IE2111 ISE Principles & Practice II
Assignment #1
Date Due: Tuesday, 6 February 2024, 5 pm

Instructions

You may use Excel or any computing tools for your calculations, but you must explain or show relevant formulas or equations in your solution. Submit your completed assignment into the Drop Box outside the ISEM Department Office at E1A-06-25, or to the professor at the end of lecture.

Question:

Mary took a loan of $80,000 from a bank at a nominal interest rate of 9% per year compounded monthly. The loan is to be repaid with 36 equal end-of-month payments starting exactly one month from now.

(*a*) What is the effective monthly interest rate of the loan? (1 mark)

(*b*) What is the effective annual interest rate of the loan? (1 mark)

(*c*) How much does Mary need to pay to the bank at the end of every month? (2 marks)

(*d*) Suppose that Mary has just made the 24^{th} monthly payment. How much does she still owe the bank? (2 marks)

(*e*) Suppose that Mary has just made the 24^{th} monthly payment. Due to economic slowdown, her income is greatly affected. The bank allows her to payback the balance with another 24 more monthly payments instead of 12. How much is the new monthly payment assuming that the bank does not change the interest rate? (2 marks)

(*f*) Charlie also takes a loan of $80,000 from the bank. Because Charlie can only afford to pay **$3,546** per month, the bank charges him interests at 6% per year compounded monthly. How many months does Charlie need to pay back the loan? (2 marks)