**Homework assignment for analysts - Solution**

**Part 1:**

1. What are the success metrics that you will use for the test?

**Test 1-**

* **Email Unique opening percentage**
* **Email Unique Click through rate**
* **Purchase conversion rate**- Percentage of email that ended up purchasing:
  + **Per receiver**- the user can see the subject-line on his email UI without opening the mail, although we can't guarantee it.
  + **Per opener**
  + **Per clicker**- clicked on the mail offer link.
* **Avg revenue:**
  + **Per receiver**
  + **Per opener**
  + **Per clicker**
  + **Per order**
  + **Per buyer**
* **Unsubscribed rate** – users who opted out of marketing emails and turned unemailable.
* **Complaints**-
  + **Per receiver**
  + **Per opener**

**Test 2-** should have the same success metrics as test one except for the "**Per receiver**" variable for **Purchase conversion rate** and **Avg revenue**, since receivers who haven't open the mail can't view the test object- the content. However, it is important to check that there is no significant difference in the groups openers percentage, since a significant difference might suggest that the groups were not devided properly and there are bias.

1. You have a full population base of emailable customers available to you (size = 10M), How do you split your audience for testing?

**Answer:**

the ideal division will minimize differences between the 2 customers groups as much as possible, striving as close as it gets to having the test subject (email SL/content) the only variable that might affect the costumers behavior on a group scale.

For this purpose, I will strive to create groups that contain a similar distribution of customers based on their demographic (such as age, gender, city, etc.) characteristics and past costumer behavior  
(email opening, email ctr, etc.). It is a best to have equal sized a/b groups for each test, and not to include the same costumer in more than one group as it might create bias.

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**Part 2:** see both answer in the **"** **Email Marketing content test.pdf"** and **"test2 data\_with\_calculations files attached.xlsx"** files**.**