D<small>ATA</small> A<small>NALYTICS</small> A<small>SSIGNMENT</small> #3 (30 <small>POINTS</small>)

DUE DATE: Thursday, 11/14/2024
Individual Submission is Required

*** Though this is an *individual* assignment and each student's simulation results will be viewable by the professor at the HBS platform, please feel free to discuss with your classmates when running the simulations.**

- In this assignment, students are asked to **run simulations** using the HBS platform for the case **"Digital Marketing Simulation: Media Attribution at ExerciseMinder."** Acting as the chief marketing officer (**CMO**) for an exercise fitness app, ExerciseMinder, students are **tasked to increase the installed base by 200% over the next five years and maintain return on marketing investment (ROMI) at 2.5 or higher**.

- **Students will be more successful when they make extensive use of the data in the performance dashboard, conduct data analysis, and use the A/B testing tools.**

- with turning around the brand's performance by **using analytic techniques (by exploring historical data) to understand current issues and determine the best strategy for improving performance**. Students will be asked to **set the channel price, make formulation decisions, determine promotional spending strategy**, and communicate their strategy effectively to their managers. The simulation makes use of actual consumer data informed by a multinational consumer goods company. **Take the following steps to run the simulations and answer debrief questions**.

  o **Step 1: *Background case reading*.** Read the short case study, "Your Mission," which provides an overview of the simulation context and essential background of ExerciseMinder's business model and the objectives of the CMO. This background case reading should be done before the simulation begins. **You are suggested to watch the demos of the simulations for a detailed introduction on how the simulation works.**

  o **Step 2: *Data exploration*.** Explore the current year's marketing strategy and performance, using the performance dashboard, in order to understand the financials and the ROMI of the firm's current campaigns. The data provides an overview of the firm's business model and the performance metrics.

  o **Step 3: *Trial runs.* The simulation can be run multiple times; thus, students are encouraged to explore the simulation and try out making some decisions**. This is a great opportunity to lean about the functionality of the simulation. It is strong recommended to write down your decisions and the outcomes in the trial run, which will help you during the game run to repeat the actions that resulted in favorable outcomes.

  o **Step 4: *Decision-making.* Run the simulation, begins in year 2 and runs until year 6**, which involves students making decisions over five cycles about campaigns to launch, the budget for each campaign, and the shar of each campaign's budget for each media channel. **Make sure you spend sufficient amount of time in the "Detail" and "A/B Test" tab to investigate the effect among various media channels.**

Step 5: *Answer the following debrief questions (short answers)*

1. **(15 Points)** Run the simulation(s) and take screenshots (show the screenshots here) to show your results from year 2 to year 6.

Year: 2

Previous Campaigns

1. Promote Social Media Features

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$500,000	$0.21	0%	80%	0%	0%	20%

2. New Member Price Discount

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$5,000,000	$2.11	10%	35%	20%	20%	15%

3. Promote Social Media Features

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$500,000	$0.21	0%	80%	0%	0%	20%

Results

	Television	Facebook	Unbranded	Branded	Email
Impressions by channel	704,568	2,241,914	671,257	1,714,390	1,006,775
Website visits by channel	13,185	128,552	16,959	81,814	71,267

New Customers: 453,811

Exiting Customers: 110,373

Customers (total): 2,714,705

Year: 3

Previous Campaigns

1. New Member Price Discount

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$8,000,000	$2.95	6%	25%	11%	21%	37%

2. Message Customers with Tips and Ideas

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$700,000	$0.26	6%	21%	11%	21%	41%

3. 10,000 Steps per Day Challenge

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$700,000	$0.26	7%	25%	12%	25%	31%

4. Emphasize Benefits of Healthy Lifestyle

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$600,000	$0.22	7%	25%	12%	25%	31%

Results

	Television	Facebook	Unbranded	Branded	Email
Impressions by channel	746,397	2,381,990	649,923	3,181,245	3,958,583
Website visits by channel	13,865	133,187	16,541	126,126	172,622

New Customers: 616,848

Exiting Customers: 116,002

Customers (total): 3,215,551

Year: 4

Previous Campaigns

1. Message Customers with Tips and Ideas

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$2,000,000	$0.62	10%	30%	14%	22%	24%

