



FACEBOOK CAMPAIGN MANAGEMENT

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FACEBOOK CAMPAIGN MANAGEMENT

Project for SQL Module

1. Description:

The following database schema encompasses tables designed to efficiently manage various aspects of social media campaigns. It includes tables for storing user information, campaign details, ads, engagements, and audience demographics. This schema facilitates effective campaign management, performance analysis, and audience targeting within the Facebook advertising.

2. Benefits:

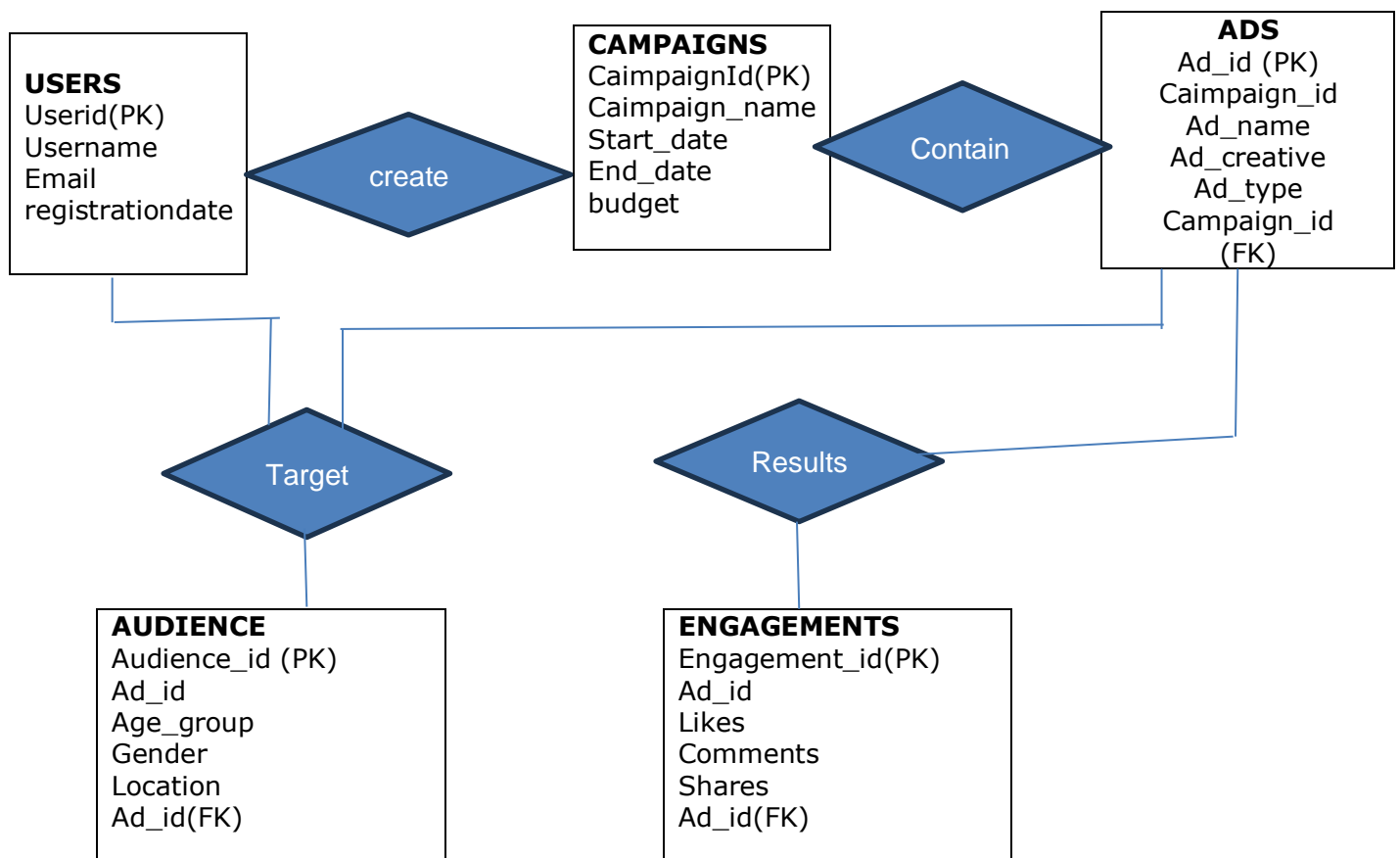
- **Efficiency:** Digital storage enables quick data access, updates, and retrieval, streamlining campaign management processes compared to manual paper-based methods.
- **Accuracy:** Reduce the risk of human errors inherent in manual data entry and storage, ensuring the integrity and accuracy of campaign information.
- **Analytics:** Structured digital data allows for advanced analytics, including trend analysis, predictive modeling, and audience segmentation, providing deeper insights into campaign performance and audience behavior.
- **Real-time Updates:** Support real-time data updates, ensuring marketers have access to the most current campaign information for timely decision-making and optimization.

