**ISMG 4750 Business Intelligence and Financial Modelling- Assignment**

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**1. The executives want you to analyze the performance of the company by region. Build a report that provides revenue and profit data by company region (actual and forecast). Build this report to provide information for each year. Export the data to Excel and conduct a variance analysis on these data to identify areas for improvement. Summarize your findings for the executives.**

When we perform the variance analysis on revenue and profit for number of years based of different regions, we can conclude that the revenue variance and profit variance for 2014 is somewhat less compared to 2016. There’s huge difference between the revenue and profit variance in Northeast and Southeast region, where it dipped significantly. GRAPH1 and GRAPH2.

Variance = Actual cost – forecasted cost

Major reason for this could be the significant increase in the revenue of web. Internet usage and revenue and profit from it was the major gainer in the 3-year analysis. Its profit variance increased from -2310 to 81299 which is extreme

So, one major reason for improvement could be to increase the retail sale in the regions by encouraging and providing benefits to the customers.

Another reason could be providing extra benefits for the customers and extra services.

**2. The executives want you to conduct an analysis of customers for 2016. Build a report and export the raw data to Excel. Use Excel to conduct a variance analysis and identify the top 20 and worst 20 customers of the company? Provide recommendations to the executives.**

So in this case we calculate variance of the customer average revenue using the standard variance formula.

(sample -Mean)^2/Total sample-1

The variance which we get is the distance mean and the revenue generated. So it means, the values close to the mean value generates low returns having low risk, whereas the values far from the mean generates the high returns having high risk.

So for the company the most beneficial customer is Rob Webber and least beneficial customer is Rickey Lynch.

To see top and worse 20 customers see Table 1 and Table 2.

**3. The executives want you to conduct an analysis of products for 2015. Build a report and export the raw data to Excel. Use Excel to conduct a variance analysis and identify the best and worst product category. Identify the top 20 and bottom 20 performing products (items). Provide recommendations to the executives**

To identify the top and worse products of each category we categorized it using colors for each category

|  |  |
| --- | --- |
|  | : BOOKS |
|  | : ELECTRONICS |
|  | : MOVIES |
|  | : MUSIC |

Using this we separated each category then calculated variance and sorted the tables according to the variance column. We can see the products in Electronics perform best as well as worse in this case

We can refer table 3 and table 4 for identifying, specifically the best and the worse product in the category.

GRAPH1

GRAPH2

|  |  |  |
| --- | --- | --- |
| **Top 20 most profitable customers** | | **Variance** |
| Webber | Rob | 2759.549838 |
| Chandler | Laverne | 2415.769853 |
| Locke | Lanny | 2362.367330 |
| O' Malley | Grace | 2337.846068 |
| Antekier | Gigi | 2293.545665 |
| Chubin | Spencer | 2209.068098 |
| Harmon | Majorie | 2126.782092 |
| Stuart | Nathan | 2055.036716 |
| Galaviz | Aldon | 1976.373588 |
| Sample | Lorrie | 1922.417924 |
| Badillo | Murrel | 1902.024089 |
| Sheppard | Caroline | 1889.866375 |
| Shenton | Bartley | 1887.360399 |
| Felt | Dominic | 1872.972358 |
| Lockard | Roz | 1854.454762 |
| Fain | Mina | 1844.144207 |
| Waterworth | Vera | 1839.064784 |
| Abrahamson | Gaige | 1833.775751 |
| Spencer | Jude | 1779.852917 |
| Britton | Alisa | 1779.682202 |
| Liu | Judy | 1746.210993 |

Table 1

|  |  |  |
| --- | --- | --- |
| **Top 20 least profitable customers** | | **Varience** |
| Lynch | Rickey | 0.000043 |
| Barnaby | Tedra | 0.000044 |
| Szajna | Jean | 0.000044 |
| Wallace | Kathleen | 0.000185 |
| Coffey | Ami | 0.000188 |
| Carlough | Bill | 0.000214 |
| Archam | Roxanne | 0.000247 |
| Minton | Terry | 0.000247 |
| Hayes | Kenzo | 0.000348 |
| Perlstein | Vivian | 0.000352 |
| Proehl | Darius | 0.000516 |
| Halverson | Caesar | 0.000539 |
| Croisant | Lynes | 0.000563 |
| Pascale | Melinda | 0.000612 |
| Legue | Webb | 0.000668 |
| Cote | Nancy | 0.000695 |
| Nicholson | Sara | 0.000777 |
| Halverson | Hans | 0.001078 |
| Pfeifle | Edith | 0.001084 |
| Samsal | Bob | 0.001118 |
| Hinckley | Marnie | 0.001215 |

