

## Project Approach

### 1. Project Description

The purpose of this project is to investigate a metric spike and analyze user engagement, growth, retention, and email interactions over time. Using data from three tables (users, events, email\_events), we'll generate insights that can help identify reasons for metric changes and engagement trends.

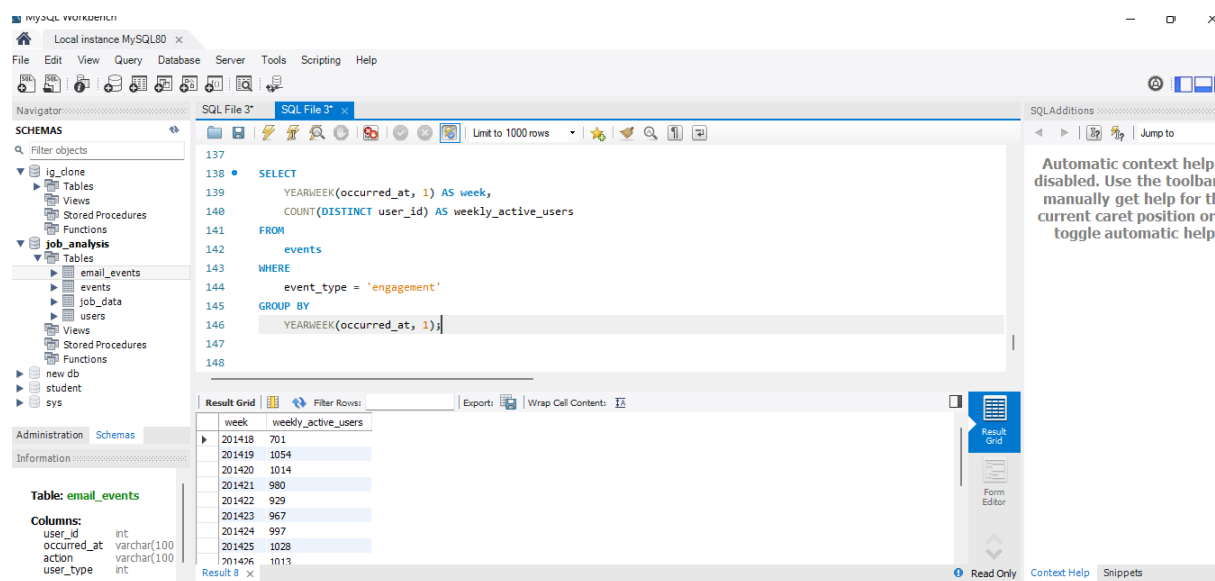
### 2. Tech Stack

- **Database:** MySQL
- **Tools:** MySQL Workbench

### 3. Approach and Analysis

- **Data Preparation:** Import the CSV files into MySQL tables.
- **Weekly Analysis:** Perform calculations on a weekly basis to understand user engagement, growth, retention, and email-specific metrics.
- **Insights & Interpretation:** Analyze and interpret the results for leadership insights.

### 1. Weekly User Engagement



The screenshot shows the MySQL Workbench interface. The SQL Editor contains the following query:

```
137
138 • SELECT
139     YEARWEEK(occurred_at, 1) AS week,
140     COUNT(DISTINCT user_id) AS weekly_active_users
141 FROM
142     events
143 WHERE
144     event_type = 'engagement'
145 GROUP BY
146     YEARWEEK(occurred_at, 1);
147
148
```

The Results Grid shows the following data:

week	weekly_active_users
201418	701
201419	1054
201420	1014
201421	980
201422	929
201423	967
201424	997
201425	1028
201426	1013

The left sidebar shows the Schemas pane with the following structure:

- ig\_done
  - Tables
  - Views
  - Stored Procedures
  - Functions
- job\_analysis
  - Tables
    - email\_events
    - events
    - job\_data
    - users
  - Views
  - Stored Procedures
  - Functions
- new db
- student
- sys

The bottom left pane shows the structure of the email\_events table:

Table: email\_events

Columns:

- user\_id int
- occurred\_at varchar(100)
- action varchar(100)
- user\_type int

```

138 • SELECT
139     YEARWEEK(occurred_at, 1) AS week,
140     COUNT(DISTINCT user_id) AS weekly_active_users
141 FROM
142     events
143 WHERE
144     event_type = 'engagement'
145 GROUP BY
146     YEARWEEK(occurred_at, 1);
147

```

Insights:

Result Grid		
Filter Rows:		
	week	weekly_active_users
▶	201418	701
	201419	1054
	201420	1014
	201421	980
	201422	929
	201423	967
	201424	997
	201425	1028
	201426	1013
	201427	1009
	201428	1088
	201429	1062
	201430	1092
	201431	1152
	201432	979
	201433	945
	201434	893
	201435	904

**Insight:** This query calculates the number of distinct active users per week. By reviewing weekly changes, we can identify spikes in engagement and investigate their causes.

