Q1. Develop a digital media plan to promote Bowtie VHIS in the post-COVID era, where the concerns around unexpected diseases are fading. You will have $1 million budget to target on the Working Class to drive awareness and achieve the business goal.

Please address the following:

1. Campaign Theme: What will be the central theme of your campaign to appeal to the working population?
   * ‘Cancer – not far away from us; 癌症，防大于治”
2. Oobjectives: What specific goals will you set for awareness, consideration, and conversions?
   * Goal for awareness: From a statistical perspective, the number of people (aged 20 or above) diagnosed lung cancer and colorectal cancer in HK has been raising and will be continued to raise significantly in the future. From a psychology stand point, people tend to dodge away bad things, and underestimate the possibility of bad things happen. People always feel cancer is far away until they are not, as a matter of fact, over 40% of men and women will be diagnosed with cancer during lifetimes. My specific goal of this campaign is to raise up people’s awareness about the common of cancer and start paying attention to it.
   * Consideration: Firstly, in this campaign, not only do we need to tell people about the likelihood of cancer in their lifetime, but also educate them that being able to detect at early time will boost up the survival rate exponentially. Secondly, we can share the fact that the high life expectancy rate in Japan could be largely attributed to the widely usage of advanced health scan technique (CT、MRI、PET-CT), which is able to tell people whether they have cancer in early stage, and cancers on early stage has over 90% survival rate. Lastly, we can introduce our Bowtie VHIS plan, which make the audience connected health scan or diagnostic imaging tests with Bowtie sub-consciously
   * Conversions: 2% conversion rate on target audience
3. Targeting: Who is your target audience, including demographics and psychographics?
   * Working class could be further segmented by their income, and my target audience are those within the low to medium income bucket. For example, people who are taking public transportation to commune, working overtime and get off work late, they are under pressure, don’t hold a decent dietary habit, price sensitive and don’t believe they are living a healthy lifestyle. This group of people are reluctant to think about their health and overestimate their body conditions. This group of people are usually making the most money for their families and cannot afford to be badly sick, so they are likely to spend affordable money on flexible health insurance to make sure they can know ahead of time when the devil comes.
4. Budget Split: How will you allocate the $1 million across digital channels to maximize the conversions and cost efficiency effectively?
   * 30% on MTR advertising. The screen only play our advertising in 7:30am – 9:30am, 7:30pm to 9:30pm, so four hours a day to specifically target people who’s working over 12 hours a day.
   * 70% on social media platforms like FB、Instagram、微信朋友圈、小红书 only in specific timeframe, because working class are more likely to open their apps when they go to work, lunch break and on their way home.
5. Product Selection: Which VHIS product(s) will you promote and why?
   * Prescribed diagnostic imaging tests. Reasons are stated as above
6. Ad Angles: What ad angles will you test to engage the working population?
   * Make sure we let working population or target audience think we understand them or we are one of them. From a psychological perspective, people tend to believe in people or things that has similarities, John Smith is more likely to buy something from a stranger who went to the same college as him than someone who is not. Earn people’s trust before introducing the products.
7. Success Measurement: How will you measure campaign success (KPIs)?
   * ROI: (revenue generated from people buy VHIS products in x months – 1m)/1m is greater than 1
   * Number of new accounts registered after the campaign increased by 20%
   * People who clicked on the ads / people exposed to the ad > historical ct rate

Q2. At Bowtie, customers can visit our website to try out the online application anytime anywhere. Through the online application, they can experience the underwriting process and get a personalized quote anonymously. The data we collect through the online application journey is very useful not only to understand the customers behaviour but also a valuable source for developing custom bidding strategies for digital performance campaigns e.g. value-based bidding.

Based on the online application for VHIS, please propose a custom bidding strategy. Consider how you would utilize data from the application process to optimize the bids and increase conversions down the funnel. Discuss any specific metrics you would track, methodologies you would implement, and how you would measure the success of this strategy.

* + Using the data from the application process, we can understand where visitors abandon the application process; We can also monitor how long visitors stay on each page, we can also collect data on which fields are most commonly filled out or skipped by the visitors.
  + We can also utilize demographic data (age, occupation, address) and health condition to perform customer segmentations, creating bidding strategies based on these data
  + Based on the data collected from the above sources, we can create a dynamic bidding strategies based on the likelihood of conversion. People who has completed 70% of the application is more likely to be converted compared to people bounce off on the first page; People with higher income are more likely to convert compared to the low income.
  + We can create our own metrics to rank the visitors who started their application from 1 – 10 based on their behaviours on the application process, as well as their demography data. 10 being the most likely to be converted under digital campaign. We can increase our bid on visitors with higher ranking since they show higher intend, lower our bid on visitors with low ranking to save costs. In this way we can increase our conversion rate in a cost-friendly way, with higher successful rate.
  + Perform analysis on abandon pages for improvement.
  + Monitor the performance of each segment of visitors, adjust bid accordingly if segment outperform others.
  + Metrics to track includes drop off rates on each page, time to complete on each page, overall conversion rate, completion rate on each page.

