Milestone: Implementation in MySQL

Project: Personalized Period Tracker with Analytics and Social Sync

Group 8
Hanisha Reddy Cattamanchi Gopinath
Sakshi Pawar

+1 848-256-8721
+1 617-447-8235

Cattamanchigopinat.h@northeastern.edu
pawar.saks@northeastern.edu

Percentage of Effort Contributed by Student1: 50%

Percentage of Effort Contributed by Student2: 50%

Signature of Student 1: 

Signature of Student 2: 

Submission Date: 11-09-2025

INTRODUCTION:

The **Personalized Period Tracker Database** is designed to help users log and analyze their menstrual health data, track symptoms, manage cycle records, and connect socially through synchronized cycle insights. This database organizes user information, period and symptom logs, reminders, and analytical insights in a structured way, enabling accurate predictions and meaningful health trends over time.

For this project, we designed a relational database in MySQL based on the logical data model and populated it with realistic random data to simulate user interactions. The dataset maintains referential integrity, foreign key consistency, and balanced data distributions across all entities to reflect real-world tracking scenarios. Random data was generated and inserted into the database through SQL scripts.

1. MySQL database:

CREATE DATABASE period_tracker_db;

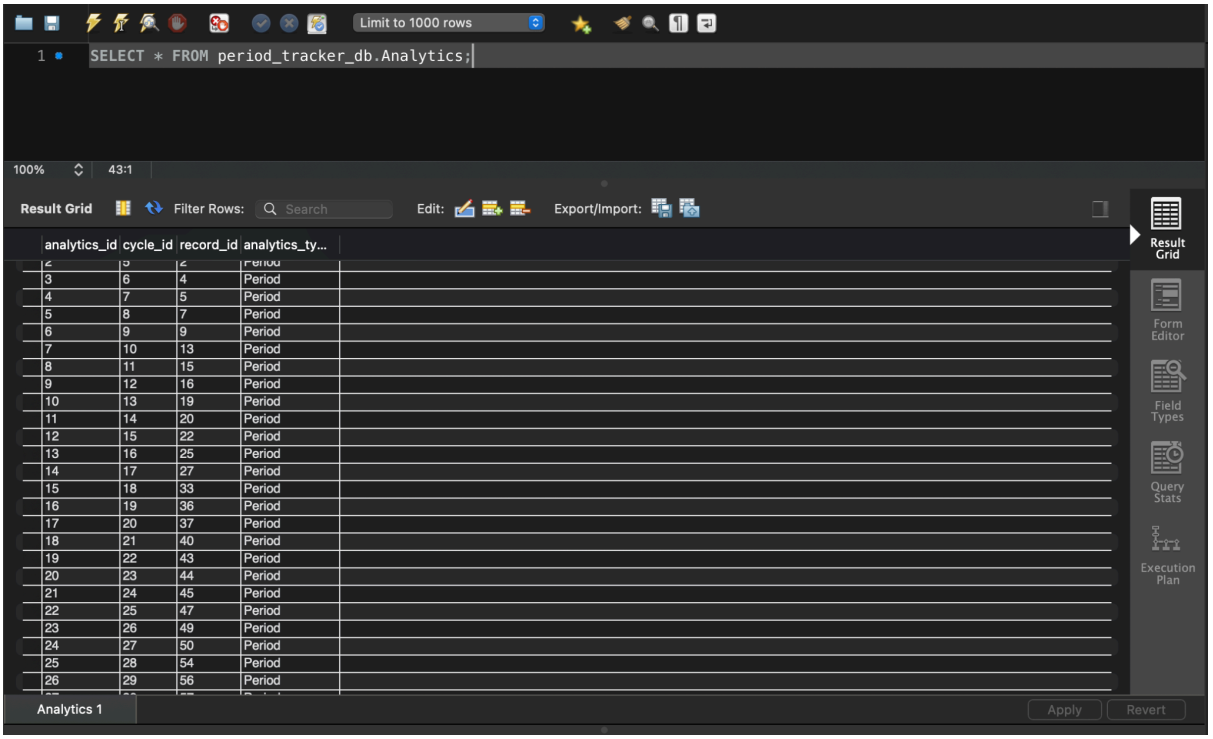
```
USE period_tracker_db;

-- USER TABLE
CREATE TABLE User (
  user_id INT AUTO_INCREMENT PRIMARY KEY,
  first_name VARCHAR(50) NOT NULL,
  last_name VARCHAR(50) NOT NULL,
  email VARCHAR(100) NOT NULL UNIQUE,
  password VARCHAR(255) NOT NULL,
  username VARCHAR(50) NOT NULL UNIQUE,
  date_of_birth DATE NOT NULL,
  weight DECIMAL(5,2),
  height DECIMAL(5,2),
  active BOOLEAN NOT NULL
);

-- FRIENDSHIP TABLE
CREATE TABLE Friendship (
  friendship_id INT AUTO_INCREMENT PRIMARY KEY,
  user_id_1 INT NOT NULL,
  user_id_2 INT NOT NULL,
  status ENUM('Pending','Active','Blocked') NOT NULL,
  initiated_by INT NOT NULL,
  FOREIGN KEY (user_id_1) REFERENCES User(user_id),
  FOREIGN KEY (user_id_2) REFERENCES User(user_id),
  FOREIGN KEY (initiated_by) REFERENCES User(user_id)
);
```

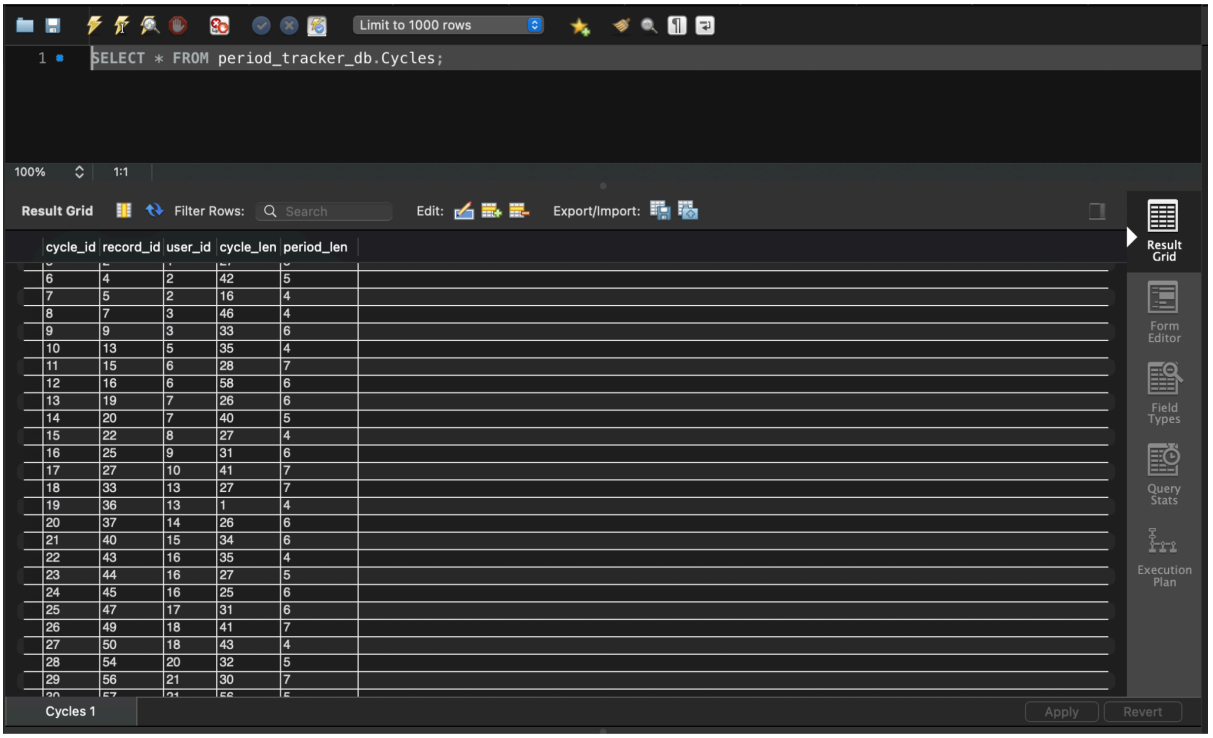
```
-- SYNC_OVERLAP TABLE
CREATE TABLE Sync_Overlap (
  sync_id INT AUTO_INCREMENT,
  friendship_id INT NOT NULL,
  overlap_start DATE NOT NULL,
  overlap_end DATE NOT NULL,
  PRIMARY KEY (sync_id, friendship_id),
  FOREIGN KEY (friendship_id) REFERENCES Friendship(friendship_id)
);

-- MEDICATION_LOG TABLE
CREATE TABLE Medication_Log (
  medication_id INT AUTO_INCREMENT PRIMARY KEY,
  user_id INT NOT NULL,
  medication_name VARCHAR(100) NOT NULL,
  med_date DATE NOT NULL,
  dosage VARCHAR(50),
  purpose VARCHAR(100),
  FOREIGN KEY (user_id) REFERENCES User(user_id)
);

-- FLOW TABLE
CREATE TABLE Flow (
  flow_id INT AUTO_INCREMENT PRIMARY KEY,
  user_id INT NOT NULL,
  flow_type ENUM('Light','Medium','Heavy','Spotting') NOT NULL,
  entry_date DATE NOT NULL,
  FOREIGN KEY (user_id) REFERENCES User(user_id)
);

-- SYMPTOMS TABLE
CREATE TABLE Symptoms (
  symptom_id INT AUTO_INCREMENT,
  user_id INT NOT NULL,
  symptom_type ENUM('Cramps','Headache','Bloating','Mood Swings','Fatigue','Acne','Back
Pain','Nausea','Hot Flashes','Insomnia','Anxiety','Depression') NOT NULL,
  symptom_date DATE NOT NULL,
  severity ENUM('Mild','Moderate','Severe') NOT NULL,
  symptom_notes TEXT,
  PRIMARY KEY (symptom_id, user_id),
  FOREIGN KEY (user_id) REFERENCES User(user_id)
);

-- SYMPTOM_ANALYTICS TABLE
CREATE TABLE Symptom_Analytics (
  symptom_analytics_id INT AUTO_INCREMENT,
  user_id INT NOT NULL,
```

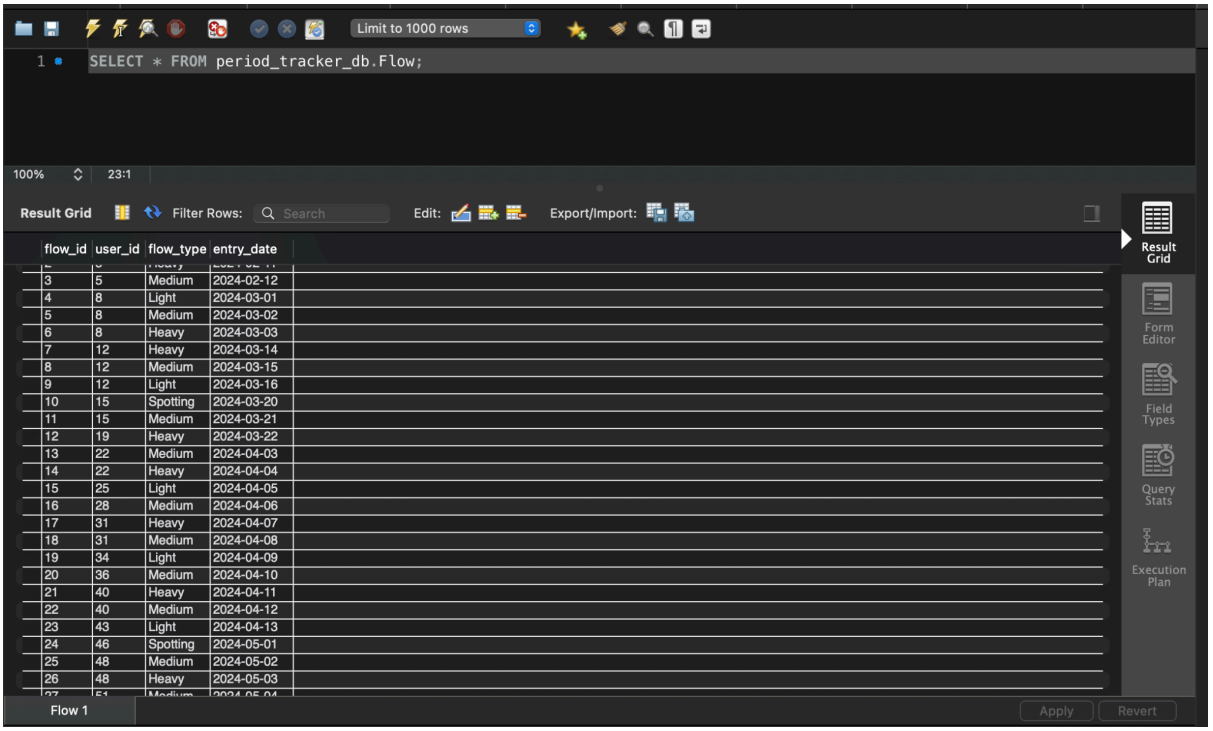
```
  symptom_type ENUM('Cramps','Headache','Bloating','Mood Swings','Fatigue','Acne','Back
Pain','Nausea','Hot Flashes','Insomnia','Anxiety','Depression') NOT NULL,
  frequency_count INT DEFAULT 0 NOT NULL,
  avg_severity DECIMAL(3,2),
  most_common_cycleday INT,
  PRIMARY KEY (symptom_analytics_id, user_id),
  FOREIGN KEY (user_id) REFERENCES User(user_id)
);

-- PERIOD_RECORD TABLE
CREATE TABLE Period_Record (
  record_id INT AUTO_INCREMENT,
  user_id INT NOT NULL,
  start_date DATE NOT NULL,
  end_date DATE,
  PRIMARY KEY (record_id, user_id),
  FOREIGN KEY (user_id) REFERENCES User(user_id),
  CHECK (end_date IS NULL OR end_date >= start_date)
);

-- CYCLES TABLE
CREATE TABLE Cycles (
  cycle_id INT AUTO_INCREMENT,
  record_id INT NOT NULL,
  user_id INT NOT NULL,
  cycle_len INT NOT NULL,
  period_len INT NOT NULL,
  PRIMARY KEY (cycle_id, record_id),
  FOREIGN KEY (record_id, user_id) REFERENCES Period_Record(record_id, user_id),
  CHECK (cycle_len > 0 AND period_len > 0)
);


-- ANALYTICS (Superclass)
CREATE TABLE Analytics (
  analytics_id INT AUTO_INCREMENT PRIMARY KEY,
  cycle_id INT NOT NULL,
  record_id INT NOT NULL,
  analytics_type ENUM('Phase','Period') NOT NULL,
  FOREIGN KEY (cycle_id, record_id) REFERENCES Cycles(cycle_id,record_id)
);


-- PHASE_ANALYTICS (Subclass)
CREATE TABLE Phase_Analytics (
  analytics_id INT,
  period_analytics_id INT AUTO_INCREMENT PRIMARY KEY,
  phase ENUM('Menstrual','Follicular','Ovulation','Luteal') NOT NULL,
```

```
  phase_sdate DATE NOT NULL,
  phase_edate DATE,
  FOREIGN KEY (analytics_id) REFERENCES Analytics(analytics_id),
  CHECK (phase_edate IS NULL OR phase_edate >= phase_sdate)
);

-- PERIOD_ANALYTICS (Subclass)
CREATE TABLE Period_Analytics (
  analytics_id INT,
  phase_analytics_id INT AUTO_INCREMENT PRIMARY KEY,
  month
ENUM('January','February','March','April','May','June','July','August','September','October','N
ovember','December') NOT NULL,
  pred_start DATE NOT NULL,
  pred_end DATE NOT NULL,
  avg_cycle_len INT NOT NULL,
  avg_period_len INT NOT NULL,
  FOREIGN KEY (analytics_id) REFERENCES Analytics(analytics_id),
  CHECK (pred_end >= pred_start),
  CHECK (avg_cycle_len > 0 AND avg_period_len > 0)
);

-- REMINDER (Superclass)
CREATE TABLE Reminder (
  reminder_id INT AUTO_INCREMENT PRIMARY KEY,
  user_id INT NOT NULL,
  reminder_type ENUM('Phase','Period') NOT NULL,
  reminder_active BOOLEAN NOT NULL,
  FOREIGN KEY (user_id) REFERENCES User(user_id)
);

-- PHASE_REMINDER (Subclass)
CREATE TABLE Phase_Reminder (
  reminder_id INT PRIMARY KEY,
  notify_on_start BOOLEAN NOT NULL,
  phase ENUM('Menstrual','Follicular','Ovulation','Luteal') NOT NULL,
  FOREIGN KEY (reminder_id) REFERENCES Reminder(reminder_id)
);

-- PERIOD_REMINDER (Subclass)
CREATE TABLE Period_Reminder (
  reminder_id INT PRIMARY KEY,
  notify_on_start BOOLEAN NOT NULL,
  days_before_predicted INT CHECK (days_before_predicted >= 0),
  FOREIGN KEY (reminder_id) REFERENCES Reminder(reminder_id)
);
```