## 2. User Growth Analysis

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

ig\_clone

Tables

Views

Stored Procedures

Functions

job\_analysis

Tables

email\_events

events

job\_data

users

Views

Stored Procedures

Functions

new db

student

sys

Administration Schemas

Information

Table: email\_events

Columns:

user\_id int

occurred\_at varchar(100)

action varchar(100)

user\_type int

SQL File 3\*

SQL File 3\*

Limit to 1000 rows

145 GROUP BY

146 YEARWEEK(occurred\_at, 1);

147

148

149 • SELECT

150 YEARWEEK(created\_at, 1) AS week,

151 COUNT(user\_id) AS new\_users,

152 SUM(COUNT(user\_id)) OVER (ORDER BY YEARWEEK(created\_at, 1)) AS cumulative\_users

153 FROM

154 users

155 GROUP BY

156 YEARWEEK(created\_at, 1);

157

Result Grid

week	new_users	cumulative_users
201301	26	26
201302	29	55
201303	47	102
201304	36	138
201305	30	168
201306	48	216
201307	41	257
201308	39	296
201309	33	329

Read Only Context Help Snippets

```

149 • SELECT
150     YEARWEEK(created_at, 1) AS week,
151     COUNT(user_id) AS new_users,
152     SUM(COUNT(user_id)) OVER (ORDER BY YEARWEEK(created_at, 1)) AS cumulative_users
153 FROM
154     users
155 GROUP BY
156     YEARWEEK(created_at, 1);

```

## Insights

Result Grid			
Filter Rows:			
Export: Wrap Cell Content:			
	week	new_users	cumulative_users
▶	201301	26	26
	201302	29	55
	201303	47	102
	201304	36	138
	201305	30	168
	201306	48	216
	201307	41	257
	201308	39	296
	201309	33	329
	201310	43	372
	201311	33	405
	201312	32	437
	201313	33	470
	201314	40	510
	201315	35	545
	201316	42	587
	201317	48	635
	201318	48	683

Result Grid			
		Filter Rows:	
		Export:	Wrap Cell Content: <a href="#">IA</a>
week	new_users	cumulative_users	
201318	48	683	
201319	45	728	
201320	55	783	
201321	41	824	
201322	49	873	
201323	51	924	
201324	51	975	
201325	46	1021	
201326	57	1078	
201327	57	1135	
201328	52	1187	
201329	71	1258	
201330	66	1324	
201331	69	1393	
201332	66	1459	
201333	73	1532	
201334	71	1603	
201335	79	1682	

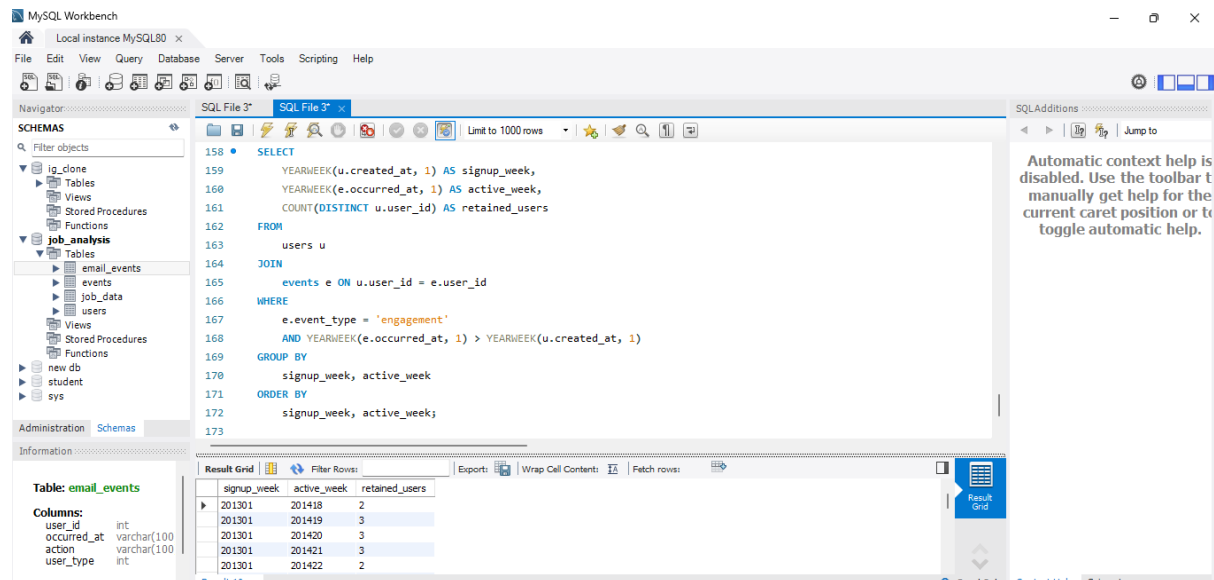
Result Grid			
		Filter Rows:	
		Export:	Wrap Cell Content: <a href="#">IA</a>
week	new_users	cumulative_users	
201335	79	1682	
201336	65	1747	
201337	71	1818	
201338	84	1902	
201339	92	1994	
201340	81	2075	
201341	88	2163	
201342	74	2237	
201343	97	2334	
201344	92	2426	
201345	97	2523	
201346	94	2617	
201347	82	2699	
201348	103	2802	
201349	96	2898	
201350	117	3015	
201351	123	3138	
201352	104	3242	

Result Grid			
		Filter Rows:	
		Export:	Wrap Cell Content: <a href="#">IA</a>
week	new_users	cumulative_users	
201350	117	3015	
201351	123	3138	
201352	104	3242	
201401	132	3374	
201402	122	3496	
201403	112	3608	
201404	113	3721	
201405	130	3851	
201406	132	3983	
201407	135	4118	
201408	127	4245	
201409	127	4372	
201410	135	4507	
201411	152	4659	
201412	132	4791	
201413	151	4942	
201414	161	5103	
201415	166	5269	

Result Grid			
		Filter Rows:	
		Export:	Wrap Cell Content: <a href="#">IA</a>
week	new_users	cumulative_users	
201414	161	5103	
201415	166	5269	
201416	165	5434	
201417	176	5610	
201418	172	5782	
201419	160	5942	
201420	186	6128	
201421	177	6305	
201422	186	6491	
201423	197	6688	
201424	198	6886	
201425	222	7108	
201426	210	7318	
201427	199	7517	
201428	223	7740	
201429	215	7955	
201430	228	8183	
201431	234	8417	
201428	223	7740	
201429	215	7955	
201430	228	8183	
201431	234	8417	
201432	189	8606	
201433	250	8856	
201434	259	9115	
201435	266	9381	

**Insight:** This query shows the weekly user sign-ups and cumulative total. Analyzing this data helps determine if growth correlates with specific events or campaigns.

