MSU Finance Association Corporate Finance DCF Case Study

The Finance Association is trying to decide between two different brands of apparel to sell to its members. For the chosen brand, they are going to buy 120 t-shirts and 38 hoodies. Each t-shirt and hoodie have a cost to buy and a cost to embroider the FA logo.

The brands are:

Brand 1: The most premium brand between the two options. It is more expensive but can be sold at a higher price. T-shirts can be bought for $25 each before the discount and sold for $35 each. Hoodies can be bought for $50 each before the discount and sold for $65 each. This brand offers a 15% discount to the FA for buying in bulk.

Brand 2: A less expensive brand to buy. A cheaper option but also reduces the selling price. T-shirts can be bought for $10 each before the discount and sold for $20 each. Hoodies can be bought for $20 each before the discount and sold for $32 each. Since this brand is less known, they offer a 25% discount to the FA for buying in bulk.

Information about the sales relevant to both brands:

Shirts and hoodies are sold over a 9-month period starting at the beginning of September and ending at the end of May. Sales gradually decrease each month but demand spikes again and resets at the beginning of the new semester. The beginning of the semester is considered to be the beginning of September and January. In the first month of each semester, there are 20 pieces of apparel sold and sales decrease by 10% each month thereafter. During the Fall semester (September-December), 80% of these sales are made up of T-shirts and 20% are made up of hoodies. During the Spring semester (January-May) the sales distribution changes to 60% T-shirts and 40% hoodies. Both t-shirts and hoodies have a salvage value of 50% of the selling price because they are sold for 50% off in May. The remaining shirts and hoodies will all be sold for 50% of the selling price in May.

Information about Purchasing relevant to both brands

The full stock of 120 t-shirts and 38 hoodies are bought in September and can be sold starting immediately. Both brands give a bulk discount to the FA as long as they buy the whole amount of apparel upfront and not split it throughout the year or semesters. Each t-shirt and hoodie must be embroidered to be sold and are embroidered when they are bought. Embroidery costs are $5 per piece of apparel regardless if it is a hoodie or a t-shirt. The FA uses past years to predict the amount of apparel they need to buy for the year but since it is impossible to predict the exact amount that is going to be sold, there may be some leftover or not enough for the full year.

Other Information

Assuming you can't have a fraction of a shirt sold or demanded, all numbers are to be rounded down. 6 shirts are given for free to the FA E-board (One for each member) in September. Assume the FA uses 7% as the discount rate. Since the brands are mutually exclusive, The FA wants to know which brand they should buy and what the NPV and IRR of each brand is. Are there any other financial considerations they should be aware of?