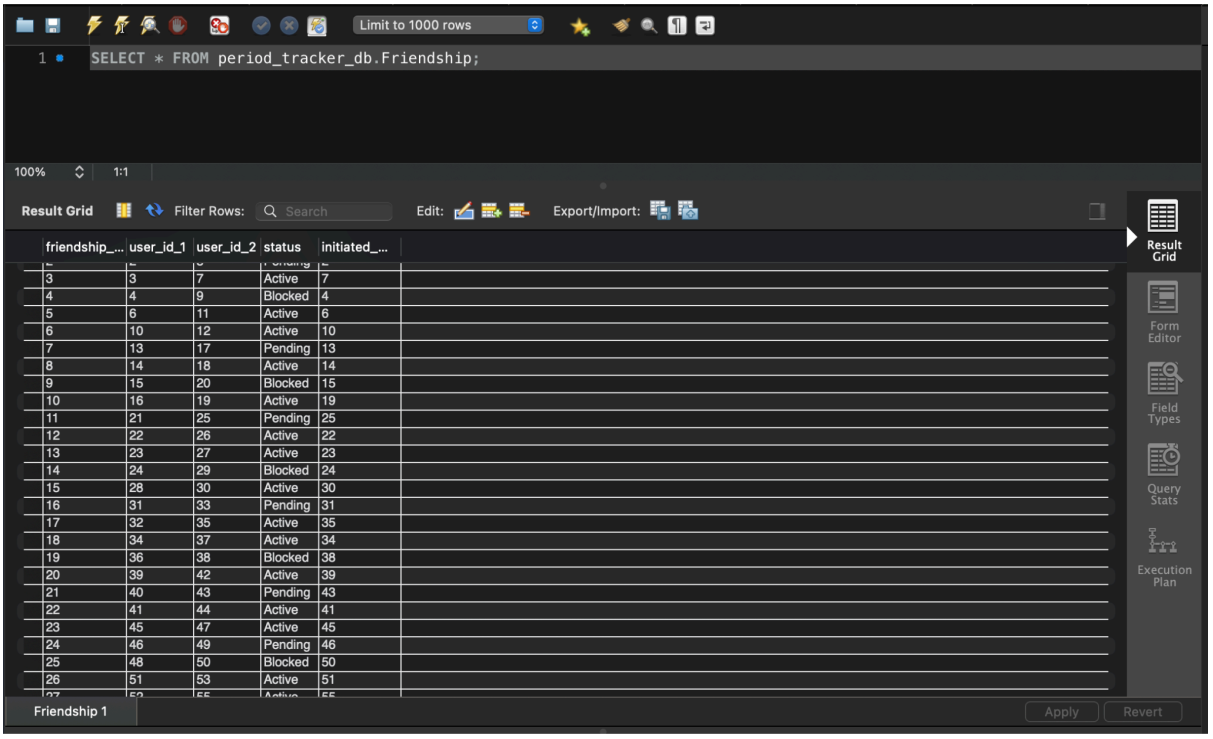
2. Generating Random data and uploading it in the database



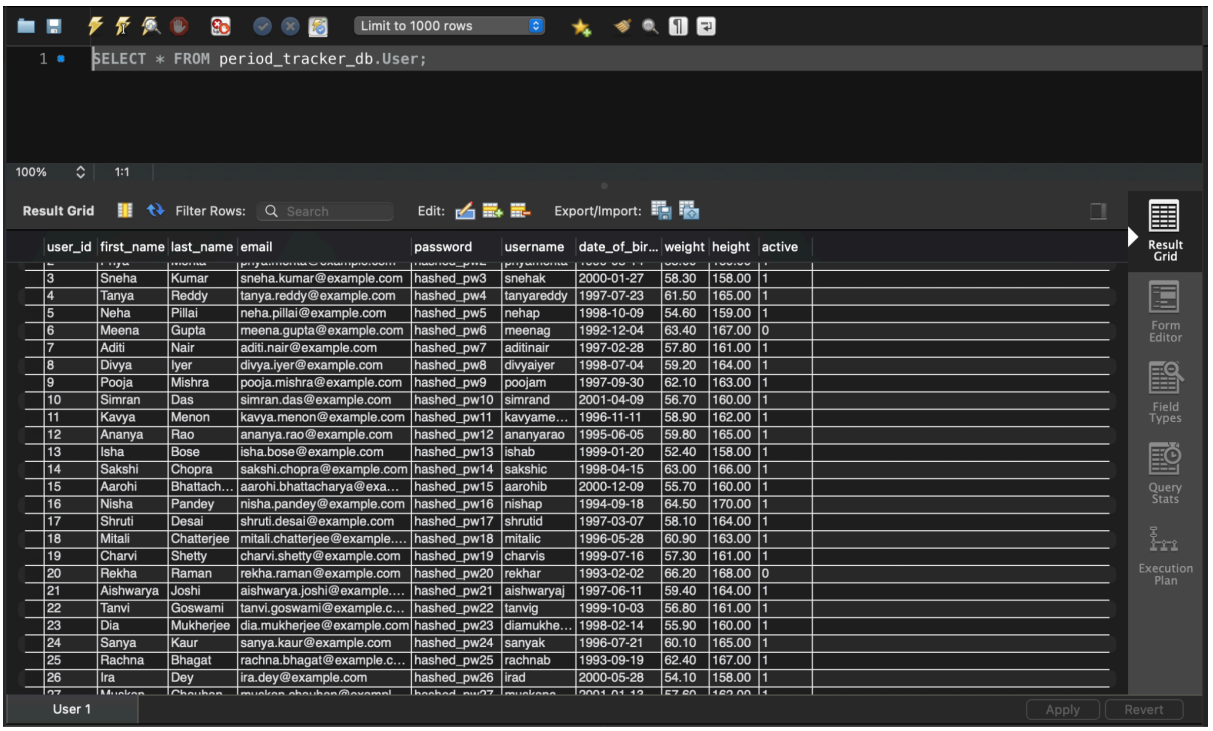




flow_id	user_id	flow_type	entry_date
3	5	Medium	2024-02-12
4	8	Light	2024-03-01
5	8	Medium	2024-03-02
6	8	Heavy	2024-03-03
7	12	Heavy	2024-03-14
8	12	Medium	2024-03-15
9	12	Light	2024-03-16
10	15	Spotting	2024-03-20
11	15	Medium	2024-03-21
12	19	Heavy	2024-03-22
13	22	Medium	2024-04-03
14	22	Heavy	2024-04-04
15	25	Light	2024-04-05
16	28	Medium	2024-04-06
17	31	Heavy	2024-04-07
18	31	Medium	2024-04-08
19	34	Light	2024-04-09
20	36	Medium	2024-04-10
21	40	Heavy	2024-04-11
22	40	Medium	2024-04-12
23	43	Light	2024-04-13
24	46	Spotting	2024-05-01
25	48	Medium	2024-05-02
26	48	Heavy	2024-05-03

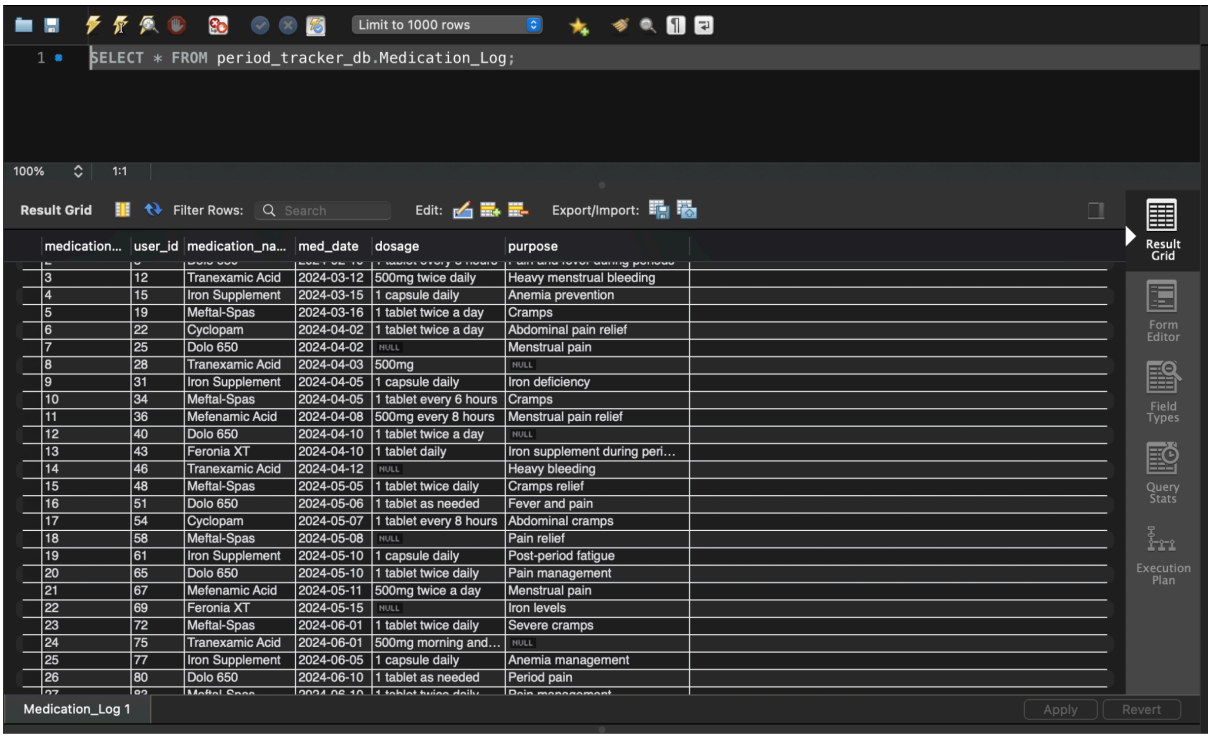


friendship_...	user_id_1	user_id_2	status	initiated_...
3	3	7	Active	7
4	4	9	Blocked	4
5	6	11	Active	6
6	10	12	Active	10
7	13	17	Pending	13
8	14	18	Active	14
9	15	20	Blocked	15
10	16	19	Active	19
11	21	25	Pending	25
12	22	26	Active	22
13	23	27	Active	23
14	24	29	Blocked	24
15	28	30	Active	30
16	31	33	Pending	31
17	32	35	Active	35
18	34	37	Active	34
19	36	38	Blocked	38
20	39	42	Active	39
21	40	43	Pending	43
22	41	44	Active	41
23	45	47	Active	45
24	46	49	Pending	46
25	48	50	Blocked	50
26	51	53	Active	51



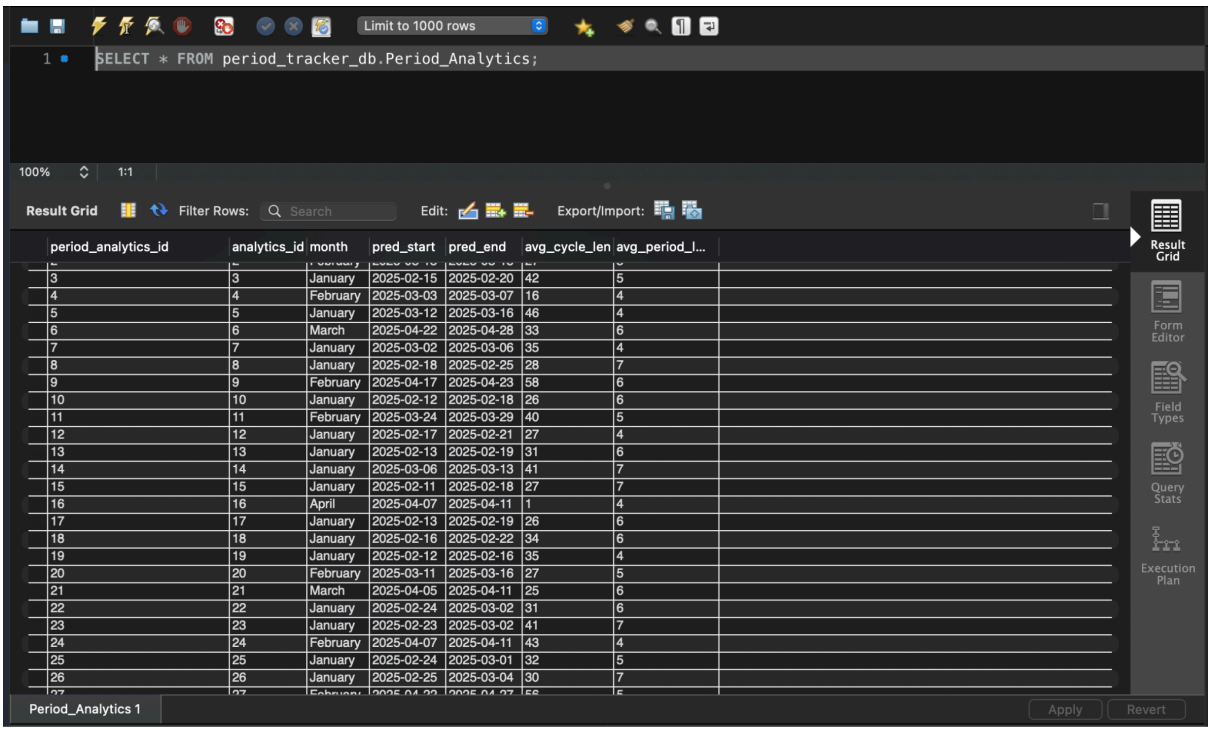
```
SELECT * FROM period_tracker_db.User;
```

