Problem Solution

1. The following tables are created.
    a. Packages

        This is the raw list of items that are available on the site.

        We can add additional packages in the database, and everything will be loaded in the site.

    b. Discount

        This the raw list of discounts that we can set, where we specify the 1) minimum quantity to be able to able to the promo, 2) how much is the discounted value, 3) what is the discount type

    c. DiscountType

        From the problem set we have identified three types of promotions:

        1. Have a percentage discount(value between 1-100) on an item price after x buys.
        2. Have a fixed dollar discount on an item price after x buys.
        3. Have an additional item quantity after x buys.

    d. Promo

        This is where we map the packages to any active discounts.

        A package can have multiple discounts.

2. If a certain package has multiple discounts based on the quantity, our webapi will apply which of the applicable discounts is the best based on the two priorities

    a) Highest additional quantity given,

    b) Highest total computed discount in dollars given

    Case1:

    If a person will buy 4 qty of Team Building package, the promotions will give a total of 200 dollar discount. This is because for each 2 qty bought he gets 100 dollar off from the “Buy 2 for $1500” promotion.

    Case2:

    If a person will buy 4 qty of Picnic package, the promotions with “Buy 2, get 1 free” will be used, even though this package is also included in the “Buy 4, ONLY Pay for 3” promotions because of the priority rules above.