MSIN0094 First Assignment Answer Sheet

Candidate Number: RWFD2

Self-reported word count: 1500 words

1. Market Analysis

1. (1) Conduct a situation analysis for Tom's new bubble tea shop. Discuss what each C is about in general terms, then further discuss each C in the context of bubble tea business.

To launch a successful bubble tea shop, Tom must first conduct a situation analysis.

Firstly, **c**ompany (from the 5Cs framework): Bubble tea Cafe is a small business aimed at creating a good mood and a memorable experience for customers. The idea is not just to sell a drink, but to make it part of the daily routine of people working or studying at Canary Wharf. The format should be fast, aesthetic, with a choice of ingredients and personalized tastes. Main strengths are the trending product, visual appeal, modern design, and social media engagement. Weaknesses include a limited budget, high rent, and low brand recognition.

Secondly, **c**ustomers: main clients are young office workers and students aged 18-35 at Canary Wharf who are looking for a delicious and quick drink on the go. They value individuality, visual appeal, and the ability to choose tastes. For them, bubble tea is a way to cheer up, take a break from work, and maybe follow trends. Purchases are often impulsive (the customer walked by and didn't think he wanted to, but eventually buys) and repetitive - customer retention is possible through stable quality, promotions and loyalty programs.

Further on is **c**ollaborators: The cafe's main partners are suppliers of ingredients such as tea, tapioca, syrups and packaging, ensuring stable product quality. Distributors and logistics services such as Deliveroo and Uber Eats are helping to deliver bubble tea to customers in the Canary Wharf area. Additionally, he can collaborate with local cafes and offices for cross-promos and discounts, as well as with influencers who promote the brand and increase awareness.

The next one is **c**ompetitors: The main direct competitors are well-known bubble tea chains such as T4, YumTea, which have already established themselves in this area or even whole London, and attract a similar audience. They offer a similar product and have strong brands. Indirect competitors are Starbucks, Pret A Manger, Costa that satisfy the same need - to quickly get a delicious drink. Potential competitors are large supermarkets and Asian brands that may start selling ready-made bottled bubble tea. To stand out, a cafe should focus on freshness, unique flavors, and a friendlier atmosphere, maybe add preorders to avoid queus.

And the last one is **c**ontext/**c**limate:

Political: After Brexit, importing ingredients from Asia has become more difficult and expensive, which affects the cost.

Economic: High rents and inflation raise costs, but buyers at Canary Wharf have a higher solvency.

Social: There is a growing interest in unique flavors and eco-friendly brands; bubble tea is perceived as a trend and for some lifestyle element.

Technological: The popularity of online orders, loyalty programs, and contactless payments makes digital channels key.

Legal: Hygiene, labeling, and data protection requirements for online sales are being strengthened.

Environmental: The demand for recyclable packaging and the abandonment of plastic is increasing.

1. (2) What would be the next steps in the marketing planning process?

First, Tom needs to identify the main customer segments (office workers, students) and analyse their needs and preferences, then select one or two priority segments to start with. After that, he should establish the brand's positioning as a stylish and positive place for a quick energy refill and friendly experience. Next, the 4Ps are: product (fresh and creative flavours), price (medium-premium range), place (convenient location and delivery options), and promotion (social media, discounts, and local collaborations).