user_id	first_name	last_name	email	password	username	date_of_bir...	weight	height	active
3	Sneha	Kumar	sneha.kumar@example.com	hashed_pw3	snehak	2000-01-27	58.30	158.00	1
4	Tanya	Reddy	tanya.reddy@example.com	hashed_pw4	tanyareddy	1997-07-23	61.50	165.00	1
5	Neha	Pillai	neha.pillai@example.com	hashed_pw5	nehap	1998-10-09	54.60	159.00	1
6	Meena	Gupta	meena.gupta@example.com	hashed_pw6	meenag	1992-12-04	63.40	167.00	0
7	Aditi	Nair	aditi.nair@example.com	hashed_pw7	aditinair	1997-02-28	57.80	161.00	1
8	Divya	Iyer	divya.iyer@example.com	hashed_pw8	divyaiyer	1998-07-04	59.20	164.00	1
9	Pooja	Mishra	pooja.mishra@example.com	hashed_pw9	poojam	1997-09-30	62.10	163.00	1
10	Simran	Das	simran.das@example.com	hashed_pw10	simrand	2001-04-09	56.70	160.00	1
11	Kavya	Menon	kavya.menon@example.com	hashed_pw11	kavyame…	1996-11-11	58.90	162.00	1
12	Ananya	Rao	ananya.rao@example.com	hashed_pw12	ananyarao	1995-06-05	59.80	165.00	1
13	Isha	Bose	isha.bose@example.com	hashed_pw13	ishab	1999-01-20	52.40	158.00	1
14	Sakshi	Chopra	sakshi.chopra@example.com	hashed_pw14	sakshic	1998-04-15	63.00	166.00	1
15	Aarohi	Bhattach…	aarohi.bhattacharya@exa…	hashed_pw15	aarohib	2000-12-09	55.70	160.00	1
16	Nisha	Pandey	nisha.pandey@example.com	hashed_pw16	nishap	1994-09-18	64.50	170.00	1
17	Shruti	Desai	shruti.desai@example.com	hashed_pw17	shrutid	1997-03-07	58.10	164.00	1
18	Mitali	Chatterjee	mitali.chatterjee@example.…	hashed_pw18	mitalic	1996-05-28	60.90	163.00	1
19	Charvi	Shetty	charvi.shetty@example.com	hashed_pw19	charvis	1999-07-16	57.30	161.00	1
20	Rekha	Raman	rekha.raman@example.com	hashed_pw20	rekhar	1993-02-02	66.20	168.00	0
21	Aishwarya	Joshi	aishwarya.joshi@example.…	hashed_pw21	aishwaryaj	1997-06-11	59.40	164.00	1
22	Tanvi	Goswami	tanvi.goswami@example.c…	hashed_pw22	tanvig	1999-10-03	56.80	161.00	1
23	Dia	Mukherjee	dia.mukherjee@example.com	hashed_pw23	diamukhe…	1998-02-14	55.90	160.00	1
24	Sanya	Kaur	sanya.kaur@example.com	hashed_pw24	sanyak	1996-07-21	60.10	165.00	1
25	Rachna	Bhagat	rachna.bhagat@example.c…	hashed_pw25	rachnab	1993-09-19	62.40	167.00	1
26	Ira	Dey	ira.dey@example.com	hashed_pw26	irad	2000-05-28	54.10	158.00	1

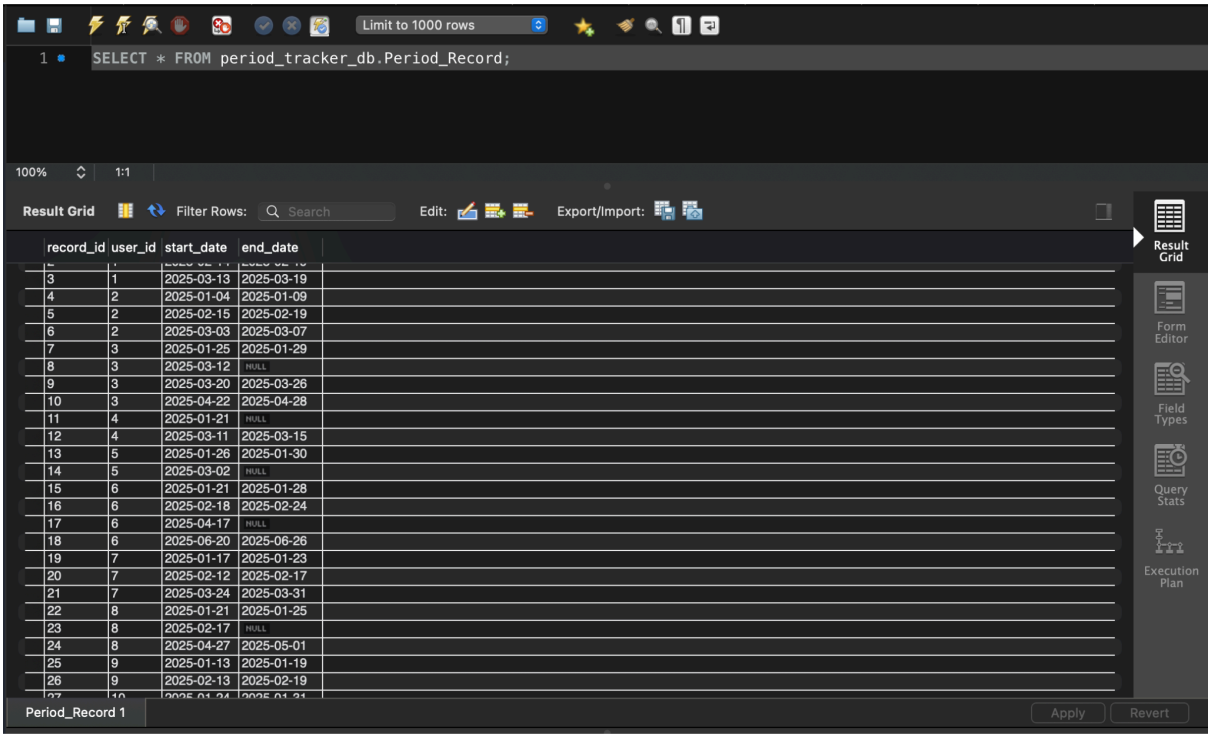


```
SELECT * FROM period_tracker_db.Medication_Log;
```

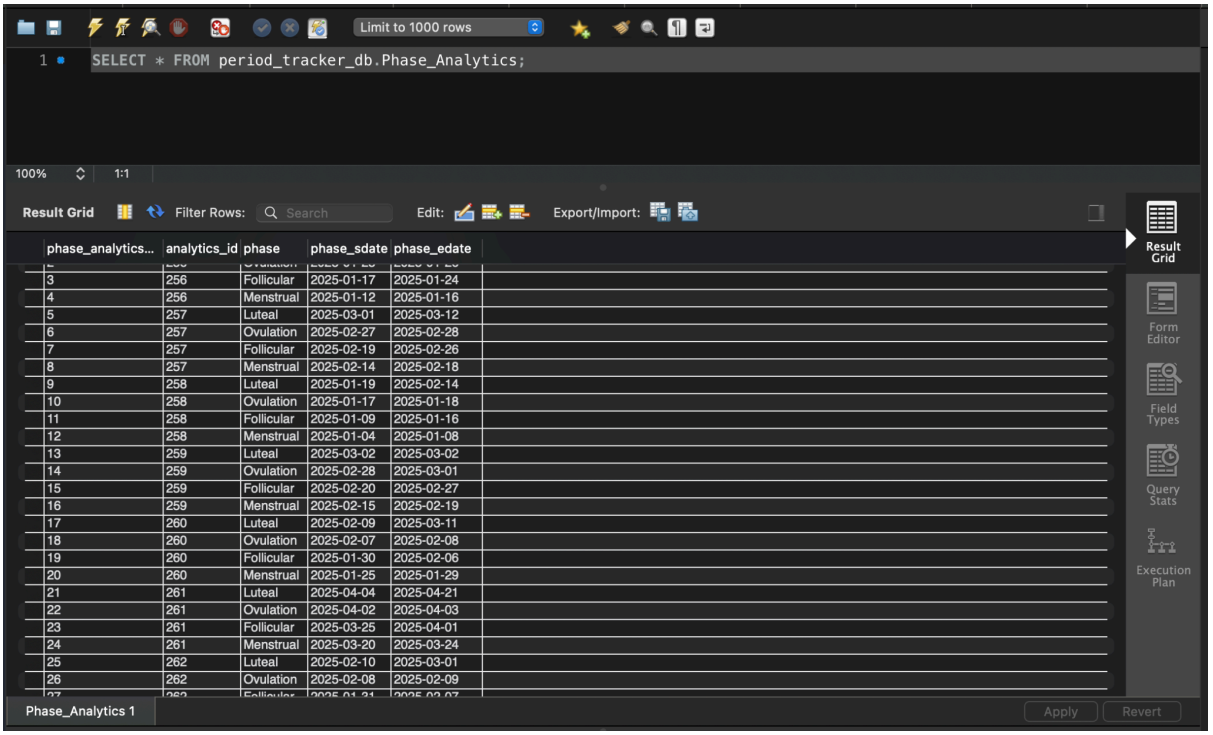
medication...	user_id	medication_na...	med_date	dosage	purpose
3	12	Tranexamic Acid	2024-03-12	500mg twice daily	Heavy menstrual bleeding
4	15	Iron Supplement	2024-03-15	1 capsule daily	Anemia prevention
5	19	Meftal-Spas	2024-03-16	1 tablet twice a day	Cramps
6	22	Cyclopam	2024-04-02	1 tablet twice a day	Abdominal pain relief
7	25	Dolo 650	2024-04-02	NULL	Menstrual pain
8	28	Tranexamic Acid	2024-04-03	500mg	NULL
9	31	Iron Supplement	2024-04-05	1 capsule daily	Iron deficiency
10	34	Meftal-Spas	2024-04-05	1 tablet every 6 hours	Cramps
11	36	Mefenamic Acid	2024-04-08	500mg every 8 hours	Menstrual pain relief
12	40	Dolo 650	2024-04-10	1 tablet twice a day	NULL
13	43	Feronia XT	2024-04-10	1 tablet daily	Iron supplement during peri…
14	46	Tranexamic Acid	2024-04-12	NULL	Heavy bleeding
15	48	Meftal-Spas	2024-05-05	1 tablet twice daily	Cramps relief
16	51	Dolo 650	2024-05-06	1 tablet as needed	Fever and pain
17	54	Cyclopam	2024-05-07	1 tablet every 8 hours	Abdominal cramps
18	58	Meftal-Spas	2024-05-08	NULL	Pain relief
19	61	Iron Supplement	2024-05-10	1 capsule daily	Post-period fatigue
20	65	Dolo 650	2024-05-10	1 tablet twice daily	Pain management
21	67	Mefenamic Acid	2024-05-11	500mg twice a day	Menstrual pain
22	69	Feronia XT	2024-05-15	NULL	Iron levels
23	72	Meftal-Spas	2024-06-01	1 tablet twice daily	Severe cramps
24	75	Tranexamic Acid	2024-06-01	500mg morning and…	NULL
25	77	Iron Supplement	2024-06-05	1 capsule daily	Anemia management
26	80	Dolo 650	2024-06-10	1 tablet as needed	Period pain



period_analytics_id	analytics_id	month	pred_start	pred_end	avg_cycle_len	avg_period_l...
3	3	January	2025-02-15	2025-02-20	42	5
4	4	February	2025-03-03	2025-03-07	16	4
5	5	January	2025-03-12	2025-03-16	46	4
6	6	March	2025-04-22	2025-04-28	33	6
7	7	January	2025-03-02	2025-03-06	35	4
8	8	January	2025-02-18	2025-02-25	28	7
9	9	February	2025-04-17	2025-04-23	58	6
10	10	January	2025-02-12	2025-02-18	26	6
11	11	February	2025-03-24	2025-03-29	40	5
12	12	January	2025-02-17	2025-02-21	27	4
13	13	January	2025-02-13	2025-02-19	31	6
14	14	January	2025-03-06	2025-03-13	41	7
15	15	January	2025-02-11	2025-02-18	27	7
16	16	April	2025-04-07	2025-04-11	1	4
17	17	January	2025-02-13	2025-02-19	26	6
18	18	January	2025-02-16	2025-02-22	34	6
19	19	January	2025-02-12	2025-02-16	35	4
20	20	February	2025-03-11	2025-03-16	27	5
21	21	March	2025-04-05	2025-04-11	25	6
22	22	January	2025-02-24	2025-03-02	31	6
23	23	January	2025-02-23	2025-03-02	41	7
24	24	February	2025-04-07	2025-04-11	43	4
25	25	January	2025-02-24	2025-03-01	32	5
26	26	January	2025-02-25	2025-03-04	30	7

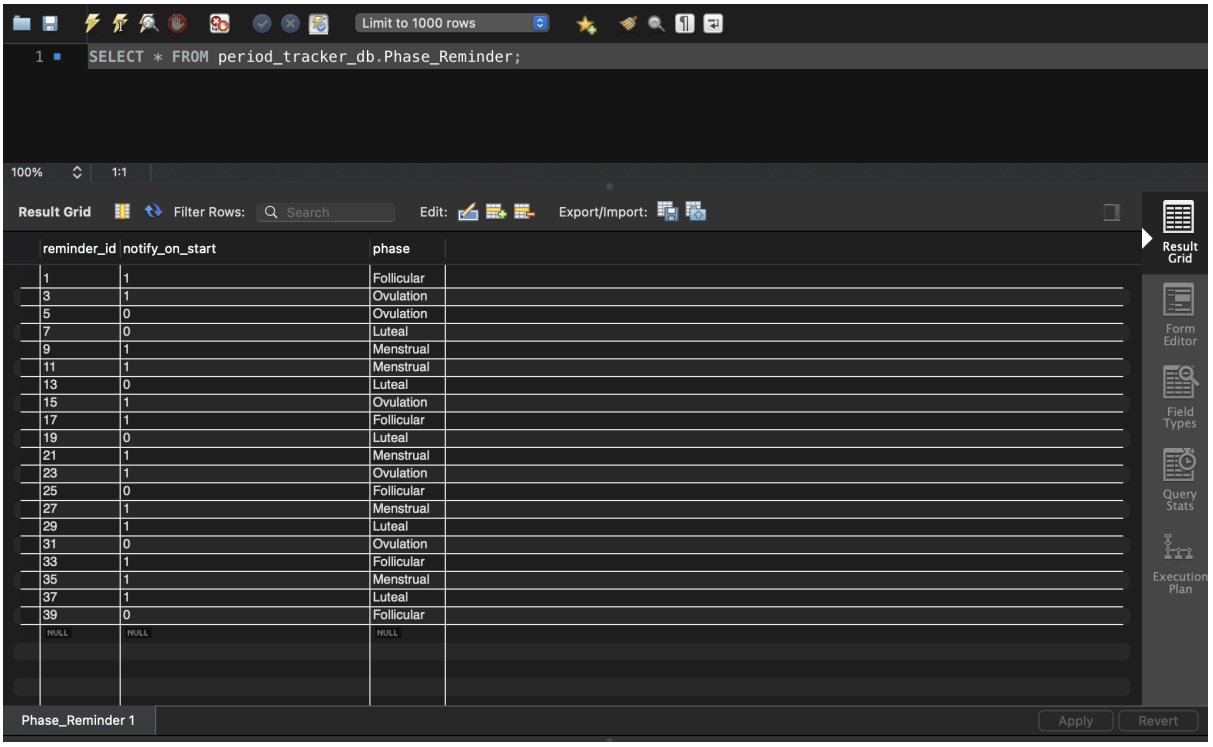


record_id	user_id	start_date	end_date
3	1	2025-03-13	2025-03-19
4	2	2025-01-04	2025-01-09
5	2	2025-02-15	2025-02-19
6	2	2025-03-03	2025-03-07
7	3	2025-01-25	2025-01-29
8	3	2025-03-12	NULL
9	3	2025-03-20	2025-03-26
10	3	2025-04-22	2025-04-28
11	4	2025-01-21	NULL
12	4	2025-03-11	2025-03-15
13	5	2025-01-26	2025-01-30
14	5	2025-03-02	NULL
15	6	2025-01-21	2025-01-28
16	6	2025-02-18	2025-02-24
17	6	2025-04-17	NULL
18	6	2025-06-20	2025-06-26
19	7	2025-01-17	2025-01-23
20	7	2025-02-12	2025-02-17
21	7	2025-03-24	2025-03-31
22	8	2025-01-21	2025-01-25
23	8	2025-02-17	NULL
24	8	2025-04-27	2025-05-01
25	9	2025-01-13	2025-01-19
26	9	2025-02-13	2025-02-19



