OLUWASEYITAN AWOJOBI-Mini Case 1  
DSCI 5340  
Student ID: 11087659

**Overview:**

This report has been generated using SPSS, SAS and Minitab to perform a 7 day sales forecast for Cost-Mart, a departmental chain store. This report utilizes data for 246 consecutive days. It shows how Cost-Marts sales data fits a multiplicative time series decomposition model showing time trend and seasonal indices components.

1. Using Minitab, the fitted time trend equation is; Yt = 285537 + 263.0×t  
     
   This trend equation shows that we start at $285,537 and then, there is a time trend of $263 per day.
2. Using Minitab and SPSS and SAS, the 7 seasonal indices are;  
     
   **IBM SPSS MINITAB**

|  |  |
| --- | --- |
| **Seasonal Factors** | |
| Series Name: Sales | |
| Period | Seasonal Factor (%) |
| 1 | 104.3 |
| 2 | 95.1 |
| 3 | 88.6 |
| 4 | 90.7 |
| 5 | 95.5 |
| 6 | 110.5 |
| 7 | 115.3 |

Seasonal Indices

Period Index

1 1.05129

2 0.94997

3 0.89406

4 0.91540

5 0.95225

6 1.10106

7 1.13598

**SAS**

|  |
| --- |
| Seasonal Indexes |

| **Obs** | **sum\_of\_indices** | **SeasIndex1** | **SeasIndex2** | **SeasIndex3** | **SeasIndex4** | **SeasIndex5** | **SeasIndex6** | **SeasIndex7** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | 6.99499 | 1.04097 | 0.95675 | 0.88456 | 0.90351 | 0.95349 | 1.10308 | 1.15263 |

Based on the result generated, it shows that the days with higher seasonal index values experience higher sales than others.

1. Sales forecast using SAS and Minitab  
     
   **SAS:**

|  |
| --- |
| Sales forecasts for the next 7 days |

| **Obs** | **\_TYPE\_** | **\_LEAD\_** | **Sales** |
| --- | --- | --- | --- |
| **1** | FORECAST | 1 | 382375.09263 |
| **2** | FORECAST | 2 | 338104.05937 |
| **3** | FORECAST | 3 | 326822.93928 |
| **4** | FORECAST | 4 | 323771.94008 |
| **5** | FORECAST | 5 | 351698.89909 |
| **6** | FORECAST | 6 | 387475.75162 |
| **7** | FORECAST | 7 | 400510.519 |

**MINITAB;**  
  
Forecasts

Period Forecast

246 368210

247 332972

248 313613

249 321337

250 334522

251 387089

1. Using the value $382,375.09263 generated in SAS and the value $368,210 generated in Minitab, these first forecast values differ from the observed value of $378,732.27. The result generated in SAS is higher compared to the value generated in Minitab.   
     
   Due to varying methods of calculation, the results from both software’s may differ. The average forecast of $375,292.5 however, is close to the observed value $378,732.27.

While there might be a forecasting error, it is very little.