### 3. Weekly Retention Analysis



The screenshot shows the MySQL Workbench interface. On the left, the 'SCHEMAS' pane displays a tree view with 'job\_analysis' expanded, showing tables like 'email\_events', 'events', 'job\_data', and 'users'. The main SQL editor contains a query (lines 158-173) that selects weekly sign-up and active week data, along with the count of distinct users retained. The 'Result Grid' at the bottom shows the output of this query.

signup_week	active_week	retained_users
201301	201418	2
201301	201419	3
201301	201420	3
201301	201421	3
201301	201422	2

```
158 • SELECT
159     YEARWEEK(u.created_at, 1) AS signup_week,
160     YEARWEEK(e.occurred_at, 1) AS active_week,
161     COUNT(DISTINCT u.user_id) AS retained_users
162 FROM
163     users u
164 JOIN
165     events e ON u.user_id = e.user_id
166 WHERE
167     e.event_type = 'engagement'
168     AND YEARWEEK(e.occurred_at, 1) > YEARWEEK(u.created_at, 1)
169 GROUP BY
170     signup_week, active_week
171 ORDER BY
172     signup_week, active_week;
173
```

Insights:

Result Grid				Filter Rows:	Export:	Wrap Cell Content:	Fetch rows:
	signup_week	active_week	retained_users				
▶	201301	201418	2				
	201301	201419	3				
	201301	201420	3				
	201301	201421	3				
	201301	201422	2				
	201301	201423	4				
	201301	201424	3				
	201301	201425	6				
	201301	201426	4				
	201301	201427	2				
	201301	201428	3				
	201301	201429	1				
	201301	201431	3				
	201301	201432	2				
	201301	201433	2				
	201301	201434	2				
	201301	201435	2				
	201302	201418	1				

Result Grid				Filter Rows:	Export:	Wrap Cell Content:	Fetch rows:
	signup_week	active_week	retained_users				
	201301	201435	2				
	201302	201418	1				
	201302	201419	2				
	201302	201420	3				
	201302	201421	1				
	201302	201422	2				
	201302	201423	4				
	201302	201424	3				
	201302	201425	6				
	201302	201426	4				
	201302	201427	3				
	201302	201428	1				
	201302	201429	2				
	201302	201430	3				
	201302	201431	2				
	201302	201432	4				
	201302	201433	4				
	201302	201434	4				
	201302	201435	2				

Result Grid				Filter Rows:	Export:	Wrap Cell Content:	Fetch rows:
	signup_week	active_week	retained_users				
	201302	201433	4				
	201302	201434	4				
	201302	201435	2				
	201303	201418	2				
	201303	201419	4				
	201303	201420	5				
	201303	201421	7				
	201303	201422	7				
	201303	201423	8				
	201303	201424	5				
	201303	201425	5				
	201303	201426	1				
	201303	201427	2				
	201303	201428	4				
	201303	201429	4				
	201303	201430	3				
	201303	201431	2				
	201303	201432	3				

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

Fetch rows:

signup_week	active_week	retained_users
201303	201432	3
201303	201434	4
201303	201435	5
201304	201418	4
201304	201419	6
201304	201420	7
201304	201421	6
201304	201422	6
201304	201423	7
201304	201424	6
201304	201425	6
201304	201426	6
201304	201427	3
201304	201428	4
201304	201429	6
201304	201430	7
201304	201431	4
201304	201432	3

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

Fetch rows:

signup_week	active_week	retained_users
201304	201432	3
201304	201433	1
201304	201434	2
201304	201435	4
201305	201418	2
201305	201419	3
201305	201420	5
201305	201421	4
201305	201422	5
201305	201423	6
201305	201424	5
201305	201425	4
201305	201426	8
201305	201427	3
201305	201428	7
201305	201429	5
201305	201430	4
201305	201431	5

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

Fetch rows:

	signup_week	active_week	retained_users
	201305	201431	5
	201305	201432	5
	201305	201433	3
	201305	201434	2
	201306	201418	4
	201306	201419	7
	201306	201420	8
	201306	201421	6
	201306	201422	6
	201306	201423	7
	201306	201424	6
	201306	201425	7
	201306	201426	9
	201306	201427	6
	201306	201428	9
	201306	201429	7
	201306	201430	9
	201306	201431	10

signup_week	active_week	retained_users
201301	201418	2
201301	201419	3



201301	201420	3
201301	201421	3
201301	201422	2
201301	201423	4
201301	201424	3
201301	201425	6
201301	201426	4
201301	201427	2
201301	201428	3
201301	201429	1
201301	201431	3
201301	201432	2
201301	201433	2
201301	201434	2
201301	201435	2
201302	201418	1
201302	201419	2
201302	201420	3
201302	201421	1
201302	201422	2
201302	201423	4
201302	201424	3
201302	201425	6
201302	201426	4
201302	201427	3
201302	201428	1
201302	201429	2
201302	201430	3
201302	201431	2
201302	201432	4
201302	201433	4
201302	201434	4
201302	201435	2
201303	201418	2
201303	201419	4
201303	201420	5
201303	201421	7
201303	201422	7
201303	201423	8
201303	201424	5
201303	201425	5
201303	201426	1
201303	201427	2
201303	201428	4
201303	201429	4
201303	201430	3