This database contains 5 tables:

1. Users or Advertisers.
2. Campaigns.
3. Ads.
4. Audience.
5. Engagement.

How the above tables/entities are related to each other is shown pictorially through ER diagram, i.e.Entity Relationship Diagram.

3. ER-Diagram (Entity Relation – Diagram) for Facebook Campaign Management:



4. Table Descriptions:

1. Users:

| Field | Type | Null | Key | Default | Extra |
|-------------------|-------------|------|-----|---------|-------|
| user_id | int(11) | NO | PRI | NULL | |
| username | varchar(30) | NO | | NULL | |
| email | varchar(50) | NO | | NULL | |
| registration date | date | YES | | NULL | |

2. Campaigns:

| Field | Type | Null | Key | Default | Extra |
|---------------|---------------|------|-----|---------|-------|
| campaign_id | int(11) | NO | PRI | NULL | |
| campaign_name | varchar(50) | YES | | NULL | |
| start_date | date | YES | | NULL | |
| end_date | date | YES | | NULL | |
| budget | decimal(10,2) | YES | | NULL | |

3. Ads:

| Field | Type | Null | Key | Default | Extra |
|-------------|-------------|------|-----|---------|----------------|
| ad_id | int(11) | NO | PRI | NULL | auto_increment |
| campaign_id | int(11) | YES | MUL | NULL | |
| ad_name | varchar(50) | YES | | NULL | |
| ad_creative | text | YES | | NULL | |
| ad_type | varchar(20) | YES | | NULL | |

4. Audience Table:

| Field | Type | Null | Key | Default | Extra |
|-------------|-------------|------|-----|---------|----------------|
| audience_id | int(11) | NO | PRI | NULL | auto_increment |
| ad_id | int(11) | YES | MUL | NULL | |
| age_group | varchar(15) | YES | | NULL | |
| gender | varchar(20) | YES | | NULL | |
| location | varchar(20) | YES | | NULL | |

5. Engagement Table:

| Field | Type | Null | Key | Default | Extra |
|---------------|---------|------|-----|---------|----------------|
| Engagement_id | int(11) | NO | PRI | NULL | auto_increment |
| ad_id | int(11) | YES | MUL | NULL | |
| likes | int(11) | YES | | NULL | |
| comments | int(11) | YES | | NULL | |
| shares | int(11) | YES | | NULL | |

5. Commands:

- **Create database:**

```
create database fcm;  
use fcm;
```

- **Create table users:**

```
CREATE TABLE Users (  
    user_id int primary key,  
    username varchar(30)not null,  
    email varchar(50)not null,  
    registrationdate date  
);
```

- **Populate users table:**

INSERT INTO Users (user_id, username, email, registrationdate) VALUES

(1, 'Ravi Kumar', 'ravi.kumar@gmail.com', '2023-07-15'),
(2, 'Priya Patel', 'priya.patel@gmail.com', '2023-08-23'),
(3, 'Amit Singh', 'amit.singh@gmail.com', '2023-09-05'),
(4, 'Sneha Sharma', 'sneha.sharma@gmail.com', '2023-10-11'),
(5, 'Rahul Gupta', 'rahul.gupta@gmail.com', '2023-11-29'),
(6, 'Anjali Verma', 'anjali.verma@gmail.com', '2024-01-17'),
(7, 'Vikram Yadav', 'vikram.yadav@gmail.com', '2024-02-29'),
(8, 'Pooja Chauhan', 'pooja.chauhan@gmail.com', '2024-03-14'),
(9, 'Rohit Mehta', 'rohit.mehta@gmail.com', '2024-04-20'),
(10, 'Neha Saxena', 'neha.saxena@gmail.com', '2024-05-06'),
(11, 'Alok Verma', 'alok.verma@gmail.com', '2024-06-11'),
(12, 'Deepika Rajput', 'deepika.rajput@gmail.com', '2024-07-18'),
(13, 'Karan Sinha', 'karan.sinha@gmail.com', '2024-08-25'),
(14, 'Shreya Shah', 'shreya.shah@gmail.com', '2024-09-30'),
(15, 'Pranav Das', 'pranav.das@gmail.com', '2024-10-10'),
(16, 'Nisha Kapoor', 'nisha.kapoor@gmail.com', '2024-11-21'),
(17, 'Arjun Mishra', 'arjun.mishra@gmail.com', '2024-12-03'),
(18, 'Divya Thakur', 'divya.thakur@gmail.com', '2025-01-09'),
(19, 'Ankit Biswas', 'ankit.biswas@gmail.com', '2025-02-14'),
(20, 'Manisha Reddy', 'manisha.reddy@gmail.com', '2025-03-25'),
(21, 'Rajesh Gandhi', 'rajesh.gandhi@gmail.com', '2025-04-30'),
(22, 'Sunita Chopra', 'sunita.chopra@gmail.com', '2025-05-15'),
(23, 'Vivek Pandey', 'vivek.pandey@gmail.com', '2025-06-20'),
(24, 'Ananya Sinha', 'ananya.sinha@gmail.com', '2025-07-27'),
(25, 'Kunal Sharma', 'kunal.sharma@gmail.com', '2025-08-31'),
(26, 'Swati Rao', 'swati.rao@gmail.com', '2025-09-05'),
(27, 'Aakash Patil', 'aakash.patil@gmail.com', '2025-10-10'),
(28, 'Megha Soni', 'megha.soni@gmail.com', '2025-11-15'),
(29, 'Sanjay Shukla', 'sanjay.shukla@gmail.com', '2025-12-20'),
(30, 'Ritu Bajaj', 'ritu.bajaj@gmail.com', '2026-01-25');

