UNIVERSITY OF SOUTH DAKOTA

Assignment 03

CSC557- Data Analysis Decision Making and Data Visualization

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MS in Physics-Analytics for Large Data Sets

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In [53]:
```
import numpy as np
import pandas as pd
```

In [125…
```
sell_price = 25
buy_price = 22
discounts = {}
discounts['January'] = 00.5
discounts['February'] = 1.3
discounts['March'] = 3.5
discounts['April'] = 10
discounts['May'] = 20
discounts['June'] = 5
discounts['July'] = 9
discounts['August'] = 1
discounts['September'] = 1
discounts['October']=1
discounts['November'] =0
discounts['December']=0
```

In [147…
```
monthly_forecast_units = {}
monthly_forecast_units['January'] = 100
monthly_forecast_units['February'] = 110
monthly_forecast_units['March'] = 120
monthly_forecast_units['April'] = 150
monthly_forecast_units['May'] = 100
monthly_forecast_units['June'] = 120
monthly_forecast_units['July'] = 130
monthly_forecast_units['August'] = 90
monthly_forecast_units['September'] = 130
monthly_forecast_units['October']= 170
monthly_forecast_units['November'] =200
monthly_forecast_units['December']=235
```

Task 1: Provide in a dictionary, the price after the discount. The keys should be the month and the values should be the price after discount.

In [148…
```
discounted_prices = {}
for m in monthly_forecast_units.keys():
    total_price = units[m]*sell_price
    discounted_prices[m] = total_price - total_price*(discounts[m]/100)
discounted_prices
```

Out[148…
```
{'January': 2487.5,
 'February': 2714.25,
 'March': 2895.0,
 'April': 3375.0,
 'May': 2000.0,
 'June': 2850.0,
 'July': 2957.5,
 'August': 2227.5,
 'September': 3217.5,
 'October': 4207.5,
 'November': 5000.0,
 'December': 5875.0}
```

Task 2: Provide in a dictionary, the quarterly average price for the chocolate bar.

In [155…
```
qrtrs = ['Q1','Q2','Q3','Q4']
total_bars_per_qrtr = []
prices_ = list(discounted_prices.values())
initial=0
q_prices = []
forecase_units = list(monthly_forecast_units.values())
for i in range(3,15,3):
    q_prices.append(sum(prices_[initial:i]))
    total_bars_per_qrtr.append(sum(forecase_units[initial:i]))
    initial = i

quarterly_average_price = {qrtrs[i]:round((q_prices[i]/total_bars_per_qrtr[i]
quarterly_average_price
```

Out[155…
```
{'Q1': 24.54, 'Q2': 22.23, 'Q3': 24.01, 'Q4': 24.93}
```

Task 3: Provide in a dictionary, if the chocolates were sold with a profit or not. Take $ 22 as a price below which there is no profit. For the month when there is no profit, provide "No Profit", else provide "Profit".

In [156…
```
profits = {}
months = discounts.keys()
for m in months:
    profits[m] = 'Profit' if ((discounted_prices[m]) - (units[m]*buy_price))>

profits
```

Out[156…
```
{'January': 'Profit',
 'February': 'Profit',
 'March': 'Profit',
 'April': 'Profit',
 'May': 'No Profit',
 'June': 'Profit',
 'July': 'Profit',
 'August': 'Profit',
 'September': 'Profit',
 'October': 'Profit',
 'November': 'Profit',
 'December': 'Profit'}
```

In [ ]:
```

```