Q3. There is some sample data for a Paid Search campaign in the Excel file. The raw data are from 2 sources – ad platform and Campaign Manager (CM). By merging the data (using Power Query), please evaluate the performance of the ad versions in terms of traffic (CTR, CPC) and conversions (conversion rate, CPA). You will need to return the working file as part of the assessment.

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| --- | --- | --- | --- | --- |
| **Row Labels** | **CTR** | **CPC** | **CVR** | **CPA** |
| Bowtie自願醫保【即時網上報價】 | 5.2% | $ 1.69 | 0.54 | $ 3.13 |
| Bowtie自願醫保【首年保費7折】 | 3.7% | $ 2.12 | 0.43 | $ 4.96 |
| Bowtie自願醫保系列【即時報價】 | 4.3% | $ 1.99 | 0.37 | $ 5.35 |
| 純網上自願醫保【出院免找數】 | 4.7% | $ 1.87 | 0.36 | $ 5.16 |
| 純網上自願醫保【即時網上報價】 | 3.2% | $ 2.52 | 0.39 | $ 6.46 |
| 自願醫保【網上投保 毋須驗身】 | 3.7% | $ 1.90 | 0.36 | $ 5.34 |
| **Grand Total** | **4.1%** | **$ 1.99** | **0.42** | **$ 4.75** |

Based on the evaluation, if we’d run a 30% off campaign next month, please write 1-2 ad copies that would help optimize the campaign performance.

* Based on the metrics above, we can see 【即时网上报价】has the best digital performance (highest CTR and CVR with lowest CPC and CPA), so incorporating real time pricing offer might increase the campaign performance. Ad copies:
  + “本月投保享受七折优惠，只需您简单提供信息即可获得即时报价，让您早投早享受”
  + “五分钟时间换取30%优惠，实时报价为您健康保驾护航”

Hints for calculating the metrics:  
- CTR = Clicks / Imp  
- CPC = Cost / Clicks  
- CVR = Conversions / Clicks  
- CPA = Cost / Conversions

Q4. Creative/Ad performance analysis is one of our routine tasks to not only monitor the performance, but also relying on the data for decision making on optimization and budget allocation, etc. To evaluate the ad performance in terms of how good they can trigger their purchase intention, we’d use both data from the ad platform and the 3rd party tracking platform. You are given a set of sample data as attached, please try to create a summary report and answer the following questions.

1. To merge the data from Tracking Raw (Session manual ad content) with Campaign Raw (Landing Page)
2. To analyze the ad performance based on the below metrics:  
   - Lead vol.: No. of leads generated per ad  
   - Lead CVR (= Lead/Clicks): The Lead Conversion Rate shows how good each ad is able to arouse the purchase intention of the customers  
   - Lead CPA (= Cost/Lead vol.): The Cost Per Acquisition (= Cost Per Lead here) shows the cost efficiency of generating each lead by the ad

* RESULTS ARE DISPLAYED IN THE EXCEL FILE(tech-assessment-2024sep-questio4-creative – Kyle, ‘sheet’ merge table - final result). PLEASE KINDLY REVISE.

Q5. In this assignment, you will be working on a sample data set, which consists of three CSV files – policy.csv, invoice.csv, and claim.csv, the field id being the primary key respectively.

i. Treat each CSV file as a database table. Write SQL queries to perform the following tasks:

a. Obtain the number of submitted claims in the year 2021 by products.

b. Compare the average net premium received from new policies vs returning policies (i.e. the 2nd+ policy of the same user)

Deliver your submission in .sql files. Note that you are NOT required to give out concrete numbers in the above tasks. The queries are the only required deliverables. Please also state as comments any assumptions you have made.

* SQL scripts are written in the separate file named “Q5\_i”, please kindly review.

ii. Create a dashboard to help management monitor the following business metrics:

a. Premium received   
b. Number of policies issued   
c. Loss ratio

The dashboard should enable business users to detect abnormal trends/ patterns visually and serve as an entry point for management to ask the right questions in case some metrics go bad.

Feel free to use ANY tools (e.g. Excel, Tableau, PowerBI, Streamlit, Plotly, etc.) to create the dashboard and include a pointer to it (e.g. a URL, a file) in your submission. Ensure it can be opened without permission issues.

Push all deliverables into a private Github repository. Of course, you may include pointers to other third-party sources if necessary.

* Dashboard is created in Excel file named “Q5\_ii\_dashboard”, please kindly review