- **Create table campaigns:**

Create table Campaigns (
 campaign_id int primary key,
 campaign_name varchar(50),
 start_date DATE,
 end_date DATE,
 budget DECIMAL(10, 2)
);

- **Populate campaigns table:**

```
INSERT INTO Campaigns (campaign_id, campaign_name, start_date, end_date, budget)
VALUES
```

```
(1, 'Independence Day Sale', '2024-08-01', '2024-08-15', 1000000.00),
(2, 'Republic Day Offers', '2024-01-20', '2024-01-26', 800000.00),
(3, 'Diwali Festival Discounts', '2024-10-20', '2024-11-10', 1200000.00),
(4, 'Holi Special Deals', '2024-03-05', '2024-03-10', 600000.00),
(5, 'Navratri Celebrations', '2024-09-29', '2024-10-07', 900000.00),
(6, 'Ganesh Chaturthi Offers', '2024-08-25', '2024-09-05', 700000.00),
(7, 'Eid-ul-Fitr Discounts', '2024-05-20', '2024-05-30', 800000.00),
(8, 'Christmas Sale', '2024-12-20', '2024-12-25', 1100000.00),
(9, 'New Year Celebration', '2024-12-25', '2025-01-01', 1000000.00),
(10, 'Gudi Padwa Special', '2024-04-10', '2024-04-15', 600000.00),
(11, 'Durga Puja Offers', '2024-10-05', '2024-10-15', 900000.00),
(12, 'Onam Festival Discounts', '2024-08-25', '2024-08-31', 800000.00),
(13, 'Raksha Bandhan Sale', '2024-08-10', '2024-08-15', 700000.00),
(14, 'Makar Sankranti Deals', '2024-01-10', '2024-01-15', 600000.00),
(15, 'Easter Special Offers', '2024-04-10', '2024-04-15', 600000.00),
(16, 'Baisakhi Celebrations', '2024-04-10', '2024-04-15', 600000.00),
(17, 'Janmashtami Discounts', '2024-08-20', '2024-08-25', 700000.00),
(18, 'Bihu Festival Offers', '2024-04-10', '2024-04-15', 600000.00),
(19, 'Ganesh Visarjan Sale', '2024-09-10', '2024-09-15', 700000.00),
(20, 'Maha Shivratri Special', '2024-03-01', '2024-03-07', 600000.00),
(21, 'Lohri Festival Discounts', '2024-01-10', '2024-01-15', 600000.00),
(22, 'Basant Panchami Offers', '2024-01-25', '2024-01-30', 600000.00),
(23, 'Chhath Puja Celebrations', '2024-11-06', '2024-11-08', 500000.00),
(24, 'International Yoga Day Campaign', '2024-06-21', '2024-06-21', 500000.00),
(25, 'Mother"s Day Special', '2024-05-12', '2024-05-12', 500000.00),
(26, 'Father"s Day Deals', '2024-06-16', '2024-06-16', 500000.00),
(27, 'Children"s Day Offers', '2024-11-14', '2024-11-14', 500000.00),
(28, 'World Environment Day Campaign', '2024-06-05', '2024-06-05', 500000.00),
(29, 'International Women"s Day Celebration', '2024-03-08', '2024-03-08', 500000.00),
(30, 'Friendship Day Special', '2024-08-05', '2024-08-05', 500000.00);
```

- **Create table ads:**

```
CREATE TABLE Ads (
    ad_id int primary key AUTO_INCREMENT,
    campaign_id int,
    ad_name varchar(50),
    ad_creative text,
    ad_type varchar(20),
    FOREIGN KEY (campaign_id) REFERENCES Campaigns(campaign_id)
);
```

