数据库表结构-用户表、内容表、评论表、广告表

Database Table Structure Design

DESIGN: Four Tables in database('ucca')

1. User Table
   - uid: Unique user identifier (Primary Key)
   - phone_number: User's bound mobile phone number
   - avatar: URL or reference to the user's avatar image
   - nickname: User's chosen nickname
   - favorites: List of user's favorite items
   - news_preferences: User's preferences for news
   - browsing_history: User's history of viewed content
   - comment_history: User's history of comments
   - last_login_time: Timestamp indicating the user's last login time

2. Content Table
   - news_id: Unique identifier for the news (Primary Key)
   - title: Title of the news
   - cover_image: URL or reference to the news cover image
   - publish_datetime: Date and time when the news was published
   - author: Author of the news
   - content: Main body text of the news
   - views: Number of views for the news
   - favorites: Number of times the news was marked as a favorite
   - shares: Number of times the news was shared
   - promoted: Flag indicating whether the news is a paid promotion

3. Comment Table
   - user_id: User identifier (Foreign Key referencing User Table)
   - comment_id: Unique identifier for the comment (Primary Key)
   - news_id: Identifier linking the comment to a specific news (Foreign Key referencing Content Table)
   - comment_content: Text content of the comment
   - comment_time: Timestamp indicating when the comment was made
   - quoted_comment_id: Identifier referencing another comment if applicable
   - likes: Number of likes the comment received
   - dislikes: Number of dislikes the comment received

4. Advertisement Table
   - ad_title: Title of the advertisement

ad_content: Text content of the advertisement

image_link: URL or reference to the advertisement image

placement: Location where the advertisement is displayed (e.g., splash, popup, embedded in homepage list, embedded in comments, embedded in news articles, end of news articles, recommended news embedded)

advertiser_id: Identifier for the advertising party (e.g., client A)

expiration_date: Date when the advertisement will no longer be displayed

region_limit: Geographical regions where the advertisement is allowed

device_limit: Devices on which the advertisement is allowed

clicks: Number of clicks the advertisement received

impressions: Number of times the advertisement was displayed

weight: Weight assigned to control the priority of displaying the advertisement

CODE:

```sql
-- User Table
CREATE TABLE User (
    uid INT PRIMARY KEY,
    phone_number VARCHAR(15),
    avatar VARCHAR(255),
    nickname VARCHAR(50),
    favorites TEXT,
    news_preferences TEXT,
    browsing_history TEXT,
    comment_history TEXT,
    last_login_time TIMESTAMP
);

-- Content Table
CREATE TABLE Content (
    news_id INT PRIMARY KEY,
    title VARCHAR(255),
    cover_image VARCHAR(255),
    publish_datetime DATETIME,
    author VARCHAR(100),
    content TEXT,
    views INT,
    favorites INT,
    shares INT,
    promoted BOOLEAN
);

-- Comment Table
CREATE TABLE Comment (
```

```sql
    user_id INT REFERENCES User(uid),
    comment_id INT PRIMARY KEY,
    news_id INT REFERENCES Content(news_id),
    comment_content TEXT,
    comment_time TIMESTAMP,
    quoted_comment_id INT,
    likes INT,
    dislikes INT
);

-- Advertisement Table
CREATE TABLE Advertisement (
    ad_title VARCHAR(255),
    ad_content TEXT,
    image_link VARCHAR(255),
    placement VARCHAR(50),
    advertiser_id VARCHAR(50),
    expiration_date DATE,
    region_limit TEXT,
    device_limit TEXT,
    clicks INT,
    impressions INT,
    weight INT
);
```

Screenshot:

```
mysql> use UCCA;
Database changed
mysql> -- User Table
Query OK, 0 rows affected (0.00 sec)

mysql> CREATE TABLE User (
    ->      uid INT PRIMARY KEY,
    ->      phone_number VARCHAR(15),
    ->      avatar VARCHAR(255),
    ->      nickname VARCHAR(50),
    ->      favorites TEXT,
    ->      news_preferences TEXT,
    ->      browsing_history TEXT,
    ->      comment_history TEXT,
    ->      last_login_time TIMESTAMP
    -> );
Query OK, 0 rows affected (0.06 sec)

mysql>
mysql> -- Content Table
Query OK, 0 rows affected (0.00 sec)

mysql> CREATE TABLE Content (
    ->      news_id INT PRIMARY KEY,
    ->      title VARCHAR(255),
    ->      cover_image VARCHAR(255),
    ->      publish_datetime DATETIME,
    ->      author VARCHAR(100),
    ->      content TEXT,
    ->      views INT,
    ->      favorites INT,
    ->      shares INT,
    ->      promoted BOOLEAN
    -> );
Query OK, 0 rows affected (0.05 sec)
```

```
mysql>
mysql> -- Comment Table
Query OK, 0 rows affected (0.00 sec)

mysql> CREATE TABLE Comment (
    ->     user_id INT REFERENCES User(uid),
    ->     comment_id INT PRIMARY KEY,
    ->     news_id INT REFERENCES Content(news_id),
    ->     comment_content TEXT,
    ->     comment_time TIMESTAMP,
    ->     quoted_comment_id INT,
    ->     likes INT,
    ->     dislikes INT
    -> );
Query OK, 0 rows affected (0.10 sec)

mysql>
mysql> -- Advertisement Table
Query OK, 0 rows affected (0.00 sec)

mysql> CREATE TABLE Advertisement (
    ->     ad_title VARCHAR(255),
    ->     ad_content TEXT,
    ->     image_link VARCHAR(255),
    ->     placement VARCHAR(50),
    ->     advertiser_id VARCHAR(50),
    ->     expiration_date DATE,
    ->     region_limit TEXT,
    ->     device_limit TEXT,
    ->     clicks INT,
    ->     impressions INT,
    ->     weight INT
    -> );
```