201303	201431	2
201303	201432	3
201303	201434	4
201303	201435	5
201304	201418	4
201304	201419	6
201304	201420	7
201304	201421	6
201304	201422	6
201304	201423	7
201304	201424	6
201304	201425	6
201304	201426	6
201304	201427	3
201304	201428	4
201304	201429	6
201304	201430	7
201304	201431	4
201304	201432	3
201304	201433	1
201304	201434	2
201304	201435	4
201305	201418	2
201305	201419	3
201305	201420	5
201305	201421	4
201305	201422	5
201305	201423	6
201305	201424	5
201305	201425	4
201305	201426	8
201305	201427	3
201305	201428	7
201305	201429	5
201305	201430	4
201305	201431	5
201305	201432	5
201305	201433	3
201305	201434	2
201306	201418	4
201306	201419	7
201306	201420	8
201306	201421	6
201306	201422	6
201306	201423	7
201306	201424	6

201306	201425	7
201306	201426	9
201306	201427	6
201306	201428	9
201306	201429	7
201306	201430	9
201306	201431	10
201306	201432	7
201306	201433	6
201306	201434	6
201306	201435	4
201307	201418	2
201307	201419	5
201307	201420	3
201307	201421	4
201307	201422	5
201307	201423	6
201307	201424	5
201307	201425	4
201307	201426	5
201307	201427	4
201307	201428	4
201307	201429	6
201307	201430	5
201307	201431	6
201307	201432	3
201307	201433	1
201307	201435	3
201308	201418	3
201308	201419	9
201308	201420	6
201308	201421	7
201308	201422	8
201308	201423	6
201308	201424	6
201308	201425	8
201308	201426	9
201308	201427	10
201308	201428	11
201308	201429	12
201308	201430	9
201308	201431	5
201308	201432	5
201308	201433	3
201308	201434	1
201308	201435	2

201309	201418	1
201309	201419	1
201309	201420	3
201309	201421	2
201309	201422	1
201309	201423	2
201309	201424	4
201309	201425	5
201309	201426	4
201309	201427	5
201309	201428	2
201309	201429	5
201309	201430	4
201309	201431	5
201309	201432	4
201309	201433	2
201309	201434	3
201309	201435	2
201310	201418	5
201310	201419	7
201310	201420	5
201310	201421	8
201310	201422	8
201310	201423	8
201310	201424	8
201310	201425	9
201310	201426	5
201310	201427	6
201310	201428	4
201310	201429	6
201310	201430	5
201310	201431	6
201310	201432	3
201310	201433	2
201310	201434	3
201310	201435	3
201311	201418	2
201311	201419	3
201311	201420	6
201311	201421	5
201311	201422	5
201311	201423	5
201311	201424	4
201311	201425	6
201311	201426	5
201311	201427	7

201311	201428	9
201311	201429	5
201311	201430	3
201311	201431	7
201311	201432	3
201311	201433	2
201311	201434	3
201311	201435	1
201312	201418	5
201312	201419	4
201312	201420	5
201312	201421	3
201312	201422	6
201312	201423	3
201312	201424	4
201312	201425	4
201312	201426	3
201312	201427	5
201312	201428	4
201312	201429	4
201312	201430	4
201312	201431	7
201312	201432	6
201312	201433	4
201312	201434	4
201312	201435	4
201313	201418	3
201313	201419	4
201313	201420	2
201313	201421	2
201313	201422	4
201313	201423	7
201313	201424	4
201313	201425	5
201313	201426	3
201313	201427	4
201313	201428	4
201313	201429	5
201313	201430	3
201313	201431	4
201313	201432	4
201313	201433	2
201313	201434	1
201313	201435	2
201314	201418	2
201314	201419	4

201314	201420	5
201314	201421	5
201314	201422	4
201314	201423	3
201314	201424	2
201314	201425	3
201314	201426	3
201314	201427	5
201314	201428	7
201314	201429	7
201314	201430	8
201314	201431	10
201314	201432	7
201314	201433	2
201314	201434	3
201314	201435	3
201315	201418	3
201315	201419	4
201315	201420	5
201315	201421	5
201315	201422	2
201315	201423	5
201315	201424	5
201315	201425	5
201315	201426	5
201315	201427	1
201315	201428	1
201315	201429	4
201315	201430	5
201315	201431	6
201315	201432	5
201315	201433	5
201315	201434	6
201315	201435	3
201316	201418	4
201316	201419	5
201316	201420	4
201316	201421	6
201316	201422	5
201316	201423	7
201316	201424	5
201316	201425	7
201316	201426	4
201316	201427	5
201316	201428	7
201316	201429	6

201316	201430	8
201316	201431	8
201316	201432	4
201316	201433	8
201316	201434	7
201316	201435	4
201317	201418	6
201317	201419	7
201317	201420	10
201317	201421	8
201317	201422	11
201317	201423	8
201317	201424	8
201317	201425	8
201317	201426	9
201317	201427	9
201317	201428	10
201317	201429	11
201317	201430	10
201317	201431	8
201317	201432	5
201317	201433	5
201317	201434	5
201317	201435	5
201318	201418	3
201318	201419	6
201318	201420	8
201318	201421	9
201318	201422	6
201318	201423	6
201318	201424	9
201318	201425	9
201318	201426	7
201318	201427	9
201318	201428	8
201318	201429	7
201318	201430	10
201318	201431	7
201318	201432	5
201318	201433	6
201318	201434	9
201318	201435	8
201319	201418	6
201319	201419	8
201319	201420	7
201319	201421	11

