67-262

Database Project

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SNAPCHAT

Team #4

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BUSINESS RESEARCH

Snapchat is a mobile messaging application used to share photos, videos, text, and drawings launched in 2011. It was developed by two Stanford University students, Evan Spiegel and Bobby Murphy. They believed emojis did not encompass the true emotion individuals felt while messaging others. Hence, they incorporated the concept of taking a picture from a cellphone camera with timed photo sharing, so people could share images without fear of censorship, and developed the application Snapchat.

It is free to download the app and free to send messages. It is unique from other messaging apps because the photos and videos only last a brief amount of time before they disappear. Users can add friends from their contact lists and compile photos and videos for all their friends or even the public to view as a Snapchat Story. Unlike normal Snaps, these Stories last for 24 hours and can be viewed more than once.

Recently, they have added Discover/News Feed features that encompass aspects of media through stories that can be posted by various networks. Additionally, a key component of Snapchat includes the filters that can be added to pictures, which are still and interactive. These filters foster creativity among users and express themselves with friends. Similarly, users can now submit original geo-filters to promote various events and causes within specified geographic boundaries. The latest update to the Snapchat app now allows users to upload photos and saved Snaps from their device photo albums. Snapchat Memories was created so users could show each other their photos from the app.

As of May 2014, the application's users sent approximately 700 million snaps a day. The whole purpose of the app is the nudge users to create content to send to their friends. Their mission statement is "Snapchat isn't about capturing the traditional Kodak moment. It's about communicating with the full range of human emotion—not just what appears to be pretty or perfect."

Main competitors of Snapchat include other time-limited photo sharing apps such as Wickr, Clipchat, and Slingshot. Also, the addition of Stories as a new feature on Instagram has

made this photo sharing extension of Facebook a direct competitor of Snapchat's Stories feature.

The primary business model of Snapchat revolves around the incorporation of advertisements on the app. The current functionality of this model works as follows: Snapchat gains as many frequent snappers as possible to incentivize businesses to place advertisements on the app. Businesses may then purchase advertisements and Newsfeed space on Snapchat. The app can make an exceptional revenue from these purchases by businesses based on how many users they have. An increase in users and frequency of use on Snapchat increases the number of people the businesses can effectively reach with their ads.

All of Snapchat's revenue gain is from advertisements and its Newsfeed service. It features businesses and companies that pay to be advertised on its app. Since the user bases for Snapchat is so large, several corporations jump to this application to expose their service or product. The range of companies that use Snapchat as a platform for marketing is vast. For example, Amazon and Hollister sponsored Black Friday themed ads whereas Universal Studios promoted its movie Ouija. Additionally, their Newsfeed feature attracted the attention of several companies like Yahoo! Inc. which invested around 20 million dollars in Snapchat so that it could continue to distribute its content.

VALUE PROPOSITION

This revenue generation is made possible due to Snapchat's large user platform. Its value proposition encompasses this. In Snapchat, users can select their audience unlike other social media websites in which all their friends can view the post. This allows for a more personal and focused way of communication. Additionally, Snapchat also gives individuals the ability to communicate in the medium that accurately depicts their message through art text and music.

The following characteristics aggregate this application's success and exemplify why it is so attractive for its investors and users. To start off, this app is mobile friendly and with the present status of prominence regarding smart phones, this app allows for scalability and use among every mobile user. This feature is what provides the app with such popularity. Growth and engagement metrics are off the charts. It is rare for an app that is so young to express this type of user momentum and excitement. Additionally, the demographic Snapchat (younger generation and millennials) has amassed is very valuable.

Snapchat also serves as a host for an immense amount of data which companies can use towards targeted advertising. It reaches a broad platform of users making this advertising a lot more efficient and effective as well. These values give the application the ability to grow into one of the most successful consumer applications to date. These value propositions encompass Snapchat and are the reasons why it attracts so many users, leading to the ability for the company to generate so much revenue. As of 2016, Snapchat received approximately 16 billion dollars in revenue through its ability to attract a large user basis and hosting of advertisements.

SNAPCHAT USER STORIES

Snapper: This is the end client user. An individual who has a snapchat account and uses the service.
Business/Company: This is an external company who uses Snapchat to advertise their own product or service to the Snappers.
Internal Executive: This is an individual who is an executive in Snapchat. They manage the company's functioning at a high level.