- **Populate ads table:**

INSERT INTO Ads (campaign_id, ad_name, ad_creative, ad_type) VALUES

(1, 'Independence Day Sale Ad', 'Get ready to celebrate freedom with amazing discounts!', 'Image'),
(2, 'Republic Day Offers Ad', 'Celebrate the essence of India with exclusive deals!', 'Image'),
(3, 'Diwali Festival Discounts Ad', 'Light up your Diwali with our special offers!', 'Image'),
(4, 'Holi Special Deals Ad', 'Splash into savings this Holi with our colorful discounts!', 'Image'),
(5, 'Navratri Celebrations Ad', 'Dance your way to savings with our Navratri offers!', 'Image'),
(6, 'Ganesh Chaturthi Offers Ad', 'Welcome Lord Ganesha with our divine discounts!', 'Image'),
(7, 'Eid-ul-Fitr Discounts Ad', 'Celebrate Eid with our exclusive offers!', 'Image'),
(8, 'Christmas Sale Ad', 'Spread the joy of Christmas with our festive deals!', 'Image'),
(9, 'New Year Celebration Ad', 'Start the new year with exciting discounts!', 'Image'),
(10, 'Gudi Padwa Special Ad', 'Welcome the new year with auspicious savings!', 'Image'),
(11, 'Durga Puja Offers Ad', 'Celebrate Durga Puja with amazing discounts!', 'Image'),
(12, 'Onam Festival Discounts Ad', 'Indulge in the flavors of Onam with our special offers!', 'Image'),
(13, 'Raksha Bandhan Sale Ad', 'Express your love with our heartfelt offers!', 'Image'),
(14, 'Makar Sankranti Deals Ad', 'Soar high with our festive offers this Makar Sankranti!', 'Image'),
(15, 'Easter Special Offers Ad', 'Hop into savings with our Easter deals!', 'Image'),
(16, 'Baisakhi Celebrations Ad', 'Celebrate Baisakhi with our exciting offers!', 'Image'),
(17, 'Janmashtami Discounts Ad', 'Celebrate Janmashtami with amazing discounts!', 'Image'),
(18, 'Bihu Festival Offers Ad', 'Experience the joy of Bihu with our special deals!', 'Image'),
(19, 'Ganesh Visarjan Sale Ad', 'Bid farewell to Lord Ganesha with amazing offers!', 'Image'),
(20, 'Maha Shivratri Special Ad', 'Celebrate Maha Shivratri with divine discounts!', 'Image'),
(21, 'Lohri Festival Discounts Ad', 'Warm up your Lohri celebrations with our special offers!', 'Image'),
(22, 'Basant Panchami Offers Ad', 'Celebrate Basant Panchami with exciting deals!', 'Image'),
(23, 'Chhath Puja Celebrations Ad', 'Celebrate Chhath Puja with special discounts!', 'Image'),
(24, 'International Yoga Day Campaign Ad', 'Join us in promoting a healthy lifestyle this Yoga Day!', 'Image'),
(25, 'Mother''s Day Special Ad', 'Show your love to mom with our special offers!', 'Image'),
(26, 'Father''s Day Deals Ad', 'Celebrate dad with our exclusive Father''s Day offers!', 'Image'),
(27, 'Children''s Day Offers Ad', 'Make Children''s Day extra special with our deals!', 'Image'),
(28, 'World Environment Day Campaign Ad', 'Join us in saving the planet this Environment Day!', 'Image'),
(29, 'International Women''s Day Celebration Ad', 'Celebrate the achievements of women this International Women''s Day!', 'Image'),
(30, 'Friendship Day Special Ad', 'Celebrate friendship with our special offers!', 'Image');

Create table audience:

```
CREATE TABLE Audience (  
    audience_id INT PRIMARY KEY AUTO_INCREMENT,  
    ad_id INT,  
    age_group varchar(15),  
    gender varchar(20),  
    location varchar(20),  
    FOREIGN KEY (ad_id) REFERENCES Ads(ad_id)  
);
```

● Populate table audience:

```
INSERT INTO Audience (ad_id, age_group, gender, location) VALUES  
(1, '20-35', 'Male/Female', 'Delhi'),  
(2, '22-45', 'Male/Female', 'Bangalore'),  
(3, '20-50', 'Male/Female', 'Mumbai'),  
(4, '19-35', 'Male/Female', 'Mumbai'),  
(5, '19-40', 'Male/Female', 'Ahmedabad'),  
(6, '20-52', 'Male/Female', 'Pune'),  
(7, '25-34', 'Male/Female', 'Hyderabad'),  
(8, '21-34', 'Male/Female', 'Thane'),  
(9, '19-54', 'Male/Female', 'Goa'),  
(10, '20-40', 'Male/Female', 'Maharashtra'),  
(11, '22-35', 'Male/Female', 'Kolkata'),  
(12, '25-34', 'Male/Female', 'Kerala'),  
(13, '22-43', 'Male/Female', 'Thane'),  
(14, '21-32', 'Male/Female', 'Pune'),  
(15, '23-50', 'Male/Female', 'Indore'),  
(16, '18-24', 'Male', 'Amritsar'),  
(17, '25-34', 'Female', 'Mumbai'),  
(18, '22-33', 'Male', 'Kanpur'),  
(19, '23-49', 'Female', 'Pune'),  
(20, '24-34', 'Male', 'Coimbatore'),  
(21, '18-36', 'Male/Female', 'Delhi'),  
(22, '25-34', 'Male/Female', 'Vashi'),  
(23, '28-44', 'Female', 'Varanasi'),  
(24, '18-29', 'Male/Female', 'Mumbai'),  
(25, '25-50+', 'Female', 'Dadar'),  
(26, '25-52+', 'Male', 'Nagpur'),  
(27, '25-34', 'Female', 'Aurangabad'),  
(28, '20-32', 'Male/Female', 'Mumbai'),  
(29, '18-24', 'Male/Female', 'Pune'),  
(30, '18-25', 'Male/Female', 'Thane');
```

