

## Busile Ndhlovu

### Practical 2.1 : Advanced SQL

#### Question 1

```
22 --Question 1: Find all records where Size is missing and the purchase_amount is greater than 50
23
24 SELECT Customer_ID,
25        Size,
26        purchase_amount,
27        item_purchased,
28 FROM shopping_trends
29 WHERE size IS NULL AND purchase_amount > 50;
30
31 --Question 2: List the total number of purchases grouped by Season, treating NULL values as 'Unknown Season'
```

Results Chart

	# CUSTOMER_ID	A SIZE	# PURCHASE_AMOUNT	A ITEM_PURCHASED
1	11	null	74.0	Handbag
2	15	null	54.0	Jeans
3	22	null	88.0	Shirt
4	32	null	54.0	Blouse

#### Question 2

```
30
31 --Question 2: List the total number of purchases grouped by Season, treating NULL values as 'Unknown Season'
32
33 SELECT COUNT(*) AS Total_purchases,
34        IFNULL(Season, 'Unknown Season') As Season_new
35 FROM shopping_trends
36 GROUP BY IFNULL(Season, 'Unknown Season');
37
```

Results Chart

	# TOTAL_PURCHASES	A SEASON_NEW
1	80	Winter
2	73	Spring
3	27	Unknown Season
4	65	Summer

#### Question 3

```
37
38 --Question three: Count how many customers used each Payment Method, treating NULLs as 'Not Provided'
39
40 SELECT COUNT(*) AS customer_count,
41        IFNULL(payment_method, 'Not Provided') AS payment_method
42 FROM shopping_trends
43 GROUP BY ALL;
44
```

Results Chart

	# CUSTOMER_COUNT	A PAYMENT_METHOD
1	51	PayPal
2	42	Debit Card
3	30	Not Provided
4	38	Bank Transfer

#### Question 4

```

45  --Question 4: Show customers where Promo Code Used is NULL and Review Rating is below 3.0
46
47  SELECT promo_code_used,
48         review_rating
49  FROM shopping_trends
50  WHERE promo_code_used IS NULL AND review_rating < 3.0;
51

```

	PROMO_CODE_USED	REVIEW_RATING
1	null	2.5
2	null	2.6
3	null	2.5
4	null	2.6

## Question 5

```

52  --Question 5: Group customers by Shipping Type, and return the average purchase_amount, treating missing values as 0
53
54  SELECT shipping_type,
55         AVG ( IFNULL(purchase_amount, 0)) AS Average_purchase_amount,
56  FROM shopping_trends
57  GROUP BY shipping_type;
58

```

	SHIPPING_TYPE	AVERAGE_PURCHASE_AMOUNT
1	Standard	47.6666667
2	Store Pickup	55.3333333
3	null	52.7037037
4	Express	53.4545455

Query Details  
Query duration  
Rows  
Query ID 01bc5e

## Question 6

```

59  --Question 6: Display the number of purchases per Location only for those with more than 5 purchases and no NULL Payment Method
60
61  SELECT Location,
62         COUNT(*) AS Total_purchases,
63  FROM shopping_trends
64  WHERE payment_method IS NOT NULL
65  GROUP BY Location
66  HAVING COUNT(*) > 5;

```

	LOCATION	TOTAL_PURCHASES
1	Maine	41
2	Rhode Island	29
3	null	24
4	Florida	32

Query Details  
Query duration 3  
Rows  
Query ID 01bc5e5d-3201-9d79

## Question 7

```

73
74 SELECT customer_id,
75         IFNULL(purchase_amount, 0) AS purchase_amount,
76         CASE
77         WHEN purchase_amount > 80 THEN 'High'
78         WHEN purchase_amount BETWEEN 50 AND 80 THEN 'Medium'
79         ELSE 'Low'
80         END AS spender_category
81 FROM shopping_trends;