201319	201422	7
201319	201423	7
201319	201424	10
201319	201425	7
201319	201426	6
201319	201427	5
201319	201428	10
201319	201429	8
201319	201430	9
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201319	201432	8
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201319	201435	2
201320	201418	3
201320	201419	6
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201320	201421	8
201320	201422	6
201320	201423	5
201320	201424	8
201320	201425	6
201320	201426	5
201320	201427	8
201320	201428	6
201320	201429	10
201320	201430	7
201320	201431	6
201320	201432	6
201320	201433	6
201320	201434	3
201320	201435	4
201321	201418	3
201321	201419	5
201321	201420	5
201321	201421	3
201321	201422	3
201321	201423	2
201321	201426	4
201321	201427	4
201321	201428	5
201321	201429	5
201321	201430	2
201321	201431	3
201321	201432	1
201321	201433	2



201321	201434	3
201321	201435	3
201322	201418	2
201322	201419	4
201322	201420	3
201322	201421	3
201322	201422	3
201322	201423	2
201322	201424	2
201322	201425	1
201322	201426	2
201322	201427	3
201322	201428	3
201322	201429	1
201322	201430	1
201322	201431	2
201322	201432	1
201322	201433	1
201322	201434	2
201322	201435	3
201323	201418	3
201323	201419	4
201323	201420	3
201323	201421	5
201323	201422	2
201323	201423	2
201323	201424	3
201323	201425	4
201323	201426	4
201323	201427	7
201323	201428	3
201323	201429	9
201323	201430	5
201323	201431	8
201323	201432	6
201323	201433	3
201323	201434	4
201323	201435	5
201324	201418	8
201324	201419	5
201324	201420	6
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201352	201427	7
201352	201428	6

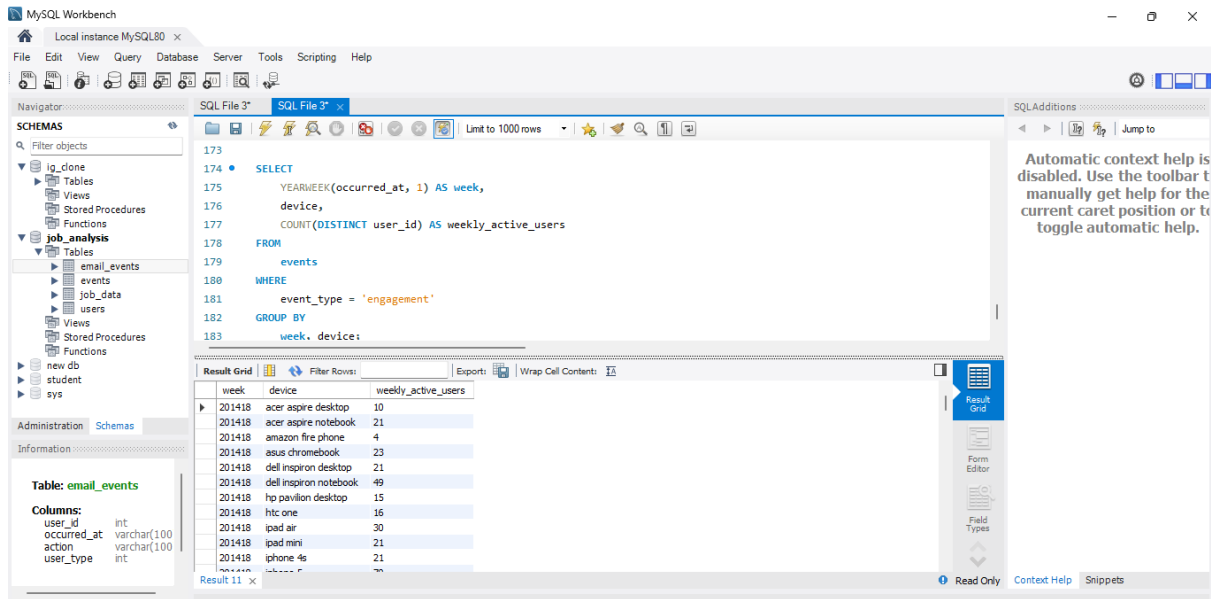
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201401	201419	14
201401	201420	23
201401	201421	18
201401	201422	15
201401	201423	15
201401	201424	14
201401	201425	17
201401	201426	13
201401	201427	17
201401	201428	14
201401	201429	12
201401	201430	12
201401	201431	14
201401	201432	12
201401	201433	13
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201401	201435	6
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201404	201430	10
201404	201431	11
201404	201432	9
201404	201433	5
201404	201434	7

### Insight

This query calculates weekly retention by cohort (group of users who signed up in the same week). By comparing `signup_week` to subsequent `active_weeks`, we can see how many users returned in following weeks, helping measure retention trends over time.