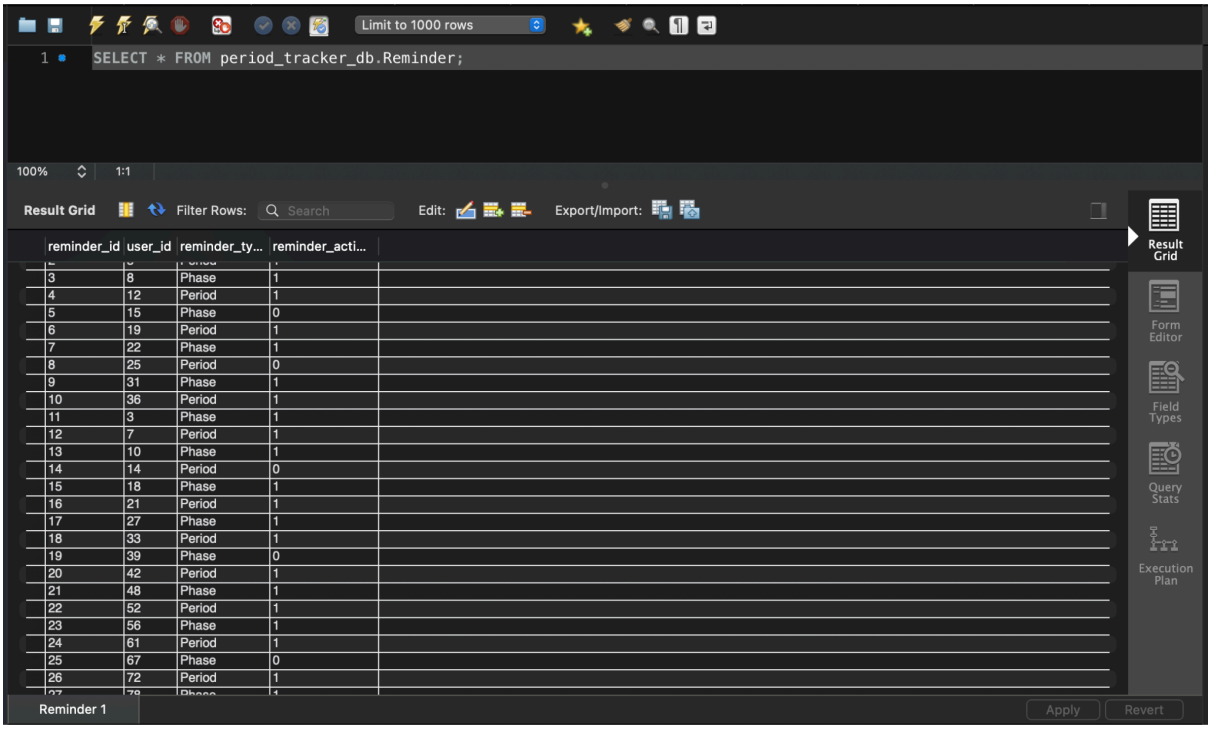
```
SELECT * FROM period_tracker_db.Phase_Analytics;
```

phase_analytics...	analytics_id	phase	phase_sdate	phase_edate
3	256	Follicular	2025-01-17	2025-01-24
4	256	Menstrual	2025-01-12	2025-01-16
5	257	Luteal	2025-03-01	2025-03-12
6	257	Ovulation	2025-02-27	2025-02-28
7	257	Follicular	2025-02-19	2025-02-26
8	257	Menstrual	2025-02-14	2025-02-18
9	258	Luteal	2025-01-19	2025-02-14
10	258	Ovulation	2025-01-17	2025-01-18
11	258	Follicular	2025-01-09	2025-01-16
12	258	Menstrual	2025-01-04	2025-01-08
13	259	Luteal	2025-03-02	2025-03-02
14	259	Ovulation	2025-02-28	2025-03-01
15	259	Follicular	2025-02-20	2025-02-27
16	259	Menstrual	2025-02-15	2025-02-19
17	260	Luteal	2025-02-09	2025-03-11
18	260	Ovulation	2025-02-07	2025-02-08
19	260	Follicular	2025-01-30	2025-02-06
20	260	Menstrual	2025-01-25	2025-01-29
21	261	Luteal	2025-04-04	2025-04-21
22	261	Ovulation	2025-04-02	2025-04-03
23	261	Follicular	2025-03-25	2025-04-01
24	261	Menstrual	2025-03-20	2025-03-24
25	262	Luteal	2025-02-10	2025-03-01
26	262	Ovulation	2025-02-08	2025-02-09

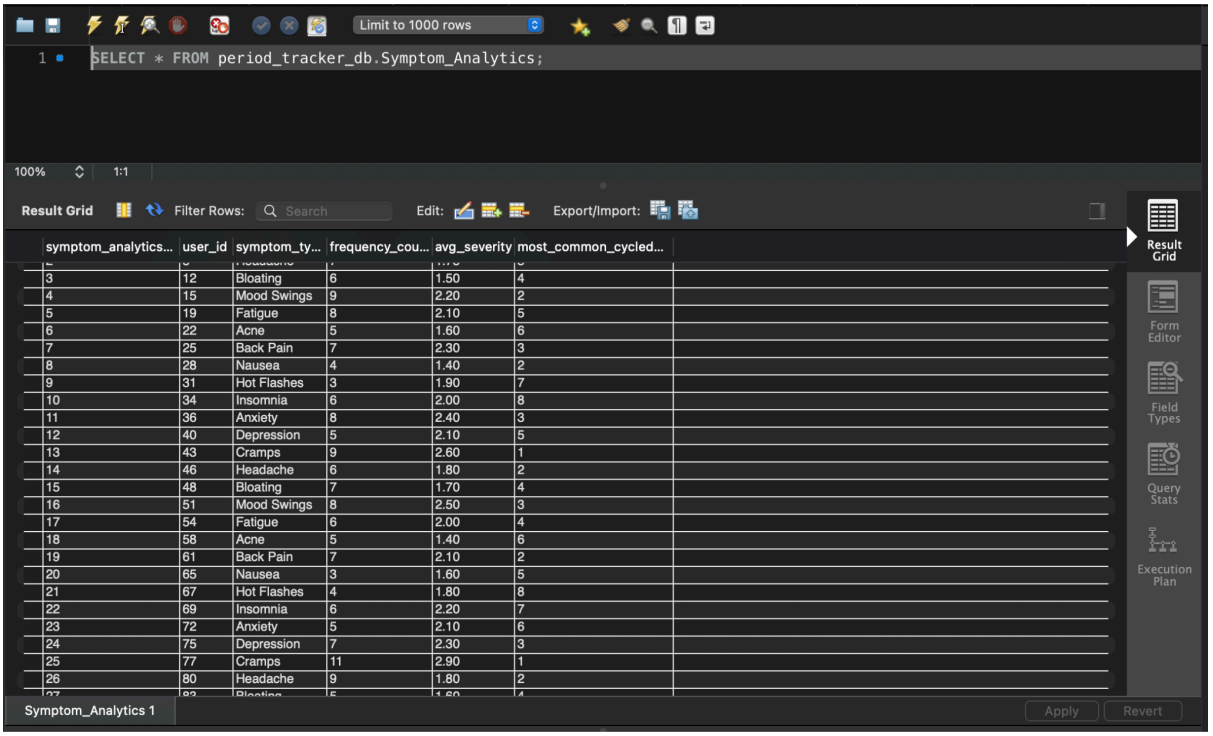


```
SELECT * FROM period_tracker_db.Phase_Reminder;
```

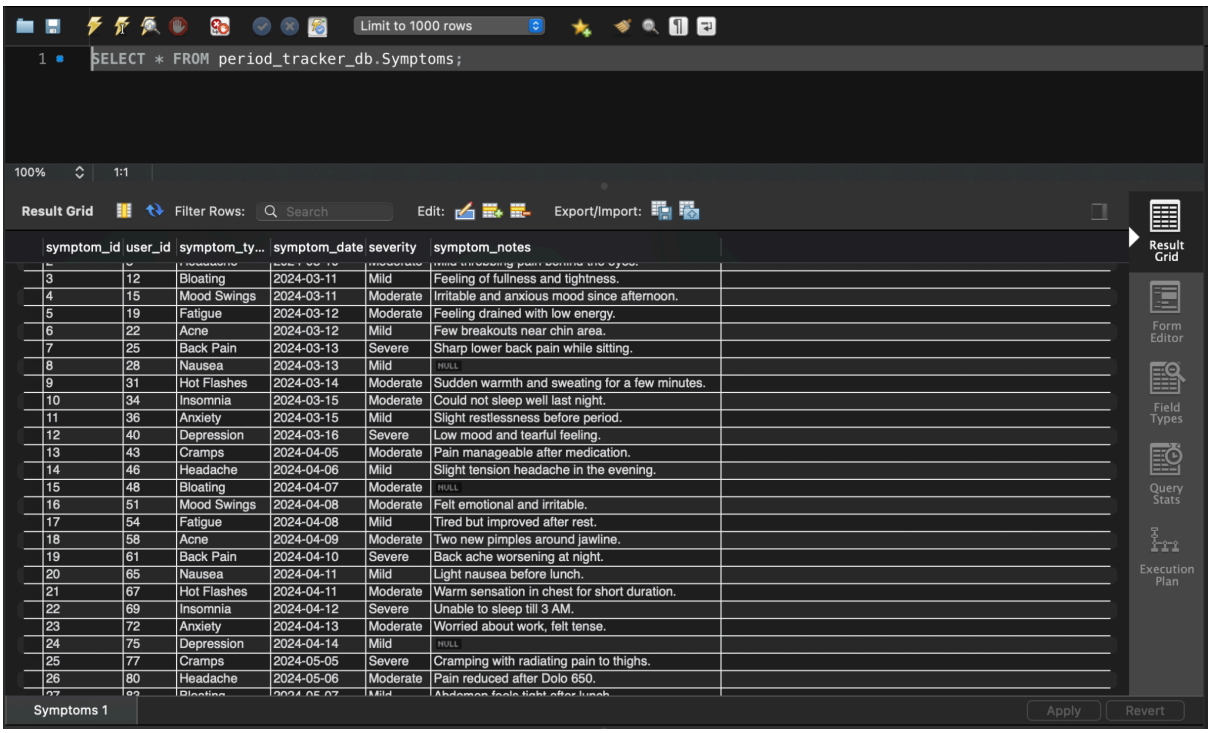
reminder_id	notify_on_start	phase
1	1	Follicular
3	1	Ovulation
5	0	Ovulation
7	0	Luteal
9	1	Menstrual
11	1	Menstrual
13	0	Luteal
15	1	Ovulation
17	1	Follicular
19	0	Luteal
21	1	Menstrual
23	1	Ovulation
25	0	Follicular
27	1	Menstrual
29	1	Luteal
31	0	Ovulation
33	1	Follicular
35	1	Menstrual
37	1	Luteal
39	0	Follicular
NULL	NULL	NULL



reminder_id	user_id	reminder_ty...	reminder_acti...
3	8	Phase	1
4	12	Period	1
5	15	Phase	0
6	19	Period	1
7	22	Phase	1
8	25	Period	0
9	31	Phase	1
10	36	Period	1
11	3	Phase	1
12	7	Period	1
13	10	Phase	1
14	14	Period	0
15	18	Phase	1
16	21	Period	1
17	27	Phase	1
18	33	Period	1
19	39	Phase	0
20	42	Period	1
21	48	Phase	1
22	52	Period	1
23	56	Phase	1
24	61	Period	1
25	67	Phase	0
26	72	Period	1

