

MKTG_Assignment_4

MinJae Jo

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Part 1

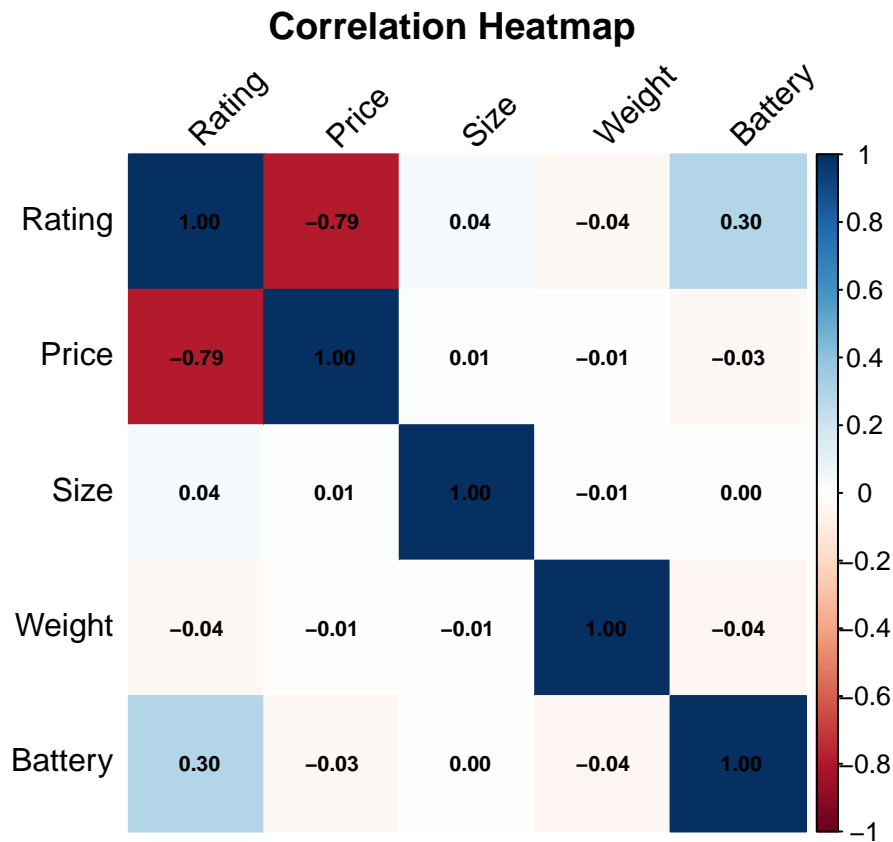
Step 1

##	Rating	Price	Size	Weight	Battery	Material
## 1	4.637272	5	7	1.5	8	Silicon
## 2	3.917012	12	8	1.0	10	Metal
## 3	4.427328	8	10	1.5	6	Silicon
## 4	2.806379	12	9	2.0	8	Ceramic
## 5	5.256741	5	8	2.0	10	Silicon
## 6	2.475075	12	9	2.0	4	Ceramic

Step 2

##		Min	Max	Mean
## Ceramic				
##	397	360	372	371
##				
## Rating	2.358852	5.352971	3.973640	
## Price	5.000000	12.000000	8.706000	
## Size	7.000000	10.000000	8.515333	
## Weight	0.500000	2.000000	1.257333	
## Battery	4.000000	10.000000	7.012000	

Step 3



Step 4

```
##
## Call:
## lm(formula = Rating ~ Price + Size + Weight + Battery + Material,
##     data = MobilMax)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.12896 -0.03837 -0.00111  0.03766  0.15410
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   4.717420   0.007055  668.706 <2e-16 ***
## Price        -0.185192   0.000537 -344.880 <2e-16 ***
## Size8         0.037637   0.003965   9.493 <2e-16 ***
## Size9         0.043227   0.003935  10.986 <2e-16 ***
## Size10        0.098612   0.003975  24.808 <2e-16 ***
## Weight1       0.075714   0.003949  19.171 <2e-16 ***
## Weight1.5    -0.137548   0.003961 -34.727 <2e-16 ***
## Weight2       0.035227   0.003926   8.972 <2e-16 ***
## Battery6      0.382961   0.003930  97.434 <2e-16 ***
## Battery8      0.277156   0.003990  69.469 <2e-16 ***
## Battery10     0.581673   0.003939 147.686 <2e-16 ***
```

```
## MaterialMetal    0.663985    0.003923    169.238    <2e-16 ***
## MaterialPlastic  0.649181    0.003891    166.858    <2e-16 ***
## MaterialSilicon  0.789295    0.003883    203.286    <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.05373 on 1486 degrees of freedom
## Multiple R-squared:  0.9928, Adjusted R-squared:  0.9928
## F-statistic: 1.584e+04 on 13 and 1486 DF,  p-value: < 2.2e-16
```

Step 5

```
##      (Intercept)          Price          Size8          Size9          Size10
##      4.71741993    -0.18519233    0.03763707    0.04322668    0.09861227
##      Weight1      Weight1.5      Weight2      Battery6      Battery8
##      0.07571395    -0.13754841    0.03522710    0.38296071    0.27715649
##      Battery10    MaterialMetal MaterialPlastic MaterialSilicon
##      0.58167350      0.66398486      0.64918146      0.78929485

## (Intercept)
##      -919.7599
```

Part 2

1. Background and Problem Statement MobileMax once led the Indian tablet market, but lost its share as low-cost brands entered. The MobileMax team was unsure of what was more important: price, battery, or design. There was no clear data to support their opinion. To address this issue, MobileMax decided to use combination analysis to figure out what features people really thought were important. The main goal was to create products that customers liked while maintaining reasonable prices and profitability. This approach to data helped MobileMax regain its footing in the highly competitive market.
2. Understanding the Data When we look at the summary and the heat map, price shows the greatest correlation with customer ratings. As the price increases, the rating decreases. Battery life and size have a small but positive effect on satisfaction. In other words, they prefer longer battery life and a larger screen. Weight and material do not significantly affect ratings. In short, people want tablets that are inexpensive, long-lasting, and portable.
3. Understanding Part-worth Utilities
 - Part-worth means how much value each feature adds to a customer's preference.
 - Based on the regression, (Price) lower is better, (Size) 10 inches gives the best score, (Weight) 1 lb is preferred, (Battery) 10 hours is best, (Material) Silicon is most liked.
 - Price has the biggest impact, because price coefficients have the biggest impact on overall utility. Next is battery life. Other factors have an impact, but not as strong as price.
4. Market Share for Existing Products

Product	Key Features	Approx. Utility	Share
A	10k INR / 10 in / 2 lb / 6 h / Ceramic	-0.65	~17 %

Product	Key Features	Approx. Utility	Share
B	8k INR / 8 in / 1 lb / 4 h / Plastic	0.13	~43 %
C	11k INR / 7 in / 0.5 lb / 10 h / Metal	0.08	~40 %

- As we can see from the chart, Product B holds the highest share because the price and basic quality best meet customer expectations.
5. Market Share for New Product D Product D has these features: 8-inch size, 1-pound weight, 8-hour battery, and silicon material. The total non-price utility is -0.245 , and customers who do not buy have a utility of 3.4 . To get a 30% market share, the product must reach a total utility of $3.4 + \ln(0.3/0.7) = 2.55$.
 6. Ideal Product Combination (Product E) (Price = 5,000 INR, Size = 8 in, Weight = 1 lb, Battery = 10 h, Material = Silicon) -Adding the part-worths gives a total utility of about 1.34. This is the best mix of features light, affordable, and long-lasting.