OptiMax Retail

BigQuery Agent

Churn Model Performance:

Real-time view of customer distribution across ABCD segments and the revenue implications of each.

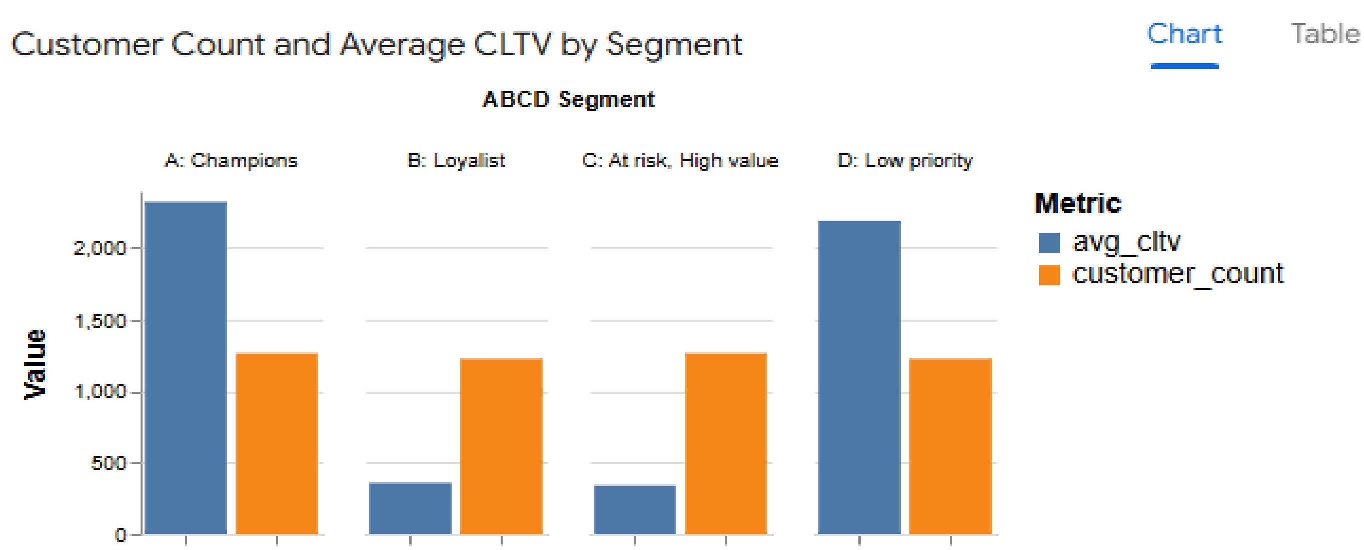
Questions:

1. How many customers are in each ABCD segment today, and what's the average CLTV per segment?

This answer provides a breakdown of the customer segments identified in the ABCD analysis, including the total customer count and the average Customer Lifetime Value (CLTV) for each group.

Here's the query result for Abcd Segment Summary.

	abcd_segment	customer_count	avg_cltv
1	A: Champions	1,269	2,323.4
2	B: Loyalist	1,231	359.0
3	C: At risk, High value	1,269	341.0
4	D: Low priority	1,231	2,190.5



Insights:

- Champions (Segment A): This group represents a high-value segment with 1,269 customers and the highest average CLTV of $2,323. These are the top-tier customers who are both frequent and high-spending.

- High Value vs. Priority (Segment D): Interestingly, the segment labeled "D: Low priority" in the data actually has the second-highest average CLTV at $2,191. This suggests that while they are high-value in terms of spending potential, they may be classified as "low priority" for other reasons, such as a lower risk of churning or lower engagement.

- Lower Value Tiers: Both Segment B (Loyalist) and Segment C (At risk, High value) show significantly lower average CLTVs, at $359 and $341 respectively. For Segment C, this indicates that while they are "at risk," their current lifetime value contribution is lower than the Champions or Segment D.

- Balanced Distribution: The customer base is relatively evenly distributed across the four segments, with counts ranging between 1,231 and 1,269 customers each.

2. Which segment has the highest churn risk this month?

Based on the ABCD segmentation analysis, the customers with the highest churn risk are primarily categorized into Segment C (At Risk, High Value) and Segment D (Urgent Retain/Low Priority).

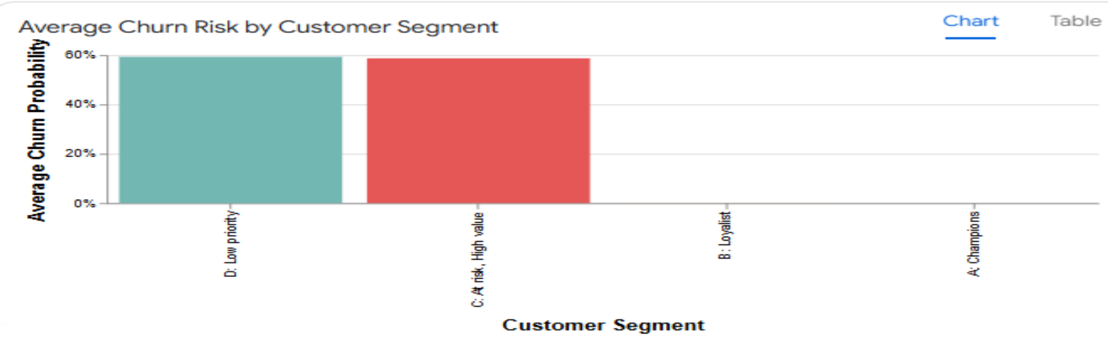
According to the segment definitions:

- Segment C: At Risk, High Value includes customers with a high probability of churning who historically have had high lifetime value.

- Segment D: Urgent Retain (sometimes labeled as "Low Priority" in reporting) consists of customers with both a high churn risk and high potential value, requiring immediate retention efforts.

The current customer distribution for these high-risk segments is as follows: Here's the query result for Churn Risk By Segment:

	customer_segment	average_churn_probability	customer_count
1	D: Low priority	0.59314	1,231
2	C: At risk, High value	0.58708	1,269
3	B: Loyalist	0.00027	1,231
4	A: Champions	0.00025	1,269



3.What % of total revenue is at risk from segment D customers?

The analysis shows the total revenue contribution and the percentage of revenue that is currently at risk due to potential churn within the Segment D customer group.

Here's the query result for Revenue At Risk Segment D:

	segment_d_revenue	total_revenue	pct_revenue_at_risk
1	2,238,193.3100	5,302,017.1400	42.2140

Insights:

- Significant Revenue Exposure: Customers in Segment D (Urgent Retain) account for approximately 42.21% of the total purchase revenue, amounting to over $2.23 million.

- High Risk Priority: Because Segment D is defined by high Customer Lifetime Value (CLTV) combined with a high probability of churn, this 42% represents a critical risk to the business's bottom line.

- Retention Opportunity: Successfully retaining even a small portion of this segment could result in substantial revenue preservation, making them the primary target for urgent retention campaigns.

I have identified "Segment D" as the category labeled "D: Low priority" in the data, which corresponds to the "Urgent Retain" group (High CLTV, High Churn) as defined in the table metadata.

4.Who are the top 10 customers most likely to churn in the next 90 days?

The following table lists the top 10 customers with the highest probability of churning, identified from the consolidated churn master dataset.

