

MKTG_Assignment_4

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Part 1

Step 1

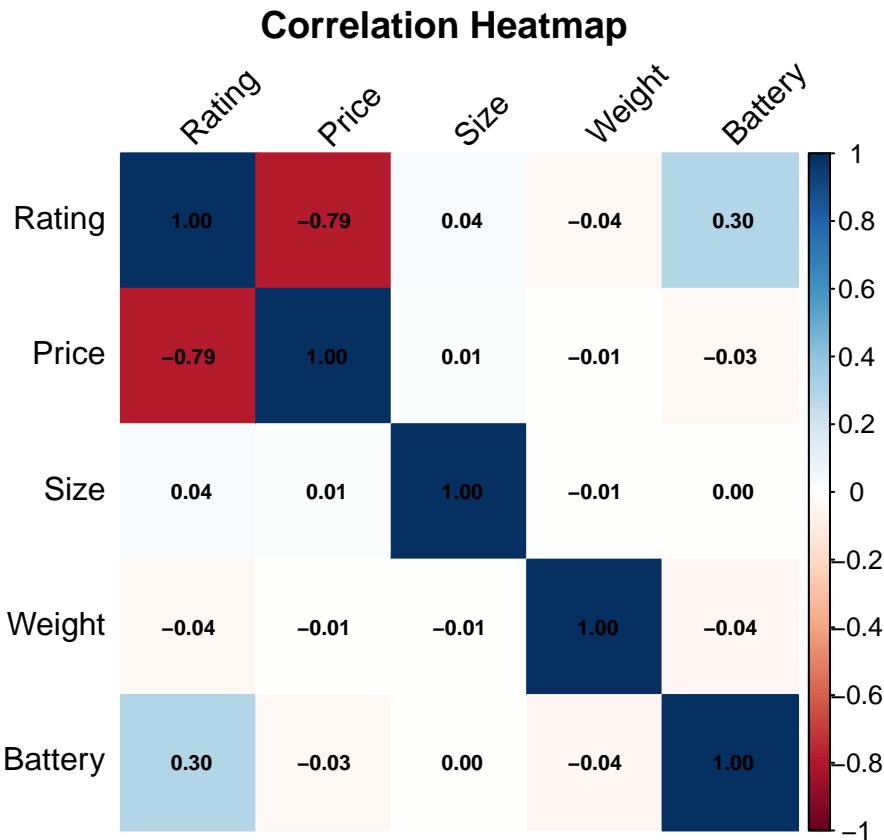
```
##      Rating Price Size Weight Battery Material
## 1 4.637272     5     7    1.5       8 Silicon
## 2 3.917012    12     8    1.0      10 Metal
## 3 4.427328     8    10    1.5       6 Silicon
## 4 2.806379    12     9    2.0       8 Ceramic
## 5 5.256741     5     8    2.0      10 Silicon
## 6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

Step 2

```
##
## Ceramic   Metal Plastic Silicon
##      397      360      372      371

##           Min      Max      Mean
## 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 MaterialsSilicon
## 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.