Improve our social media strategy

Specification document

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Introduction

This document serves as the specifications gathered during your interviews with the community manager.

Please fill in the results of your SQL queries, together with screen shots of the SQL statements.

If insufficient room is provided in the slide, please add as your see fit.

If you feel the number of columns indicated on the slide is insufficient to answer the question, please add the columns that you think would be helpful.

Creating Tables in the Database

Please write SQL statements using which you created tables in your database along with the data type of the columns in each table. Feel free to add a slide just below this one, if needed.

```
CREATE TABLE PopStats (
    CountryCode varchar(5),
    CountryName varchar(50),
    Population integer,
    AverageIncome double,
    CONSTRAINT popstats_pk PRIMARY KEY (CountryCode)
);

CREATE TABLE GlobalPage (
    CalendarDate date,
    CountryCode varchar(5),
    NewLikes integer,
    DailyPostReach integer,
    DailyPostShares integer,
    DailyPostActions integer,
    DailyPostImpressions integer,
    FOREIGN KEY (CountryCode) REFERENCES PopStats(CountryCode)
);
```

Creating Tables in the Database

Please write SQL statements using which you created tables in your database along with the data type of the columns in each table. Feel free to add a slide just below this one, if needed.

```
CREATE TABLE FansPerCountry (
        CalendarDate date,
        CountryCode varchar(5),
        NumberOfFans integer,
        FOREIGN KEY (CountryCode) REFERENCES PopStats(CountryCode)
);

CREATE TABLE FansPerCity (
        CalendarDate date,
        City varchar(50),
        CountryCode varchar(5),
        NumberOfFans integer,
        CONSTRAINT fk_popstats_fpci FOREIGN KEY (CountryCode) REFERENCES PopStats(CountryCode)
);
```

Creating Tables in the Database

Please write SQL statements using which you created tables in your database along with the data type of the columns in each table. Feel free to add a slide just below this one, if needed.

```
CREATE TABLE FansPerLanguage (
        CalendarDate date,
        language varchar(50),
        CountryCode varchar(5),
        NumberOfFans integer,
        CONSTRAINT fk_popstats_fpl FOREIGN KEY (CountryCode) REFERENCES PopStats(CountryCode)
);

CREATE TABLE FansPerGenderAge (
        CalendarDate date,
        Gender varchar(1),
        AgeGroup varchar(50),
        NumberOfFans integer
);
```

Creating Tables in the Database

Please write SQL statements using which you created tables in your database along with the data type of the columns in each table. Feel free to add a slide just below this one, if needed.

```
CREATE TABLE PostInsights (
        CreatedTime datetime,
        EngagedFans integer,
        EngagedUsers integer,
        Impressions integer,
        NegativeFeedback integer,
        NonViralImpressions integer,
        NonViralReach integer,
        PostActivity integer,
        PostActivityUnique integer,
        PostClicks integer,
        UniquePostClicks integer,
        PostReactionsAnger integer,
        PostReactionsHaha integer,
        PostReactionsLike integer,
        PostReactionsLove integer,
        PostReactionsSorry integer,
        PostReactionsWow integer,
        Reach integer
);
```

Page Statistics - Global

Please write SQL statements to answer the following questions and put the results in the table below:

- What is the daily average reach of the posts on the page over the period?
- What is the daily average engagement rate (i.e. likes) on the page over the period ?

SQL Statements

```
SELECT ROUND(AVG(DailyPostReach), 2) "Daily average reach"
FROM globalpage;
```

Daily average reach of the posts on the Global Page over the period?
1862816.03

```
SELECT ROUND(AVG(NewLikes), 2) "Daily average NewLikes"
FROM globalpage;
```

Daily average NewLikes rate on the page over the period?
8942.56

Page Statistics - Top 10 countries (# fans)

What are the top 10 countries (considering the number of fans)?

SQL Statement

```
SELECT CountryName, NumberOfFans
FROM fanspercountry f
JOIN popstats p
ON f.countrycode = p.countrycode
WHERE CalendarDate = (SELECT
MAX(CalendarDate) FROM fanspercountry)
GROUP BY f.countrycode
ORDER BY NumberOfFans DESC
LIMIT 10;
```

Expected table (results)

Country	Number of fans
Ivory Coast	112160
Cameroon	102211
Senegal	83561
France	73252
Madagascar	72956
Democratic Republic of the Congo	50705
Burkino Faso	43500
Mali	40578
Algeria	39093
Guinea	36821

Page Statistics - Top 10 countries (penetration ratio)

What are the top 10 countries by penetration ratio (i.e. the % of the country population that are fans)?