- **Create table engagements:**

```
CREATE TABLE Engagements (  
  Engagement_id int primary key AUTO_INCREMENT,  
  ad_id int,  
  likes int,  
  comments int,  
  shares int,  
  FOREIGN KEY (ad_id) REFERENCES Ads(ad_id)  
);
```

- **Populate table engagements:**

```
INSERT INTO Engagements (ad_id, likes, comments, shares) VALUES  
(1, 1500, 200, 300),  
(2, 1200, 180, 250),  
(3, 1800, 250, 400),  
(4, 1000, 150, 200),  
(5, 2000, 300, 450),  
(6, 1400, 190, 280),  
(7, 1600, 220, 320),  
(8, 2200, 350, 500),  
(9, 2100, 320, 480),  
(10, 1100, 160, 230),  
(11, 1900, 270, 420),  
(12, 1600, 220, 320),  
(13, 1300, 180, 260),  
(14, 1200, 160, 240),  
(15, 1300, 170, 250),  
(16, 1400, 180, 270),  
(17, 1500, 190, 280),  
(18, 1400, 200, 290),  
(19, 1600, 210, 310),  
(20, 1200, 180, 260),  
(21, 1300, 190, 280),  
(22, 1400, 200, 300),  
(23, 1600, 210, 320),  
(24, 1800, 220, 340),  
(25, 1500, 200, 300),  
(26, 1700, 210, 320),  
(27, 1600, 200, 310),  
(28, 1500, 190, 300),  
(29, 1200, 160, 270),  
(30, 1100, 150, 260);
```

6. Queries:

1. Identify the top 5 campaigns with the highest budget.

Query:

- `select campaign_id, campaign_name, budget from Campaigns order by budget desc limit 5;`

Result:

| campaign_id | campaign_name | budget |
|-------------|---------------------------|---------|
| 3 | Diwali Festival Discounts | 1200000 |
| 8 | Christmas Sale | 1100000 |
| 1 | Independence Day Sale | 1000000 |
| 9 | New Year Celebration | 1000000 |
| 5 | Navratri Celebrations | 900000 |

2. Find total budget spent on campaigns for each year

Query:

- `select year(start_date) as year, sum(budget) as total_budget_spent from Campaigns group by year;`

Result:

| year | total_budget_spent |
|------|--------------------|
| 2024 | 20700000 |

3. Find campaigns with names containing "Special".

Query:

- `select *from Campaigns where campaign_name like '%Special%';`

Result:

| campaign_id | campaign_name | start_date | end_date | budget |
|-------------|------------------------|------------|-----------|--------|
| 4 | Holi Special Deals | 3/5/2024 | 3/10/2024 | 600000 |
| 10 | Gudi Padwa Special | 4/10/2024 | 4/15/2024 | 600000 |
| 15 | Easter Special Offers | 4/10/2024 | 4/15/2024 | 600000 |
| 20 | Maha Shivratri Special | 3/1/2024 | 3/7/2024 | 600000 |
| 25 | Mother's Day Special | 5/12/2024 | 5/12/2024 | 500000 |
| 30 | Friendship Day Special | 8/5/2024 | 8/5/2024 | 500000 |

4. Display insights from Campaigns budget analysis.

Query:

- `select count(*) as total_campaigns, max(budget) as max_budget, min(budget) as min_budget, avg(budget) as avg_budget from Campaigns;`

Result:

| total_campaigns | max_budget | min_budget | avg_budget |
|-----------------|------------|------------|------------|
| 30 | 1200000 | 500000 | 690000 |

5. Calculate the Duration of Campaigns

Query:

- **select campaign_name, datediff(end_date, start_date) as duration_in_days from Campaigns;**