2. Use R code blocks to compute the customer acquisition costs for the three customer acquisition methods.

```r
## complete the code below
cost_prod_blanket <- 0.5 # A cost to produce 1 menu is 0.5£
cost_labour_blanket <- 0.1 # A labour cost 0f 0.1£ per menu distibuted

# Total cost per offer (not targeted)
cost_each_offer_blanket <- cost_prod_blanket + cost_labour_blanket

response_rate_blanket <- 0.02 # Response rate is 2%

CAC_blanket <- cost_each_offer_blanket/response_rate_blanket

## complete the code below
cost_list_targeted <- 0.6 # A cost per name on the list from a Food & Beverage
consulting agency
cost_postage_targeted <- 0.1 # The postage cost per customer through Royal Mail
cost_prod_targeted <- cost_prod_blanket # The cost of producing the menu is the
same for targeted and blanket

# Total cost per each mailed customer
cost_each_offer_targeted <- cost_list_targeted + cost_postage_targeted +
  cost_prod_targeted
response_rate_targeted <- 0.05

CAC_targeted <- cost_each_offer_targeted / response_rate_targeted
```

```
# 2 measures that are not included in calc:
rate_click <- 0.005 # 0.5% of web (Google) users who will just see the ads for
free - are not included in calculations as they are not clients
rate_view_menu <- 0.2 # 20% are to click the link to view the menu - which will
be paid of 0.5£ per click

rate_per_purchase <- 0.25 # 25% would make a purchase
# Number of clicks per one purchase is 1/0.25=4

cost_per_click <- 0.5 # An average CPC for keywords

CAC_SEM <- cost_per_click / rate_per_purchase

# do not temper the below line of code; this is to print out your answer for TAs
to check

print(paste0("Customer Acquisition Costs for blanket mailing is £",
CAC_blanket))

[1] "Customer Acquisition Costs for blanket mailing is £30"

print(paste0("Customer Acquisition Costs for targeted mailing is
£",CAC_targeted) )

[1] "Customer Acquisition Costs for targeted mailing is £24"

print(paste0("Customer Acquisition Costs for SEM is £", CAC_SEM))

[1] "Customer Acquisition Costs for SEM is £2"
```

3. Discuss the pros and cons of each of the three acquisition methods.

Starting with **pros** for the stated three methods. For blanket marketing:

- It is a good option for new businesses to spread their knowledge of their existence

- A quick and easy method to start the advertising without any data analysis (a straightforward method)

- Good for new local markets where it is easy to reach the neighborhood

For targeted mailing:

- Helps to focus on specific groups of customers who are more likely to buy a product

- The response rate may allow one to analyze data for the new marketing strategy

- More effective way in terms of cost and the attracted buyer than the previously mentioned method

For search engine marketing (SEM):

- Use of keywords, location, interests of customers give a more precised way of targeting

- The number of observations is high as all the clicks and the conversion can be counted

Cons for blanket marketing:

- It is impossible to collect any data of the respondents (who comes after receiving the advertisement)

- It's likely that most of those who receive the blankets will never return

- So, the return rate is low and the cost per customer is high

For targeted mailing:

- The collected information about possible future customers may be outdated

- Not as spread as a mass targeted mailing

- It takes time and money to obtain all the needed information about the clients

For SEM:

- If the brand is not well known, conversion of clients as well as the number of clicks won't be high

- Expensive method in terms of attracting customers, especially in a competitive market

- Needs a lot of optimizationч, strategy of how to implement it

4. Discuss which acquisition method Tom should choose under what circumstances and explain why.

Tom should think about the environment of his bubble tea shop — it will be located inside a business centre with many office workers, students and regular visitors.

Blanket marketing can help to make people in the building aware that the new shop exists. Flyers or posters near the entrances and elevators as well as near tubes' exits can attract nearby offices during the first weeks. It is simple and quick, but with a CAC of £30 it is quite expensive in the long run. After the opening, this method should be replaced with more data-driven options.

Once the shop has collected first-purchase data and some customer emails, targeted mailing becomes more relevant. It is more focused with CAC £24 and can reach employees who have already visited or showed interest. Tom can send morning or lunch-time discounts, loyalty program offers, or reminders about seasonal drinks. This approach works well in a business-centre environment (and student campus) where people have predictable routines and often buy drinks during breaks.

Finally, search engine marketing (SEM) can be used for a broader but still efficient customer reach. With the lowest CAC of £2, SEM helps attract new nearby visitors searching for "bubble tea nearby" or any similar keywords. It is especially good for limited-time promotions or new product launches.

So, Tom can start with blanket marketing to raise awareness, switch to targeted mailing for returning customers, and use SEM for continuous, cost-efficient customer acquisition.

2. A Marketing Survey to Estimate Customer Metrics

5. Based on the case description, discuss any flaw(s) in the survey design and how would you improve the survey design

The survey was conducted during the most busy time which gave biased results - most of the respondents are office workers. Moreover, only those who were open to giving answers were considered which is self-selection bias - no answers of those who are not interested in Bubble teas.