Table 2

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **2015** | |  |
| **Items least performed** | **Revenue** | **Revenue Forecast** | **Revenue Variance** |
| Sony Handycam Digital Recorder | $222,030 | $ 244,233 | -$22,203 |
| Hewlett Packard Color Copier | $144,114 | $ 163,426 | -$19,311 |
| ErgoRev Elite Wireless Keyboard | $246,250 | $ 258,563 | -$12,313 |
| RCA 27" Stereo TV | $82,725 | $ 93,479 | -$10,754 |
| Hewlett Packard Financial Calculator | $50,539 | $ 56,906 | -$6,368 |
| RCA 13" TV/VCR | $61,100 | $ 67,210 | -$6,110 |
| Minolta Vectis Beam Camera | $78,900 | $ 84,423 | -$5,523 |
| Sony Digital MiniDisc | $135,270 | $ 140,681 | -$5,411 |
| Hitachi Hi8 Camcorder | $102,800 | $ 107,940 | -$5,140 |
| 3Com 10/100 CardBus | $41,968 | $ 46,584 | -$4,616 |
| Panasonic Fax Machine | $29,582 | $ 33,279 | -$3,698 |
| RCA 4" LCD Color TV | $51,540 | $ 55,148 | -$3,608 |
| Roark's Formulas for Stress and Strain | $37,140 | $ 40,483 | -$3,343 |
| Sharp VCR+ | $37,026 | $ 40,358 | -$3,332 |
| Hewlett Packard CD-Writer Plus | $66,528 | $ 69,189 | -$2,661 |
| Manufacturing Planning and Control Systems | $23,481 | $ 25,993 | -$2,512 |
| The Exorcist | $17,176 | $ 19,572 | -$2,396 |
| PNY 64 MB Memory Card | $32,654 | $ 35,022 | -$2,367 |
| Sharp Mobilon TriPad Handheld PC | $230,153 | $ 232,455 | -$2,302 |
| City Of Angels | $16,606 | $ 18,864 | -$2,258 |

Table 3

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **2015** | |  |
| **Item that performed the best** | **Revenue** | **Revenue Forecast** | **Revenue Variance** |
| Panasonic Digital Palmcorder Camcorder | $234,765 | $ 225,374 | $9,391 |
| Xerox Workcentre 385 | $107,050 | $ 97,416 | $9,635 |
| Harman Kardon Digital Surround Sound Receiver | $252,150 | $ 242,064 | $10,086 |
| Sharp DVD/CD Player | $95,120 | $ 84,657 | $10,463 |
| Sony 100-Watt Receiver | $91,420 | $ 76,793 | $14,627 |
| 3Com OfficeConnect 56K LAN Modem | $68,265 | $ 53,247 | $15,018 |
| Harman Kardon Dolby Digital Receiver | $161,980 | $ 145,782 | $16,198 |
| Panasonic 27" TV/DVD Player Combo | $152,880 | $ 136,063 | $16,817 |
| Sharp Hi-Fi Stereo Viewcam Camcorder | $109,395 | $ 90,798 | $18,597 |
| Hewlett Packard LaserJet Printer/Copier/Scanner | $144,560 | $ 125,767 | $18,793 |
| Sony Transportable DVD Player | $118,725 | $ 97,355 | $21,371 |
| Sharp 32" Color TV | $148,590 | $ 126,302 | $22,289 |
| Harman Kardon AM/FM Stereo Receiver | $113,750 | $ 89,863 | $23,888 |
| RCA 32" Stereo TV | $149,940 | $ 125,950 | $23,990 |
| Sony 35" Trinitron Television | $212,637 | $ 184,675 | $27,962 |
| Sharp Hi8 Viewcam Camcorder | $158,550 | $ 128,426 | $30,125 |
| Sharp DVD Player | $206,865 | $ 171,698 | $35,167 |
| Hewlett Packard OfficeJet Printer | $233,370 | $ 193,697 | $39,673 |
| Sony 32" Trinitron Television | $185,400 | $ 144,612 | $40,788 |
| Sony DVD/CD/Video Player | $313,380 | $ 256,972 | $56,408 |

Table 4