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# About Costco

- First warehouse opened 1983 in Seattle
- Membership Exclusive Retailer
- Warehouse:
  - Clothing
  - Electronics
  - Food
  - Home appliances
  - Jewelry
  - Seasonal items
- Carries around 4,000 SKU (Stock Keeping Units)

*“Keep costs down and pass the savings on to our members.”*

# Problem

## Forecasting Seasonality & Overstocking

- Overstocking and holding inventory can be expensive
- Trends are always going in and out of style
  - Ex) Holiday related items
- Need to be wary about perishable products

# Naive Method

- Forecasting technique
- Last period's actual data is used as this period's forecast
- Can be increased/decreased based on change between past 2 periods
  - ex) If revenue increased by \$1 million from 2013 to 2014, it will also increase by \$1 million from 2014 to 2015
- Can be used with data with trends
  - $\text{Forecast}_t = A_{t-1} + (A_{t-1} - A_{t-2})$
- Advantages:
  - Easy
  - Quick to implement
  - Little to no cost to practice

# Calculations

Popular Costco Items Sold Yearly

Product Type	Price per unit	Units sold (2013) (in millions)	Revenue (2013) (millions)	Units Sold (2014)	Revenue (2014) [Price Per Unit x Units Sold]	Forecasted # units to buy in 2015 (in millions)	Forecasted Revenue (2015)
Hot dog + Drink Combo	\$1.50	109	\$163,500,000	110	\$165,000,000	111	\$166,500,000
Wine	\$19.99	14	\$280,000,000	16	\$320,000,000	18	\$360,000,000
Rotisserie Chicken	\$4.99	60	\$300,000,000	61	\$305,000,000	62	\$309,380,000
Pizza	\$1.99	85	\$170,000,000	90	\$180,000,000	95	\$189,050,000
Muffins	\$8.99	30	\$270,000,000	28	\$252,000,000	26	\$234,000,000
Cake	\$17.00	32	\$544,000,000	35	\$595,000,000	38	\$646,000,000

2015 Forecasted # Units to Buy = Units Sold in 2014 + (Units Sold 2014 - Units Sold 2013)

2015 Forecasted Revenue = 2015 Forecasted # Units to Buy x Price per unit

# Calculations

Popular Costco Items With Seasonal Trends (Holiday Seasons)

Product Type	Price per unit	Unit Sold (2013) (millions)	Revenue 2013	Units Sold (2014 - Q4) (in millions)	Revenue (2014 - Q4)	Forecasted # units to buy in 2015 - Q4 (in millions)	Forecasted Revenue (2015 - Q4)
Pies	\$5.00	1.1	\$5,500,000	1.2	\$6,000,000	1.3	\$6,500,000
Pumpkin Pies	\$5.99	1.5	\$9,000,000	1.7	\$10,200,000	1.9	\$11,381,000
Whole Turkey (18 lbs)	\$53.99	1	\$54,000,000	1.2	\$64,800,000	1.4	\$75,586,000
Prime Rib	\$16.99	1	\$17,000,000	1.1	\$18,700,000	1.2	\$20,388,000

2015(Q4) Forecasted # Units to Buy = Units Sold in 2014 + (Units Sold 2014 - Units Sold 2013)

2015(Q4) Forecasted Revenue = 2015 Forecasted # Units to Buy x Price per unit

# Discussion & Analysis

- Naive method allows for easy change in inventory due to last years sales.
  - Costco is easily able to see trends
- Because Costco sells many seasonal items, Costco can manage inventory due to cycles from previous periods.
  - Ex. Number of turkeys being sold in November
  - Ex. Number of Christmas lights sold during December
- Costco has had an increase in revenue over the past 5 years
  - Due to this, we still follow the naive method, but increase the number of units sold to allow for the expected increase

# Costco vs. Walmart





# Conclusion

- Different forecasting methods
  - No need to spend money on other methods
- Naive Method
  - low in cost to implement
  - simple and straightforward
  - easy to see trends
- Dominates other wholesale retailers
  - Provides merchandise based on quality and brand