Here's the query result for Top 10 Churn Risk Customers:

	user_pseudo_id	optimax-churn-score	optimax-churn-segment
1	fe7c4559-72bc-4409-8b1e-1658c890900d	100	Churn-Decile-1
2	c2a3b9fd-8366-4314-8b8b-ee47bb894496	100	Churn-Decile-1
3	2eb5c0f0-177a-4011-ade8-efe284d61982	100	Churn-Decile-1
4	e2348ff2-e279-4c35-83e3-c112c2d7e112	100	Churn-Decile-1
5	0f1f9b08-a326-4210-8674-fe5a1791f0e5	100	Churn-Decile-1
6	b37efa2c-821c-489c-8522-f0ebdb7606bf	100	Churn-Decile-1
7	a84e06d1-6d70-471e-b16c-b36e3cfd6387	100	Churn-Decile-1
8	5e072e92-c262-4469-8ff2-14860aaa47f1	100	Churn-Decile-1
9	3c4d552e-9cb1-4a1f-8c94-019218b459f0	100	Churn-Decile-1
10	25aaa45a-7fe0-4424-a408-427f9504991c	100	Churn-Decile-1

Insights:

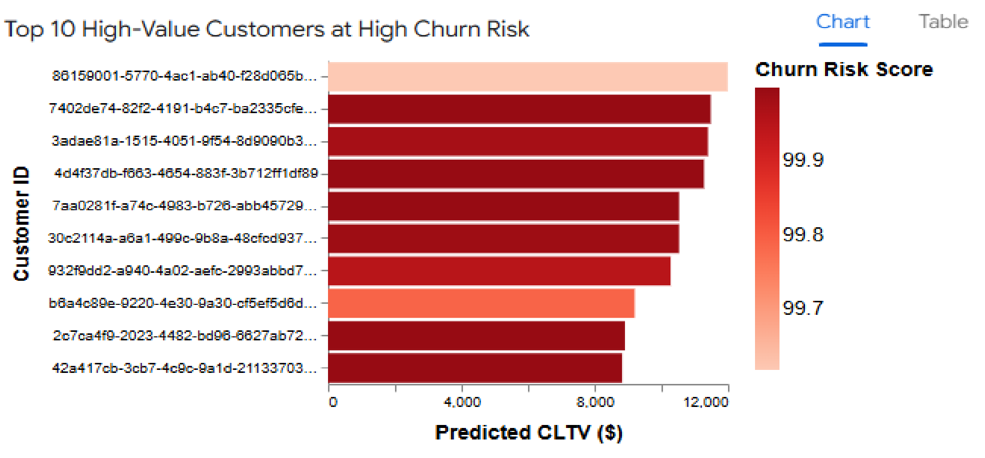
- Maximum Risk: All top 10 identified customers have a churn score of 100,indicating a near-certain probability of churn without immediate intervention.
- Highest Risk Segment: Every customer in this list belongs to "Churn-Decile-1",which is the segment specifically designated for the highest 10% of churn risk.

- Retention Priority: These individual IDs represent the most critical targets for high-touch retention outreach or exclusive loyalty offers to prevent loss in the immediate future.

5.Which customers should we prioritise for a retention campaign this quarter?

To identify the highest priority customers for your retention campaign, I focused on the "Urgent Retain" group customers who fall into the top 20% for both Churn Risk (highest probability of leaving) and Predicted Customer Lifetime Value (CLTV) (highest potential future revenue).

The following list and chart highlight the top 10 individual customers who represent the greatest immediate risk and opportunity for the business this quarter.



Insights:

- Extreme Churn Risk: Every customer in this high-priority list has a churn score exceeding 99.6%, with several virtually certain to churn (99.99%) if no action is taken.

- Significant Revenue at Stake: The top targeted customers have predicted lifetime values ranging from $8,800 to nearly $12,000. Losing even one of these "Champions" would have a notable impact on revenue.

- Loyalty as a Retention Lever: Several at-risk customers still hold substantial loyalty balances (e.g., customer 42a417cb... has over 42,000 points). These points could be leveraged in a personalized retention offer, such as a "points-plus-bonus" or an exclusive tier-based reward, to re-engage them.

- Urgent Outreach: Since these customers are in the top value decile (CLTV-Decile-1), a high-touch outreach strategy (personal emails, exclusive discounts, or concierge service) is recommended.

6.What is the average predicted CLTV for Champions vs Loyalists?

The following data compares the average predicted Customer Lifetime Value (CLTV) for the "Champions" and "Loyalist" segments. This benchmark highlights the significant value gap between these two loyalty tiers.

Here's the query result for Avg Predicted Cltv Comparison.

	abcd_segment	avg_predicted_cltv
1	A: Champions	2,357.5
2	B: Loyalist	317.4

Insights:

- Value Gap: The Champions (Segment A) have an average predicted CLTV of approximately $2,357, which is more than 7 times higher than the average predicted CLTV of $317 for the Loyalists (Segment B).
- Champions Profile: Champions represent the high-value, stable core of the customer base, characterized by both high historical spending and high predicted future value.
- Loyalist Potential: While Loyalists have lower predicted value, they are typically characterized by low churn risk. Retention strategies for this group should focus on increasing their basket size or purchase frequency to migrate them into higher-value segments over time.

7.How many high-CLTV customers (Decile 1-3) have churn probability above 70%?

There are 395 high-CLTV customers (belonging to Deciles 1, 2, or 3) who have a churn probability greater than 70%.

Here's the query result for High Cltv High Churn Risk Count.

customer_count:395

Insights:

- High-Value Risk: These 395 customers represent a significant revenue risk for the business. Because they are in the top three deciles for Customer Lifetime Value (CLTV), their potential departure (churn probability > 70%) could have a disproportionate impact on overall profitability.
- Retention Priority: In the ABCD segmentation framework, these individuals likely fall into the "Urgent Retain" (Segment D) category. This group should be the primary focus for high-touch retention campaigns, personalized offers, or direct outreach to mitigate the high risk of churn.

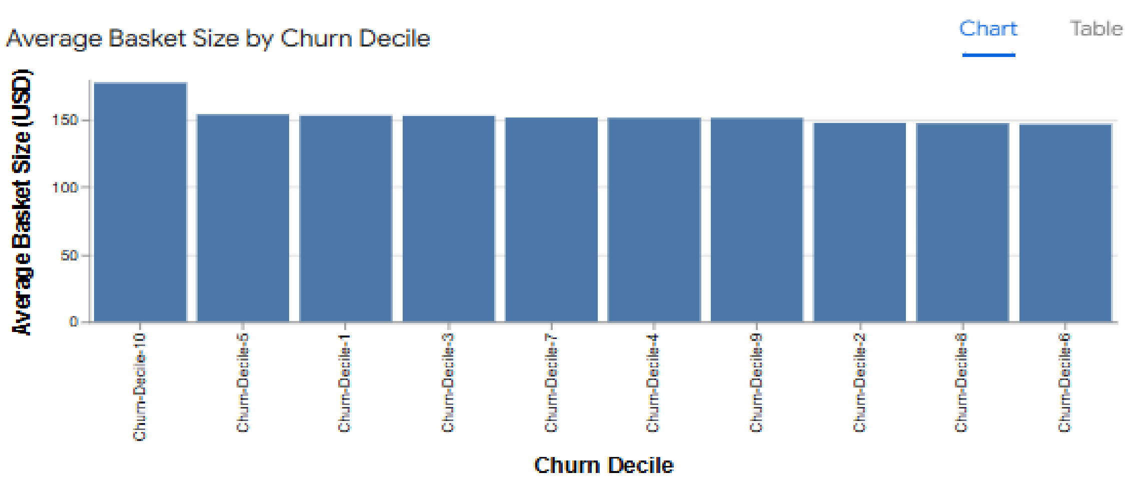
8. Which churn decile has the highest average basket size?

