Decision Analysis
Assignment #2

Due Monday 30 June 2025 12 pm

Question (Total Marks 50)

Alice has the following wealth utility function, where w is her total wealth in dollars:

$$u(w) = \begin{cases} \frac{w^2}{100{,}000} & \text{for } w \geq 0 \\ \frac{-w^2}{100{,}000} & \text{for } w < 0 \end{cases}$$

Alice's current total wealth is \$1,000 in cash, and she is considering two investments A and B as follows:

Investment A: Earn \$ 1,500 with probability 0.2
Lose \$ 200 with probability 0.8

Investment B: Earn \$ 750 with probability 0.9
Lose \$ 500 with probability 0.1

(*a*) What is Alice's current risk tolerance? (5 marks)

(*b*) What is Alice's current risk attitude? (5 marks)

(*c*) What is Alice's personal indifferent buying price for Investment A alone? (10 marks)

(*d*) If investment A costs \$350 and investment B costs \$600 in the market, which of the following alternatives should Alice choose?

1. Purchase only Investment A
2. Purchase only Investment B
3. Purchase both Investment A and Investment B
4. Purchase nothing

(15 marks)

(*e*) Suppose Alice purchases both investments A and B at their market prices. What is now Alice's personal indifferent selling price for Investment A, assuming that she will keep Investment B? (10 marks)

(*f*) Compare your answers for parts (*c*) and (*e*)? Do you expect the two answers to be the same or different? Why? (5 marks)