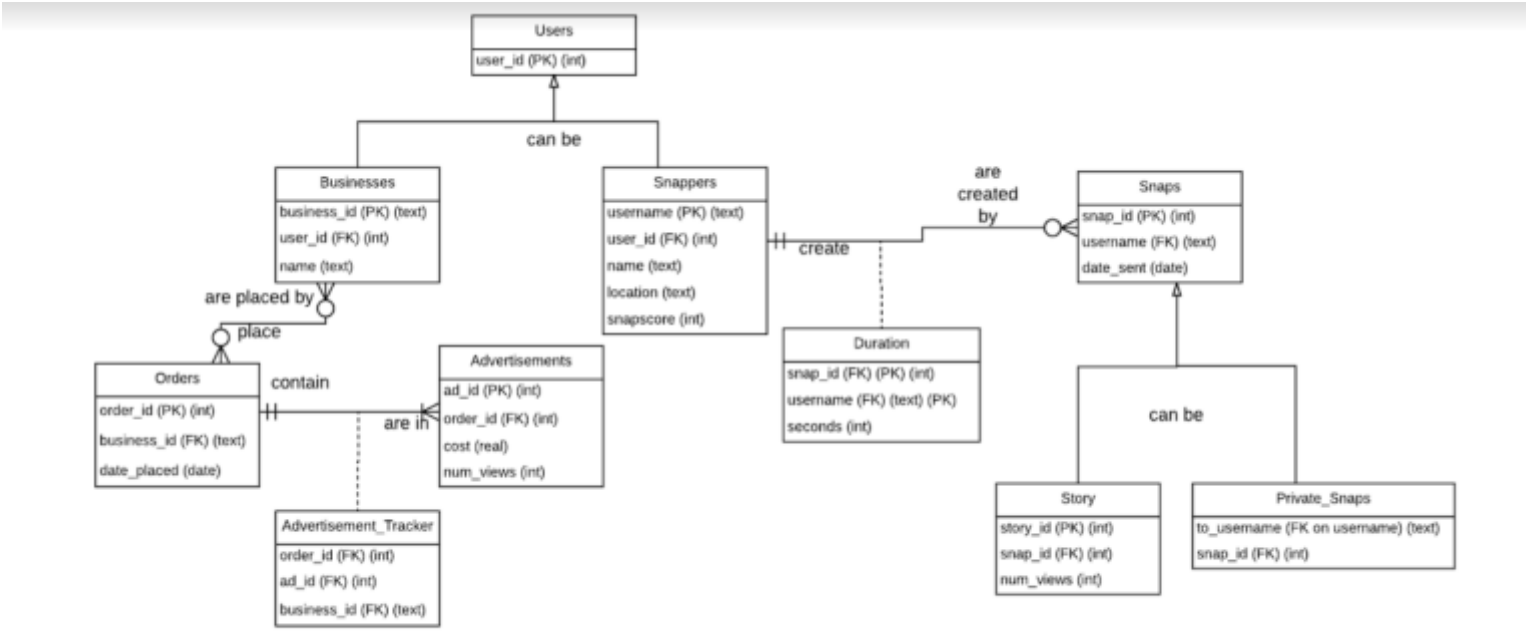
Ref.	AS A	I WANT TO	SO THAT
a.	Snapper	See who I have exchanged snaps with	I can see who my friends are*
b.	Internal Executive	Keep track of the money being spent by each business client	I can see the cash inflow of Snapchat *
c.	Snapper	Send a snap to someone who has most frequently sent me snaps	We can keep in touch*
d.	Business/Company	Place an advertising order with Snapchat after A/B testing	Users can be better exposed to my business*
e.	Internal Executive	See who my snappers and businesses are	I have a better idea about the scope of my user database
f.	Business/Company	Keep track of my order costs	I can see how much money I am spending on advertisements
g.	Internal Executive	See total revenue generated from all businesses/companies**	I can track cash-flow statements for Snapchat
h.	Internal Executive	See the average duration of snaps sent	I can see how long users prefer their image to be exposed for

i.	Internal Executive	See how many snappers I have in each location	I can see where Snapchat is the most popular
j.	Snapper	See my snap score	I can brag about it

* Depicts complex queries

** Assumption: total cost of advertisements is cost per view of the advertisement

CONCEPTUAL DATABASE MODEL



RELATIONAL MODEL

Note: In our database, user_id is a text type rather than an integer type.