```

Results Chart

	# CUSTOMER_ID	# PURCHASE_AMOUNT	A SPENDER_CATEGORY
1	1	20.0	Low
2	2	21.0	Low
3	3	27.0	Low
4	4	45.0	Low

## Question 8

```

83 --Question 8: Find customers who have no Previous
84 -- Purchases value but whose Color is not NULL.
85 -- Expected Columns: Customer ID, Color, Previous Purchases
86
87 SELECT customer_id,
88         color,
89         previous_purchases,
90 FROM shopping_trends
91 WHERE color IS NOT NULL AND previous_purchases IS NULL;
92

```

Results Chart

	# CUSTOMER_ID	A COLOR	# PREVIOUS_PURCHASES
1	8	Green	null
2	21	Yellow	null
3	25	White	null
4	37	Maroon	null

## Question 9

```

92
93 --Question 9: Group records by Frequency of Purchases and show the total amount spent per group, treat
94 -- Expected Columns: Frequency of Purchases, Total purchase_amount
95
96 SELECT frequency_of_purchases,
97         COUNT(*) AS Total_purchase_amount
98 FROM shopping_trends
99 GROUP BY frequency_of_purchases;
100
101

```

Results Chart

	A FREQUENCY_OF_PURCHASES	# TOTAL_PURCHASE_AMOUNT
1	Every 3 Months	32
2	Weekly	42
3	Bi-Weekly	37
4	Annually	34

## Question 10

```

101
102 --Question 10: Display a list of all Category values with the number of times each was purchased, exclu
103 -- Expected Columns: Category, Total Purchases
104
105 SELECT category,
106         COUNT(*) AS Total_purchases,
107 FROM shopping_trends
108 WHERE category IS NULL
109 GROUP BY category;
110

```

Results Chart

	A CATEGORY	# TOTAL_PURCHASES
1	null	33

## Question 11

```

110
111 --Question 11: Return the top 5 Locations with the highest total purchase_amount, replacing NULLs in a
112 -- Expected Columns: Location, Total purchase_amount
113
114 SELECT location,
115         SUM(IFNULL(purchase_amount,0)) AS total_purchase_amount,
116 FROM shopping_trends
117 GROUP BY location
118 ORDER BY SUM(purchase_amount) DESC LIMIT 5;|
119

```

Results Chart

	A LOCATION	# TOTAL_PURCHASE_AMOUNT
1	Maine	2294.0
2	Florida	1980.0
3	Massachusetts	1899.0
4	Rhode Island	1876.0

## Question 12

```

120
121 --Question 12: Group customers by Gender and Size, and count how many entries have a NULL Color.
122 -- Expected Columns: Gender, Size, Null Color Count
123
124 SELECT gender,
125         size,
126         COUNT(*) AS number_entries,
127 FROM shopping_trends
128 WHERE color IS NULL
129 GROUP BY gender, size;|
130

```

Results Chart

	A GENDER	A SIZE	# NUMBER_ENTRIES
1	Male	M	7
2	Male	null	6
3	Male	S	5
4	Male	XL	5

## Question 13

129	
130	--Question 13: .Identify all Item Purchased where more than 3 purchases had NULL Shipping Type.
131	-- Expected Columns: Item Purchased, NULL Shipping Type Count
132	
133	SELECT item_purchased,
134	COUNT(*) AS null_shipping_tyoe_count,
135	FROM shopping_trends
136	WHERE shipping_type IS NULL
137	GROUP BY item_purchased
138	HAVING COUNT(*) > 3;
139	

  

Results		Chart
	ITEM_PURCHASED	# NULL_SHIPPING_TYOE_COUNT
1	null	4
2	Shoes	4
3	Shirt	5

## Question 14

139	
140	--Question 14: .Show a count of how many customers per Payment Method have NULL Review Rating.
141	-- Expected Columns: Payment Method, Missing Review Rating Count
142	
143	SELECT payment_method,
144	COUNT(*) AS missing_review_rating_count,
145	FROM shopping_trends
146	WHERE review_rating IS NULL
147	GROUP BY payment_method;
148	

  