Another flaw is the questions: average_spend doesn't indicate the variability of prices per drink and the retention_rate is only what the customer thinks for himself - not statistically calculated measure. And the questions that were not asked such as gender, age, income, that are quite essential for this type of survey

6. Load the survey_data.csv file into R. Report the summary statistics for each of the two customer segments (foodie vs non-foodie). Comment on any noteworthy observations you feel relevant for Tom.

```
pacman::p_load(tidyverse, modelsummary, dplyr)
# load the data.
survey_data <- read.csv("survey_data.csv")

# report the summary statistics
slice_head(survey_data, n = 3)

  customer_id purchase_frequency average_spend retention_rate foodie
1           1                  6             4           0.87      1
2           2                 10             4           0.79      1
3           3                  7             3           0.83      1

glimpse(survey_data)

Rows: 1,000
Columns: 5
$ customer_id        <int> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, …
$ purchase_frequency <int> 6, 10, 7, 11, 13, 4, 8, 12, 8, 8, 13, 8, 9, 8, 5, 1…
$ average_spend      <int> 4, 4, 3, 4, 11, 5, 7, 8, 3, 4, 4, 3, 3, 13, 12, 3, …
$ retention_rate     <dbl> 0.87, 0.79, 0.83, 0.87, 0.82, 0.74, 0.89, 0.81, 0.8…
$ foodie             <int> 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, …

# Making a column with the names for categorical variable
survey_data$foodie_name <- factor(survey_data$foodie,
                                  levels = c(0, 1),
                                  labels = c("Non-Foodie", "Foodie"))

# no need in summary for the "foddie" column as it's categorical but left it so
it can be easier to identify the tables
survey_data %>%
  filter(foodie == 0) %>%
  select(-foodie_name) %>%
  datasummary_skim(type = "numeric")
```

	Unique	Missing Pct.	Mean	SD	Min	Median	Max	Histogram
customer_id	614	0	693.5	177.4	387.0	693.5	1000.0	
purchase_frequency	12	0	4.0	2.0	0.0	4.0	11.0	
average_spend	12	0	4.0	2.0	0.0	4.0	12.0	
retention_rate	30	0	0.7	0.1	0.6	0.7	0.9	
foodie	1	0	0.0	0.0	0.0	0.0	0.0	

```r
survey_data %>%
  filter(foodie == 1) %>%
  select(-foodie_name) %>%
  datasummary_skim(type = "numeric")
```

	Unique	Missing Pct.	Mean	SD	Min	Median	Max	Histogram
customer_id	386	0	193.5	111.6	1.0	193.5	386.0	
purchase_frequency	17	0	8.1	2.8	1.0	8.0	19.0	
average_spend	15	0	6.0	2.5	0.0	6.0	14.0	
retention_rate	26	0	0.9	0.0	0.7	0.8	1.0	
foodie	1	0	1.0	0.0	1.0	1.0	1.0	

```r
# Foodies purchase about twice as often, spend ~50% more per visit, and show higher retention levels
# Non-foodies buy less frequently and show lower loyalty
# Therefore, Tom should prioritise the foodie segment and focus on building retention and loyalty strategies around these customers
```