Result:

| campaign_name | duration_in_days |
|---------------------------------------|------------------|
| Independence Day Sale | 14 |
| Republic Day Offers | 6 |
| Diwali Festival Discounts | 21 |
| Holi Special Deals | 5 |
| Navratri Celebrations | 8 |
| Ganesh Chaturthi Offers | 11 |
| Eid-ul-Fitr Discounts | 10 |
| Christmas Sale | 5 |
| New Year Celebration | 7 |
| Gudi Padwa Special | 5 |
| Durga Puja Offers | 10 |
| Onam Festival Discounts | 6 |
| Raksha Bandhan Sale | 5 |
| Makar Sankranti Deals | 5 |
| Easter Special Offers | 5 |
| Baisakhi Celebrations | 5 |
| Janmashtami Discounts | 5 |
| Bihu Festival Offers | 5 |
| Ganesh Visarjan Sale | 5 |
| Maha Shivratri Special | 6 |
| Lohri Festival Discounts | 5 |
| Basant Panchami Offers | 5 |
| Chhath Puja Celebrations | 2 |
| International Yoga Day Campaign | 0 |
| Mother's Day Special | 0 |
| Father's Day Deals | 0 |
| Children's Day Offers | 0 |
| World Environment Day Campaign | 0 |
| International Women's Day Celebration | 0 |
| Friendship Day Special | 0 |

7. Sub-Queries:

1. Find Campaigns with Budget Exceeding Average Budget.

Query:

- `select campaign_name, budget from Campaigns
where budget > (select avg(budget) from Campaigns);`

Result:

| campaign_name | budget |
|---------------------------|---------|
| Independence Day Sale | 1000000 |
| Republic Day Offers | 800000 |
| Diwali Festival Discounts | 1200000 |
| Navratri Celebrations | 900000 |
| Ganesh Chaturthi Offers | 700000 |
| Eid-ul-Fitr Discounts | 800000 |
| Christmas Sale | 1100000 |
| New Year Celebration | 1000000 |
| Durga Puja Offers | 900000 |
| Onam Festival Discounts | 800000 |
| Raksha Bandhan Sale | 700000 |
| Janmashtami Discounts | 700000 |
| Ganesh Visarjan Sale | 700000 |

2. Find Users with Longest and Shortest Names

Query:

- select * from Users where length(username) = (select MAX(length(username)) from Users)
union
select * from Users where length(username) = (select MIN(length(username)) from Users);

Result:

| user_id | username | email | registrationdate |
|---------|----------------|--------------------------|------------------|
| 12 | Deepika Rajput | deepika.rajput@gmail.com | 7/18/2024 |
| 26 | Swati Rao | swati.rao@gmail.com | 9/5/2025 |

3. Find the Ads Targeting Audiences from Mumbai

Query:

- select ad_id, ad_name from ads where ad_id in (select ad_id from Audience where location = 'Mumbai');

Result:

| ad_id | ad_name |
|-------|------------------------------------|
| 3 | Diwali Festival Discounts Ad |
| 4 | Holi Special Deals Ad |
| 17 | Janmashtami Discounts Ad |
| 24 | International Yoga Day Campaign Ad |
| 28 | World Environment Day Campaign Ad |

4. Find the usernames with the highest number of engagements

Query:

- `select username from Users where user_id = (select ad_id from Engagements group by ad_id order by(likes + comments + shares) desc limit 1);`

Result:

| username |
|---------------|
| Pooja Chauhan |

5. Provide a list of campaign IDs, names, and the average budget across all campaigns.

Query:

- `select campaign_id, campaign_name, (select avg(budget) from Campaigns) as avg_budget from Campaigns;`

Result:

| campaign_id | campaign_name | avg_budget |
|-------------|---------------------------|------------|
| 1 | Independence Day Sale | 690000 |
| 2 | Republic Day Offers | 690000 |
| 3 | Diwali Festival Discounts | 690000 |
| 4 | Holi Special Deals | 690000 |
| 5 | Navratri Celebrations | 690000 |
| 6 | Ganesh Chaturthi Offers | 690000 |
| 7 | Eid-ul-Fitr Discounts | 690000 |
| 8 | Christmas Sale | 690000 |
| 9 | New Year Celebration | 690000 |
| 10 | Gudi Padwa Special | 690000 |
| 11 | Durga Puja Offers | 690000 |
| 12 | Onam Festival Discounts | 690000 |
| 13 | Raksha Bandhan Sale | 690000 |
| 14 | Makar Sankranti Deals | 690000 |
| 15 | Easter Special Offers | 690000 |
| 16 | Baisakhi Celebrations | 690000 |
| 17 | Janmashtami Discounts | 690000 |
| 18 | Bihu Festival Offers | 690000 |
| 19 | Ganesh Visarjan Sale | 690000 |
| 20 | Maha Shivratri Special | 690000 |
| 21 | Lohri Festival Discounts | 690000 |
| 22 | Basant Panchami Offers | 690000 |
| 23 | Chhath Puja Celebration | 690000 |
| 24 | International Yoga Day C | 690000 |
| 25 | Mother's Day Special | 690000 |
| 26 | Father's Day Deals | 690000 |
| 27 | Children's Day Offers | 690000 |
| 28 | World Environment Day | 690000 |
| 29 | International Women's D | 690000 |
| 30 | Friendship Day Special | 690000 |