Results		Chart
	PAYMENT_METHOD	# MISSING_REVIEW_RATING_COUNT
1	Credit Card	8
2	Cash	4
3	Bank Transfer	4
4	Debit Card	7

## Question 15

148	
149	--Question 15: .Group by Category and return the average Review Rating, replacing NULLs with 0, and filter for categories where the average rating is greater than 3.5.
150	-- Expected Columns: Category, Average Review Rating
151	
152	SELECT category,
153	AVG(IFNULL(review_rating,0)) AS average_review_rating
154	FROM shopping_trends
155	GROUP BY category
156	HAVING AVG(IFNULL(review_rating,0)) > 3.5;     ---EMPTY TABLE
157	
158	--Question 16: .Identify all Categories that are missing (NULL) for at least 2 reviews and the average Avg of reviews for those categories.

  

Results		Chart
	CATEGORY	AVERAGE_REVIEW_RATING
Query produced no results		

## Question 16

```

157
158 --Question 16: List all Colors that are missing (NULL) in at Least 2 rows and the average Age of customers for those rows.
159 -- Expected Columns: Color, Average Age
160
161 SELECT color,
162        AVG(age) AS Average_age
163 FROM shopping_trends
164 WHERE color IS NULL
165 GROUP BY color
166 HAVING COUNT(*) >= 2;
167

```

## Question 17

```

172 -- Expected Columns: Delivery Speed, Customer Count
173
174 SELECT COUNT(*) AS Customer_count,
175        CASE
176        WHEN shipping_type IN ('Express', 'Next Day Air') THEN 'Fast'
177        WHEN shipping_type = 'Standard' THEN 'Slow'
178        ELSE 'Other'
179        END AS Delivery_Speed
180 FROM shopping_trends
181 GROUP BY Delivery_Speed;
182

```

## Question 18

```

182
183 --Question 18: Find customers whose purchase_amount is NULL and whose Promo Code Used is 'Yes'.
184 -- Expected Columns: Customer ID, purchase_amount, Promo Code Used
185
186 SELECT customer_id,
187        purchase_amount,
188        promo_code_used,
189 FROM shopping_trends
190 WHERE purchase_amount IS NULL AND promo_code_used = 'Yes';
191

```

Results Chart

	# CUSTOMER_ID	# PURCHASE_AMOUNT	0 1 PROMO_CODE_USED
1	13	null	TRUE
2	30	null	TRUE
3	78	null	TRUE
4	95	null	TRUE

## Question 19

```

192 --Question 19: .Group by Location and show the maximum Previous Purchases,replacing NULLs with 0, only
193 above 4.0.
194 -- Expected Columns: Location, Max Previous Purchases, Average
195 -- Review Rating
196
197 SELECT location,
198        MAX(IFNULL(previous_purchases,0)) AS Max_previous_purchases,
199        AVG(review_rating) AS Average_review_rating
200 FROM shopping_trends
201 GROUP BY location
202 HAVING AVG(review_rating) > 4.0; --EMPTY TABLE
203

```

Results Chart

LOCATION	MAX_PREVIOUS_PURCHASES	AVERAGE_REVIEW_RATING
Query produced no results		

Question 20

203 --Question 20: Show customers who have a NULL Shipping Type but made a purchase in the range of 30 to 70.  
204 -- Expected Columns: Customer ID, Shipping Type, purchase\_amount, Item Purchase  
205  
206 SELECT customer\_id,  
207 shipping\_type,  
208 purchase\_amount,  
209 item\_purchased  
210 FROM shopping\_trends  
211 WHERE shipping\_type IS NULL |  
212 AND purchase\_amount BETWEEN 30 AND 70;  
213

Results

Chart

	# CUSTOMER_ID	A SHIPPING_TYPE	# PURCHASE_AMOUNT	A ITEM_PURCHASED
1	15	null	54.0	Jeans
2	105	null	43.0	Shirt
3	141	null	37.0	Shorts
4	196	null	66.0	Coat