

ERD

1. Object with respective attributes:

- Users
 - UserID
 - FirstName
 - LastName
 - School
 - Address
 - Email
 - PhoneNumber
 - Locations
 - DateOfBirth
 - Gender

- Pages
 - PageID
 - PageName
 - PageContent

- Posts
 - UserID
 - PostDate
 - PostContent
 - PostID

- Friends
 - FriendID
 - UserID

- PageLikes
 - UserID
 - PageID

- PostLikes
 - PostID
 - UserID

- Photos
 - PostID
 - PhotoID
 - ImageContent
- Shares
 - PostID
 - UserID
- Comments
 - UserID
 - PostID
 - CommentID
 - CommentDate
 - CommentContent
- CommentLikes
 - UserID
 - CommentID

2. Master Table:

- Users
 - Child Table:
 - Posts
 - Friends
 - PageLikes

Master Table:

- Pages
 - Child Table:
 - PageLikes

Master Table:

- Posts
 - Child Table:
 - PostLikes
 - Photos
 - Shares
 - Comments

Master Table:

➤ Comments

- Child Table:
 - CommentLikes

3. Users:

- Email Constraint -> '%@%'

Posts:

- UserID Constraint -> FK because this attribute follows the Users' PK which is UserID

PostLike:

- PostID Constraint -> FK because this attribute follows the Posts' PK which is PostID
- UserID Constraint -> FK because this attribute follows the Users' PK which is UserID

Photos:

- PostID Constraint -> FK because this attribute follows the Posts' PK which is PostID

Shares:

- PostID Constraint -> FK because this attribute follows the Posts' PK which is PostID
- UserID Constraint -> FK because this attribute follows the Users' PK which is UserID

Comments:

- PostID Constraint -> FK because this attribute follows the Posts' PK which is PostID
- UserID Constraint -> FK because this attribute follows the Users' PK which is UserID
- Comment Constraint -> FK because this attribute follows the Posts' PK which is CommentID

CommentLikes:

- UserID Constraint -> FK because this attribute follows the Users' PK which is UserID
- Comment Constraint -> FK because this attribute follows the Posts' PK which is CommentID

Friends:

- UserID Constraint -> FK because this attribute follows the Users' PK which is UserID

PagesLikes:

- PageID Constraint -> FK because this attribute follows the Users' PK which is PageID
- UserID Constraint -> FK because this attribute follows the Users' PK which is UserID

DDL

1. Data integrity is the accuracy and consistency of data that is stored in database. To maintain data integrity in SQL Server, you can use syntax of ON UPDATE ... ON DELETE This is done so that when a data is going to be manipulated or deleted, the value of the data that is relevant can be modified to maintain the integrity.
2. Primary Key is a unique value that is different than any other attributes. For example, the primary key for student is their student number because every student will have distinct student number.

Foreign Key is an attribute that can link one table with another that reference the primary key of the other table. For example, we use foreign key to connect the child table with the master table.

Composite Key is when there are more than one attribute in a table that can be the primary key. For example, there are customerID and productID, both can be used to identify all the records in the table therefore, the composite key is customerID and productID.

3. BEGIN TRAN is used to begin transaction but if we only use BEGIN TRAN, the table is locked and cannot be modified by other syntax before the BEGIN TRAN. For example, after BEGIN TRAN, we can update the content inside the table.

COMMIT is used to unlock the table and save the changes that are made but, we cannot use COMMIT without BEGIN TRAN since if we COMMIT when there are no changes, it would still be the same. For example, after begin the transaction and update the content of the table, to save the changes that are made we COMMIT therefore it saves the changes that has been made.

ROLLBACK is similar to COMMIT where it is used to unlock the table after beginning the transaction but, the difference is ROLLBACK undo the changes that has been made so that the content that is updated stays the same as before beginning the transaction. For example, if we did a mistake when the transaction is done, we can use ROLLBACK to undo the changes.