8. Joins:

1. Display Users and Their Corresponding Campaigns with Budgets

Query:

- `select Users.username, Campaigns.campaign_name,
Campaigns.budget from Users
left join Campaigns on Users.user_id = Campaigns.campaign_id;`

Result:

| username | campaign_name | budget |
|----------------|---------------------------|---------|
| Ravi Kumar | Independence Day Sale | 1000000 |
| Priya Patel | Republic Day Offers | 800000 |
| Amit Singh | Diwali Festival Discounts | 1200000 |
| Sneha Sharma | Holi Special Deals | 600000 |
| Rahul Gupta | Navratri Celebrations | 900000 |
| Anjali Verma | Ganesh Chaturthi Offers | 700000 |
| Vikram Yadav | Eid-ul-Fitr Discounts | 800000 |
| Pooja Chauhan | Christmas Sale | 1100000 |
| Rohit Mehta | New Year Celebration | 1000000 |
| Neha Saxena | Gudi Padwa Special | 600000 |
| Alok Verma | Durga Puja Offers | 900000 |
| Deepika Rajput | Onam Festival Discounts | 800000 |
| Karan Sinha | Raksha Bandhan Sale | 700000 |
| Shreya Shah | Makar Sankranti Deals | 600000 |
| Pranav Das | Easter Special Offers | 600000 |
| Nisha Kapoor | Baisakhi Celebrations | 600000 |
| Arjun Mishra | Janmashtami Discounts | 700000 |
| Divya Thakur | Bihu Festival Offers | 600000 |
| Ankit Biswas | Ganesh Visarjan Sale | 700000 |
| Manisha Reddy | Maha Shivratri Special | 600000 |
| Manisha Reddy | Maha Shivratri Special | 600000 |
| Rajesh Gandhi | Lohri Festival Discounts | 600000 |
| Sunita Chopra | Basant Panchami Offers | 600000 |
| Vivek Pandey | Chhath Puja Celebrations | 500000 |
| Ananya Sinha | International Yoga Day Ca | 500000 |
| Kunal Sharma | Mother's Day Special | 500000 |
| Swati Rao | Father's Day Deals | 500000 |
| Aakash Patil | Children's Day Offers | 500000 |
| Megha Soni | World Environment Day C | 500000 |
| Sanjay Shukla | International Women's D | 500000 |
| Ritu Bajaj | Friendship Day Special | 500000 |

2. Display the campaign names along with the corresponding likes and comments.

Query:

- `select Campaigns.campaign_name, Engagements.likes, Engagements.comments from Campaigns right join Engagements on Campaigns.campaign_id = Engagements.ad_id;`

Result:

| campaign_name | likes | comments |
|---------------------------|-------|----------|
| Independence Day Sale | 1500 | 200 |
| Republic Day Offers | 1200 | 180 |
| Diwali Festival Discounts | 1800 | 250 |
| Holi Special Deals | 1000 | 150 |
| Navratri Celebrations | 2000 | 300 |
| Ganesh Chaturthi Offers | 1400 | 190 |
| Eid-ul-Fitr Discounts | 1600 | 220 |
| Christmas Sale | 2200 | 350 |
| New Year Celebration | 2100 | 320 |
| Gudi Padwa Special | 1100 | 160 |
| Durga Puja Offers | 1900 | 270 |
| Onam Festival Discounts | 1600 | 220 |
| Raksha Bandhan Sale | 1300 | 180 |
| Makar Sankranti Deals | 1200 | 160 |
| Easter Special Offers | 1300 | 170 |
| Baisakhi Celebrations | 1400 | 180 |
| Janmashtami Discounts | 1500 | 190 |
| Bihu Festival Offers | 1400 | 200 |
| Ganesh Visarjan Sale | 1600 | 210 |
| Maha Shivratri Special | 1200 | 180 |

| | | |
|---------------------------|------|-----|
| Lohri Festival Discounts | 1300 | 190 |
| Basant Panchami Offers | 1400 | 200 |
| Chhath Puja Celebrations | 1600 | 210 |
| International Yoga Day Ca | 1800 | 220 |
| Mother's Day Special | 1500 | 200 |
| Father's Day Deals | 1700 | 210 |
| Children's Day Offers | 1600 | 200 |
| World Environment Day C | 1500 | 190 |
| International Women's Da | 1200 | 160 |
| Friendship Day Special | 1100 | 150 |

3 Display all possible combinations of usernames and campaign names.

Query:

- **select Users.username, Campaigns.campaign_name from Users cross join Campaigns;**