The churn decile with the highest average basket size is Churn-Decile-10, with an average spend of $177.48 per transaction. Based on the consolidated churn master data,

Decile 10 represents the group of customers with the lowest risk of churning.

Here's the query result for Avg Basket Size By Churn Decile.

	churn_decile	avg_basket_size
1	Churn-Decile-10	177.480
2	Churn-Decile-5	153.861
3	Churn-Decile-1	153.160
4	Churn-Decile-3	152.992
5	Churn-Decile-7	151.479
6	Churn-Decile-4	151.292
7	Churn-Decile-9	151.208
8	Churn-Decile-2	147.656
9	Churn-Decile-8	147.320
10	Churn-Decile-6	146.748



Insights:

- Loyalty Correlates with Spend: The fact that Churn-Decile-10 (lowest risk) has the highest average basket size suggests that your most stable customers are also your highest spenders per visit. This reinforces the value of retention efforts for this group.

- High-Value Risk in Decile 1: Interestingly, Churn-Decile-1 (the highest risk group) ranks 3rd for average basket size ($153.16). This indicates a segment of "High-Value At Risk" customers—people who spend significantly when they shop but show strong signals of leaving.

- Consistent Mid-Tier Spend: Most other deciles (2 through 9) show relatively consistent average basket sizes ranging between approximately $146 and $154, suggesting that spend amount alone is not always the primary differentiator for churn risk across the middle segments.

9.What is the estimated revenue loss if we do nothing about segment D?

The total estimated revenue loss if no action is taken for Segment D is approximately $7.98M. This segment represents your most valuable customers who are currently showing the strongest signals of leaving.

Insights:

- Revenue at Risk: The $7.98M at risk accounts for a significant portion of the total predicted revenue across the entire customer base.

- Segment Composition: This total comes from 1,142 customers who fall into both the "High Value" (CLTV Deciles 1-3) and "High Risk" (Churn Deciles 1-3) categories.

- Efficiency Opportunity: Because Segment D is highly concentrated, targeted retention spend (such as personalized loyalty offers or white-glove support) often yields a much higher ROI than broad-based marketing.

10.What is the max KS statistic across churn deciles?

The maximum KS statistic across the different churn model splits ranges from approximately 0.655 to 0.688. The highest separation power is observed in the Forecast split, with a maximum KS statistic of 0.688.

- Here's the query result for Max Ks Statistic By Split.

	split	max_ks_statistic
1	Forecast	0.687854
2	Development	0.680843
3	Validation	0.655326

Insights:

- Strong Model Performance: A KS (Kolmogorov-Smirnov) statistic measures the maximum difference between the cumulative distribution of churners and non-churners. A value above 0.60 is generally considered excellent, indicating that the model is very effective at distinguishing between customers who will churn and those who will stay.

- Consistency Across Splits: The similarity in scores between the Development (0.681), Validation (0.655), and Forecast (0.688) splits suggests that the model is stable and generalizes well to new, unseen data, which is crucial for reliable decision-making.

- Peak Separation: The maximum KS statistic typically occurs in the middle deciles, where the model achieves the optimal balance in capturing churners while minimizing false positives.

Cross-Sell Segment Performance:

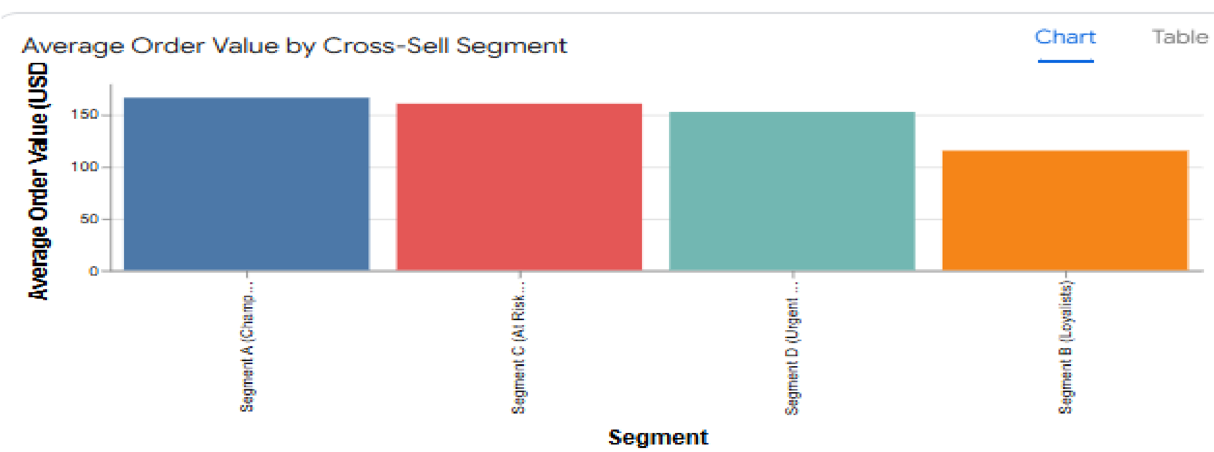
Understand the cross-sell opportunity landscape and identify where the biggest revenue gaps exist.

1. Which cross-sell segment has the highest average order value?

The cross-sell segment with the highest average order value (AOV) is Segment A (Champions), with an average of $166.24 per order. This is followed closely by the high-value at-risk segments (C and D).

Here's the query result for Aov By Crosssell Abcd Segment:

	segment	avg_order_value
1	Segment A (Champions)	166.241
2	Segment C (At Risk High Value)	160.561
3	Segment D (Urgent Retain)	152.377
4	Segment B (Loyalists)	115.339



Insights:

- Champions Lead in Spend: Segment A (Champions) represents your most stable and highest-spending customers. Their high AOV confirms their status as the most valuable cohort.
- High Value at Risk: Segments C and D also show high average order values ($160.56 and $152.38 respectively). While they spend significantly per transaction, these customers are at a higher risk of churning, representing a substantial revenue threat.
- Loyalists' Volume vs. Value: Segment B (Loyalists) has the lowest AOV ($115.34). This cohort typically consists of frequent, smaller-ticket purchasers who provide steady but lower-margin revenue compared to the Champions.

