

# Projektovanje Baze Podataka

---

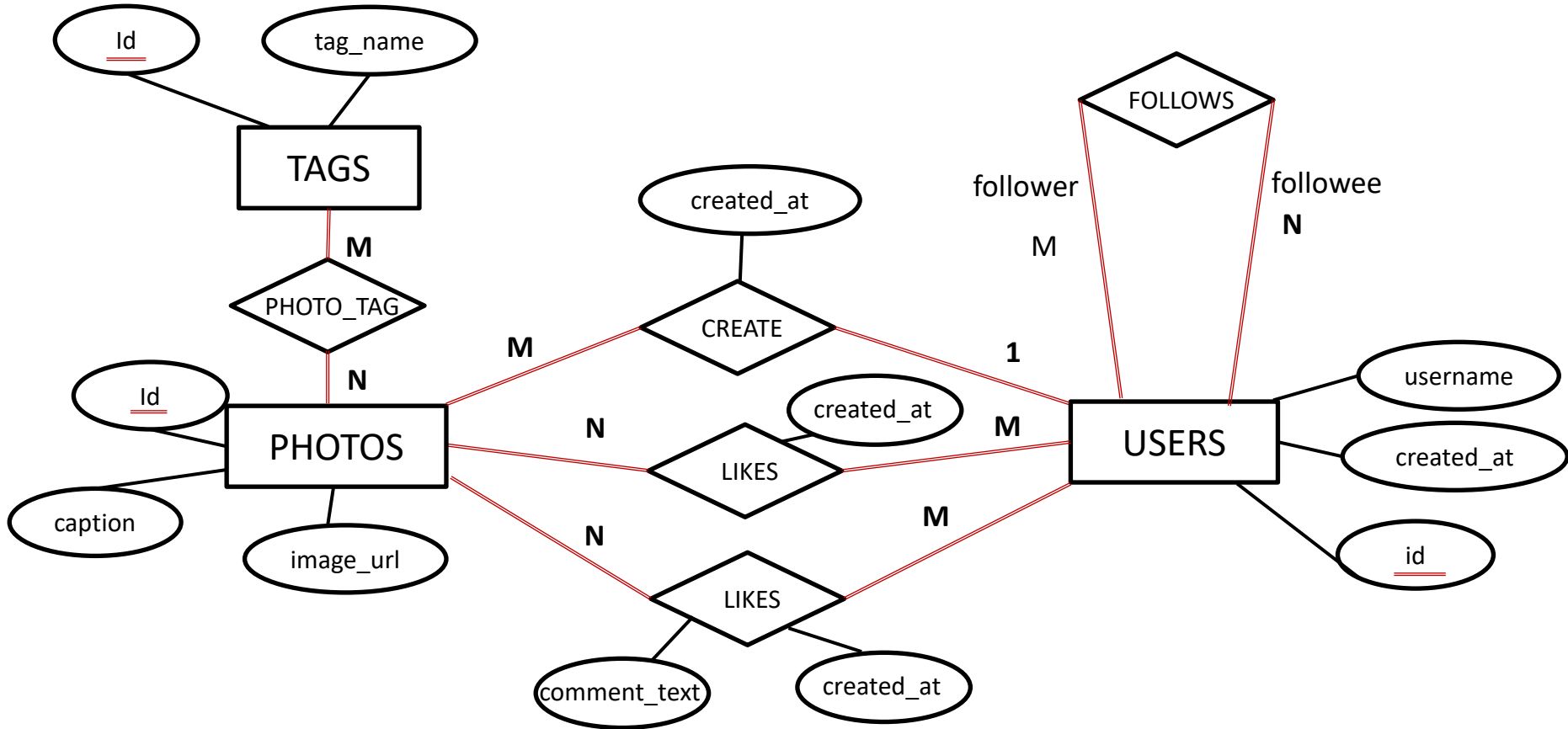
# LISTA ZAHTEVA ZA BAZU PODATAKA

## Instagram Clone

---

- Baza podataka je potrebno da sadrži
  - Osnovne informacije o korisnicima korisničko ime i datum kreiranja naloga
  - Slike korisnika koje treba da sadrže url adresu i datum kreiranja
  - Za svaku sliku pamtiti broj lajkova koja je ta slika dobila. Voditi računa da korisnik može da lajkuje sliku samo jedanput.
  - Svaka slika sadrži hash tag kao i komentare korisnika. Jedna fotografija može da ima više hash tagova.
  - Za svakog korisnika pamtiti njegove pratioce (followers) i korisnike koje on prati (followees). Ne mora korisnik da prati drugog korisnika iako on njega prati.

