## Michael The Hadinata

## ERD

# 1. All objects and its attributes can be seen in ERD

| Objects      | Attributes  |
|--------------|-------------|
| Users        | UserId      |
|              | FirstName   |
|              | LastName    |
|              | School      |
|              | Address     |
|              | Email       |
|              | PhoneNumber |
|              | Location    |
|              | DateOfBirth |
|              | Gender      |
| Friends      | FriendId    |
|              | UserId      |
| Pages        | PageId      |
|              | PageName    |
|              | PageContent |
| PageLikes    | UserId      |
|              | PageId      |
| CommentLikes | UserId      |
|              | CommentId   |
| PostLikes    | PostId      |
|              | UserId      |
| Shares       | PostId      |
|              | UserId      |
| Posts        | PostId      |
|              | UserId      |
|              | PostDate    |
|              | PostContent |

| Photos   | PhotoId        |
|----------|----------------|
|          | PostId         |
|          | ImageContent   |
| Comments | CommentId      |
|          | PostId         |
|          | UserId         |
|          | CommentDate    |
|          | CommentContent |

### 2. The relations between object can be seen in ERD

Master and Child: (master -> child)

Users -> Friends (one to many)

Users -> Shares (one to many)

Users -> PostLikes (one to many)

Users -> Posts (one to many)

Users -> PageLikes (one to many)

Users -> CommentLikes (one to many)

Users -> Comments (one to many)

Posts -> PostLikes (one to many)

Posts -> Shares (one to many)

Posts -> Photos (one to many)

Posts -> Comments (one to many)

Comments -> CommentLikes (one to many)

Pages -> PageLikes (one to many)

3.

| Objects | Attributes                     |
|---------|--------------------------------|
| Users   | UserId (PRIMARY KEY and CHECK) |
|         | FirstName                      |
|         | LastName                       |
|         | School                         |