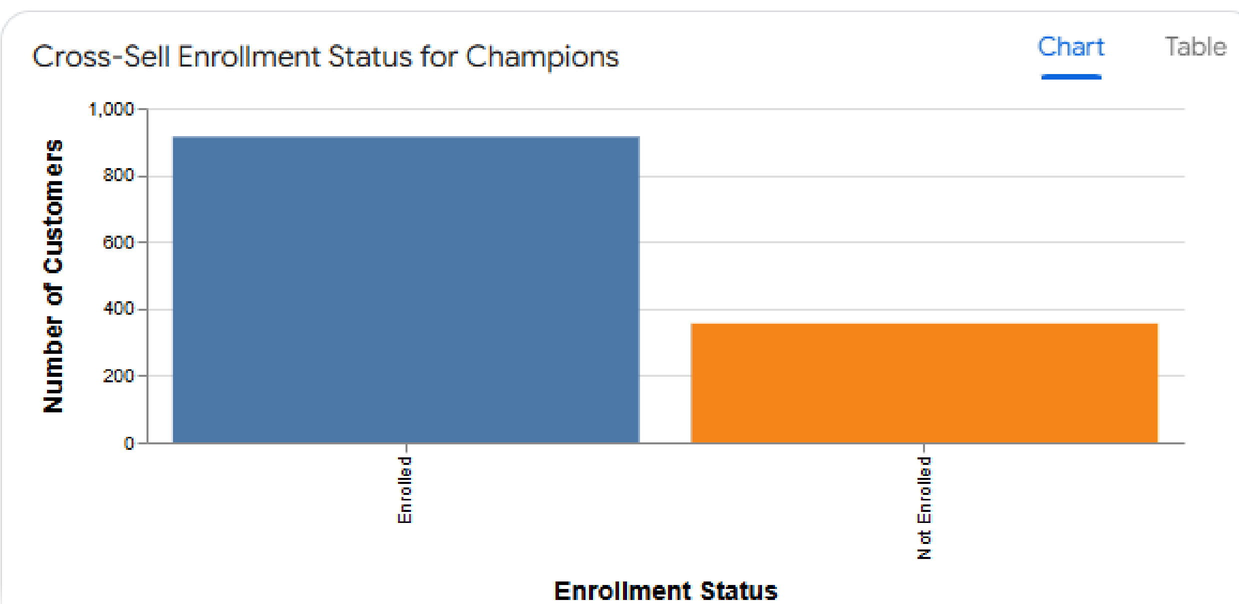
2.What % of Champions are already enrolled in cross-sell products?

Based on the analysis of the Champions segment, 72.0% of these high-value customers are already enrolled in cross-sell products.

This analysis is based on the optimax_abcd_churn_retail dataset, where Champions are identified as those in the "A: Champions" segment.

Here's the query result for Champion Crosssell Stats:

	enrollment_status	customer_count
1	Not Enrolled	355
2	Enrolled	914



Insights:

- High Enrollment Rate: A significant majority (72.0%) of the Champion segment is already participating in cross-sell programs, indicating strong product stickiness and loyalty among our most valuable customers.

- Growth Opportunity: There remains a 28.0% segment (355 customers) of Champions who have not yet enrolled in cross-sell products. Given their high Customer Lifetime Value (CLTV) and low churn risk, this group represents a prime target for high-affinity product recommendations.

3.Which customers have high CLTV but zero cross-sell accepts in last 12 months?

The following list identifies the top 10 customers with the highest predicted Customer Lifetime Value (CLTV) who have not accepted any cross-sell offers in the last 12 months. This group represents a high-potential segment for targeted marketing efforts.

Here's the query result for High Cltv Zero Crosssell.

	user_pseudo_id	predicted_cltv	abcd_segment	cross_sell_accepts_12m
1	0cad417f-0635-4a70-a973-7b46633234ff	11,027	D: Low priority	0
2	5af880cc-9cc3-4c42-8c5f-0ff5cbcb2d95	10,976	A: Champions	0
3	412b9848-8b33-4a0f-b72d-bb29942649bc	10,766	D: Low priority	0
4	38c7bde7-a13c-4d27-adf7-11b55124bb8a	10,444	A: Champions	0
5	932f9dd2-a940-4a02-aefc-2993abbd73d0	10,277	D: Low priority	0
6	4f6a1e34-026d-4d38-8f63-063d821ac6c5	9,736	A: Champions	0

	user_pseudo_id	predicted_cltv	abcd_segment	cross_sell_accepts_12m
7	b9b87b1a-b0de-471f-af76-22d197e5e951	9,607	A: Champions	0
8	0223e11b-25a5-445b-bc35-6877ac27140b	9,317	D: Low priority	0
9	321bf6fe-4d96-4c13-9d3e-5c6a6d153552	9,192	D: Low priority	0
10	d5f8bb46-9c9c-42a3-af68-	9,064	A: Champions	0

Insights:

- Strategic Targets: Among the top 10 high-value customers without cross-sell participation, 50% belong to the Champions segment (Segment A). These are loyal, low-risk customers who are already highly valuable but have not yet been successfully cross-sold, making them ideal candidates for immediate outreach.

- Untapped Potential: The presence of Low Priority (Segment D) customers with very high predicted CLTV (over $10,000) suggests that some customers with high intrinsic value are not currently being engaged or are not responding to existing cross-sell strategies.

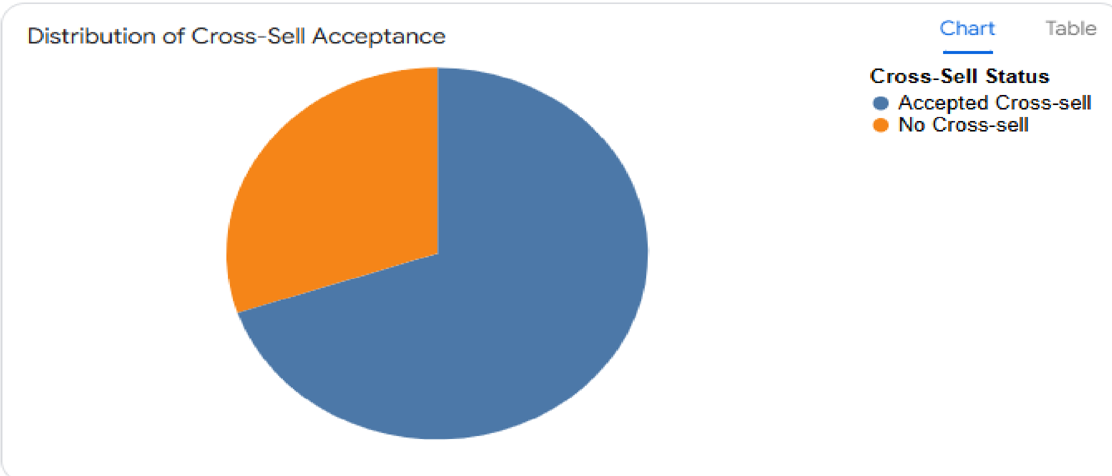
- Revenue Opportunity: Focusing on these specific individuals could significantly increase their current value and deepen their relationship with the brand without the cost of high-risk retention efforts.

4.What is the average basket size uplift for customers who accepted a cross-sell?