## 4. Weekly Engagement Per Device



```

173
174 • SELECT
175     YEARWEEK(occurred_at, 1) AS week,
176     device,
177     COUNT(DISTINCT user_id) AS weekly_active_users
178 FROM
179     events
180 WHERE
181     event_type = 'engagement'
182 GROUP BY
183     week, device;
184

```

Insights:

week	device	weekly_active_users
201418	acer aspire desktop	10
201418	acer aspire notebook	21
201418	amazon fire phone	4
201418	asus chromebook	23
201418	dell inspiron desktop	21
201418	dell inspiron notebook	49
201418	hp pavilion desktop	15
201418	htc one	16
201418	ipad air	30
201418	ipad mini	21
201418	iphone 4s	21
201418	iphone 5	70
201418	iphone 5s	45
201418	kindle fire	6
201418	lenovo thinkpad	90

201418	mac mini	8
201418	macbook air	57
201418	macbook pro	154
201418	nexus 10	16
201418	nexus 5	43
201418	nexus 7	20
201418	nokia lumia 635	19
201418	samsung galaxy tablet	8
201418	samsung galaxy note	7
201418	samsung galaxy s4	56
201418	windows surface	10
201419	acer aspire desktop	26
201419	acer aspire notebook	34
201419	amazon fire phone	9
201419	asus chromebook	42
201419	dell inspiron desktop	57
201419	dell inspiron notebook	78
201419	hp pavilion desktop	37
201419	htc one	19
201419	ipad air	52
201419	ipad mini	29
201419	iphone 4s	47
201419	iphone 5	114
201419	iphone 5s	70
201419	kindle fire	26
201419	lenovo thinkpad	154
201419	mac mini	12
201419	macbook air	119
201419	macbook pro	247
201419	nexus 10	30
201419	nexus 5	73
201419	nexus 7	29
201419	nokia lumia 635	34
201419	samsung galaxy tablet	11
201419	samsung galaxy note	15
201419	samsung galaxy s4	80
201419	windows surface	10
201420	acer aspire desktop	20
201420	acer aspire notebook	37
201420	amazon fire phone	10
201420	asus chromebook	25
201420	dell inspiron desktop	33
201420	dell inspiron notebook	73
201420	hp pavilion desktop	35
201420	htc one	31
201420	ipad air	47



201420	ipad mini	33
201420	iphone 4s	38
201420	iphone 5	108
201420	iphone 5s	69
201420	kindle fire	17
201420	lenovo thinkpad	156
201420	mac mini	17
201420	macbook air	101
201420	macbook pro	247
201420	nexus 10	23
201420	nexus 5	80
201420	nexus 7	36
201420	nokia lumia 635	20
201420	samsung galaxy tablet	6
201420	samsung galaxy note	9
201420	samsung galaxy s4	81
201420	windows surface	14
201421	acer aspire desktop	20
201421	acer aspire notebook	34
201421	amazon fire phone	8
201421	asus chromebook	36
201421	dell inspiron desktop	48
201421	dell inspiron notebook	75
201421	hp pavilion desktop	24
201421	htc one	22
201421	ipad air	49
201421	ipad mini	29
201421	iphone 4s	47
201421	iphone 5	108
201421	iphone 5s	68
201421	kindle fire	17
201421	lenovo thinkpad	140
201421	mac mini	21
201421	macbook air	88
201421	macbook pro	226
201421	nexus 10	21
201421	nexus 5	81
201421	nexus 7	25
201421	nokia lumia 635	18
201421	samsung galaxy tablet	8
201421	samsung galaxy note	15
201421	samsung galaxy s4	82
201421	windows surface	15
201422	acer aspire desktop	26
201422	acer aspire notebook	38
201422	amazon fire phone	2

201422	asus chromebook	31
201422	dell inspiron desktop	33
201422	dell inspiron notebook	69
201422	hp pavilion desktop	33
201422	htc one	16
201422	ipad air	42
201422	ipad mini	22
201422	iphone 4s	38
201422	iphone 5	108
201422	iphone 5s	56
201422	kindle fire	22
201422	lenovo thinkpad	134
201422	mac mini	16
201422	macbook air	86
201422	macbook pro	195
201422	nexus 10	22
201422	nexus 5	77
201422	nexus 7	23
201422	nokia lumia 635	17
201422	samsung galaxy tablet	5
201422	samsung galaxy note	16
201422	samsung galaxy s4	73
201422	windows surface	16
201423	acer aspire desktop	22
201423	acer aspire notebook	32
201423	amazon fire phone	5
201423	asus chromebook	41
201423	dell inspiron desktop	42
201423	dell inspiron notebook	79
201423	hp pavilion desktop	26
201423	htc one	21
201423	ipad air	45
201423	ipad mini	23
201423	iphone 4s	31
201423	iphone 5	98
201423	iphone 5s	60
201423	kindle fire	16
201423	lenovo thinkpad	136
201423	mac mini	19
201423	macbook air	123
201423	macbook pro	204
201423	nexus 10	27
201423	nexus 5	74
201423	nexus 7	35
201423	nokia lumia 635	20
201423	samsung galaxy tablet	8

201423	samsung galaxy note	13
201423	samsung galaxy s4	83
201423	windows surface	12
201424	acer aspire desktop	17
201424	acer aspire notebook	38
201424	amazon fire phone	15
201424	asus chromebook	35
201424	dell inspiron desktop	38
201424	dell inspiron notebook	84
201424	hp pavilion desktop	48
201424	htc one	17
201424	ipad air	39
201424	ipad mini	29
201424	iphone 4s	41
201424	iphone 5	128
201424	iphone 5s	65
201424	kindle fire	19
201424	lenovo thinkpad	137
201424	mac mini	15
201424	macbook air	95
201424	macbook pro	203
201424	nexus 10	35
201424	nexus 5	68
201424	nexus 7	31
201424	nokia lumia 635	20
201424	samsung galaxy tablet	8
201424	samsung galaxy note	8
201424	samsung galaxy s4	78
201424	windows surface	11
201425	acer aspire desktop	19
201425	acer aspire notebook	38
201425	amazon fire phone	9
201425	asus chromebook	36
201425	dell inspiron desktop	45
201425	dell inspiron notebook	81
201425	hp pavilion desktop	44
201425	htc one	15
201425	ipad air	42
201425	ipad mini	26
201425	iphone 4s	43
201425	iphone 5	116
201425	iphone 5s	66
201425	kindle fire	20
201425	lenovo thinkpad	130
201425	mac mini	25
201425	macbook air	116

