Assignment 2

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SYS 660 – Decision Making via Risk Analysis

2/9/19

Assignment 2

Question 1

Construct a decision tree based on your influence diagram from Assignment 1, Problem 3 (rent an apartment decision).
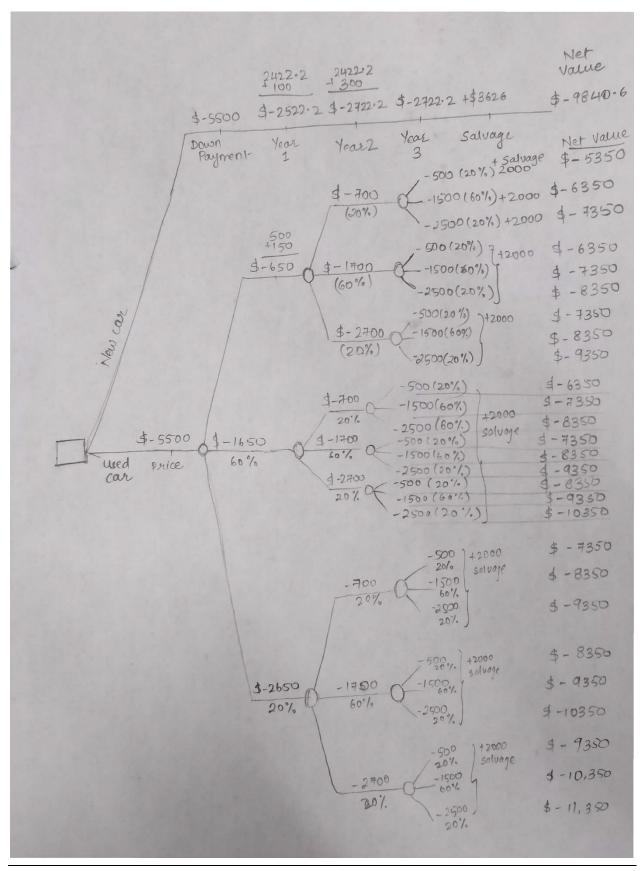
Solution 1

Solution attached on the last page (page 3)

Question 2

Car purchasing problem

Solution 2

Solution in next page. (handwritten). Excel Graph from page 4.

Net Value

$$\frac{2422\cdot2}{+100} \quad \frac{2422\cdot2}{+300}$$

$-5500 \quad \$-2522\cdot2 \quad \$-2722\cdot2 \quad \$-2722\cdot2 +\$3626 \quad \$-9840\cdot6$

Down Payment | Year 1 | Year 2 | Year 3 | Salvage | Net Value

New car

New car branch:

$$\frac{500}{+150}$$

-650

$-700 (20\%)$
- $-500 (20\%)$ + Salvage 2000 → -5350
- $-1500 (60\%) + 2000$ → -6350
- $-2500 (20\%) + 2000$ → -7350

$-1700 (60\%)$
- $-500 (20\%)$ +2000 → -6350
- $-1500(60\%)$ → -7350
- $-2500(20\%)$ → -8350

$-2700 (20\%)$
- $-500(20\%)$ +2000 → -7350
- $-1500(60\%)$ → -8350
- $-2500(20\%)$ → -9350

Used car branch:

-5500 price | -1650 60%

-700 20%
- $-500(20\%)$ → -6350
- $-1500(60\%)$ → -7350
- $-2500(60\%)$ +2000 salvage → -8350

-1700 60%
- $-500(20\%)$ → -7350
- $-1500(60\%)$ → -8350
- $-2500(20\%)$ → -9350

-2700 20%
- $-500(20\%)$ → -8350
- $-1500(60\%)$ → -9350
- $-2500(20\%)$ → -10350

-2650 20%

-700 20%
- -500 20% +2000 salvage → -7350
- -1500 60% → -8350
- -2500 20% → -9350

-1700 60%
- -500 20% +2000 salvage → -8350
- -1500 60% → -9350
- -2500 20% → -10350

-2700 20%
- -500 20% +2000 salvage → -9350
- -1500 60% → $-10,350$
- -2500 20% → $-11,350$