| Email PhoneNumber Location DateOfBirth Gender  Friends Friends FriendId (PRIMARY KEY and CHECK) UserId (PRIMARY KEY and FOREIGN KEY) Pages PageId (PRIMARY KEY and CHECK) PageName PageContent  PageLikes UserId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY) CommentLikes UserId (PRIMARY KEY and FOREIGN KEY) CommentId (PRIMARY KEY and FOREIGN KEY) PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) Posts PostId (PRIMARY KEY and FOREIGN KEY)                                       |              | Address                          |
|--|--------------|----------------------------------|
| Location DateOfBirth Gender  Friends  FriendId (PRIMARY KEY and CHECK) UserId (PRIMARY KEY and FOREIGN KEY)  Pages  PageId (PRIMARY KEY and CHECK) PageName PageContent  UserId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY) CommentLikes  UserId (PRIMARY KEY and FOREIGN KEY) CommentId (PRIMARY KEY and FOREIGN KEY) PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) Posts  PostId (PRIMARY KEY and FOREIGN KEY)  |              | Email                            |
| DateOfBirth Gender  Friends  FriendId (PRIMARY KEY and CHECK) UserId (PRIMARY KEY and FOREIGN KEY)  Pages  PageId (PRIMARY KEY and CHECK) PageName PageContent  PageLikes  UserId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY)  CommentLikes  UserId (PRIMARY KEY and FOREIGN KEY) CommentId (PRIMARY KEY and FOREIGN KEY) CommentId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) Posts   |              | PhoneNumber                      |
| Friends  Friendld (PRIMARY KEY and CHECK) Userld (PRIMARY KEY and FOREIGN KEY)  Pages  Pageld (PRIMARY KEY and CHECK) PageName PageContent  PageLikes  Userld (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY)  CommentLikes  Userld (PRIMARY KEY and FOREIGN KEY) Commentld (PRIMARY KEY and FOREIGN KEY)  PostLikes  Postld (PRIMARY KEY and FOREIGN KEY) Userld (PRIMARY KEY and FOREIGN KEY) Posts  Postld (PRIMARY KEY and FOREIGN KEY) Postld (PRIMARY KEY and FOREIGN KEY) Posts   |              | Location                         |
| Friends  Friendld (PRIMARY KEY and CHECK) UserId (PRIMARY KEY and FOREIGN KEY)  Pages  PageId (PRIMARY KEY and CHECK) PageName PageContent  PageLikes  UserId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY)  CommentLikes  UserId (PRIMARY KEY and FOREIGN KEY) CommentId (PRIMARY KEY and FOREIGN KEY)  PostLikes  PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) Posts  PostId (PRIMARY KEY and FOREIGN KEY) |              | DateOfBirth                      |
| Userld (PRIMARY KEY and FOREIGN KEY)  Pages  Pageld (PRIMARY KEY and CHECK) PageName PageContent  PageLikes  Userld (PRIMARY KEY and FOREIGN KEY) Pageld (PRIMARY KEY and FOREIGN KEY)  CommentLikes  Userld (PRIMARY KEY and FOREIGN KEY) CommentId (PRIMARY KEY and FOREIGN KEY) PostLikes  PostId (PRIMARY KEY and FOREIGN KEY) Userld (PRIMARY KEY and FOREIGN KEY) Posts  PostId (PRIMARY KEY and FOREIGN KEY)  |              | Gender                           |
| Pages PageId (PRIMARY KEY and CHECK) PageName PageContent  PageLikes UserId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY)  CommentLikes UserId (PRIMARY KEY and FOREIGN KEY) CommentId (PRIMARY KEY and FOREIGN KEY) PostLikes PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) Posts PostId (PRIMARY KEY and FOREIGN KEY)   | Friends      | FriendId (PRIMARY KEY and CHECK) |
| Pages PageId (PRIMARY KEY and CHECK) PageName PageContent  PageLikes UserId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY) CommentLikes UserId (PRIMARY KEY and FOREIGN KEY) CommentId (PRIMARY KEY and FOREIGN KEY) PostLikes PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) Shares PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) Posts Posts   |              | UserId (PRIMARY KEY and FOREIGN  |
| PageName PageContent  UserId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY)  CommentLikes  UserId (PRIMARY KEY and FOREIGN KEY)  CommentId (PRIMARY KEY and FOREIGN KEY)  PostId (PRIMARY KEY and FOREIGN KEY)  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Shares  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and FOREIGN KEY)  |              | KEY)                             |
| PageLikes  UserId (PRIMARY KEY and FOREIGN KEY) PageId (PRIMARY KEY and FOREIGN KEY)  CommentLikes  UserId (PRIMARY KEY and FOREIGN KEY) CommentId (PRIMARY KEY and FOREIGN KEY)  PostLikes  PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY)  Shares  PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) Posts  PostId (PRIMARY KEY and FOREIGN KEY)  | Pages        | PageId (PRIMARY KEY and CHECK)   |
| PageLikes  UserId (PRIMARY KEY and FOREIGN KEY)  PageId (PRIMARY KEY and FOREIGN KEY)  CommentLikes  UserId (PRIMARY KEY and FOREIGN KEY)  CommentId (PRIMARY KEY and FOREIGN KEY)  PostLikes  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Shares  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and FOREIGN KEY)   |              | PageName                         |
| KEY) Pageld (PRIMARY KEY and FOREIGN KEY)  CommentLikes  UserId (PRIMARY KEY and FOREIGN KEY) CommentId (PRIMARY KEY and FOREIGN KEY)  PostLikes  PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY)  Shares  PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) Posts  PostId (PRIMARY KEY and FOREIGN KEY)   |              | PageContent                      |
| PageId (PRIMARY KEY and FOREIGN KEY)  CommentLikes  UserId (PRIMARY KEY and FOREIGN KEY)  CommentId (PRIMARY KEY and FOREIGN KEY)  PostLikes  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Shares  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and FOREIGN KEY)  | PageLikes    | UserId (PRIMARY KEY and FOREIGN  |
| CommentLikes  UserId (PRIMARY KEY and FOREIGN KEY)  CommentId (PRIMARY KEY and FOREIGN KEY)  PostLikes  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Shares  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and FOREIGN KEY)  |              | KEY)                             |
| CommentLikes  UserId (PRIMARY KEY and FOREIGN KEY)  CommentId (PRIMARY KEY and FOREIGN KEY)  PostLikes  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Shares  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and FOREIGN KEY)  Posts   |              | PageId (PRIMARY KEY and FOREIGN  |
| KEY) CommentId (PRIMARY KEY and FOREIGN KEY)  PostLikes PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) Shares PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) PostS PostId (PRIMARY KEY and FOREIGN KEY) PostS   |              | KEY)                             |
| CommentId (PRIMARY KEY and FOREIGN KEY)  PostLikes  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Shares  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and FOREIGN KEY)  Posts   | CommentLikes | UserId (PRIMARY KEY and FOREIGN  |
| PostLikes  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Shares  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and FOREIGN KEY)   |              | KEY)                             |
| PostLikes  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Shares  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and CHECK)   |              | CommentId (PRIMARY KEY and       |
| KEY) UserId (PRIMARY KEY and FOREIGN KEY)  Shares  PostId (PRIMARY KEY and FOREIGN KEY) UserId (PRIMARY KEY and FOREIGN KEY) VoserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and CHECK)  |              | FOREIGN KEY)                     |
| UserId (PRIMARY KEY and FOREIGN KEY)  Shares  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and CHECK)  | PostLikes    | PostId (PRIMARY KEY and FOREIGN  |
| Shares  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and CHECK)  |              | KEY)                             |
| Shares  PostId (PRIMARY KEY and FOREIGN KEY)  UserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and CHECK)  |              | UserId (PRIMARY KEY and FOREIGN  |
| KEY) UserId (PRIMARY KEY and FOREIGN KEY)  Posts PostId (PRIMARY KEY and CHECK)  |              | KEY)                             |
| UserId (PRIMARY KEY and FOREIGN KEY)  Posts  PostId (PRIMARY KEY and CHECK)  | Shares       | PostId (PRIMARY KEY and FOREIGN  |
| Posts PostId (PRIMARY KEY and CHECK)   |              | KEY)                             |
| Posts PostId (PRIMARY KEY and CHECK)   |              | UserId (PRIMARY KEY and FOREIGN  |
|  |              | KEY)                             |
| UserId (PRIMARY KEY and FORFIGN  | Posts        | PostId (PRIMARY KEY and CHECK)   |
| Oscila (FRIMING) KET and FOREIGIV  |              | UserId (PRIMARY KEY and FOREIGN  |
| KEY)   |              | KEY)                             |

