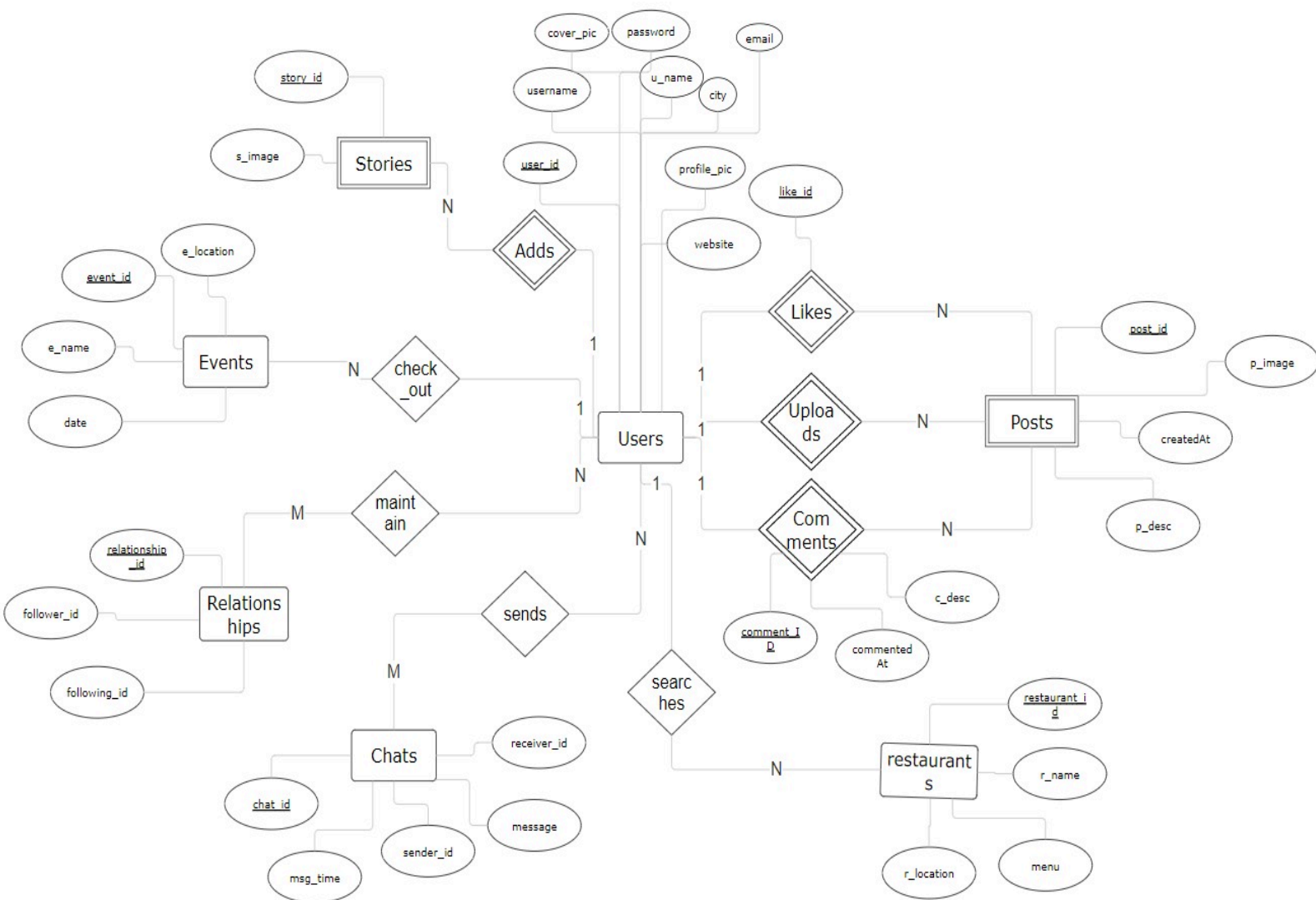# PROJECT PROGRESS REPORT

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## ER DIAGRAM:

# ER DIAGRAM REDUCTION:

users(<u>user_id</u>, pfp, cover_pic, u_name, password, username, city, email, website)
stories(<u>story_id</u>, image)
posts(<u>post_id</u>, p_image, p_desc,createdAt)
chats(<u>chat_id</u>, sender_id, receiver_id, message, msg_time)
likes(<u>user_id, post_id, likes_id</u>)
comments(<u>user_id, post_id, comment_id</u>, c_desc, commentedAt)
events(<u>event_id</u>, e_name, date, e_location)
restaurants(<u>restaurant_id</u>, r_name, menu, r_location)
uploads( <u>user_id, post_id</u>)
relationships(<u>relationship_id</u>, follower_id, following_id)
adds(<u>user_id, story_id</u>)
sends(<u>user_id, chat_id</u>)
searches(<u>user_id, restaurant_id</u>)
checkout(<u>user_id, event_id</u>)
maintains(<u>user_id, relationship_id</u>)

# NORMALIZATION:

## Universal Relation:

{pfp, cover_pic, u_name, user_id, password, username, city, email, website, story_id, s_image, post_id, p_image, p_desc, createdAt, like_id, liked_time, comment_id, c_desc, commentedAt, follower_id, following_id, relationship_id, restaurant_id, r_name, menu, r_location, event_id, e_name, date, e_location, chat_id, sender_id, receiver_id, message, msg_time}

## Functional Dependency:

{user_id} ➔ {pfp, cover_pic, u_name, password, username, city, email, website}
{story_id} ➔ {s_image,  user_id}
{post_id}➔ {p_image, p_desc, createdAt, user_id}
{comment_id} ➔ {c_desc, commentedAt, post_id, user_id,}
{like_id} ➔ {user_id, post_id, liked_time}
{relationship_id} ➔ {follower_id, following_id}
{event_id} ➔ {e_name, date, e_location}
{restaurant_id} ➔ {r_name, menu, r_location}
{chat_id} ➔ {sender_id, receiver_id, message, msg_time}

**Normalising to First Normal Form (1NF):**

A relational schema is in first normal form if the domains of all attributes of the schema are atomic, that is, a table would only be able to hold an attribute of a single value.