2. 10,000 Steps per Day Challenge

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$1,000,000	$0.31	10%	30%	14%	22%	24%

3. Emphasize Benefits of Healthy Lifestyle

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$500,000	$0.16	10%	30%	14%	22%	24%

Results

	Television	Facebook	Unbranded	Branded	Email
Impressions by channel	233,982	545,392	156,044	626,271	486,660
Website visits by channel	4,768	44,116	4,755	34,841	38,226

New Customers: 342,059

Exiting Customers: 131,131

Customers (total): 3,426,479

Year: 5

Previous Campaigns

1. Sign up a Friend

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$1,500,000	$0.44	8%	30%	12%	21%	29%

2. It's Easy to Get Started

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$1,000,000	$0.29	8%	30%	12%	21%	29%

3. Reach out to Non-Exercisers

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$800,000	$0.23	8%	30%	12%	21%	29%

4. Features Appealing to Fitness-oriented Customers

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$500,000	$0.15	8%	30%	12%	21%	29%

Results

	Television	Facebook	Unbranded	Branded	Email
Impressions by channel	226,510	659,971	161,851	723,393	711,587
Website visits by channel	4,622	52,025	4,921	39,673	53,390

New Customers: 382,604

Exiting Customers: 155,725

Customers (total): 3,653,359

Year: 6

Previous Campaigns

1. Sign up a Friend

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$2,000,000	$0.55	8%	30%	12%	21%	29%

2. It's Easy to Get Started

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$1,500,000	$0.41	8%	30%	12%	21%	29%

3. Reach out to Non-Exercisers

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$1,000,000	$0.27	8%	30%	12%	21%	29%

4. Features Appealing to Fitness-oriented Customers

Campaign Budget	Spend Per Customer	Distribution on Channels				
		Television	Facebook	Unbranded	Branded	Email
$500,000	$0.14	8%	30%	12%	21%	29%

Results

			Television	Facebook	Unbranded	Branded	Email
New Customers:	439,598	Impressions by channel	304,898	888,363	217,862	973,733	957,842
Exiting Customers:	161,366	Website visits by channel	6,132	66,600	6,484	51,499	68,451
Customers (total):	3,931,590						

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Dashboard   Detail   Annual Campaigns   ⋮

Campaign Performance

Campaigns Run in Year 6

Page Contents
- Campaigns
- Customer Acquisition
- Campaign Engagement
- Financials

Total Cost:

Sign up a Friend	$2,000,000
It's Easy to Get Started	$1,500,000
Reach out to Non-Exercisers	$1,000,000
Features Appealing to Fitness-oriented Customers	$500,000

Customer Acquisition and Retention

Initial	Customers	2,000,000
Year 1	New	454,534
	Exiting	-83,267 (4.2%)
	Customers	2,371,267
Year 2	New	453,811
	Exiting	-110,373 (4.7%)
	Customers	2,714,705
Year 3	New	616,848
	Exiting	-116,002 (4.3%)
	Customers	3,215,551
Year 4	New	342,059
	Exiting	-131,131 (4.1%)
	Customers	3,426,479
Year 5	New	382,604
	Exiting	-155,725 (4.5%)
	Customers	3,653,359
Year 6	New	439,598
	Exiting	-161,366 (4.4%)
	Customers	3,931,590