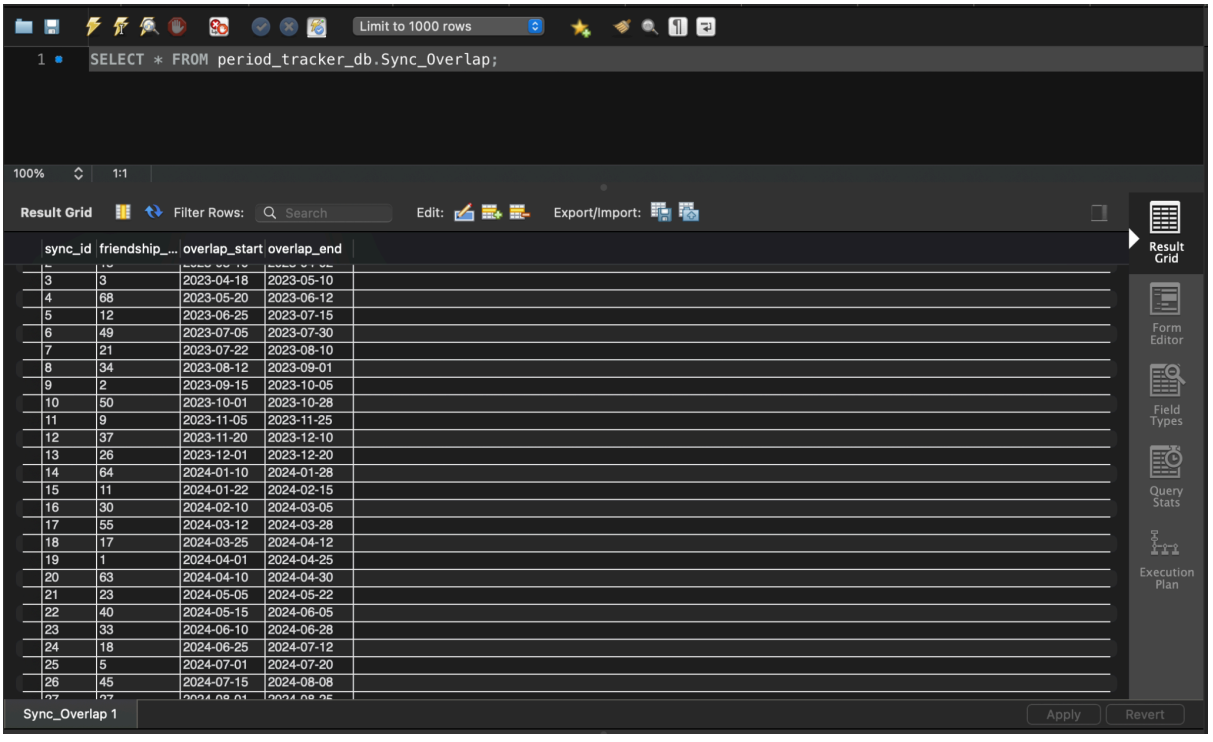


symptom_analytics...	user_id	symptom_ty...	frequency_cou...	avg_severity	most_common_cycled...
3	12	Bloating	6	1.50	4
4	15	Mood Swings	9	2.20	2
5	19	Fatigue	8	2.10	5
6	22	Acne	5	1.60	6
7	25	Back Pain	7	2.30	3
8	28	Nausea	4	1.40	2
9	31	Hot Flashes	3	1.90	7
10	34	Insomnia	6	2.00	8
11	36	Anxiety	8	2.40	3
12	40	Depression	5	2.10	5
13	43	Cramps	9	2.60	1
14	46	Headache	6	1.80	2
15	48	Bloating	7	1.70	4
16	51	Mood Swings	8	2.50	3
17	54	Fatigue	6	2.00	4
18	58	Acne	5	1.40	6
19	61	Back Pain	7	2.10	2
20	65	Nausea	3	1.60	5
21	67	Hot Flashes	4	1.80	8
22	69	Insomnia	6	2.20	7
23	72	Anxiety	5	2.10	6
24	75	Depression	7	2.30	3
25	77	Cramps	11	2.90	1
26	80	Headache	9	1.80	2



```
SELECT * FROM period_tracker_db.Symptoms;
```

symptom_id	user_id	symptom_ty...	symptom_date	severity	symptom_notes
3	12	Bloating	2024-03-11	Mild	Feeling of fullness and tightness.
4	15	Mood Swings	2024-03-11	Moderate	Irritable and anxious mood since afternoon.
5	19	Fatigue	2024-03-12	Moderate	Feeling drained with low energy.
6	22	Acne	2024-03-12	Mild	Few breakouts near chin area.
7	25	Back Pain	2024-03-13	Severe	Sharp lower back pain while sitting.
8	28	Nausea	2024-03-13	Mild	NULL
9	31	Hot Flashes	2024-03-14	Moderate	Sudden warmth and sweating for a few minutes.
10	34	Insomnia	2024-03-15	Moderate	Could not sleep well last night.
11	36	Anxiety	2024-03-15	Mild	Slight restlessness before period.
12	40	Depression	2024-03-16	Severe	Low mood and tearful feeling.
13	43	Cramps	2024-04-05	Moderate	Pain manageable after medication.
14	46	Headache	2024-04-06	Mild	Slight tension headache in the evening.
15	48	Bloating	2024-04-07	Moderate	NULL
16	51	Mood Swings	2024-04-08	Moderate	Felt emotional and irritable.
17	54	Fatigue	2024-04-08	Mild	Tired but improved after rest.
18	58	Acne	2024-04-09	Moderate	Two new pimples around jawline.
19	61	Back Pain	2024-04-10	Severe	Back ache worsening at night.
20	65	Nausea	2024-04-11	Mild	Light nausea before lunch.
21	67	Hot Flashes	2024-04-11	Moderate	Warm sensation in chest for short duration.
22	69	Insomnia	2024-04-12	Severe	Unable to sleep till 3 AM.
23	72	Anxiety	2024-04-13	Moderate	Worried about work, felt tense.
24	75	Depression	2024-04-14	Mild	NULL
25	77	Cramps	2024-05-05	Severe	Cramping with radiating pain to thighs.
26	80	Headache	2024-05-06	Moderate	Pain reduced after Dolo 650.



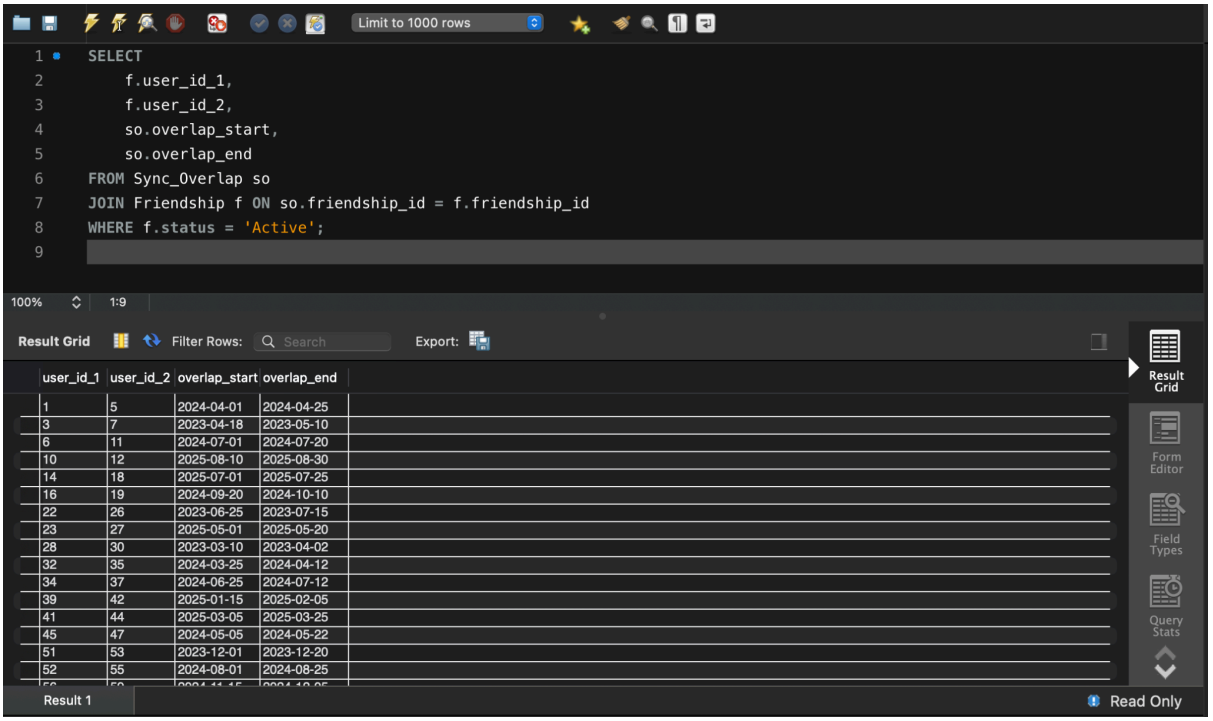
```
SELECT * FROM period_tracker_db.Sync_Overlap;
```

sync_id	friendship_...	overlap_start	overlap_end
3	3	2023-04-18	2023-05-10
4	68	2023-05-20	2023-06-12
5	12	2023-06-25	2023-07-15
6	49	2023-07-05	2023-07-30
7	21	2023-07-22	2023-08-10
8	34	2023-08-12	2023-09-01
9	2	2023-09-15	2023-10-05
10	50	2023-10-01	2023-10-28
11	9	2023-11-05	2023-11-25
12	37	2023-11-20	2023-12-10
13	26	2023-12-01	2023-12-20
14	64	2024-01-10	2024-01-28
15	11	2024-01-22	2024-02-15
16	30	2024-02-10	2024-03-05
17	55	2024-03-12	2024-03-28
18	17	2024-03-25	2024-04-12
19	1	2024-04-01	2024-04-25
20	63	2024-04-10	2024-04-30
21	23	2024-05-05	2024-05-22
22	40	2024-05-15	2024-06-05
23	33	2024-06-10	2024-06-28
24	18	2024-06-25	2024-07-12
25	5	2024-07-01	2024-07-20
26	45	2024-07-15	2024-08-08

3. SQL queries on database

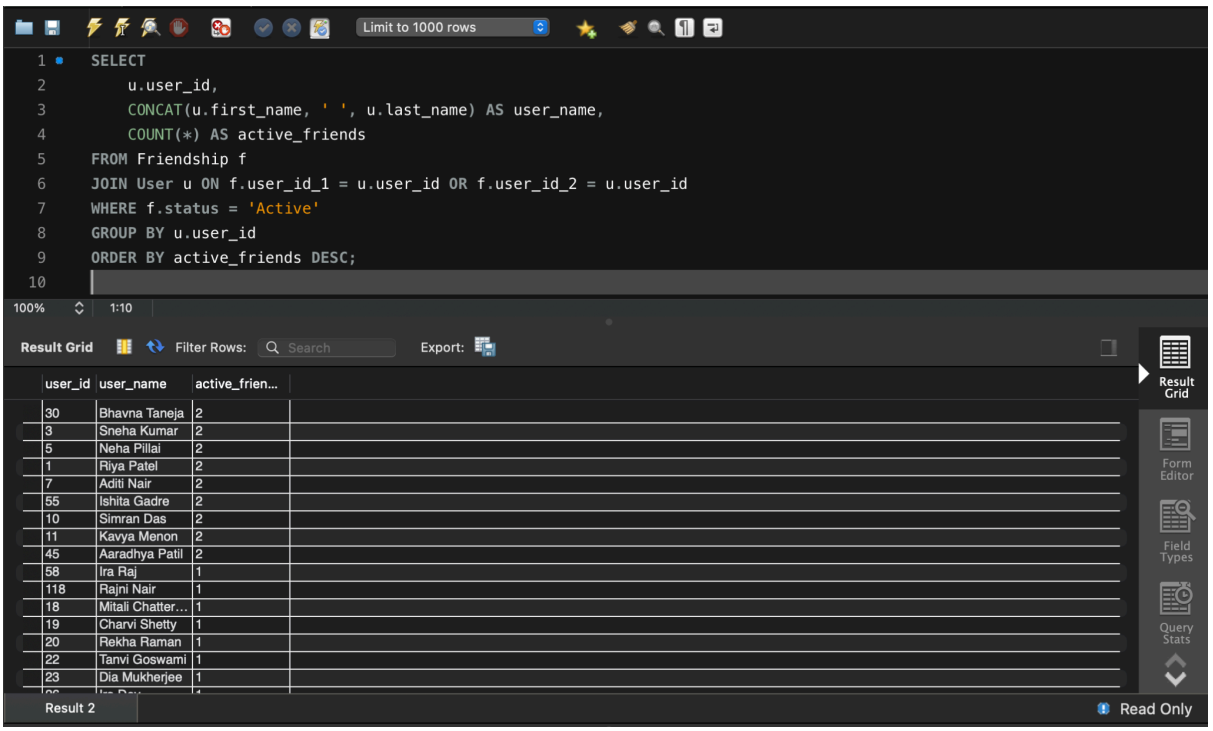
a. Show friends with overlapping cycles

```
SELECT
    f.user_id_1,
    f.user_id_2,
    so.overlap_start,
    so.overlap_end
FROM Sync_Overlap so
JOIN Friendship f ON so.friendship_id = f.friendship_id
WHERE f.status = 'Active';
```



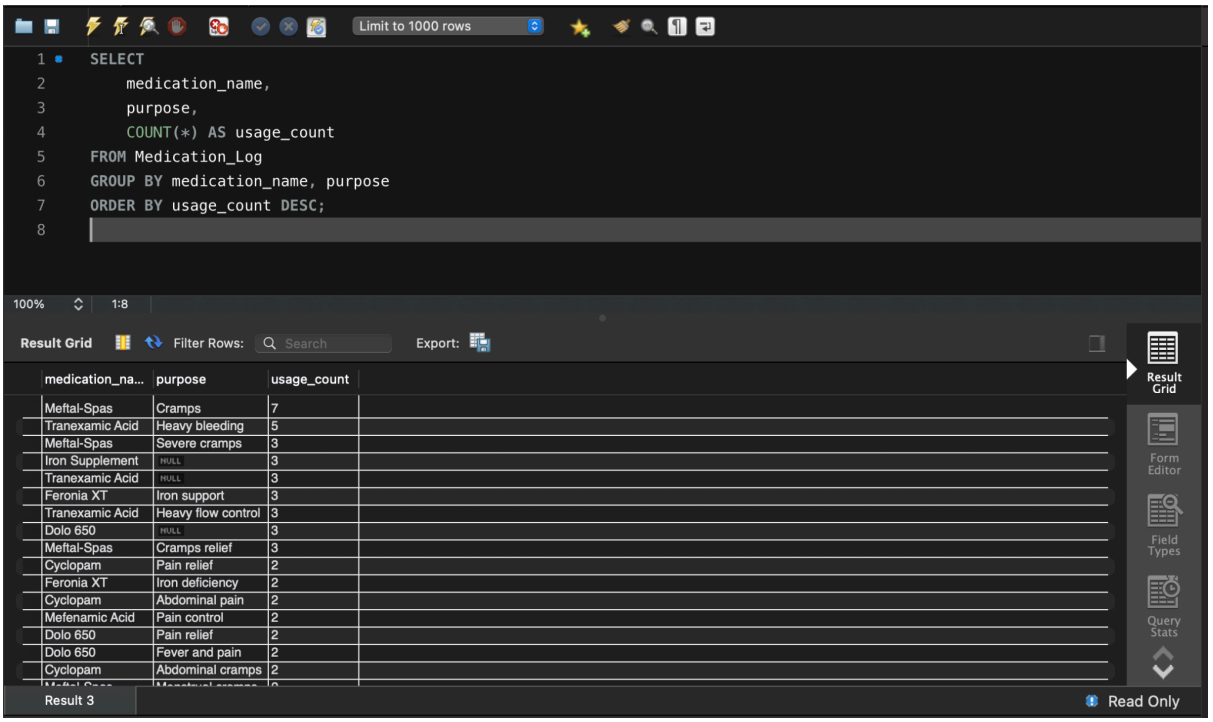
b. Find users with the highest number of active friends

```
SELECT
    u.user_id,
    CONCAT(u.first_name, ' ', u.last_name) AS user_name,
    COUNT(*) AS active_friends
FROM Friendship f
JOIN User u ON f.user_id_1 = u.user_id OR f.user_id_2 = u.user_id
WHERE f.status = 'Active'
GROUP BY u.user_id
ORDER BY active_friends DESC;
```