SQL Statement

```
SELECT CountryName, Population,
NumberOfFans,
CONCAT(ROUND((SUM(NumberOfFans) /
SUM(Population) * 100), 2), "%") "Penetration
ratio"
FROM fanspercountry f
JOIN popstats p
ON f.countrycode = p.countrycode
WHERE CalendarDate = (SELECT
MAX(CalendarDate) FROM fanspercountry)
GROUP BY f.countrycode
ORDER BY SUM(NumberOfFans) /
SUM(Population) * 100 DESC
LIMIT 10;
```

Expected table (results)

Country	Population	Number of fans	Penetration ratio (%)
Reunion	866506	20885	2.41%
French Polynesia	283007	5148	1.82%
New Caledonia	280460	5032	1.79%
Mauritius	1364283	24210	1.77%
Martinique	376480	5427	1.44%
Guadeloupe	395700	5379	1.36%
Gabon	2119036	23954	1.13%
Mayotte	270372	1983	0.73%
Comoros	821164	4925	0.60%
French Guiana	296711	1687	0.57%

Page Statistics - Bottom 10 cities (# fans)

What are the bottom 10 cities (considering the number of fans) **among countries with a population over 20 million?**

This could be considered our growth potential

SQL Statement

```
SELECT CountryName, Population "Country population", City, NumberOfFans
FROM fanspercity f
JOIN popstats p
ON f.countrycode = p.countrycode
WHERE CalendarDate = (SELECT MAX(CalendarDate) FROM fanspercity)
WHERE Population > 20000000
GROUP BY City
ORDER BY NumberOfFans
LIMIT 10;
```

Expected table (results)

Country	Population	City	Number of fans
Algeria	41657488	Bejaia	2391
Madagascar	25683610	Fianarantsoa	2429
Cameroon	25640965	Ngaoundere	2429
Algeria	41657488	Tizi Ouzou	2606
Canada	35881659	Montreal	2934
Algeria	41657488	Oran	3008
Ivory Coast	24290000	Bouake	3599
Morocco	34314130	Casablanca	4113
Ivory Coast	24290000	Cocody	4439
Angola	30355880	Luanda	4830

Page Statistics - Analysis by age group (split of fans)

What is the split of page fans across age groups (in %)**?**

SQL Statement

```
SELECT AgeGroup,
CONCAT(ROUND(SUM(NumberOfFans) / (SELECT
SUM(NumberOfFans) FROM fanspergenderage) *
100, 2), "%") "Age split in %", SUM(NumberOfFans)
"Number of fans"
FROM fanspergenderage
GROUP BY AgeGroup;
```

Expected table (results)

Age group	Age split in %	Number of fans
13-17	2.13%	565718
18-24	21.30%	5652032
25-34	35.73%	9481882
35-44	19.40%	5147038
45-54	9.47%	2514170
55-64	5.02%	1333118
65 +	6.94%	1840914

Page Statistics - Analysis by gender (split of fans)

What is the split of page fans by gender (in %)**?**

SQL Statement

```
SELECT Gender,
CONCAT(ROUND(SUM(NumberOfFans) /
(SELECT SUM(NumberOfFans) FROM
fanspergenderage) * 100, 2), "%") "Gender split
in %", SUM(NumberOfFans) "Number of fans"
FROM fanspergenderage
GROUP BY Gender;
```

Expected table (results)

Gender	Gender split in %	Number of fans
Male	43.44%	11527839
Female	56.46%	14981907
Undisclosed	0.09%	25126

Page Statistics - Analysis by language

- What is the number of the fans that have declared English as their primary language **?**
- What is the percentage of the fans that have declared English as their primary language **?**
- Based on the number of fans who have declared English as their primary language and living in the US, what is the potential buying power that can be accessed ? (Please use the average income data per country for this question. It is estimated that on average, 0.01% of the annual income is dedicated to online magazine subscriptions in the US)

```
SELECT language, SUM(NumberOfFans) "Number of
English speaking fans"
FROM fansperlanguage
WHERE CalendarDate = (SELECT
MAX(CalendarDate) FROM fansperlanguage)
AND language = 'en'
GROUP BY language;
```