Since all the attributes in the universal relation have unique values present in it, we can say that the relation follows 1NF. Hence there is no change in the universal relation.

**R1** (pfp, u_name, user_id, password, username, city, email, website, story_id, s_image, post_id, p_image, p_desc, createdAt, like_id, liked_time, comment_id, c_desc, commentedAt, follower_id, following_id, relationship_id, restaurant_id, r_name, menu, r_location, event_id, e_name, date, e_location, chat_id, sender_id, receiver_id, message, msg_time)

**Normalising to Second Normal Form (2NF):**

A relation R is in 2NF if every non-key attribute of R is not partially dependent on any key of R. Every attribute has to be fully dependent on the primary key of R alone.

In the relation R1, we observe the existence of a few partial functional dependencies. We see that the attributes are fully functionally dependent on the primary keys user_id, post_id, comment_id, like_id,story_id, relationship_id, event_id, restaurant_id and chat_id. To follow 2NF, we decompose the relation R1 to the following forms:

**R1**(<u>user_id</u>, pfp, cover_pic, u_name, password, username, city, email, website)
**R2**(<u>story_id,</u> user_id, s_image)
**R3**(<u>post_id</u>, user_id, p_image, p_desc, createdAt)
**R4**( <u>comment_id,</u> post_id, user_id, c_desc, commentedAt)
**R5**(<u>like_id</u>, user_id, post_id, liked_time)
**R6**(<u>relationship_id</u>, follower_id, following_id)
**R7**(<u>event_id</u>, e_name, date, e_location)
**R8**(<u>restaurant_id</u>, r_name, menu, r_location)
**R9**(<u>chat_id</u>, sender_id, receiver_id, message, msg_time)

**Normalising to Third Normal Form (3NF):**

A relation is in the third normal form, if there is no transitive dependency for non-prime attributes as well as it is in the second normal form. A relation is in 3NF if at least one of the following conditions holds in every non-trivial functional dependency X ➜ Y :
  ● X is a super key.
  ● Y is a prime attribute (each element of Y is part of some candidate key).

Since there are no transitive relations present in the table, we can say all the relations are already in 3NF.

**Final Normalised Relational Schema in 3NF:**

**R1**(<u>user_id</u>, pfp, cover_pic, u_name, password, username, city, email, website)
**R2**(<u>story_id</u>, user_id, s_image)
**R3**(<u>post_id</u>, user_id, p_image, p_desc, createdAt)
**R4**(<u>comment_id</u>, post_id, user_id, c_desc, commentedAt)
**R5**( <u>like_id</u>, user_id, post_id, liked_time)
**R6**(<u>relationship_id</u>, follower_id, following_id)
**R7**(<u>event_id</u>, e_name, date, e_location)
**R8**(<u>restaurant_id</u>, r_name, menu, r_location)
**R9**(<u>chat_id</u>, sender_id, receiver_id, message, msg_time)

# REDUCED SCHEMA:

users(<u>user_id</u> int, pfp, cover_pic, u_name varchar(30), password varchar(20), username varchar(20), city varchar(20), email varchar(30), website varchar(30));

stories(<u>story_id</u> int, user_id varchar(20), s_image);

posts(<u>post_id</u> int, user_id varchar(20), p_image, p_desc varchar(200), createdAt timestamp);

comments(<u>comment_id</u> int, post_id int, user_id int, c_desc varchar(150), commentedAt timestamp);

likes(<u>like_id</u> int, user_id int, post_id int);

relationships(<u>relationship_id</u> int, follower_id int, following_id int);

events(<u>event_id</u> int, e_name varchar(30), date datetime, e_location varchar(30));

restaurants(<u>restaurant_id</u> int, r_name varchar(30), menu, r_location varchar(30));

chats(<u>chat_id</u> int, sender_id int, receiver_id int, message varchar(100), msg_time timestamp);

## SCHEMA DIAGRAM:

**USER**

| user-id | username | cover-pic | profile-pic | password | u-name | city | email | website |
|---------|----------|-----------|-------------|----------|--------|------|-------|---------|

**STORIES**

| story-id | s-image | user-id |
|----------|---------|---------|

**RELATIONSHIPS**

| relationship-id | follower-id | following-id |
|-----------------|-------------|--------------|

**POSTS**

| post-id | p-image | created At | p-desc | user-id |
|---------|---------|-----------|--------|---------|

**LIKES**

| like-id | user-id | post-id |
|---------|---------|---------|

**COMMENTS**

| comment-id | commented At | c-desc | user-id | post-id |
|------------|--------------|--------|---------|---------|

**EVENTS**

| event-id | e-location | e-name | date |
|----------|-----------|--------|------|

**CHATS**

| chat-id | msg-time | sender-id | receiver-id | message |
|---------|----------|-----------|-------------|---------|

**RESTAURANTS**

| restaurant-id | r-name | r-location | menu |
|---------------|--------|-----------|------|