|          | PostDate                        |
|----------|---------------------------------|
|          | PostContent                     |
| Photos   | PhotoId (PRIMARY KEY and CHECK) |
|          | PostId (PRIMARY KEY and FOREIGN |
|          | KEY)                            |
|          | ImageContent                    |
| Comments | CommentId (PRIMARY KEY and      |
|          | CHECK)                          |
|          | PostId (PRIMARY KEY and FOREIGN |
|          | KEY)                            |
|          | UserId (PRIMARY KEY and FOREIGN |
|          | KEY)                            |
|          | CommentDate                     |
|          | CommentContent                  |

The constraints that will be used by me are PRIMARY KEY (uniquely identify the table), FOREIGN KEY (take another table's primary key), CHECK (to check the inserting data). On FOREIGN KEY, I use ON UPDATE CASCADE, ON DELETE CASCANDE, ON UPDATE NO ACTION, and ON DELETE NO ACTION. ON UPDATE NO ACTION and ON DELETE NO ACTION are used to prevent cascade multiple paths. Another constraint is NOT NULL on all attributes. The detail can be seen in the .sql.

4. The ERD can be seen in ERD.jpg

#### DDL

- 1. Data integrity is a thing that used to make the data in the table accurate and consistent.
- 2. Primary Key: a column that uniquely identify each row in the table, must not be null and does not have limitations in inserting.

Foreign Key: a column that creates relationship with another table and has a limitation in inserting (the value of foreign key is taken from the value of primary key in another table). Composite Key: combination of two or more columns to uniquely identify each row in a table.

One of the examples of primary key is UserId in Users object in the previous ERD.

One of the examples of foreign key is PostId in Photos object in the previous ERD.

One of the examples of composite key is UserId and PageId in PageLikes object in the previous ERD.

3. BEGIN TRAN: to begin transaction and locks table

COMMIT: save changes and unlock table

ROLLBACK: removes changes and unlock table

**BEGIN TRAN** 

DELETE FROM tableName

**ROLLBACK** 

**COMMIT** 

#### 4. The answer is in .sql

In the .sql file, there are some foreign key that I do not use ON UPDATE CASCADE and ON DELETE CASCADE due to cascade multiple paths, so I use ON UPDATE NO ACTION and ON DELETE NO ACTION