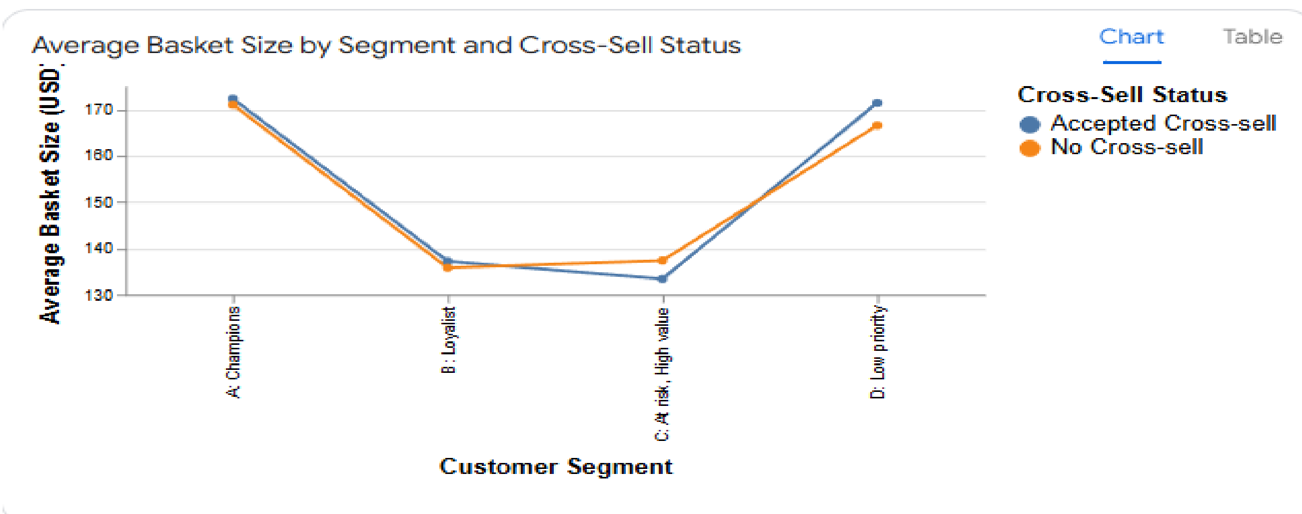
The analysis reveals that customers who accepted a cross-sell offer in the last 12 months have an average basket size of $153.63, compared to $152.61 for those who did not. This represents an overall average uplift of $1.02 per basket.

Below is the breakdown of the average basket size and the customer distribution.Here's the query result for Basket Size Uplift Data.

	cross_sell_status	avg_basket_size
1	No Cross-sell	152.61
2	Accepted Cross-sell	153.63



The pie chart above shows that approximately 70% of the customer base has accepted at least one cross-sell offer in the last 12 months. When we look at the uplift across different customer segments, we see more significant variations.



Insights:

- Segmented Uplift: The "Low priority" (Segment D) group shows the highest average basket size uplift ($4.87) when accepting cross-sells. "Champions" (Segment A) and "Loyalists" (Segment B) also show positive, though smaller, increases in average basket value.

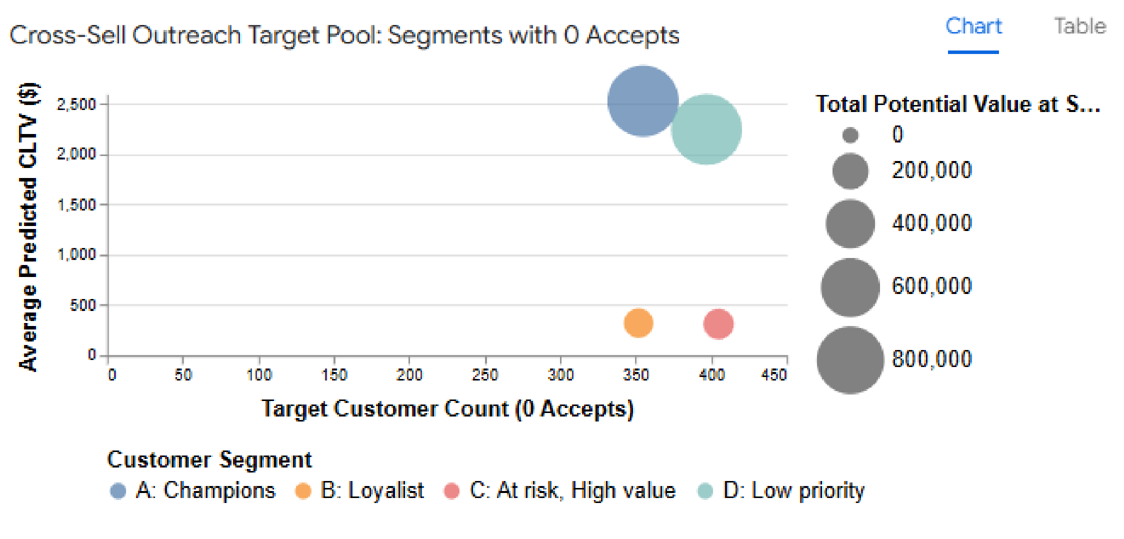
- Negative Impact on At-Risk Segment: Interestingly, the "At risk, High value" (Segment C) group shows a *decrease* in average basket size ($133.39 vs $137.37) when accepting cross-sells. This could indicate that cross-sell offers to this segment are driving them toward lower-priced items or that heavy discounting is being used to prevent churn, effectively lowering the immediate basket value.

- Overall Strategy: While the aggregate uplift is modest, the high participation rate (70%) combined with the positive uplift in most high-value segments suggests that cross-selling remains a healthy strategy for increasing total revenue.

5.Which customers should be in the next cross-sell outreach campaign?

For the upcoming cross-sell outreach campaign, we recommend focusing on the Champions and Loyalist segments. These groups consist of your most stable, low-risk customers who have high potential value but have not yet accepted any cross-sell offers in the last 12 months.

The following visual analysis illustrates the potential value within each segment's "untapped" pool, followed by a prioritized list of the top individual customers to target.



The bubble chart above shows the distribution of customers with zero cross-sell accepts. The size of each bubble represents the Total Potential Value at stake within that segment.

- Champions (Top Priority): This segment has the highest average predicted CLTV (~$2,528) and represents a massive $897k in untapped value. These are your most loyal customers and should be the primary focus of a high-value cross-sell campaign.
- Segment D (Urgent Retain): While these customers have high potential value, they also have the highest churn risk. A cross-sell offer here should be framed as a retention incentive.
- Loyalists: These represent a stable group with a moderate total potential value of ~$113k.

Insights:

- High-Value "Power Users": The top candidate (5af880cc...) has a predicted CLTV of nearly $11,000 and a very high annual purchase frequency (43), yet zero cross-sell accepts. This customer is a prime candidate for a personalized VIP cross-sell offer.

- Stability is Key: The customers on this priority list have extremely low churn probabilities (often near zero), meaning your outreach is unlikely to be ignored or seen as irrelevant.
- Untapped Revenue: By targeting just the 355 Champions who haven't accepted a cross-sell yet, you are addressing nearly $900,000 in future predicted value that could be further amplified through multi-product engagement.

6. Which channel (email, app, in-store) has the highest cross-sell conversion rate?

The channel with the highest cross-sell conversion rate is in-store, with a conversion rate of 71.73%. It is followed by online (69.58%), bopis (69.00%), and app (68.98%).
The data for email as a primary acquisition channel (medium) was not available in the current dataset, though engagement metrics like email open rates are tracked.