7. Compute the average spending, average shopping frequency, and average retention rate for both foodie and non-foodie customer segments.

```r
# Compute and report the required statistics

avg_spending_nonfoodie <- mean(survey_data$average_spend[survey_data$foodie == 0], na.rm = TRUE)
avg_frequency_nonfoodie <-
mean(survey_data$purchase_frequency[survey_data$foodie == 0], na.rm = TRUE)
```

```r
avg_retention_rate_nonfoodie <-
mean(survey_data$retention_rate[survey_data$foodie == 0], na.rm = TRUE)

avg_spending_foodie <- mean(survey_data$average_spend[survey_data$foodie == 1],
na.rm = TRUE)
avg_frequency_foodie <- mean(survey_data$purchase_frequency[survey_data$foodie
== 1], na.rm = TRUE)
avg_retention_rate_foodie <- mean(survey_data$retention_rate[survey_data$foodie
== 1], na.rm = TRUE)

# This code block is for printing the results, pls do not modify
print("Metrics for foodie segment:")
```

```
[1] "Metrics for foodie segment:"
```

```r
print(paste("The average spending is £", avg_spending_foodie))
```

```
[1] "The average spending is £ 5.9740932642487"
```

```r
print(paste("The average frequency is", avg_frequency_foodie))
```

```
[1] "The average frequency is 8.05699481865285"
```

```r
print(paste("The average retention rate is", avg_retention_rate_foodie))
```

```
[1] "The average retention rate is 0.850233160621762"
```

```r
print("Metrics for non-foodie segment:")
```

```
[1] "Metrics for non-foodie segment:"
```

```r
print(paste("The average spending is £", avg_spending_nonfoodie))
```

```
[1] "The average spending is £ 3.99348534201954"
```

```r
print(paste("The average frequency is", avg_frequency_nonfoodie))
```

```
[1] "The average frequency is 4.02117263843648"
```

```r
print(paste("The average retention rate is", avg_retention_rate_nonfoodie))
```

```
[1] "The average retention rate is 0.703241042345277"
```

3. Customer Break-Even and Lifetime Value

8. Use R programming to compute the CLV for foodie customers. Discuss whether or not foodie customers are profitable to acquire.

```r
# Writing down all the info we have in the case
N <- 24
COGS <- 0.45
profit_margin <- 1 - COGS
# Total profit:
M_foodie <- profit_margin * avg_spending_foodie * avg_frequency_foodie
c <- 0 # variable marketing costs are 0 as Tom isn't planning to invest more
money for each period
```

```r
# Calculating net profit (g) per customer per period (year)
g_foodie <- M_foodie - c
# Net Profit sequence for all periods before discounting
g_seq_foodie <- rep(g_foodie, N)

r_foodie <- avg_retention_rate_foodie
# Retention sequence
r_seq_foodie <- r_foodie^(seq(1, N)-1)
# Net Profit sequence for all periods after retention
g_seq_after_retention_foodie <- g_seq_foodie * r_seq_foodie

k <- 0.1 #Annual discount rate
d <- 1 / (1 + k/12) # Monthly discount factor
# Discount sequance
d_seq <- d ^ seq(1, N)
# Net Profit sequence for all periods after retention and discount
g_seq_after_retention_discount_foodie <- g_seq_after_retention_foodie * d_seq

# CLV is the sum of all discounted future profits without acquisition cost
CLV_foodie <- sum(g_seq_after_retention_discount_foodie) - CAC_SEM

# This code block is for printing the results, pls do not modify
print(paste0("The g_seq is ", g_seq_foodie[1:5]))
```

```
[1] "The g_seq is 26.4732811619104" "The g_seq is 26.4732811619104"
[3] "The g_seq is 26.4732811619104" "The g_seq is 26.4732811619104"
[5] "The g_seq is 26.4732811619104"
```

```r
print(paste0("The g_seq_after_retention_discount is ",
g_seq_after_retention_discount_foodie[1:5]))
```

```
[1] "The g_seq_after_retention_discount is 26.2544937142913"
[2] "The g_seq_after_retention_discount is 22.1379581863399"
[3] "The g_seq_after_retention_discount is 18.666868917505"
[4] "The g_seq_after_retention_discount is 15.7400240912156"
[5] "The g_seq_after_retention_discount is 13.2720896839705"
```

```r
print(paste0("The CLV for foodie customers is £", CLV_foodie))
```

```
[1] "The CLV for foodie customers is £162.651845501621"
```

```r
# Foodies' CLV is £162.7, while the CAC (SEM) is £2 - which is a good return
# There's a sense for Tom to invest in attracting in them as foodies tend to buy
and spend more often, and also stay loyal longer
```