201425	macbook pro	205
201425	nexus 10	32
201425	nexus 5	66
201425	nexus 7	40
201425	nokia lumia 635	25
201425	samsung galaxy tablet	8
201425	samsung galaxy note	16
201425	samsung galaxy s4	77
201425	windows surface	15
201426	acer aspire desktop	22
201426	acer aspire notebook	38
201426	amazon fire phone	11
201426	asus chromebook	33
201426	dell inspiron desktop	43
201426	dell inspiron notebook	91
201426	hp pavilion desktop	34
201426	htc one	14
201426	ipad air	48
201426	ipad mini	23
201426	iphone 4s	29
201426	iphone 5	101
201426	iphone 5s	59
201426	kindle fire	18
201426	lenovo thinkpad	158
201426	mac mini	20
201426	macbook air	89
201426	macbook pro	225
201426	nexus 10	25
201426	nexus 5	75
201426	nexus 7	37
201426	nokia lumia 635	29
201426	samsung galaxy tablet	10
201426	samsung galaxy note	10
201426	samsung galaxy s4	79
201426	windows surface	16
201427	acer aspire desktop	23
201427	acer aspire notebook	31
201427	amazon fire phone	11
201427	asus chromebook	35
201427	dell inspiron desktop	37
201427	dell inspiron notebook	73
201427	hp pavilion desktop	36
201427	htc one	17
201427	ipad air	42
201427	ipad mini	31
201427	iphone 4s	39

201427	iphone 5	122
201427	iphone 5s	71
201427	kindle fire	19
201427	lenovo thinkpad	146
201427	mac mini	9
201427	macbook air	103
201427	macbook pro	211
201427	nexus 10	24
201427	nexus 5	72
201427	nexus 7	36
201427	nokia lumia 635	32
201427	samsung galaxy tablet	10
201427	samsung galaxy note	8
201427	samsung galaxy s4	85
201427	windows surface	16
201428	acer aspire desktop	19
201428	acer aspire notebook	42
201428	amazon fire phone	7
201428	asus chromebook	43
201428	dell inspiron desktop	38
201428	dell inspiron notebook	70
201428	hp pavilion desktop	42
201428	htc one	20
201428	ipad air	43
201428	ipad mini	28
201428	iphone 4s	58
201428	iphone 5	127
201428	iphone 5s	56
201428	kindle fire	22
201428	lenovo thinkpad	153
201428	mac mini	12
201428	macbook air	112
201428	macbook pro	245
201428	nexus 10	34
201428	nexus 5	66
201428	nexus 7	32
201428	nokia lumia 635	25
201428	samsung galaxy tablet	8
201428	samsung galaxy note	12
201428	samsung galaxy s4	89
201428	windows surface	23
201429	acer aspire desktop	19
201429	acer aspire notebook	39
201429	amazon fire phone	5
201429	asus chromebook	37
201429	dell inspiron desktop	40

201429	dell inspiron notebook	82
201429	hp pavilion desktop	45
201429	htc one	16
201429	ipad air	39
201429	ipad mini	29
201429	iphone 4s	46
201429	iphone 5	113
201429	iphone 5s	69
201429	kindle fire	23
201429	lenovo thinkpad	173
201429	mac mini	24
201429	macbook air	108
201429	macbook pro	225
201429	nexus 10	23
201429	nexus 5	63
201429	nexus 7	29
201429	nokia lumia 635	31
201429	samsung galaxy tablet	4
201429	samsung galaxy note	8
201429	samsung galaxy s4	93
201429	windows surface	27
201430	acer aspire desktop	22
201430	acer aspire notebook	36
201430	amazon fire phone	9
201430	asus chromebook	36
201430	dell inspiron desktop	42
201430	dell inspiron notebook	93
201430	hp pavilion desktop	44
201430	htc one	26
201430	ipad air	39
201430	ipad mini	26
201430	iphone 4s	46
201430	iphone 5	121
201430	iphone 5s	74
201430	kindle fire	31
201430	lenovo thinkpad	158
201430	mac mini	23
201430	macbook air	117
201430	macbook pro	224
201430	nexus 10	19
201430	nexus 5	70
201430	nexus 7	32
201430	nokia lumia 635	37
201430	samsung galaxy tablet	8
201430	samsung galaxy note	12
201430	samsung galaxy s4	93

201430	windows surface	19
201431	acer aspire desktop	30
201431	acer aspire notebook	47
201431	amazon fire phone	9
201431	asus chromebook	43
201431	dell inspiron desktop	44
201431	dell inspiron notebook	98
201431	hp pavilion desktop	32
201431	htc one	20
201431	ipad air	58
201431	ipad mini	24
201431	iphone 4s	48
201431	iphone 5	123
201431	iphone 5s	79
201431	kindle fire	18
201431	lenovo thinkpad	167
201431	mac mini	19
201431	macbook air	110
201431	macbook pro	260
201431	nexus 10	28
201431	nexus 5	61
201431	nexus 7	47
201431	nokia lumia 635	27
201431	samsung galaxy tablet	7
201431	samsung galaxy note	11
201431	samsung galaxy s4	78
201431	windows surface	13
201432	acer aspire desktop	24
201432	acer aspire notebook	44
201432	amazon fire phone	11
201432	asus chromebook	42
201432	dell inspiron desktop	32
201432	dell inspiron notebook	88
201432	hp pavilion desktop	38
201432	htc one	9
201432	ipad air	41
201432	ipad mini	17
201432	iphone 4s	31
201432	iphone 5	104
201432	iphone 5s	53
201432	kindle fire	10
201432	lenovo thinkpad	146
201432	mac mini	19
201432	macbook air	109
201432	macbook pro	258
201432	nexus 10	15