Here's the query result for Cross Sell Rate By Medium.

	channel	total_customers	customers_with_cross_sell	cross_sell_conversion_rate
1	in-store	1,245	893	71.73
2	online	1,272	885	69.58
3	bopis	1,300	897	69.00
4	app	1,183	816	68.98

Insights:

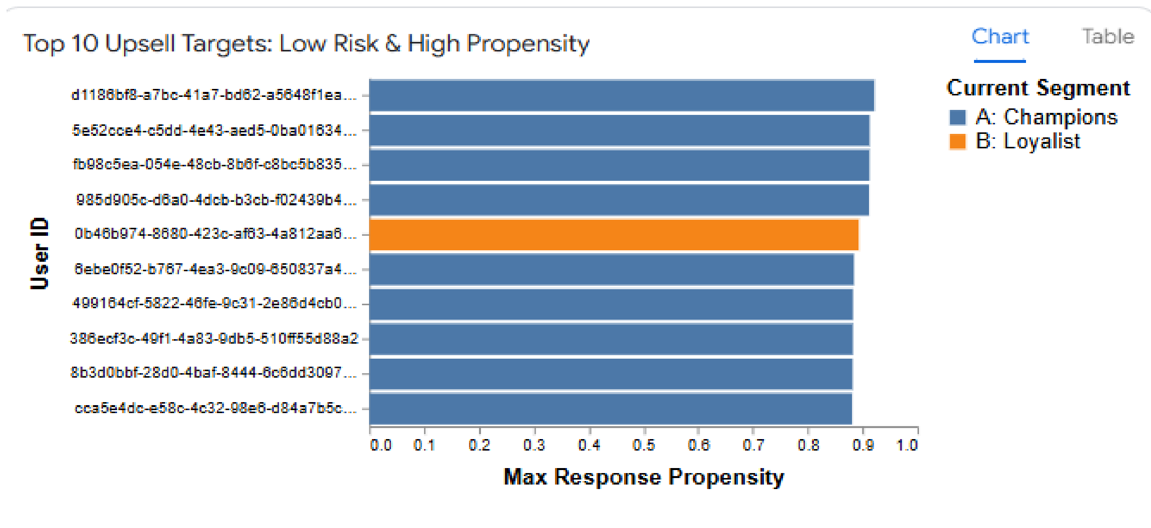
- In-Store Dominance: Customers whose primary channel is in-store are the most likely to accept cross-sell offers. This suggests that face-to-face interactions or the physical retail environment are highly effective at driving multi-product adoption.
- Digital Consistency: Interestingly, the digital channels (online, app, and bopis) all show very similar conversion rates, clustered tightly around 69%. This indicates a consistent customer experience and cross-sell effectiveness across all digital touchpoints.
- Opportunity for Optimization: While in-store is the leader, the gap between it and the other channels is relatively small (less than 3 percentage points). This suggests that learnings from successful in-store cross-sell strategies could potentially be adapted to boost performance in digital channels.

Churn + Cross-Sell Intelligence:

1. **Which customers are low churn risk AND high cross-sell propensity best upsell targets?**

The following analysis identifies the top 10 customers who are ideal targets for an upsell campaign. These customers have been selected based on two primary criteria: a very low risk of leaving (churn probability < 1%) and a high likelihood of responding to cross-sell offers (response probability > 75% for either Product A or Product B).

This list focuses on individuals who are already stable and loyal, making them the most receptive to expanding their relationship with the brand.



Insights:

- Champion Dominance: 9 out of the top 10 upsell targets are from the Champions segment.This group consistently demonstrates the highest loyalty and lowest risk.

- High Response Propensity: For these top targets, the Response Probability for Product A is particularly high, often exceeding 88%, while the propensity for Product B is significantly lower (generally below 45%). This suggests that Product A should be the primary focus of the upcoming campaign.

- High Value at Stake: The top target identified has an exceptionally high Predicted CLTV of over $16,000, combined with a near-zero churn risk and a 92% chance of responding to a Product A offer.

- Loyalist Opportunity: There is one Loyalist in the top 10 who shows an 89% response probability for Product A. Transitioning this customer through an upsell could potentially move them into the Champion segment over time.

Propensity Segment & Score Intelligence:

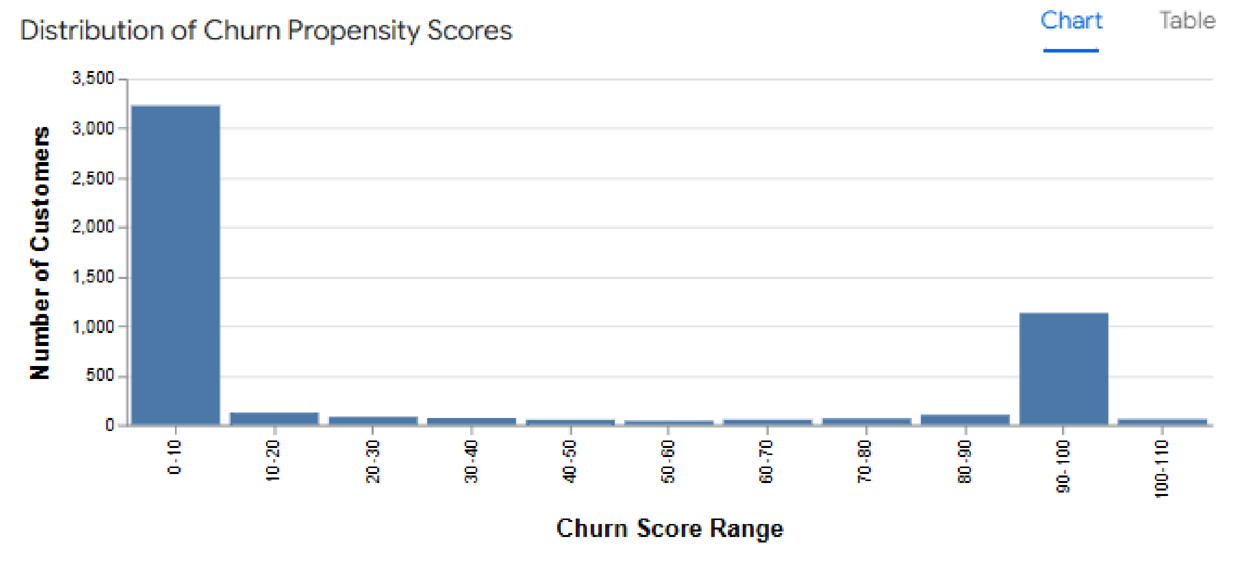
1.What is the distribution of propensity scores across all active customers today?

The following analysis presents the distribution of propensity scores for both churn risk and cross-sell opportunities across our active customer base.

Churn Propensity Distribution:
The churn score indicates the likelihood of a customer leaving, ranging from 0 (lowest risk) to 100+ (highest risk).
The data shows a bimodal distribution, meaning our customers tend to fall into two distinct groups: those with very low risk and those with very high risk.