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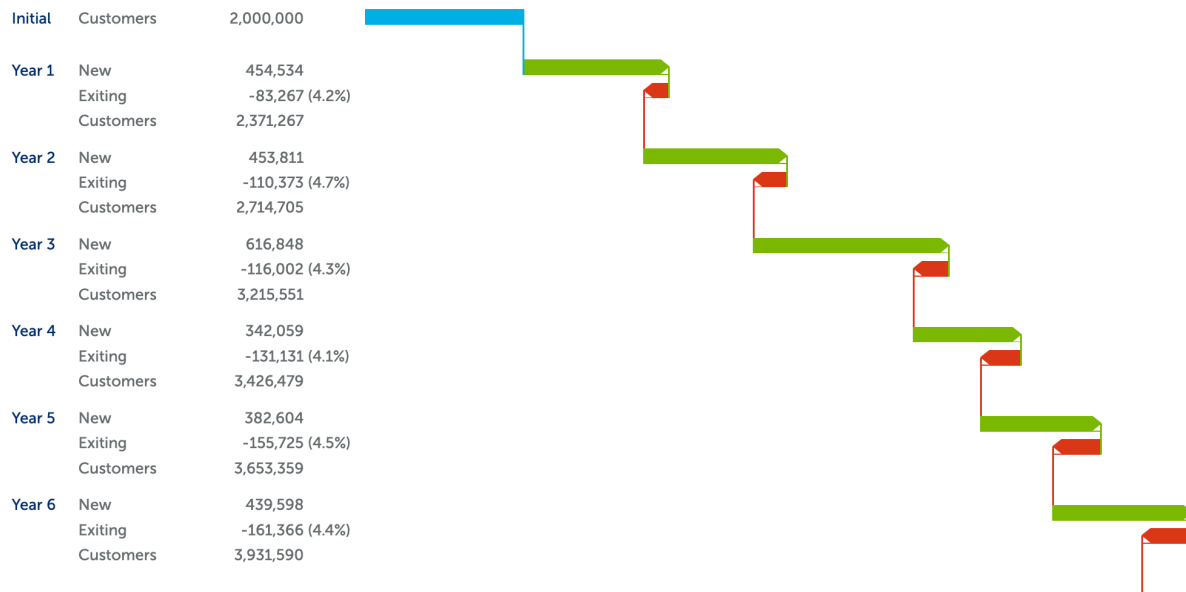
Dashboard   Detail   Annual Campaigns   ⋮

Campaign Engagement

Impressions

10.92M

Website Visits

462,341

Year 1   Year 2   Year 3   Year 4   Year 5   Year 6
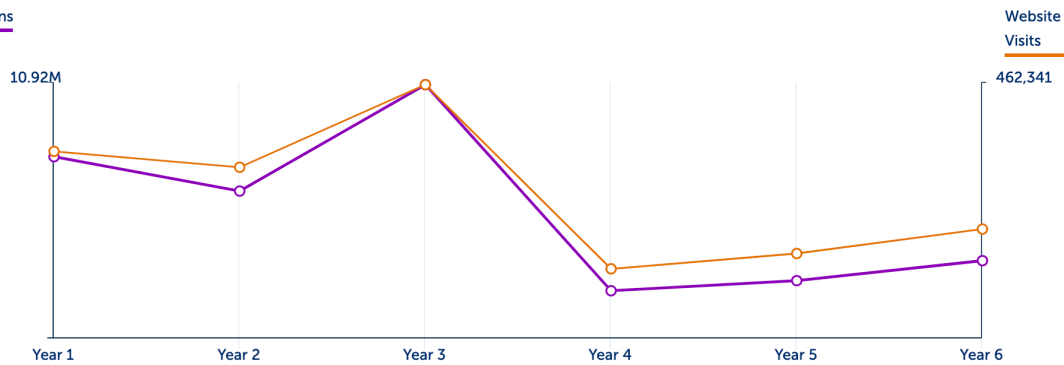
Impressions (thousands)			Website Visits		CTR
❓ Television	304,898		Television	6,132	(2.01%)
❓ Facebook	888,363		Facebook	66,600	(7.50%)
❓ Unbranded Search	217,862		Unbranded Search	6,484	(2.98%)
❓ Branded Search	973,733		Branded Search	51,499	(5.29%)
❓ Email	957,842		Email	68,451	(7.15%)
Total	3,342,698		Total	199,166	

Return on Marketing Investment

	from Marketing Efforts	Baseline	Total
Customers – Start of Year		3,653,359	3,653,359
New Customers	183,863	255,735	439,598
Exiting Customers (-) ❓	(21,302)	182,668	161,366
Customers – End of Year	205,164	3,726,426	3,931,590
Revenue – New Customer	$5,515,876	$7,672,053	$13,187,929
Revenue – Recurring	$10,258,205	$186,321,286	$196,579,491
Revenue – Total	$15,774,081	$193,993,339	$209,767,420
Cost of Goods Sold	$551,588	$25,574	$1,318,793
Service Costs	$512,910	$9,316,064	$196,579
Variable Costs	$1,064,498	$9,341,638	$1,515,372
Gross Margin	$14,709,583		
Marketing Spending	$5,000,000		
Return on Marketing Investment (ROMI)	1.94		