201432	nexus 5	47
201432	nexus 7	30
201432	nokia lumia 635	24
201432	samsung galaxy tablet	5
201432	samsung galaxy note	10
201432	samsung galaxy s4	74
201432	windows surface	12
201433	acer aspire desktop	32
201433	acer aspire notebook	43
201433	amazon fire phone	9
201433	asus chromebook	44
201433	dell inspiron desktop	47
201433	dell inspiron notebook	73
201433	hp pavilion desktop	41
201433	htc one	15
201433	ipad air	36
201433	ipad mini	15
201433	iphone 4s	25
201433	iphone 5	88
201433	iphone 5s	46
201433	kindle fire	9
201433	lenovo thinkpad	134
201433	mac mini	18
201433	macbook air	92
201433	macbook pro	240
201433	nexus 10	25
201433	nexus 5	45
201433	nexus 7	18
201433	nokia lumia 635	19
201433	samsung galaxy tablet	3
201433	samsung galaxy note	9
201433	samsung galaxy s4	55
201433	windows surface	7
201434	acer aspire desktop	28
201434	acer aspire notebook	30
201434	amazon fire phone	8
201434	asus chromebook	39
201434	dell inspiron desktop	26
201434	dell inspiron notebook	80
201434	hp pavilion desktop	26
201434	htc one	12
201434	ipad air	22
201434	ipad mini	20
201434	iphone 4s	17
201434	iphone 5	74
201434	iphone 5s	49



201434	kindle fire	8
201434	lenovo thinkpad	137
201434	mac mini	24
201434	macbook air	106
201434	macbook pro	230
201434	nexus 10	15
201434	nexus 5	51
201434	nexus 7	20
201434	nokia lumia 635	20
201434	samsung galaxy tablet	8
201434	samsung galaxy note	11
201434	samsung galaxy s4	46
201434	windows surface	8
201435	acer aspire desktop	23
201435	acer aspire notebook	50
201435	amazon fire phone	9
201435	asus chromebook	39
201435	dell inspiron desktop	41
201435	dell inspiron notebook	79
201435	hp pavilion desktop	26
201435	htc one	20
201435	ipad air	26
201435	ipad mini	13
201435	iphone 4s	33
201435	iphone 5	65
201435	iphone 5s	42
201435	kindle fire	9
201435	lenovo thinkpad	150
201435	mac mini	25
201435	macbook air	110
201435	macbook pro	214
201435	nexus 10	17
201435	nexus 5	48
201435	nexus 7	20
201435	nokia lumia 635	14
201435	samsung galaxy tablet	8
201435	samsung galaxy note	4
201435	samsung galaxy s4	57
201435	windows surface	14

**Insight:** This data can reveal device-based trends, showing whether engagement spikes are tied to specific devices.

## 5. Email Engagement Analysis:

The screenshot shows the MySQL Workbench interface. On the left, the 'Schemas' pane shows a database named 'job\_analysis' with a table 'email\_events'. The main editor shows a SQL query (lines 188-200) that calculates weekly email engagement metrics. The 'Result Grid' at the bottom displays the query results for the first 10 rows.

**SQL Query:**

```
188 week, device;
189
190 • SELECT
191     YEARWEEK(occurred_at, 1) AS week,
192     COUNT(CASE WHEN action = 'sent_weekly_digest' THEN 1 END) AS emails_sent,
193     COUNT(CASE WHEN action = 'email_open' THEN 1 END) AS emails_opened,
194     COUNT(DISTINCT CASE WHEN action = 'email_open' THEN user_id END) AS unique_email_opens
195 FROM
196     email_events
197 GROUP BY
198     week;
199
200
```

**Result Grid:**

week	emails_sent	emails_opened	unique_email_opens
201418	908	332	332
201419	2602	919	910
201420	2665	971	961
201421	2733	995	984
201422	2822	1026	1008
201423	2911	993	972
201424	3003	1070	1058
201425	3105	1161	1144
201426	3207	1090	1080

```
190 • SELECT
191     YEARWEEK(occurred_at, 1) AS week,
192     COUNT(CASE WHEN action = 'sent_weekly_digest' THEN 1 END) AS emails_sent,
193     COUNT(CASE WHEN action = 'email_open' THEN 1 END) AS emails_opened,
194     COUNT(DISTINCT CASE WHEN action = 'email_open' THEN user_id END) AS unique_email_opens
195 FROM
196     email_events
197 GROUP BY
198     week;
199
```

Insights:

	week	emails_sent	emails_opened	unique_email_opens
▶	201418	908	332	332
	201419	2602	919	910
	201420	2665	971	961
	201421	2733	995	984
	201422	2822	1026	1008
	201423	2911	993	972
	201424	3003	1070	1058
	201425	3105	1161	1144
	201426	3207	1090	1080
	201427	3302	1168	1157
	201428	3399	1230	1215
	201429	3499	1260	1244
	201430	3592	1211	1200
	201431	3706	1386	1372
	201432	3793	1336	1328
	201433	3897	1357	1341
	201434	4012	1421	1411
	201435	4111	1533	1511

**Insight:** This query helps gauge user engagement with emails. By comparing emails sent and opened, we can identify effective weeks for email engagement.