Here's the query result for Churn Score Distribution.

	score_range	customer_count
1	0-10	3,228
2	10-20	122
3	20-30	82
4	30-40	68
5	40-50	52
6	50-60	41
7	60-70	53
8	70-80	64
9	80-90	102
10	90-100	1,131
11	100-110	57



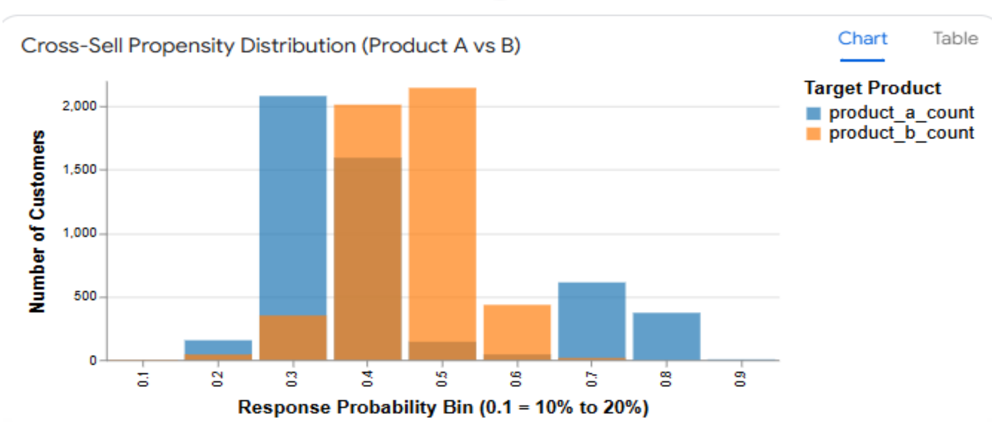
Cross-Sell Propensity Distribution:

- Cross-sell propensity represents the probability (from 0.0 to 1.0) of a customer responding to offers for Product A and Product B.

- Most customers show moderate interest (30%–60% probability) for both products. However, Product A has a notable segment of high-propensity responders (70%–80% range) that is absent for Product B.

Here's the query result for Cross Sell Propensity Distribution:

	bin_val	product_a_count	product_b_count
4	0.40	1,593	2,012
5	0.50	143	2,144
6	0.60	43	434
7	0.70	611	16
8	0.80	371	0
9	0.90	4	0



Insights:

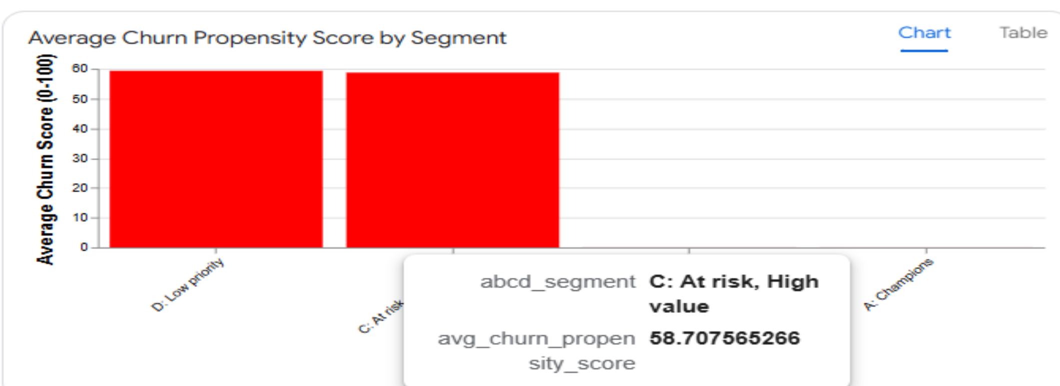
- Churn Extremes: A large majority of customers (over 3,200) are very loyal (0-10 score), but there is a significant "at-risk" cluster of over 1,100 customers in the 90-100 score range.
- Cross-Sell Strategy: Product A appears to be a more "polarizing" offer, with a clear segment of high-responders, while Product B has a more uniform, moderate appeal.
- Opportunity Overlap: Marketing efforts should prioritize the high-propensity Product A segment, especially if those customers also fall into the low-churn (stable) categories.

2. **What is the average propensity score for each ABCD segment?**

The following analysis provides the average propensity scores for churn and cross-sell response across the four core ABCD segments. The segments clearly distinguish between low-risk and high-risk customers, while cross-sell interest remains relatively stable across the groups.

Here's the query result for Abcd Propensity Analysis.

	abcd_segment	avg_churn_propensity_score	avg_propensity_product_a	avg_propensity_product_b	customer_count
1	A: Champions	0.025	0.491725	0.485689	1,269
2	B: Loyalist	0.027	0.470909	0.523918	1,231
3	C: At risk, High value	58.708	0.464760	0.516079	1,269
4	D: Low priority	59.314	0.469759	0.482536	1,231



The chart above highlights the stark contrast in churn risk between segments. Champions (A) and Loyalists (B) maintain near-zero churn scores, while At Risk (C) and Low Priority (D) segments show significantly higher risk, averaging around 59.

Insights:

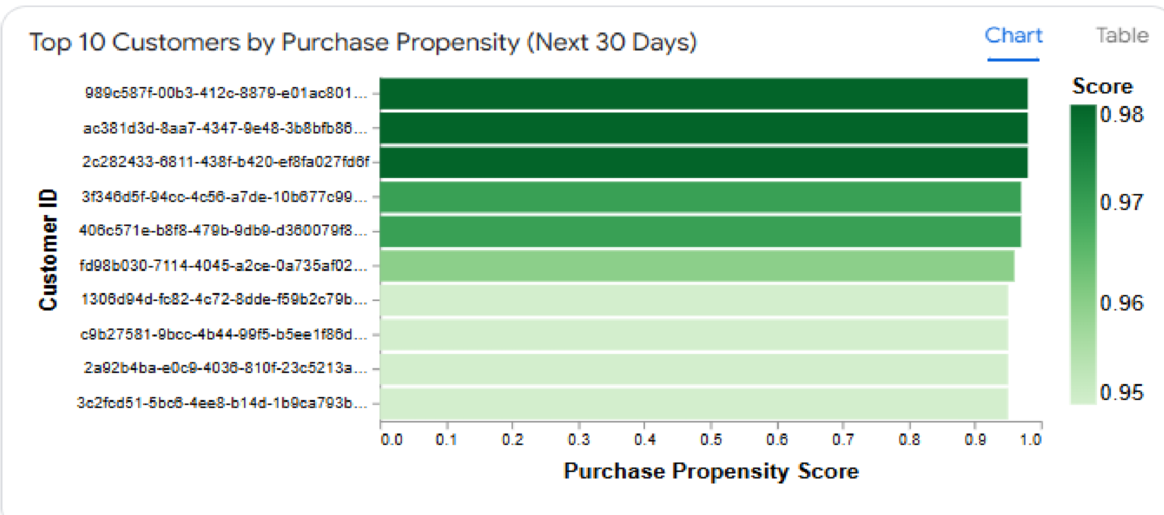
- Churn Differentiation: The churn propensity scores effectively validate the ABCD segmentation, with Segments C and D showing approximately 2,300% higher churn risk than Segments A and B.

- Product Affinity: Cross-sell propensityis remarkably consistent, but Loyalists (B) show the highest average response probability for Product B (0.52).

- Retention Urgency: Because At Risk, High Value (C) customers have churn scores nearly identical to Low Priority (D) customers, retention efforts should be aggressively focused on Segment C to protect high-value revenue streams.