Number of English speaking fans?
49418

```
SELECT language,
CONCAT(ROUND(SUM(NumberOfFans) / (SELECT
SUM(NumberOfFans) FROM fansperlanguage) *
100, 2), "%") "% English speaking fans"
FROM fansperlanguage
WHERE language = 'en'
GROUP BY language;
```

% of English speaking fans?
5.08%

Page Statistics - Analysis by language

- What is the number of the fans that have declared English as their primary language **?**
- What is the percentage of the fans that have declared English as their primary language **?**
- Based on the number of fans who have declared English as their primary language and living in the US, what is the potential buying power that can be accessed ? (Please use the average income data per country for this question. It is estimated that on average, 0.01% of the annual income is dedicated to online magazine subscriptions in the US)

```
SELECT CountryName, language,
SUM(NumberOfFans) "Number of fans",
ROUND(SUM(NumberOfFans) *
AverageIncome * 0.0001, 2) "Potential
market"
FROM fansperlanguage f
JOIN popstats p
ON f.countrycode = p.countrycode
WHERE CalendarDate = (SELECT
MAX(CalendarDate) FROM
fansperlanguage)
AND language = 'en'
AND CountryName = 'United states';
```

200322.75
Potential market in US (in dollars)?

Posts Statistics - Engagement per day of the week

- What is the split of the EngagedFans across the days of the week (monday, tuesday,...)**?**
- Based on the results, what is the best day of the week to publish posts?

SQL Statement

```
SELECT DAYOFWEEK(CreatedTime) "Day of the week",
CONCAT(ROUND(SUM(EngagedFans) / (SELECT
SUM(EngagedFans) FROM postinsights) * 100, 2), "%")
"Engagement ratio", SUM(EngagedFans) "Number of fans"
FROM postinsights
GROUP BY DAYOFWEEK(CreatedTime)
ORDER BY 1;
```

Expected table (results)

Day of the week	Engagement ratio (%)	Number of engaged fans
Sunday	12.08%	206805
Monday	19.23%	329207
Tuesday	18.67%	319550
Wednesday	15.38%	263253
Thursday	6.32%	108207
Friday	8.59%	146943
Saturday	19.73%	337621

Best day of the week to publish posts? Saturday is the best day of the week to publish posts.

Post Statistics - Engagement per time of day

- What is the split of the EngagedFans by time of the day **?**
- Based on the results, what is the best time of the day to publish posts?

SQL Statement

```
SELECT timerange, CONCAT(ROUND(SUM(EngagedFans) / (SELECT
SUM(EngagedFans) FROM postinsights) * 100, 2), "%") "Engagement ratio",
SUM(EngagedFans) "Number of engaged fans"
FROM
(SELECT
CASE
    WHEN TIME(createdtime) BETWEEN '05:00:00' AND '08:59:00' THEN '05:00 - 08:59'
    WHEN TIME(createdtime) BETWEEN '09:00:00' AND '11:59:00' THEN '09:00 - 11:59'
    WHEN TIME(createdtime) BETWEEN '12:00:00' AND '14:59:00' THEN '12:00 - 14:59'
    WHEN TIME(createdtime) BETWEEN '15:00:00' AND '18:59:00' THEN '15:00 - 18:59'
    WHEN TIME(createdtime) BETWEEN '19:00:00' AND '21:59:00' THEN '19:00 - 21:59'
    WHEN TIME(createdtime) >= '22:00:00' THEN '22:00 or later'
END timerange, EngagedFans
FROM postinsights) AS rangetable
GROUP BY timerange
ORDER BY timerange;
```

Expected table (results)

Time of day (range)	Engagement ratio (%)	Number of engaged fans
05:00 - 08:59	33.96%	581276
09:00 -11:59	15.34%	262486
12:00 - 14:59	12.70%	217345
15:00 - 18:59	17.40%	297887
19:00 - 21:59	13.12%	224586
22:00 or later	7.48%	128006

Best time of the day to publish posts? Any time during the 05:00 - 08:59 time range.

Recommendations

First recommendation	The most effective day of the week to post is on Saturday's and Monday's are also a great alternative. The peak time of day is during the time range of 5:00-8:59. Combining both of these observations would be vastly beneficial.
Second recommendation	There are is a large potential in expanding into the US market. There is the possibility of generating revenue around the amount of $200,322.75 annually.
Additional recommendation (optional)	I recommend catering posts towards the 25-34 age group since close to 36% of all fans are within this age range. I would also take note that there is a higher percentage of female fans than male fans.