c. Track most commonly used medications and purposes

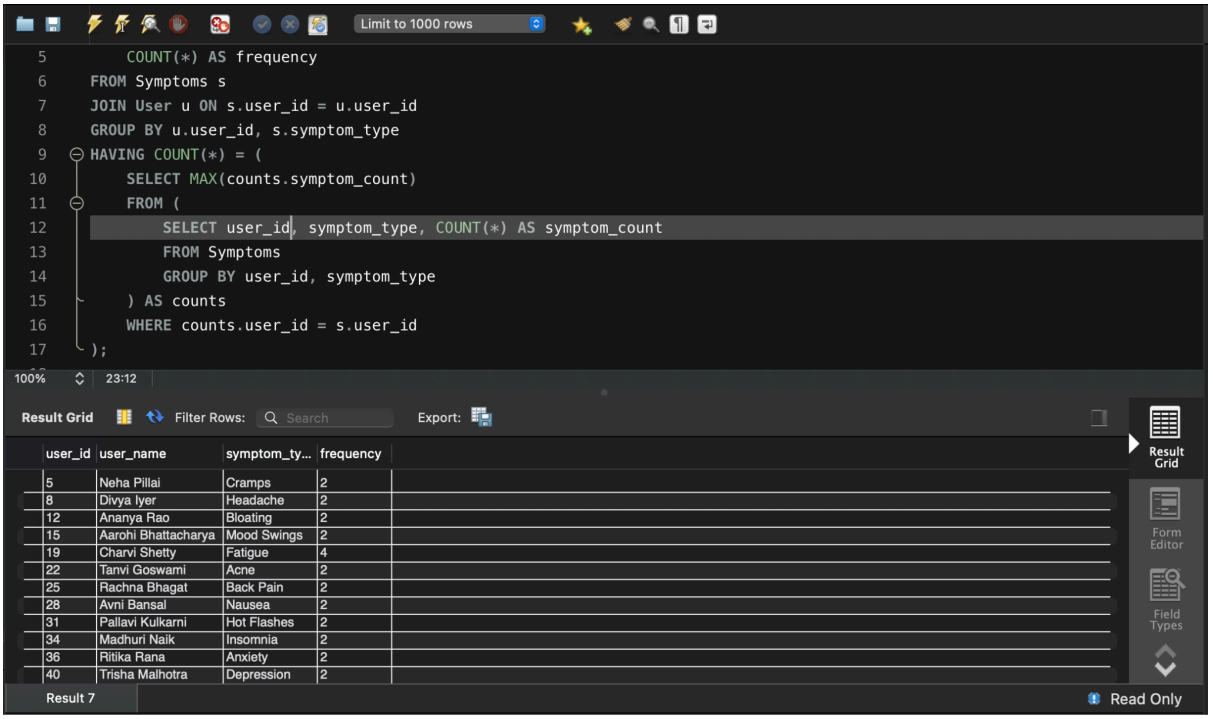
```
SELECT
    medication_name,
    purpose,
    COUNT(*) AS usage_count
FROM Medication_Log
GROUP BY medication_name, purpose
ORDER BY usage_count DESC;
```



medication_na...	purpose	usage_count
Meftal-Spas	Cramps	7
Tranexamic Acid	Heavy bleeding	5
Meftal-Spas	Severe cramps	3
Iron Supplement	NULL	3
Tranexamic Acid	NULL	3
Feronia XT	Iron support	3
Tranexamic Acid	Heavy flow control	3
Dolo 650	NULL	3
Meftal-Spas	Cramps relief	3
Cyclopam	Pain relief	2
Feronia XT	Iron deficiency	2
Cyclopam	Abdominal pain	2
Mefenamic Acid	Pain control	2
Dolo 650	Pain relief	2
Dolo 650	Fever and pain	2
Cyclopam	Abdominal cramps	2

d. Find the most common symptom for each user

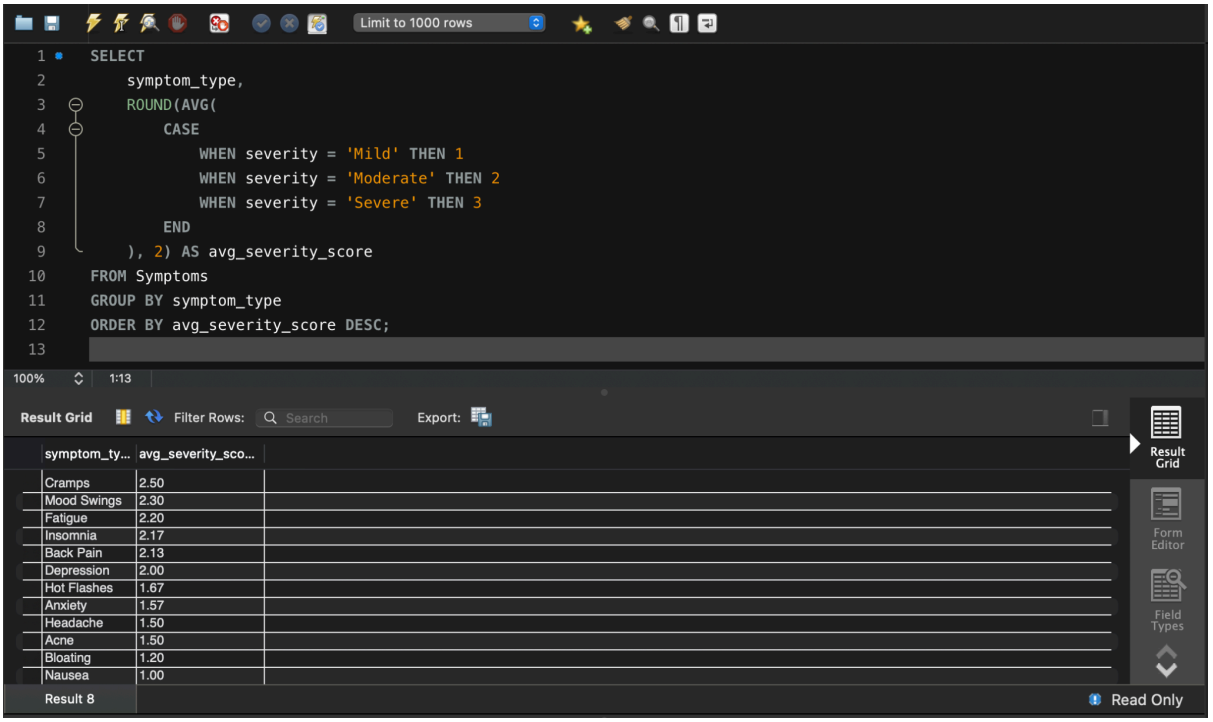
```
SELECT
    u.user_id,
    CONCAT(u.first_name, ' ', u.last_name) AS user_name,
    s.symptom_type,
    COUNT(*) AS frequency
FROM Symptoms s
JOIN User u ON s.user_id = u.user_id
GROUP BY u.user_id, s.symptom_type
HAVING COUNT(*) = (
    SELECT MAX(counts.symptom_count)
    FROM (
        SELECT user_id, symptom_type, COUNT(*) AS symptom_count
        FROM Symptoms
        GROUP BY user_id, symptom_type
    ) AS counts
    WHERE counts.user_id = s.user_id
);
```



user_id	user_name	symptom_ty...	frequency
5	Neha Pillai	Cramps	2
8	Divya Iyer	Headache	2
12	Ananya Rao	Bloating	2
15	Aarohi Bhattacharya	Mood Swings	2
19	Charvi Shetty	Fatigue	4
22	Tanvi Goswami	Acne	2
25	Rachna Bhagat	Back Pain	2
28	Avni Bansal	Nausea	2
31	Pallavi Kulkarni	Hot Flashes	2
34	Madhuri Naik	Insomnia	2
36	Ritika Rana	Anxiety	2
40	Trisha Malhotra	Depression	2

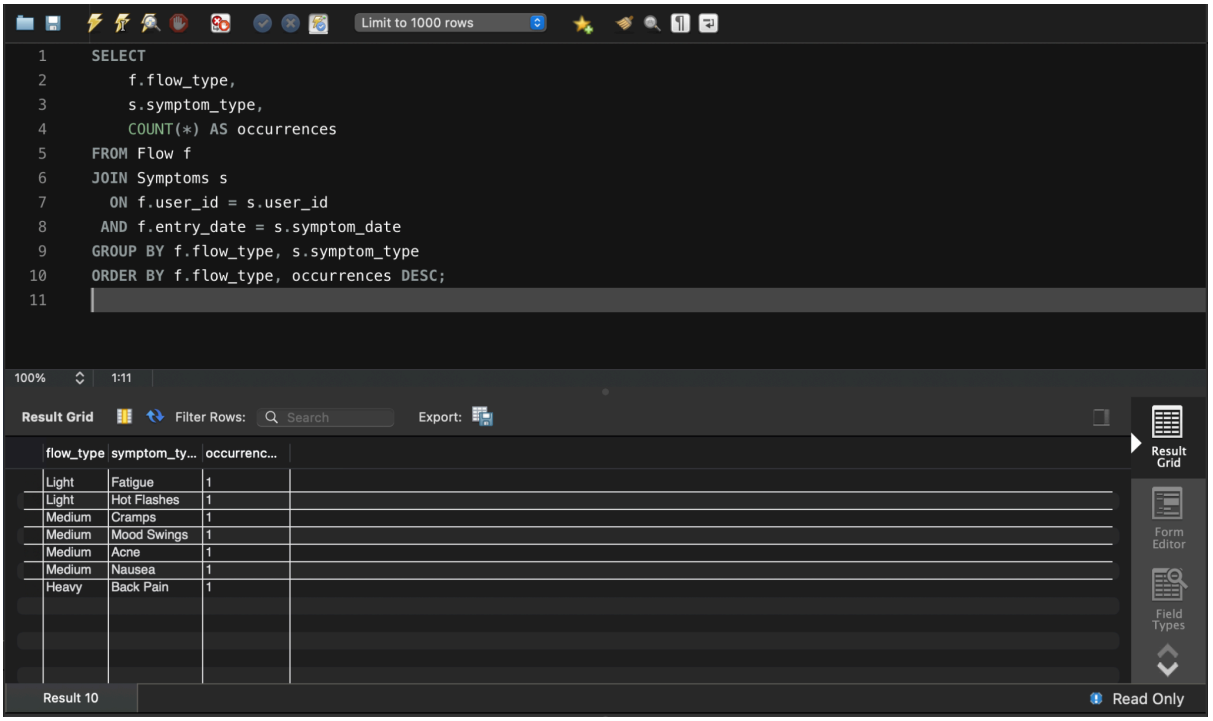
e. Average severity per symptom type (across all users)

```
SELECT
    symptom_type,
    ROUND(AVG(
        CASE
            WHEN severity = 'Mild' THEN 1
            WHEN severity = 'Moderate' THEN 2
            WHEN severity = 'Severe' THEN 3
        END
    ), 2) AS avg_severity_score
FROM Symptoms
GROUP BY symptom_type
ORDER BY avg_severity_score DESC;
```



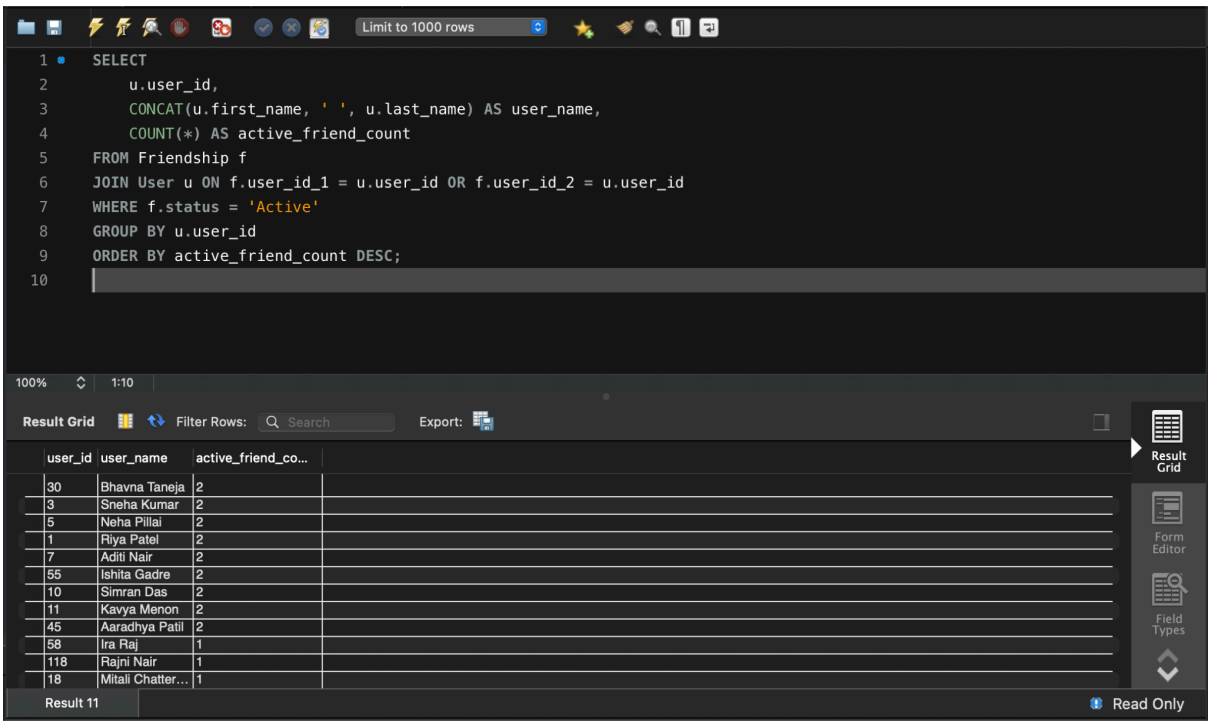
f. Symptoms Correlated with Flow Type

```
SELECT
    f.flow_type,
    s.symptom_type,
    COUNT(*) AS occurrences
FROM Flow f
JOIN Symptoms s
  ON f.user_id = s.user_id
 AND f.entry_date = s.symptom_date
GROUP BY f.flow_type, s.symptom_type
ORDER BY f.flow_type, occurrences DESC;
```



