**Assignment 1**

Download the Assignment1 spreadsheet from Canvas and review it.

Term definitions:

Discount Rate – Think of this number as the reduced amount of purchasing power your cash will have in the future. For example, $100 today buys 10 hamburgers but will only buy one hamburger in 2060 when a hamburger is $85. The higher the number the less purchasing power your future money will have.

ROI (Return on Investment)– a performance measure used to evaluate the efficiency of an investment or compare the efficiency of several investments.

NPV (Net Present Value) – the difference between the present value of cash inflows and the present value of cash outflows over a period of time. NPV is used in budgeting and investment planning to analyze the profitability of a projected investment or project. NPV is the result of calculations used to find today’s value of a future stream of payments.

Instructions

The company you work for wants to buy an expensive intrusion detection system that will protect its network. It is very expensive but provides excellent security defenses. These defenses will save the company money. The system is expected to have a 6- or 7-year lifetime.

The accounting department estimates that the product will cost $110,000 to purchase and maintain the first year and then it will cost around $33,000 each year to maintain after that.

The department also calculates that it will produce a $42,000 benefit the first year they have it and then it will produce a benefit of $65,000 each year after that.

Modify the spreadsheet to calculate the return on an investment and identify the payback year based on a discount rate of 10%.

**Solution:**

Based on the question, I tried to calculate the Payback year in two ways.

Method 1: Assuming that the benefits would be zero for the first year, and the profits obtained would be added at the end of the year, as shown in the example. (Shown in Sheet 1)

Method 2: The example mentions that the cost for purchase and maintenance and the benefits are all obtained in the first year. Hence, I calculated according to this in Sheet 2.

1. **When is the payback year?**

Method1: Year 6 is the payback year

*Method2: Year3* is the payback year

1. **What is the ROI?**

Method 1: ROI is 9%

Method2: ROI is *32%*

1. **What is the NPV?**

Method1: The Net Present Value is *8,459*for year 6

Method 2: The Net Present Value is *87,789*for year 7

When you are finished upload the spreadsheet and this document into Canvas for your submission.

The provided spreadsheet has some data you can look at as an example.