Return on Marketing Investment (ROMI)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
ROMI	1.42	2.64	2.27	1.89	1.99	1.94

Revenue

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Revenue	$132,199,386	$149,349,602	$179,282,971	$181,585,754	$194,146,042	$209,767,420

Final Game Results

Total Revenue	Average ROI
$914,131,788	2.2:1

Total Customers

3,931,590

2. **(5 Points)** Which campaigns are effective for customer acquisition? Which campaigns are effective for customer retention?

The process of acquiring new consumers or persuading people to buy your products is known as customer acquisition. It's a strategy for encouraging customers to go from brand awareness to purchase decision through the marketing funnel. To gain new customers

According to the simulation outcomes shown :-

Customer Acquisition: Television and Facebook campaigns seem to be the most efficacious for consumer acquisition. Television has extensive reach and widespread awareness, facilitating the attraction of several new users unfamiliar with the Exercise Minder application. Facebook's customized advertisements provide exact demographic and interest-based targeting, rendering it a formidable option for attracting new clients. Both approaches are optimal for enhancing app visibility and acquiring new registrations.

Customer Retention: Email and branded marketing are highly effective for customer retention. Email facilitates personalised interaction with current users via consistent updates, discounts, and reminders, so enhancing client retention and promoting sustained app utilization. Branded promotions strengthen the Exercise Minder brand, enhancing user engagement by reminding them of the app and fostering loyalty through brand familiarity. Exercise Minder can optimise new client acquisition through Television and Facebook, while enhancing retention among existing customers using Email and Branded advertising.

3. **(5 points)** Which media channels are more effective than others? How do the media channel affect each other?

Effectiveness of Media Channels: Television and Facebook seem to be the most effective media channels regarding reach and impact. Television provides extensive visibility, making it ideal for widespread awareness, but

Facebook's specialised strategy facilitates precise demographic engagement. Both channels significantly improve consumer acquisition.
Email is crucial for client retention, ensuring direct communication with consumers and encouraging ongoing engagement through tailored updates and promotions.

Interdependence and Influence:Platforms such as Television and Facebook can enhance the efficiency of both Branded and Unbranded campaigns. Familiarity with the brand via television and social media increases the likelihood of users engaging with branded searches or advertisements, so reinforcing brand presence.
Email collaborates effectively with other channels by maintaining clients first obtained via Television or Facebook. Email campaigns may cultivate user relationships, maintaining engagement with the app and enhancing lifetime value.
By integrating extensive channels (Television and Facebook) for acquisition with retention-oriented channels (Email), ExerciseMinder may develop a unified media plan wherein each channel complements and strengthens the others.

(**5 points**) How did intuition, analytics (e.g., the regres sion analysis), and A/B testing guide your decisions?

Intuition helped the formulation of preliminary hypotheses regarding the efficiency of various media channels for distinct objectives. Intuition indicated that television could be optimal for client acquisition because to its extensive reach, however email would probably be more effective for retention owing to its personalised characteristics.

Regression analysis offered a mathematical foundation for these assumptions by illustrating the correlation between expenditure on each channel and the consequent client acquisition or retention KPIs. By analysing the influence of each channel on key performance measures, such as ROMI or user engagement, informed decisions might be made regarding which channels to prioritise for investment, hence optimising resource allocation to enhance returns.

A/B Testing: A/B testing was essential for confirming decisions by comparing several campaign strategies inside the same channel. For instance, evaluating various messaging on Facebook or alternative advertising tactics in Email facilitated the optimisation of campaigns according to audience preferences. The insights from A/B tests facilitated the optimisation of marketing components, enhancing both acquisition and retention strategies.

The integration of intuition with data-driven insights from regression analysis and practical experience through A/B testing resulted in a balanced methodology, enhancing the efficacy of marketing efforts for ExerciseMinder.