--------mapping entities to relations------

1. Users(**user_id**)
2. Businesses(**business_id**, name)
3. Orders(**order_id**, business_id, date_placed)
4. Advertisements(**ad_id**, cost, num_views)
5. Advertisment_tracker(**ad_id**, business_id)
6. Snaps(**snap_id**, date_sent)
7. Snappers(**username**, name, location)
8. Duration(**snap_id**, **username**, seconds)
9. Story(**story_id**, snap_id, num_views)
10. Private_snaps(**to_username**, **snap_id**)

--------mapping relationships------

Users_Businesses(**user_id**, **business_id**)
Users_Snappers(**user_id**, **username**)
Snappers_Snaps(**username**, **snap_id**)
Snaps_Story(**snap_id**, **story_id**)
Snaps_Private-Snaps(**snap_id**)
Orders_Advertisements(**order_id**, **ad_id**)
Orders_Businesses(**order_id**, **business_id**)

--------mapping association entities------

-----1-------
Orders(**order_id**, business_id, date_placed)
Advertisements(**ad_id**,order_id, cost, num_views)
Advertisment_tracker(ad_id, order_id, business_id)
Translates into
Orders(**order_id**, business_id, date_placed)
Advertisements(**ad_id**, order_id, cost, num_views)
Advertisment_tracker(order_id, **ad_id**, business_id)

-----2-------
Snappers(**username**, name, location, snapscore)
Snaps(**snap_id**, username, date_sent)
Duration(**snap_id**, **username**, seconds)
Translates into

Snappers(**username**, name, location, snapscore)
Snaps(**snap_id**,**username,** date_sent, seconds)
Duration(**snap_id**, **username**)

--------mapping generalization relationships(inheritance)------

-----1-------
Users(**user_id**)
Businesses(**business_id**, name)
Snappers(**username**, name, location, snapscore)
Translates to
Businesses(**business_id**, name)
Snappers(**username**, name, location, snapscore)

-----2-------
Snaps(**snap_id**, username, date_sent)
Story(**story_id**, snap_id, num_views)
Private_snaps(to_username, snap_id)
Translates to
Story(**story_id**, snap_id, num_views)
Private_snaps(to_username, **snap_id**)

FUNCTIONAL DEPENDENCIES

Users(**user_id**)
→ user_id -> user_id

Businesses(**business_id**, name)
→ business_id -> name

Orders(**order_id**, business_id, date_placed)
→ order_id -> business_id, date_placed

Advertisements(**ad_id**, order_id, cost, num_views)
→ ad_id -> order_id, cost, num_views

Advertisment_tracker(order_id, **ad_id**, business_id)
→ ad_id -> order_id, business_id
→ order_id -> business_id

Snappers(**username**, name, location, snapscore)
→ username -> name, location, snapscore

Snaps(**snap_id**,**username,** date_sent, seconds)
→ snap_id -> username, date_sent, seconds

Duration(**snap_id**, **username**)
→ snap_id -> username

Story(**story_id**, snap_id, num_views)
→ story_id -> snap_id, num_views

Private_snaps(to_username, **snap_id**)
→ snap_id -> to_username

NORMALIZED SCHEMA

Users(**user_id**)
⟶ user_id -> user_id

Businesses(**business_id**, name)
⟶ business_id -> name

Orders(**order_id**, business_id, date_placed)
⟶ order_id -> business_id, date_placed

Advertisements(**ad_id**, order_id, cost, num_views)
⟶ ad_id -> order_id, cost, num_views

Advertisment_tracker(order_id, **ad_id**, business_id)
⟶ ad_id -> order_id, business_id
⟶ order_id -> business_id (bad dependency)

Normalizes to:
⇒ Ad1(**ad_id**, order_id) + Ad2(**order_id**, business_id)

Snappers(**username**, name, location, snapscore)
⟶ username -> name, location, snapscore

Snaps(**snap_id**,**username,** date_sent, seconds)
⟶ snap_id -> username, date_sent, seconds

Duration(**snap_id**, **username**)
⟶ snap_id -> username

Story(**story_id**, snap_id, num_views)
→ story_id -> snap_id, num_views

Private_snaps(to_username, **snap_id**)
→ snap_id -> to_username

FINAL FORM of DATABASE AFTER NORMALIZATION:

1. Users(**user_id**)
2. Businesses(**business_id**, name)
3. Orders(**order_id**, business_id, date_placed)
4. Advertisements(**ad_id**, order_id, cost, num_views)
5. Snappers(**username**, name, location, snapscore)
6. Snaps(**snap_id**, username, date_sent, seconds)
7. Story(**story_id**, snap_id, num_views)
8. Private_Snaps(**to_username**, **snap_id**)

ENTITY RELATIONSHIP DIAGRAM (ERD)