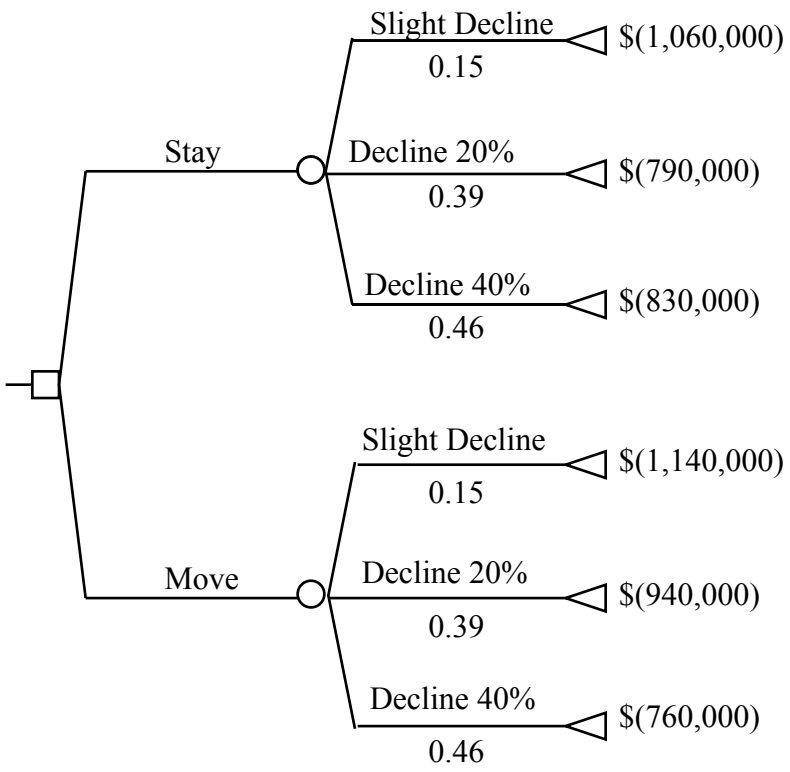
6: Decision tree f



7: Decision tree e



8: Decision tree g



(1) ○ move to the acquired plant (1)

○ stay in its current plant