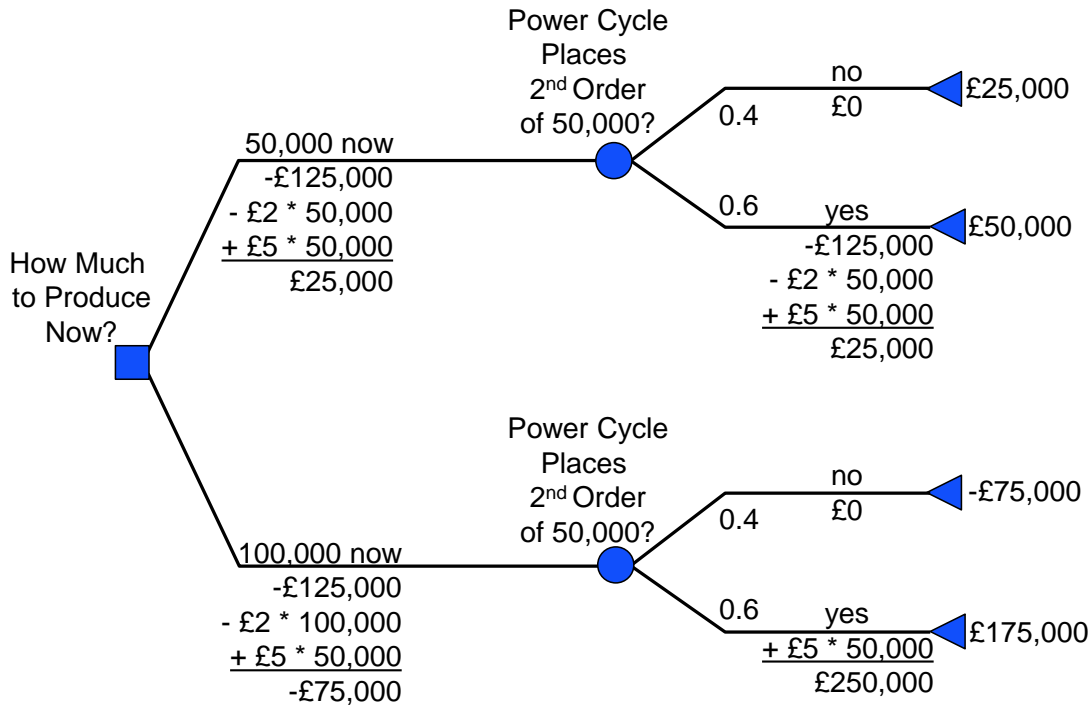


# Operations Analytics MOOC: Practice Problems for Week 4

## 1. Power Cycle

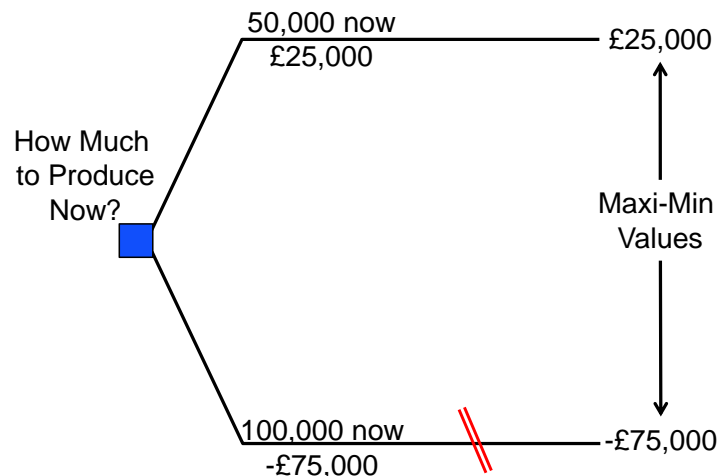
- a) Structure the supplier's choices using a decision tree. Make sure you explicitly define all of the elements of the tree: decisions, events, cash flows and probabilities associated with decisions and events, and payouts associated with the final outcomes.

Here is the supplier's decision tree:



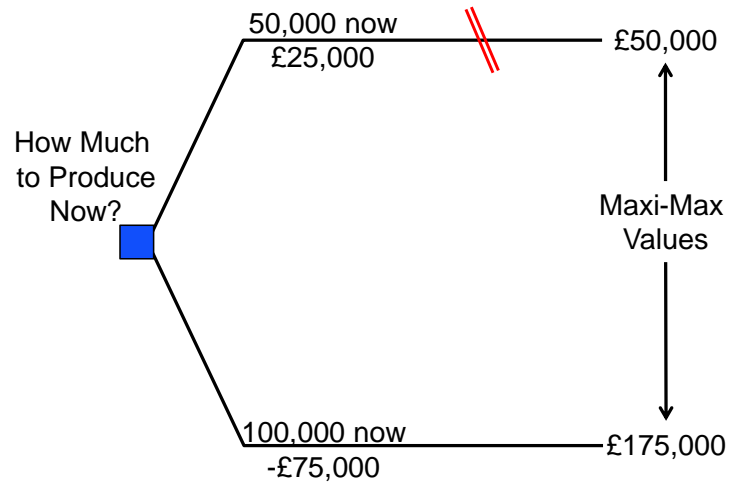
- b) What are the maxi-min, maxi-max, and expected value maximizing decisions for the supplier? What are the monetary values associated with those choices?

The supplier's maxi-min decision is to produce only 50,000 units now. The maxi-min value is £25,000.