# ER DIJAGRAM – INSTAGRAM CLONE



# RELACIONI MODEL INSTAGRAM

## Tabela Users

---

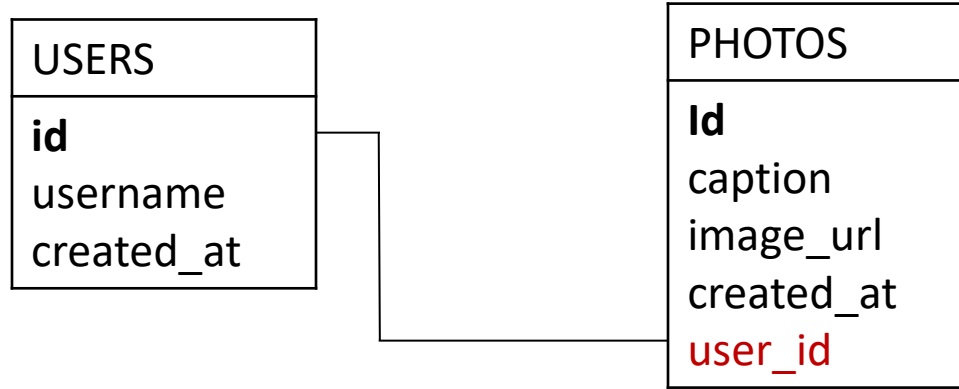
USERS
<b>id</b>
username
created_at

```
CREATE TABLE users (  
    id INTEGER AUTO_INCREMENT PRIMARY KEY,  
    username VARCHAR(255) UNIQUE NOT NULL,  
    created_at TIMESTAMP DEFAULT NOW()  
);
```

# RELACIONI MODEL INSTAGRAM

## Tabela Photos

---



```
CREATE TABLE photos (  
    id INTEGER AUTO_INCREMENT PRIMARY KEY,  
    image_url VARCHAR(255) NOT NULL,  
    user_id INTEGER NOT NULL,  
    created_at TIMESTAMP DEFAULT NOW(),  
    FOREIGN KEY(user_id) REFERENCES  
    users(id)  
);
```

# RELAZIONI MODEL INSTAGRAM

## Tabela Comments

---

PHOTOS
<b>id</b>
image_url
caption
created_at
user_id



COMMENTS
<b>id</b>
comment_text
created_at
photo_id
user_id



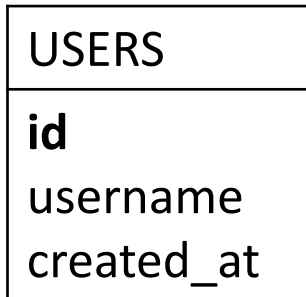
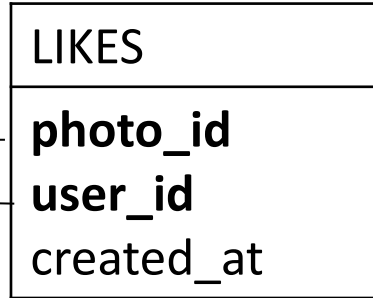
USERS
<b>id</b>
username
created_at

```
CREATE TABLE comments (  
    id INTEGER AUTO_INCREMENT PRIMARY KEY,  
    comment_text VARCHAR(255) NOT NULL,  
    photo_id INTEGER NOT NULL,  
    user_id INTEGER NOT NULL,  
    created_at TIMESTAMP DEFAULT NOW(),  
    FOREIGN KEY(photo_id) REFERENCES photos(id),  
    FOREIGN KEY(user_id) REFERENCES users(id)  
);
```

# RELAZIONI MODEL INSTAGRAM

## Tabela Likes

---

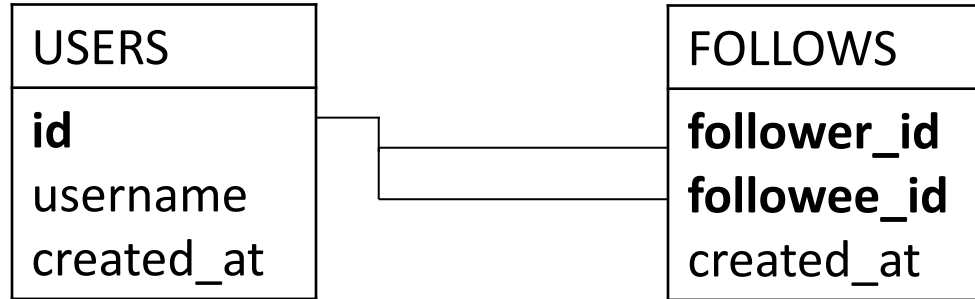


```
CREATE TABLE likes (  
    user_id INTEGER NOT NULL,  
    photo_id INTEGER NOT NULL,  
    created_at TIMESTAMP DEFAULT NOW(),  
    FOREIGN KEY(user_id) REFERENCES users(id),  
    FOREIGN KEY(photo_id) REFERENCES photos(id),  
    PRIMARY KEY(user_id, photo_id)  
);
```