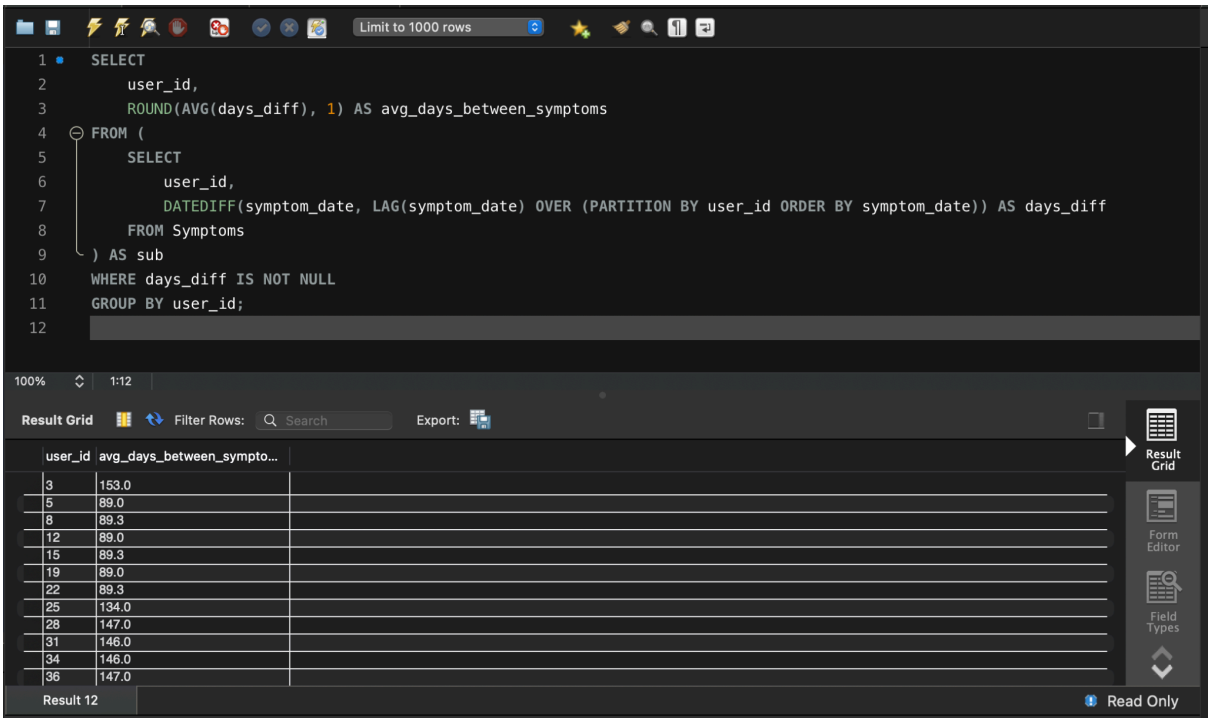
g. Users with the Most Active Friendships

```
SELECT
    u.user_id,
    CONCAT(u.first_name, ' ', u.last_name) AS user_name,
    COUNT(*) AS active_friend_count
FROM Friendship f
JOIN User u ON f.user_id_1 = u.user_id OR f.user_id_2 = u.user_id
WHERE f.status = 'Active'
GROUP BY u.user_id
ORDER BY active_friend_count DESC;
```



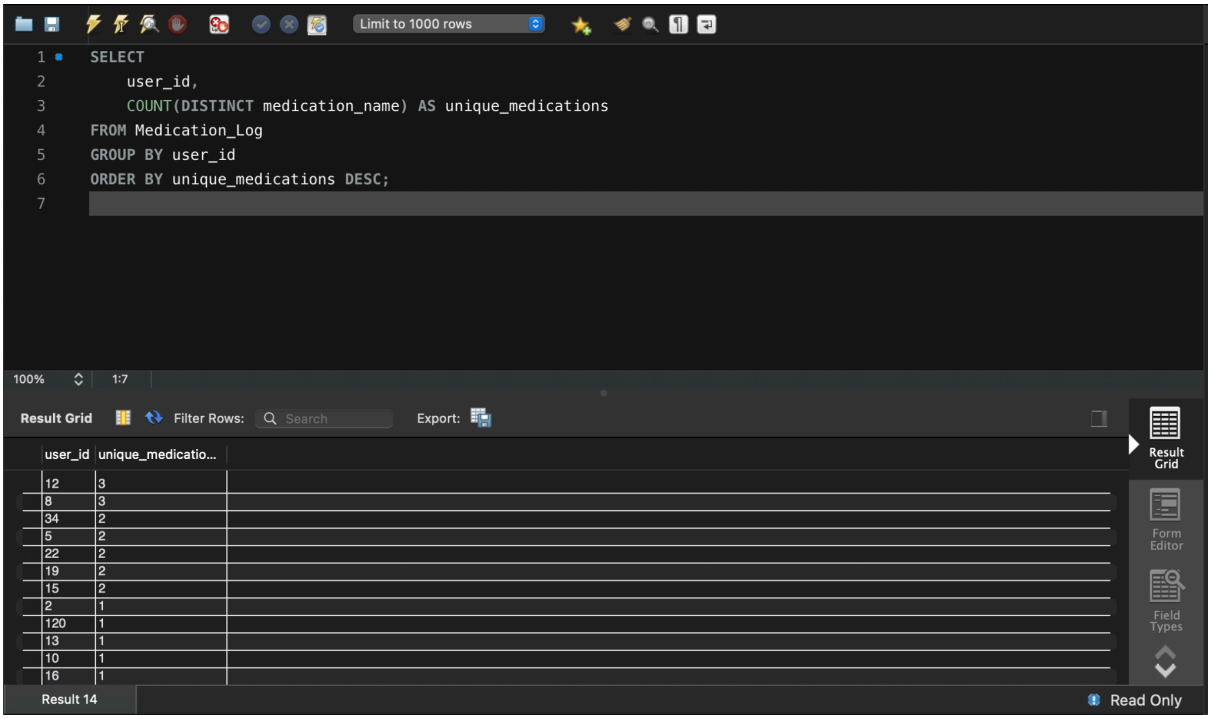
h. Average Time Between Symptom Reports

```
SELECT
    user_id,
    ROUND(AVG(days_diff), 1) AS avg_days_between_symptoms
FROM (
    SELECT
        user_id,
        DATEDIFF(symptom_date, LAG(symptom_date) OVER (PARTITION BY user_id
ORDER BY symptom_date)) AS days_diff
    FROM Symptoms
) AS sub
WHERE days_diff IS NOT NULL
GROUP BY user_id;
```



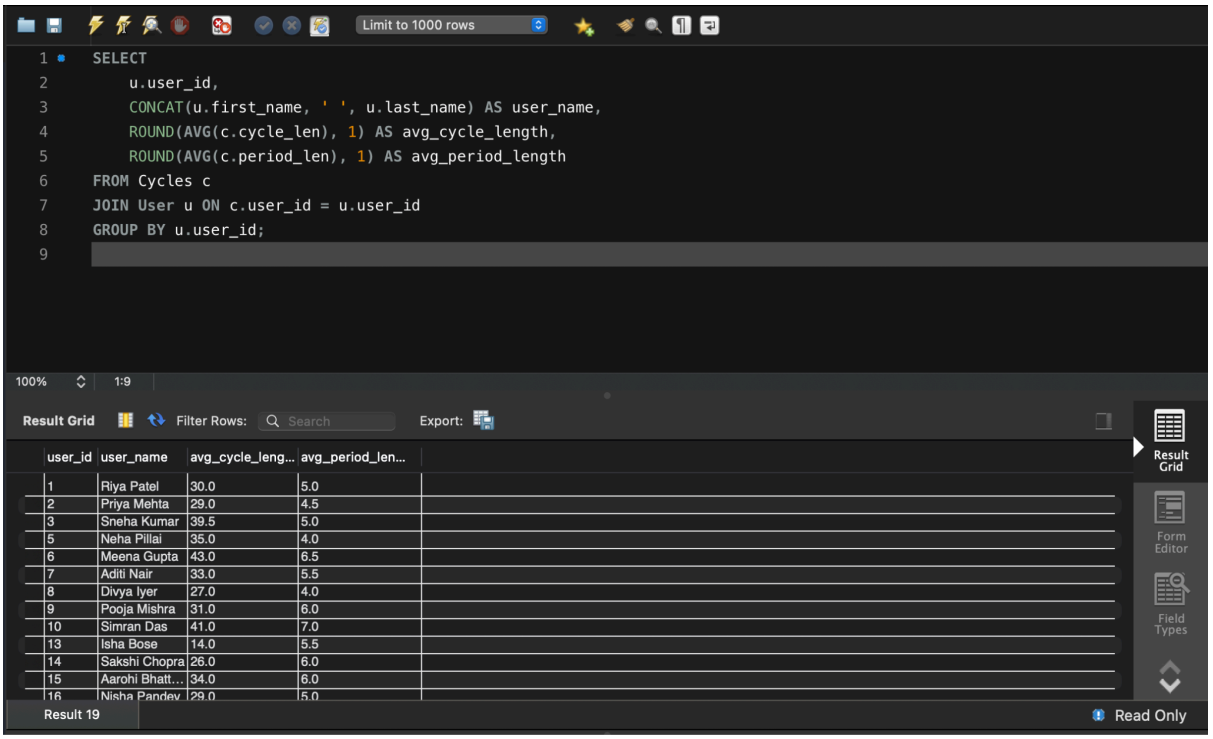
i. Users taking the highest variety of medications

```
SELECT
    user_id,
    COUNT(DISTINCT medication_name) AS unique_medications
FROM Medication_Log
GROUP BY user_id
ORDER BY unique_medications DESC;
```



j. Calculate each user's average cycle and period length

```
SELECT
    u.user_id,
    CONCAT(u.first_name, ' ', u.last_name) AS user_name,
    ROUND(AVG(c.cycle_len), 1) AS avg_cycle_length,
    ROUND(AVG(c.period_len), 1) AS avg_period_length
FROM Cycles c
JOIN User u ON c.user_id = u.user_id
GROUP BY u.user_id;
```



Limit to 1000 rows

```
SELECT
    u.user_id,
    CONCAT(u.first_name, ' ', u.last_name) AS user_name,
    ROUND(AVG(c.cycle_len), 1) AS avg_cycle_length,
    ROUND(AVG(c.period_len), 1) AS avg_period_length
FROM Cycles c
JOIN User u ON c.user_id = u.user_id
GROUP BY u.user_id;
```

100% 1:9

Result Grid | Filter Rows: Search | Export:

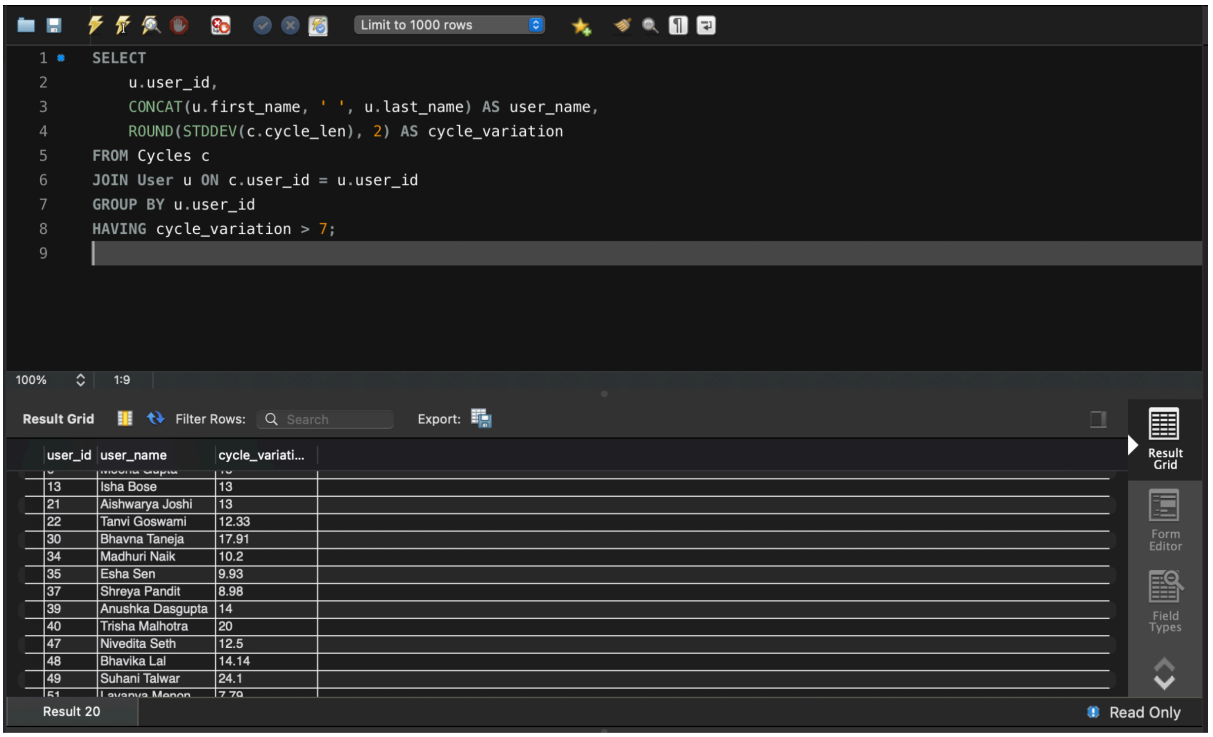
user_id	user_name	avg_cycle_leng...	avg_period_len...
1	Riya Patel	30.0	5.0
2	Priya Mehta	29.0	4.5
3	Sneha Kumar	39.5	5.0
5	Neha Pillai	35.0	4.0
6	Meena Gupta	43.0	6.5
7	Aditi Nair	33.0	5.5
8	Divya Iyer	27.0	4.0
9	Pooja Mishra	31.0	6.0
10	Simran Das	41.0	7.0
13	Isha Bose	14.0	5.5
14	Sakshi Chopra	26.0	6.0
15	Aarohi Bhatt...	34.0	6.0
16	Nisha Pandey	29.0	5.0

Result Grid | Form Editor | Field Types

Result 19 | Read Only

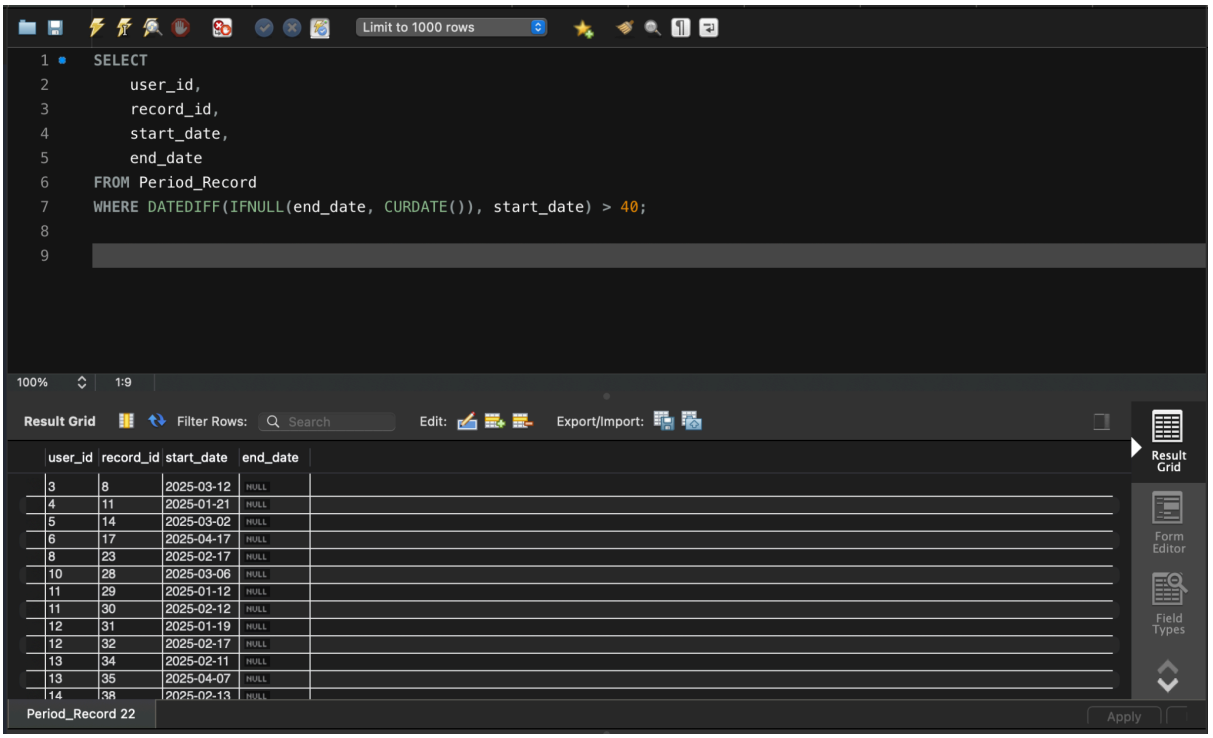
k. Identify users with irregular cycles (variance > 7 days)

```
SELECT
    u.user_id,
    CONCAT(u.first_name, ' ', u.last_name) AS user_name,
    ROUND(STDDEV(c.cycle_len), 2) AS cycle_variation
FROM Cycles c
JOIN User u ON c.user_id = u.user_id
GROUP BY u.user_id
HAVING cycle_variation > 7;
```