Result:

| username | campaign_name |
|----------------|-----------------------|
| Ravi Kumar | Independence Day Sale |
| Priya Patel | Independence Day Sale |
| Amit Singh | Independence Day Sale |
| Sneha Sharma | Independence Day Sale |
| Rahul Gupta | Independence Day Sale |
| Anjali Verma | Independence Day Sale |
| Vikram Yadav | Independence Day Sale |
| Pooja Chauhan | Independence Day Sale |
| Rohit Mehta | Independence Day Sale |
| Neha Saxena | Independence Day Sale |
| Alok Verma | Independence Day Sale |
| Deepika Rajput | Independence Day Sale |
| Karan Sinha | Independence Day Sale |
| Shreya Shah | Independence Day Sale |
| Pranav Das | Independence Day Sale |
| Nisha Kapoor | Independence Day Sale |
| Arjun Mishra | Independence Day Sale |
| Divya Thakur | Independence Day Sale |
| Ankit Biswas | Independence Day Sale |
| Manisha Reddy | Independence Day Sale |

| | |
|---------------|-----------------------|
| Manisha Reddy | Independence Day Sale |
| Rajesh Gandhi | Independence Day Sale |
| Sunita Chopra | Independence Day Sale |
| Vivek Pandey | Independence Day Sale |
| Ananya Sinha | Independence Day Sale |
| Kunal Sharma | Independence Day Sale |
| Swati Rao | Independence Day Sale |
| Aakash Patil | Independence Day Sale |
| Megha Soni | Independence Day Sale |
| Sanjay Shukla | Independence Day Sale |
| Ritu Bajaj | Independence Day Sale |
| Ravi Kumar | Republic Day Offers |
| Priya Patel | Republic Day Offers |
| Amit Singh | Republic Day Offers |
| Sneha Sharma | Republic Day Offers |
| Rahul Gupta | Republic Day Offers |

4. Display campaigns name and Their Corresponding engagements.

Query:

- **select Campaigns.campaign_name, sum(Engagements.likes) as total_likes, sum(Engagements.comments) as total_comments, sum(Engagements.shares) as total_shares from Campaigns inner join Engagements on Campaigns.campaign_id = Engagements.ad_id group by Campaigns.campaign_name;**

Result:

| campaign_name | total_likes | total_comments | total_shares |
|-----------------------------------|-------------|----------------|--------------|
| Baisakhi Celebrations | 1400 | 180 | 270 |
| Basant Panchami Offers | 1400 | 200 | 300 |
| Bihu Festival Offers | 1400 | 200 | 290 |
| Chhath Puja Celebrations | 1600 | 210 | 320 |
| Children's Day Offers | 1600 | 200 | 310 |
| Christmas Sale | 2200 | 350 | 500 |
| Diwali Festival Discounts | 1800 | 250 | 400 |
| Durga Puja Offers | 1900 | 270 | 420 |
| Easter Special Offers | 1300 | 170 | 250 |
| Eid-ul-Fitr Discounts | 1600 | 220 | 320 |
| Father's Day Deals | 1700 | 210 | 320 |
| Friendship Day Special | 1100 | 150 | 260 |
| Ganesh Chaturthi Offers | 1400 | 190 | 280 |
| Ganesh Visarjan Sale | 1600 | 210 | 310 |
| Gudi Padwa Special | 1100 | 160 | 230 |
| Holi Special Deals | 1000 | 150 | 200 |
| Independence Day Sale | 1500 | 200 | 300 |
| International Women's Day Celebra | 1200 | 160 | 270 |
| International Yoga Day Campaign | 1800 | 220 | 340 |
| Janmashtami Discounts | 1500 | 190 | 280 |

| Marketing Campaigns | 2023 | 2022 | 2021 |
|--------------------------------|------|------|------|
| Lohri Festival Discounts | 1300 | 190 | 280 |
| Maha Shivratri Special | 1200 | 180 | 260 |
| Makar Sankranti Deals | 1200 | 160 | 240 |
| Mother's Day Special | 1500 | 200 | 300 |
| Navratri Celebrations | 2000 | 300 | 450 |
| New Year Celebration | 2100 | 320 | 480 |
| Onam Festival Discounts | 1600 | 220 | 320 |
| Raksha Bandhan Sale | 1300 | 180 | 260 |
| Republic Day Offers | 1200 | 180 | 250 |
| World Environment Day Campaign | 1500 | 190 | 300 |

5.Display usernames and corresponding campaign names for users who have joined campaigns starting after '2024-02-01', limited to 5 records.

Query:

```
select Users.username, Campaigns.campaign_name from Users
inner join Campaigns on Users.user_id = Campaigns.campaign_id
where Campaigns.start_date > '2024-02-01'
limit 5;
```

Result:

| username | campaign_name |
|--------------|---------------------------|
| Ravi Kumar | Independence Day Sale |
| Amit Singh | Diwali Festival Discounts |
| Sneha Sharma | Holi Special Deals |
| Rahul Gupta | Navratri Celebrations |
| Anjali Verma | Ganesh Chaturthi Offers |

Thank You.