Data Intelligence Application 2018/19 Project



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Index

1. Introduction

The product we decided to use for this project is the SAMSUNG GALAXY S10. This product is brand new, so we based our assumption on the previous model, the Samsung Galaxy S9 and more in general looking at the past trends in the smartphone market.

1.1 Product description

The Samsung Galaxy S10 was released on the 8th March 2019.

It’s an Android smartphone manufactured by Samsung Electronics and leaving out all the technical specifications, we consider it as a very popular product (Samsung is one of the most popular smartphone brands together with Apple Inc. and Huawei) with a trend like its past models and other competitors’ products.

We consider it as user friendly and less “iconic” than the Apple products.

We hypothesized 350€ as production cost.

2. Classes and environment description

2.1 Features Selection

We describe our possible customers by means of 3 main features with the following values:

* Age: Students, Workers, Retires
* Sex: Male, Female
* Region: Advanced economies, Less developed

[-- We indeed assumed that the behaviour of a male customer is different from a female one (better explanation in the Class description chapter) and similarly a customer from an economic advanced country will behave differently form a less developed one --]

Note: firstly, for the Region feature, we’ve also considered the “Poor countries”, but then we decided to remove them because they’re out of the market we’re considering.

2.2 Class descriptions

In the following tables we show how, using the previous explained features, we’ve created our main class of customers.

For readability, we split the 3D features tensor into 2 tables according to the feature sex. [-- The number are the probabilities of a user to belong to the specific feature --]

Each colour represents one class.

|  |  |  |  |
| --- | --- | --- | --- |
| **MALE 0.5** | Students 0.35 | Workers 0.45 | Retires 0.2 |
| Advanced Economies 0.6 | 0,105 | 0,135 | 0,06 |
| Less Developed 0.4 | 0,07 | 0,09 | 0,04 |

|  |  |  |  |
| --- | --- | --- | --- |
| **FEMALE 0.5** | Students 0.35 | Workers 0.45 | Retires 0.2 |
| Advanced Economies 0.6 | 0,105 | 0,135 | 0,06 |
| Less Developed 0.4 | 0,07 | 0,09 | 0,04 |

* Class 1: this class is characterized by the male students and workers of the economic advanced countries. [-- Female workers --] We assume that the members of this class have no problem in paying higher prices for buying our product.
* Class 2: in this class we can find the students and the workers of the less developed countries. We assume that the young girls of the developed countries behave similarly to the previous customers because, we assume, that they’re more interested in more “iconic” and famous phone like the Apple ones. Here, the members prefer to pay our product at lower price because, we assumed, that they have not much money to spend.
* Class 3: this class is composed by the male and female retires of all the ages. This class’ members are not very interested in buying expensive phones because, we assume, they prefer simpler and cheaper phones. There also a small group of particularly rich members that consider the goodness of a phone proportionally to its price, but there are very few.

2.3 Phases

We identified 4 different phases in our scenario:

1. Market launch: this is the first phase, when the product enters the market. We assumed that for the first 3 months the demand for all the classes remains approximatively the same, after that we hypothesized some smooth changes, in particular in the medium-high price range.
   * Class 1: here the demand is overall high for the prices below 1000€, after which decreases. We assumed that the customers evaluate our product basing on the price of the previous model at the same phase.
   * Class 2: in this class the customers have less money than the previous ones, so the demand decreases if the price exceeds 500€.
   * Class 3: the demand is generally low since the customers of this class are not very interested in buying our product.

|  |  |  |
| --- | --- | --- |
| Phase | Period | Duration |
| Market launch | From February to August | 7 months |

1. Competitors’ new products: we assumed that in September the 2 main Samsung’s competitors (Apple Inc. and Huawei) decide to release their new products. This leads to an abrupt change in the demand that decrease drastically for high prices.
   * Class 1: the demand falls for prices above 400€; we assumed that this kind of customers prefers, cost being equal, to buy the new smartphone in the market (we’ve assumed the new iPhone model).
   * Class 2: similar consideration for this type of customers, that prefers to buy a new and cheaper phone (the new Huawei model in this case).
   * Class 3: the demand softly decreases and there is a flattening of the demand of what we previously called rich members. As we already said, these few people consider the last released smartphone as the best in the market.

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| --- | --- | --- |
| Phase | Period | Duration |
| Competitors’ new product | From September to November | 3 months |

1. Holiday: we hypothesized that during winter holidays, due to the fact that there are several festivities, people increase the demand, because, usually, technologic product are a very popular gift
   * Class 1: the demand remains more or less the same for lower prices (people take advantage of holiday offers for example) and increase a little bit for medium-higher prices (this kind of customers allows himself to spend a little more for a gift)
   * Class 2: here the demand increases a little bit for lower price (again for holiday offers) and remains the same for the others.
   * Class 3: also in this class the demand increases a little, especially for very high prices, due to the rich members. However, it decreases for medium prices range (we assumed that retirees – not the rich group – don’t spend too much money for a not well-known product).

|  |  |  |
| --- | --- | --- |
| Phase | Period | Duration |
| Holiday | From December to January | 2 months |

1. New model: Samsung releases the new smartphone model (Samsung Galaxy S11). This is the last phase we decided to consider.
   * Class 1: because this class of customer is predominantly composed by wealthy people, as soon as the new model of a smartphone is released, the demand strongly decreases, also due to the fact that, in general, the price of the new model is close to the previous model one.
   * Class 2: the demand increases for low prices because usually, as soon as the new model is released, the prices of the previous models decrease. Instead, for higher prices decrease due to the fact that this kind of customers prefer to keep their money for the new model.
   * Class 3: the demand trend returns as in the competitors’ new product phase. The motivations are very similar of the ones expressed in the aforementioned phase.

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| --- | --- | --- |
| Phase | Period | Duration |
| New model | From February to April | 3 months |

3. Time horizon

3.1 Time horizon

3.2 Candidates selection

4. Aggregated demand curve

4.1 K-testing

4.2 UCB1/TS

4.2.1 UCB1

4.2.2 TS

4.3 SW-UCB1/SW-TS

4.3.1 SW-UCB1

4.3.2 SW-TS

5. Disaggregation

5.1 Description

5.2 UCB/TS

5.2.1 UCB1

5.2.2 TS

5.3 SW-UCB1/SW-TS

5.3.1 SW-UCB1

5.3.2 SW-TS

6. Conclusion