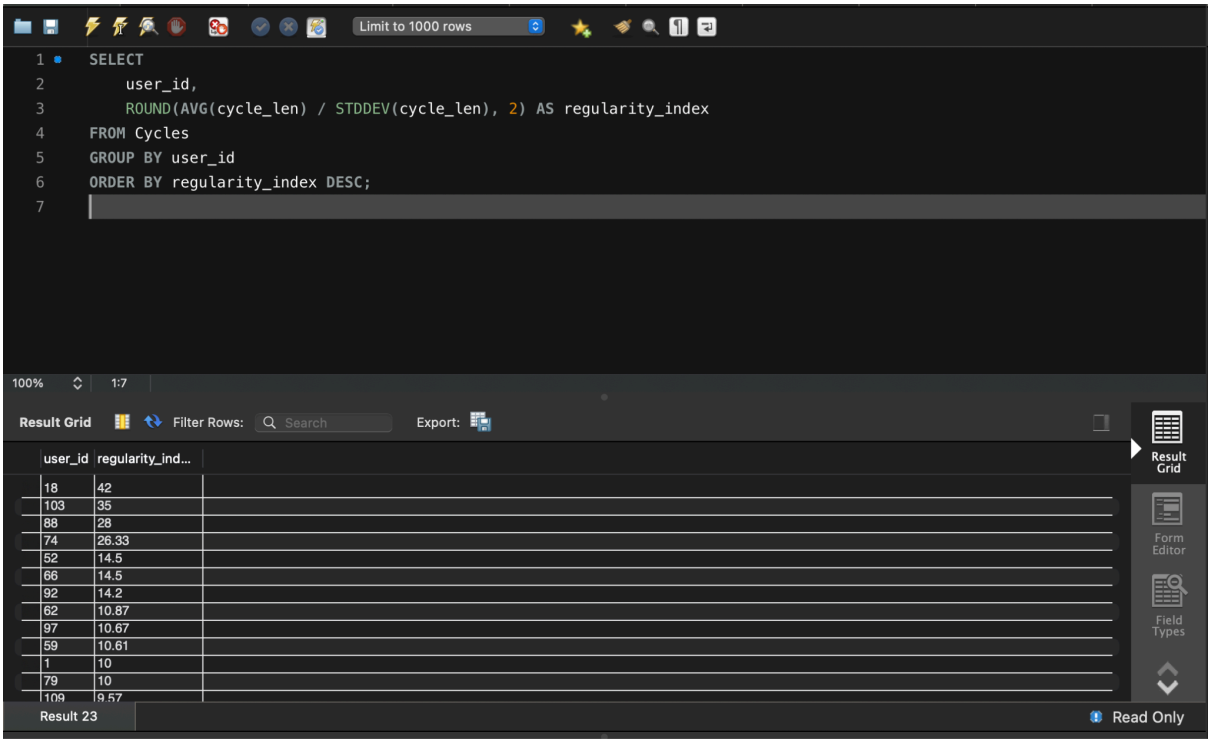
I. Detect missed or skipped cycles

```
SELECT
    user_id,
    record_id,
    start_date,
    end_date
FROM Period_Record
WHERE DATEDIFF(IFNULL(end_date, CURDATE()), start_date) > 40;
```



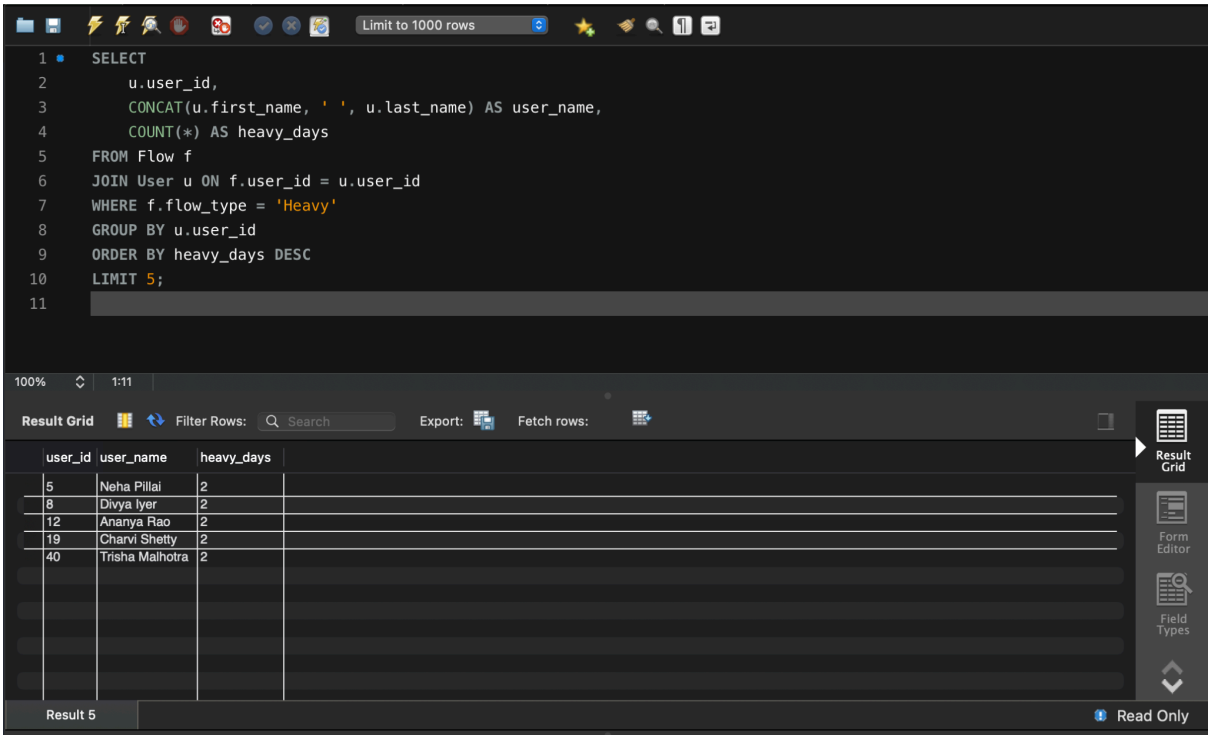
m. Cycle Regularity Index (Higher index = more regular cycles.)

```
SELECT
    user_id,
    ROUND(AVG(cycle_len) / STDDEV(cycle_len), 2) AS regularity_index
FROM Cycles
GROUP BY user_id
ORDER BY regularity_index DESC;
```



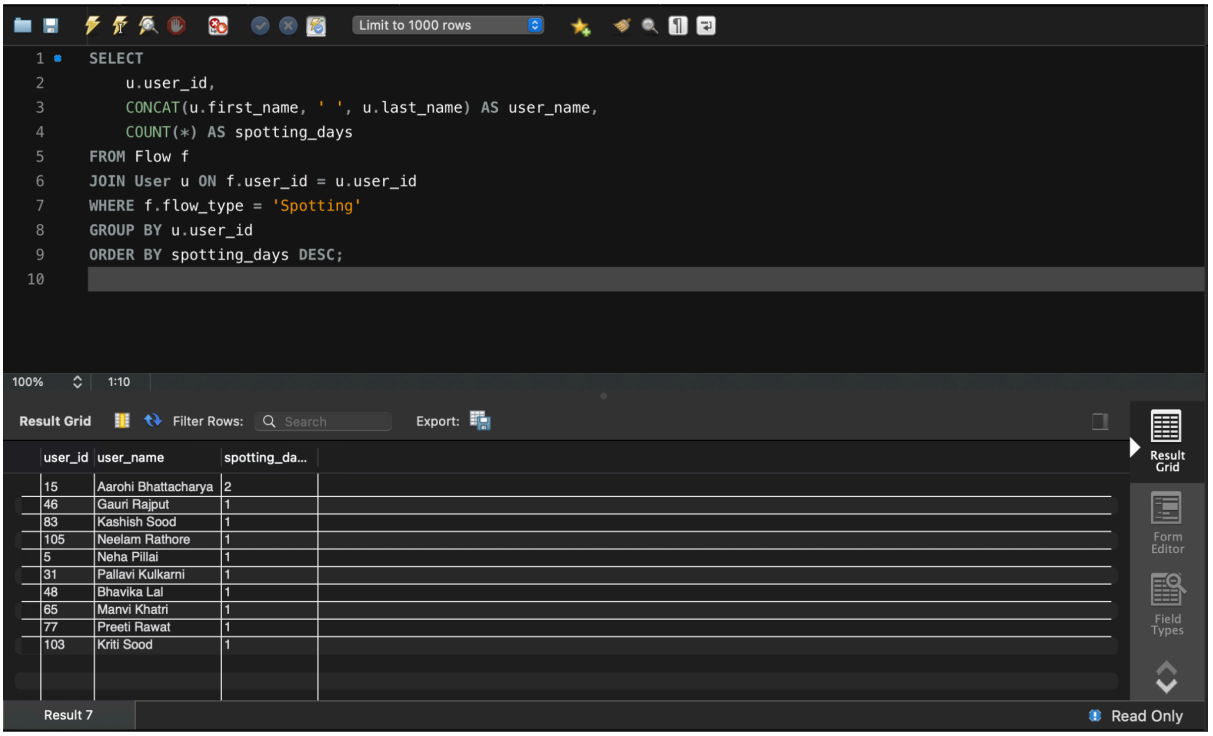
n. Find users with the highest number of Heavy flow days

```
SELECT
    u.user_id,
    CONCAT(u.first_name, ' ', u.last_name) AS user_name,
    COUNT(*) AS heavy_days
FROM Flow f
JOIN User u ON f.user_id = u.user_id
WHERE f.flow_type = 'Heavy'
GROUP BY u.user_id
ORDER BY heavy_days DESC
LIMIT 5;
```



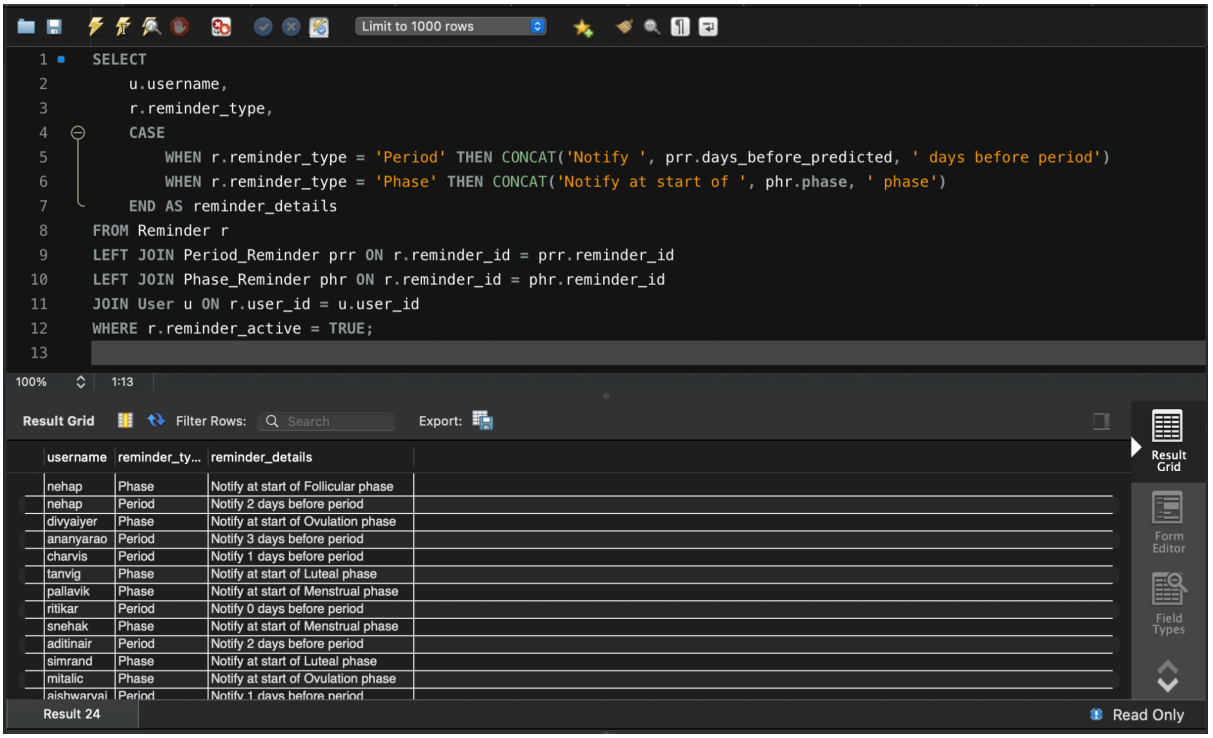
o. Find users who most often log “Spotting” days

```
SELECT
    u.user_id,
    CONCAT(u.first_name, ' ', u.last_name) AS user_name,
    COUNT(*) AS spotting_days
FROM Flow f
JOIN User u ON f.user_id = u.user_id
WHERE f.flow_type = 'Spotting'
GROUP BY u.user_id
ORDER BY spotting_days DESC;
```



p. Join Period_Reminder and Phase_Reminder to show all active reminders

```
SELECT
   u.username,
   r.reminder_type,
   CASE
      WHEN r.reminder_type = 'Period' THEN CONCAT('Notify ', prr.days_before_predicted, '
days before period')
      WHEN r.reminder_type = 'Phase' THEN CONCAT('Notify at start of ', phr.phase, '
phase')
   END AS reminder_details
FROM Reminder r
LEFT JOIN Period_Reminder prr ON r.reminder_id = prr.reminder_id
LEFT JOIN Phase_Reminder phr ON r.reminder_id = phr.reminder_id
JOIN User u ON r.user_id = u.user_id
WHERE r.reminder_active = TRUE;
```



username	reminder_ty...	reminder_details
nehap	Phase	Notify at start of Follicular phase
nehap	Period	Notify 2 days before period
divyaiyer	Phase	Notify at start of Ovulation phase
ananyarao	Period	Notify 3 days before period
charvis	Period	Notify 1 days before period
tanvig	Phase	Notify at start of Luteal phase
pallavik	Phase	Notify at start of Menstrual phase
ritikar	Period	Notify 0 days before period
snehak	Phase	Notify at start of Menstrual phase
aditinair	Period	Notify 2 days before period
simrand	Phase	Notify at start of Luteal phase
mitalic	Phase	Notify at start of Ovulation phase
aishwaryai	Period	Notify 1 days before period