# RELACIONI MODEL INSTAGRAM

## Tabela Followers

---



```
CREATE TABLE follows (  
    follower_id INTEGER NOT NULL,  
    followee_id INTEGER NOT NULL,  
    created_at TIMESTAMP DEFAULT NOW(),  
    FOREIGN KEY(follower_id) REFERENCES users(id),  
    FOREIGN KEY(followee_id) REFERENCES users(id),  
    PRIMARY KEY(follower_id, followee_id)  
);
```



# RELACIONI MODEL INSTAGRAM

## Hash tags – Rešenje 1

---

PHOTOS
<b>Id</b>
caption
image_url
created_at
tags
user_id

Id	caption	image_url	created_at	tags	user_id
1	'My dog'	'/pic123'	'05-20-2019'	'#dog#animals#pets'	10
2	'Selfie'	'/pic103'	'05-20-2019'	'#smile#cute#ego'	5

- **Laka implementacija nema dodatnih tabela**
- **Ograničen broj tagova koji može da se sačuva**
- **Ne mogu da se čuvaju dodatne informacije za tag**
- **Pretraga je složena**

# RELACIONI MODEL INSTAGRAM

## Hash tags – Rešenje 2

---

PHOTOS
<b>Id</b> caption image_url created_at user_id

Id	caption	image_url	created_at	user_id
1	'My dog'	'/pic123'	'05-20-2019'	10
2	'Selfie'	'/pic103'	'05-20-2019'	5

TAGS
tag_name photo_id

tag_name	photo_id
#dog	1
#smile	2
#animals	1
#pets	1
#cute	2

- Neograničen broj tagova
- **Sporije jer čuvamo svaki pojedinačni string veliki broj puta**

# RELACIONI MODEL INSTAGRAM

## Hash tags – Rešenje 3

PHOTOS
<b>Id</b>
caption
image_url
created_at
user_id

PHOTO_TAGS
photo_id
tag_id

TAGS
<b>id</b>
tag_name

- Neograničen broj tagova
- Mogu da se čuvaju dodatne informacije
- Više posla prilikom insert/update unosa

Id	caption	image_url	created_at	user_id
1	'My dog'	'/pic123'	'05-20-2019'	10
2	'Selfie'	'/pic103'	'05-20-2019'	5

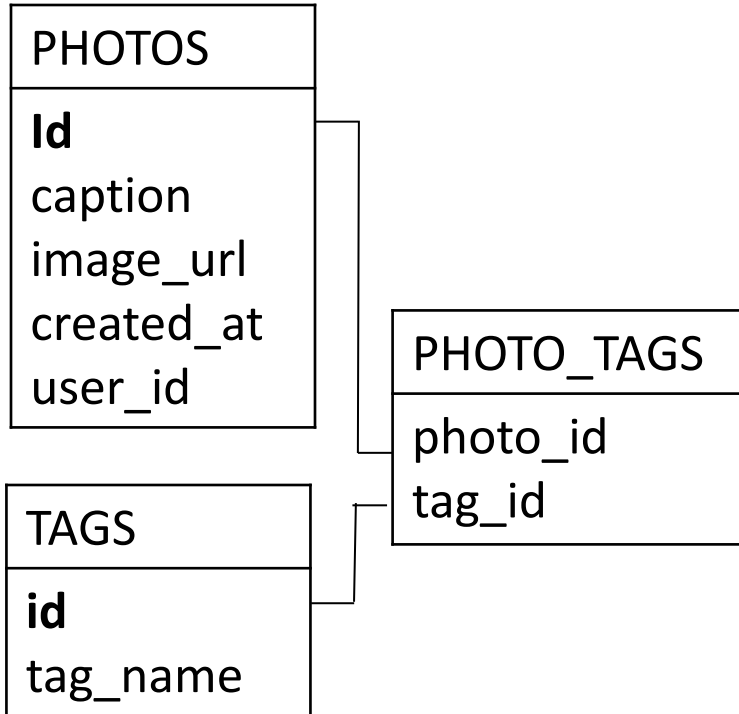
id	tag_name
1	#dog
2	#smile
3	#animals
4	#pets
5	#cute

tag_id	photo_id
1	1
2	2
3	1
4	1
5	2

# RELACIONI MODEL INSTAGRAM

## Hash tags – Rešenje 3

---



```
CREATE TABLE TAGS (  
    id INTEGER AUTO_INCREMENT PRIMARY KEY,  
    tag_name VARCHAR(255) UNIQUE,  
    created_at TIMESTAMP DEFAULT NOW()  
);
```

```
CREATE TABLE PHOTO_TAGS (  
    photo_id INTEGER NOT NULL,  
    tag_id INTEGER NOT NULL,  
    FOREIGN KEY(photo_id) REFERENCES photos(id),  
    FOREIGN KEY(tag_id) REFERENCES tags(id),  
    PRIMARY KEY(photo_id, tag_id)  
);
```

# RELACIONI MODEL INSTAGRAM

---