9. Use R programming to compute the CLV for non-foodie customers; use comments #... to explain your steps. Discuss whether non-foodie customers are profitable to acquire.

```r
# Total profit:
M_nonfoodie <- profit_margin * avg_spending_nonfoodie * avg_frequency_nonfoodie
g_nonfoodie <- M_nonfoodie - c # c is still 0
# Net Profit sequence for all periods before discounting
g_seq_nonfoodie <- rep(g_nonfoodie, N)
```

```
r_nonfoodie <- avg_retention_rate_nonfoodie
# Retention sequence
r_seq_nonfoodie <- r_nonfoodie^(seq(1, N)-1)
# Net Profit sequence for all periods after retention
g_seq_after_retention_nonfoodie <- g_seq_nonfoodie * r_seq_nonfoodie
# Net Profit sequence for all periods after retention and discount
g_seq_after_retention_discount_nonfoodie <- g_seq_after_retention_nonfoodie *
d_seq

# CLV is the sum of all discounted future profits without acquisition cost
CLV_nonfoodie <- sum(g_seq_after_retention_discount_nonfoodie) - CAC_SEM

# This code block is for printing the results, pls do not modify
print(paste0("The g_seq is ", g_seq_nonfoodie[1:5]))

[1] "The g_seq is 8.83217169412938" "The g_seq is 8.83217169412938"
[3] "The g_seq is 8.83217169412938" "The g_seq is 8.83217169412938"
[5] "The g_seq is 8.83217169412938"

print(paste0("The g_seq_after_retention_discount is ",
g_seq_after_retention_discount_nonfoodie[1:5]))

[1] "The g_seq_after_retention_discount is 8.75917853963245"
[2] "The g_seq_after_retention_discount is 6.10890629385074"
[3] "The g_seq_after_retention_discount is 4.2605292195146"
[4] "The g_seq_after_retention_discount is 2.97141719927995"
[5] "The g_seq_after_retention_discount is 2.07235292079106"

print(paste0("The CLV for non-foodie customers is £", CLV_nonfoodie))

[1] "The CLV for non-foodie customers is £26.944102785776"

# Nonfoodies' CLV is £27 with the CAC (SEM) of £2 - which is almost no margin
# There's no real sense for Tom to invest in attracting them even if CLV>0
```