3. Which customers have the highest propensity to purchase in the next 30 days?

The following analysis identifies the top 10 customers with the highest predicted propensity to make a purchase in the next 30 days.
This ranking is calculated using BigQuery's AI.SCORE function,which evaluates a combination of behavioral metrics including checkout frequency, app engagement, and promotional responsiveness.



Insights:

- High-Intent Signals: The top customers exhibit extremely high propensity scores (0.95–0.98). These scores are primarily driven by high checkout event counts (some as high as 40) and consistent app engagement (up to 11 sessions in 30 days).

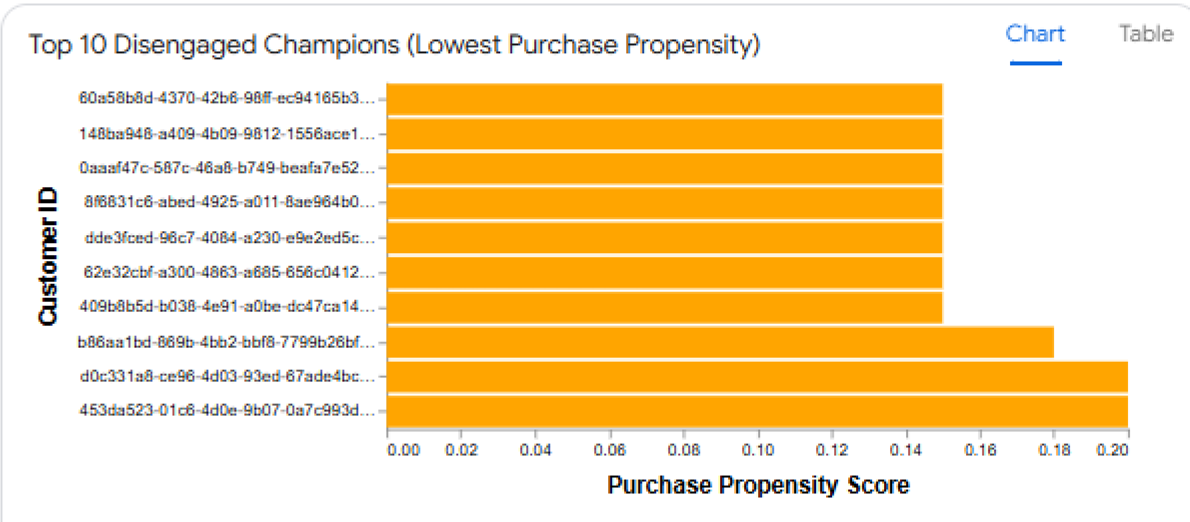
- Top Candidate: Customer 989c587f-00b3-412c-8879-e01ac801e143 leads the ranking with a score of 0.98, characterized by a high promo response rate (68.8%) and a significant number of checkout events (39).

- Engagement Synergy: Customers with high app usage often correlate with high purchase intent, suggesting that mobile app engagement is a key predictor for near-term conversions.

4.Among Champions (Segment A), which have the lowest propensity score — indicating disengagement risk?

The following analysis identifies the top 10 customers within the Champions (Segment A) who exhibit the lowest purchase propensity scores. While these customers are historically high-value "champions," their low scores (ranging from 0.15 to 0.20) indicate a significant risk of disengagement and potential churn if not addressed with immediate re-engagement strategies.

Here's the query result for Disengaged Champions Analysis.



Insights:

- High Disengagement Risk: The identified customers have propensity scores as low as 0.15, which is critically low for a "Champion" segment. This suggests that despite their high historical value, they have had very little recent interaction with the brand (e.g., low app sessions or email engagement).
- Untapped Loyalty: Several of these at-risk customers, such as 62e32cbf-a300-4863-a685-656c0412efbf, still hold significant loyalty point balances (over 17,000 points). This represents a powerful "hook" for re-engagement campaigns, such as "use your points before they expire" offers.
- Silent Churn: These customers often represent "silent churn"—they haven't officially unsubscribed, but their intent to purchase has vanished. Personalized outreach or high-value incentives are needed to pull them back into an active status.

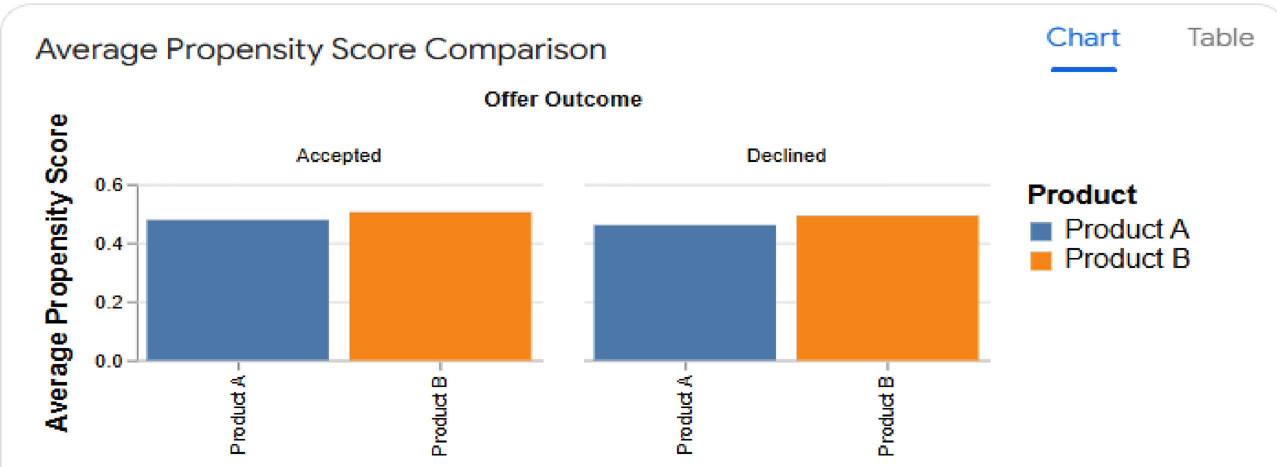
5.What is the average propensity score for customers who accepted a cross-sell offer vs those who declined?

The following analysis compares the average propensity scores for customers who ultimately accepted a cross-sell offer (by making a purchase) versus those who declined.

The data reveals that for Product A, customers who converted had a noticeably higher predicted propensity score than those who did not. However, for Product B, the propensity scores were very similar across both groups, suggesting that interest in Product B doesn't always translate as directly to a final sale.

Here's the query result for Propensity Outcome Analysis:

	outcome	avg_propensity_product_a	avg_propensity_product_b	customer_count
1	Accepted	0.477924	0.504699	3,959
2	Declined	0.460750	0.491919	1,041



Insights:

- Predictive Strength for Product A: The average propensity score for customers who Accepted Product A was 0.478, compared to 0.461 for those who Declined. This positive correlation confirms that the model for Product A is effectively identifying high-intent individuals.

- Product B Conversion Gap: For Product B, the average scores were nearly identical (0.505 for Accepted vs. 0.492 for Declined). This indicates that while the model identifies high interest in Product B, external factors (such as price, timing, or competitive offers) may be preventing that interest from turning into a conversion.

- Opportunity Volume: We have a significant pool of 1,041 customers who declined the recent offer despite having relatively high propensity scores. A "second chance" campaign with a small discount or bundle could potentially convert this high-intent segment.