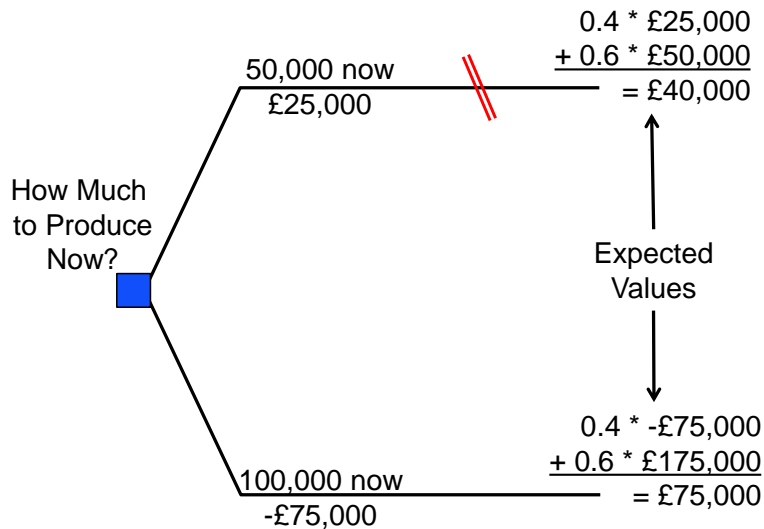


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The supplier's maxi-max decision is to produce all 100,000 units now. The maxi-max value is £175,000.



The supplier's expected-value-maximizing decision is to produce all 100,000 units now. Its expected value associated when producing all 100,000 units now is £75,000.

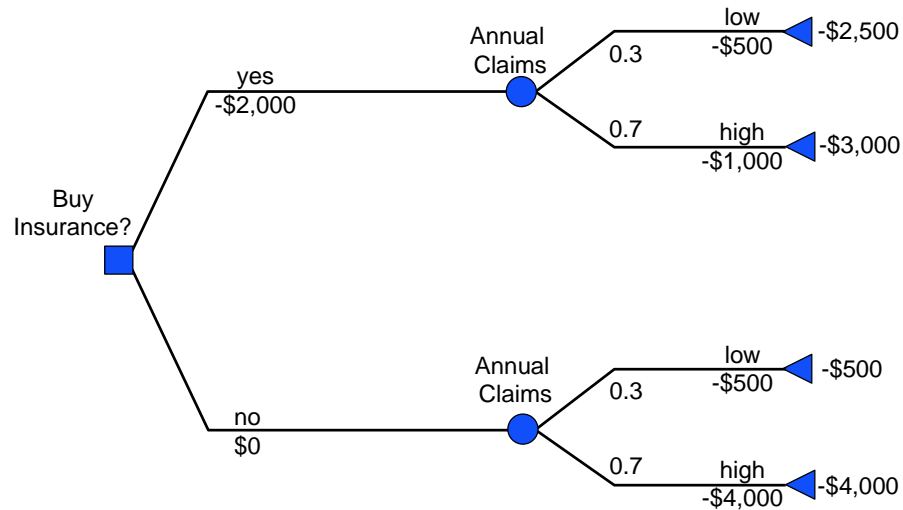


## Operations Analytics MOOC: Practice Problems for Week 4

### 2. Cygnet Health Care

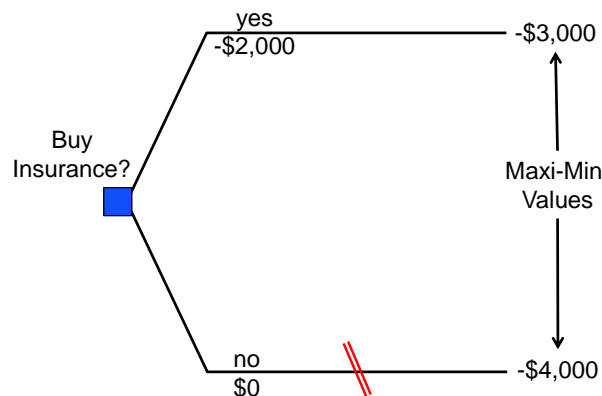
- a) Structure Noah's choices using a decision tree. Make sure you explicitly define all of the elements of the tree: decisions, events, cash flows and probabilities associated with decisions and events, and payouts associated with the final outcomes.

Here is Noah's decision tree. Observe that the payouts to Noah are all negative, since they represent costs or losses. Note also that, by showing the costs as (negative) payouts to Noah, we can proceed to determine the maxi-min, maxi-max, and expected value maximizing policies as usual.



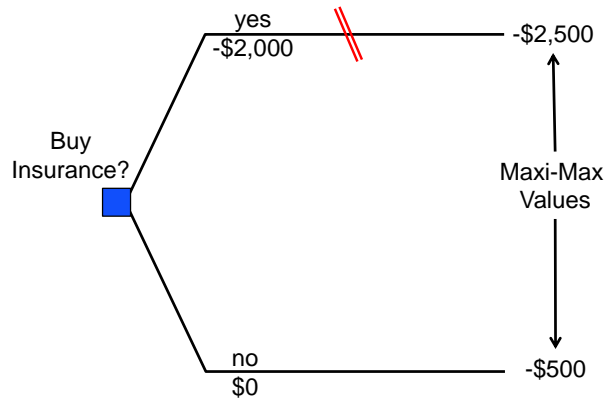
- b) What are Noah's maxi-min, maxi-max, and expected value maximizing decisions? What are the dollar values associated with those choices?

Noah's maxi-min decision is to buy insurance. The maxi-min value is  $-\$3,000$ .



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Noah's maxi-max decision is not to buy insurance. The maxi-max value is -\$500.



Noah's expected-value-maximizing decision is to buy insurance. The expected value when buying insurance is -\$2,850.