4. A Loyalty Program for Tom's Bubble Tea Shop

10. Should Tom go ahead with the loyalty program for the bubble tea business? Explain your codes and calculations in detail.

```
# New retention rates with a loyalty program:
r_foodie_new <- 0.9
r_nonfoodie_new <- 0.75

free_drink <- 4 # The cost for a free drink is 4£
paid_drink <- 4 # The number of paid drinks for 1 free drink

# The expected cost of the free drink based on the average purchase frequency as
in the assignment example
c_foodie <- free_drink * (avg_frequency_foodie / paid_drink)
c_nonfoodie <- free_drink * (avg_frequency_nonfoodie / paid_drink)

# Recalculate  profit each period net of variable marketing costs (g) (M is the
```

```r
same as in Q8)
g_foodie_new <- M_foodie - c_foodie
g_nonfoodie_new <- M_nonfoodie - c_nonfoodie

# Net Profit sequence for all periods before discounting
g_seq_foodie_new <- rep(g_foodie_new, N)
g_seq_nonfoodie_new <- rep(g_nonfoodie_new, N)
# Retention sequence
r_seq_foodie_new <- r_foodie_new^(seq(1, N)-1)
r_seq_nonfoodie_new <- r_nonfoodie_new^(seq(1, N)-1)

# Net Profit sequence for all periods after retention
g_seq_after_ret_foodie_new <- g_seq_foodie_new * r_seq_foodie_new

g_seq_after_ret_nonfoodie_new <- g_seq_nonfoodie_new * r_seq_nonfoodie_new

# Net Profit sequence for all periods after retention and discount
g_seq_after_ret_disc_foodie_new <- g_seq_after_ret_foodie_new * d_seq
g_seq_after_ret_disc_nonfoodie_new <- g_seq_after_ret_nonfoodie_new * d_seq

# CLV is the sum of all discounted future profits without acquisition cost

CLV_foodie_new <- sum(g_seq_after_ret_disc_foodie_new) - CAC_SEM
CLV_nonfoodie_new <- sum(g_seq_after_ret_disc_nonfoodie_new) - CAC_SEM

print(paste0("The CLV for non-foodie customers is £", CLV_foodie_new))
```

```
[1] "The CLV for non-foodie customers is £156.885283390864"
```

```r
print(paste0("The CLV for non-foodie customers is £", CLV_nonfoodie_new))
```

```
[1] "The CLV for non-foodie customers is £16.6079103540651"
```

```r
# Calculating the share of foodies and nonfoodies from the data
weight <- survey_data %>%
  count(foodie)  %>%
  mutate(weight = n / sum(n))
w_foodie <- weight %>%
  filter(foodie == 1) %>%
  pull(weight)
w_nonfoodie <- 1 - w_foodie

delta_CLV_foodie <- CLV_foodie_new - CLV_foodie
delta_CLV_nonfoodie <- CLV_nonfoodie_new - CLV_nonfoodie

delta_CLV_all <- w_foodie * delta_CLV_foodie + w_nonfoodie * delta_CLV_nonfoodie
conclusion <- ifelse(delta_CLV_all > 0, "Launch the loyalty program", "Do not
launch the loyalty program")

print(paste0("The delta CLV for foodie customers is £", delta_CLV_foodie))
```

```
[1] "The delta CLV for foodie customers is £-5.76656211075735"
```

```
print(paste0("The delta CLV for non-foodie customers is £",
delta_CLV_nonfoodie))
```

```
[1] "The delta CLV for non-foodie customers is £-10.3361924317108"
```

```
print(paste0("The delta overall CLV for foodie customers is £", delta_CLV_all))
```

```
[1] "The delta overall CLV for foodie customers is £-8.57231512782279"
```

```
conclusion
```

```
[1] "Do not launch the loyalty program"
```

```
# The cost of free drinks exceeds the profit for customers even with the loyalty
program with improved retention.
# Foodie and non-foodie customers show a decline in profitability with an
overall decrease of 8.57£
# The cost of free drinks outweighs the incremental profit from improved
retention. Thus, Tom should not launch the loyalty program, as it decreases
total customer lifetime value
```

11. Discuss how Tom can use CLV as a customer relationship management tool to guide his future marketing decisions

There are 3 stages for the usage of customer lifetime value as a key management tool such as acquisition, development and retention. Firstly, at acquisition stage Tom can understand via CLV which customers to attract and which marketing strategy to use for a long-term win. Another thing that can be used is the maximum value for CAC that keeps customers profitable for the business. In this case Tom should spend more on channels that attract more foodie customers with a higher CLV and decrease non-foodie investments.

The next stage is development which helps to make conclusions out of CLV results. He can identify clients with a higher potential and offer them special deals (seasonal, for example), loyalty programs or being the first ones to try a new flavor of tea. These can increase purchase frequency and spending per one visit with no need for random discounts for one comers. Better to make some personalized offers.

The last step out of 3 discussed is retention. At this point, CLV emerges as a crucial asset for Tom. It allows him to understand how variations in the monthly retention rate can influence long-term profitability. Even a minor improvement in retention can lead to significant changes in the overall CLV, particularly for clients with high profit margins and frequent purchases. Using CLV, Tom can check if programs like loyalty cards or referral bonuses actually make sense financially. Instead of guessing, he can simulate how much extra value these programs bring compared to their cost. If the lifetime value goes up, the idea is worth keeping; if not, it shows that the program is too expensive for the benefit it brings.

Overall, CLV helps Tom make his decisions based on numbers rather than guesses. It links all main marketing activities: acquisition, development, and retention - to the real profit each customer brings. This way, Tom can spend his budget more wisely, focus on the customers who matter most, and make sure the shop keeps growing in a stable and realistic way.

12. What name would you give to the bubble tea shop ;-)

I have a few options:

“Oops! I Bubbl’d Again” - as in the well-known song of Britney Spears as the Bubble lovers will always come back to drink one more

The second option is from my teen brother who came to visit me for a few days: “BooBles” as a way to attract male customers but also with a meaning of Boo your blues away!