Homework 6 – Assigned: February 18, 2026, Due: February 25, 2026

In Homework 6 you will use the program DPL 9 Pro to produce the complete decision trees and provide all answers for Problems 13, 14, and 15, from Homework 3 and Homework 4.

For information on how to download and install DPL 9 on your own Windows computer and about the availability of a video with DPL examples on Canvas, see the related Announcement on Canvas.

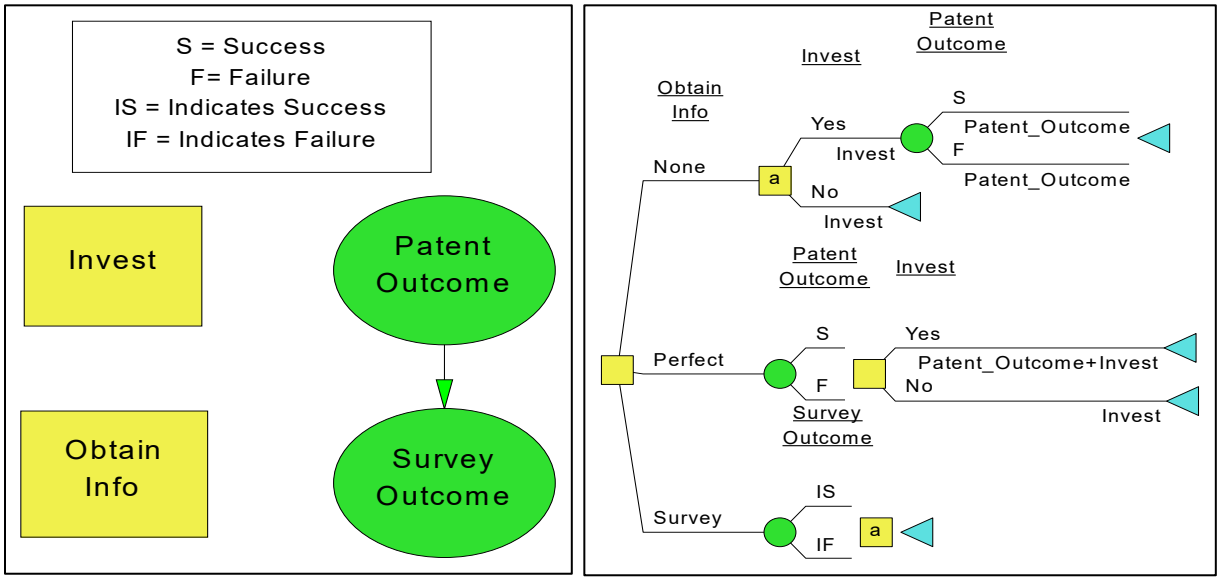
Deliverables:

(a) Email your DPL model files (13.da, 14.da, 15.da) to photios@umich.edu
(b) Upload all results for HW6 to Canvas as one PDF file. This PDF file will include the DPL Influence Diagrams, the DPL Decision Trees, the DPL Policy Trees, and answers to problems 13, 14, 15.

Problem 13

Start by downloading the following DPL model file from the CEE631 website on Canvas:
CEE631W24HW6-Prob13-starter.da

This DPL model file already contains the complete influence diagram for Problem 13 (shown on the left below) with all probabilities, cashflows, and the formulas to compute present values.



Open this file in DPL 9 and double click all nodes and arrows to see how they have been defined. Use the decision and chance nodes (already defined in the influence diagram) to construct the decision tree shown on the right above. Make sure that nodes on the decision tree are "symmetric" or "asymmetric" (as shown above) and that tree branches have the appropriate "value formulas" (also as shown above).

On the "Home" tab of DPL, click the button "Decision Analysis" to produce the DPL "Policy Tree". Expand the "Policy Tree" to show **all** nodes and branches. Copy the Influence Diagram, the Decision tree, and the Policy Tree to a Word document and answer questions (a), (b) and (c) for Problem 13.
(d) For another way to compute EVPI, change the conditional probabilities for "Survey Outcome" to those for a "perfect test": P[IS|S]=1, P[IF|F]=1. Run "Decision Analysis" again. Copy the resulting "Policy Tree" into Word and compare the branches for "Perfect" and the new perfect "Survey".

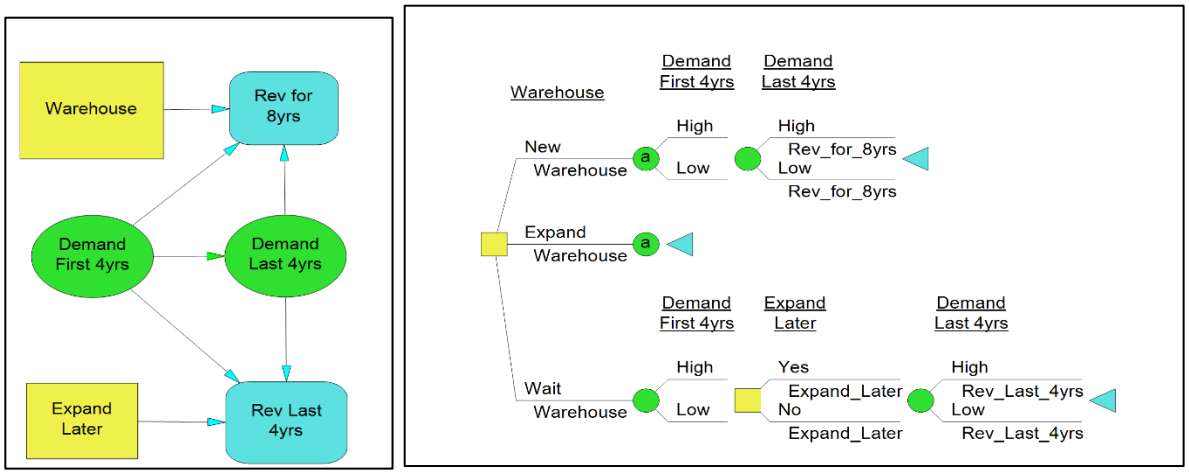
Problem 14

Develop a DPL model for Problem 14. It will be very similar to the DPL model for Problem 13. Start with the Influence Diagram and define the appropriate decision and chance nodes, their values, and their probabilities. Use these nodes to construct the decision tree for Problem 14. It will be very similar to the decision tree for Problem 13 shown above.
Produce similar "Policy Trees" and answer questions as in Problem 13 above.

Problem 15

Download the following DPL model file from the CEE631 website on Canvas:
CEE631W24HW6-Prob15-starter.da

This DPL model file already contains the complete influence diagram for Problem 15 (shown on the left below) with all probabilities, cashflows, and the formulas to compute present values.



Open this file in DPL 9 and double-click all the nodes and all the arrows to see how they have been defined. Then, use the decision and chance nodes (already defined for you in the provided influence diagram) to construct the decision tree shown above on the right. Nodes on the tree should be "symmetric" or "asymmetric" (as shown above) and tree branches should have "value formulas" (also as shown above).

On the "Home" tab of DPL, click the button "Decision Analysis" to produce the DPL "Policy Tree". Expand the "Policy Tree" to show **all** nodes and branches.

Copy the Influence Diagram, the Decision tree, and the Policy Tree to a Word document and determine the decision policy that should be followed so that the wholesaler's expected profits are maximized.

How do the joint probabilities on the Policy Tree relate to the original data for Problem 15?