Screenshot 1

Tree panel:
- perfor...
- sys
- ucca — 64.0 KiB
  - adve... — 16.0 KiB
  - com... — 16.0 KiB
  - con... — 16.0 KiB
  - user — 16.0 KiB

Columns: ● Add ● Remove ▲ Up ▼ Down

#	Name	Datatype	Length/Set	Unsign...	Allow N...	Zerofill	Default	Com
1	news_id	INT	10	☐	☐	☐	No default	
2	title	VARCHAR	255	☐	☑	☐	NULL	
3	cover_image	VARCHAR	255	☐	☑	☐	NULL	
4	publish_date...	DATETIME		☐	☑	☐	NULL	
5	author	VARCHAR	100	☐	☑	☐	NULL	
6	content	TEXT		☐	☑	☐	NULL	

[Help] [Discard] [Save]

✕ Filter: 🔧 Regular expression

```
35  SELECT * FROM `information_schema`.`COLUMNS` WHERE TABLE_SCHEMA='ucca' AND TABLE_NAME='content' ORDER BY ORDINAL_POSITION;
36  SHOW INDEXES FROM `content` FROM `ucca`;
37  SELECT * FROM information_schema.REFERENTIAL_CONSTRAINTS WHERE   CONSTRAINT_SCHEMA='ucca'   AND TABLE_NAME='content'   AND REFERENC
38  SELECT * FROM information_schema.KEY_COLUMN_USAGE WHERE   TABLE_SCHEMA='ucca'   AND TABLE_NAME='content'   AND REFERENCED_TABLE_NAM
39  SHOW CREATE TABLE `ucca`.`content`;
40  SELECT tc.CONSTRAINT_NAME, cc.CHECK_CLAUSE FROM `information_schema`.`CHECK_CONSTRAINTS` AS cc, `information_schema`.`TABLE_CONSTRA
41  SHOW CREATE TABLE `ucca`.`comment`;
42  SHOW CREATE TABLE `ucca`.`content`;
```

🕐 Connected: 0 MySQL 8.2.0   Uptime: 00:50 h   🕐 Server time: 1 ◯ Idle.

Screenshot 2

Tree panel:
- perfor...
- sys
- ucca — 64.0 KiB
  - adve... — 16.0 KiB
  - com... — 16.0 KiB
  - cont... — 16.0 KiB
  - user — 16.0 KiB

Columns: ● Add ● Remove ▲ Up ▼ Down

#	Name	Datatype	Length/Set	Unsign...	Allow N...	Zerofill	Default	Comn
1	uid	INT	10	☐	☐	☐	No default	
2	phone_numb...	VARCHAR	15	☐	☑	☐	NULL	
3	avatar	VARCHAR	255	☐	☑	☐	NULL	
4	nickname	VARCHAR	50	☐	☑	☐	NULL	
5	favorites	TEXT		☐	☑	☐	NULL	
6	news_prefere...	TEXT		☐	☑	☐	NULL	

[Help] [Discard] [Save]

✕ Filter: 🔧 Regular expression

```
41  SHOW CREATE TABLE `ucca`.`comment`;
42  SHOW CREATE TABLE `ucca`.`content`;
43  SELECT * FROM `information_schema`.`COLUMNS` WHERE TABLE_SCHEMA='ucca' AND TABLE_NAME='user' ORDER BY ORDINAL_POSITION;
44  SHOW INDEXES FROM `user` FROM `ucca`;
45  SELECT * FROM information_schema.REFERENTIAL_CONSTRAINTS WHERE   CONSTRAINT_SCHEMA='ucca'   AND TABLE_NAME='user'   AND REFERENCED_
46  SELECT * FROM information_schema.KEY_COLUMN_USAGE WHERE   TABLE_SCHEMA='ucca'   AND TABLE_NAME='user'   AND REFERENCED_TABLE_NAME I
47  SHOW CREATE TABLE `ucca`.`user`;
48  SELECT tc.CONSTRAINT_NAME, cc.CHECK_CLAUSE FROM `information_schema`.`CHECK_CONSTRAINTS` AS cc, `information_schema`.`TABLE_CONSTRA
```

🕐 Connected: 0 MySQL 8.2.0   Uptime: 00:51 h   🕐 Server time: 1 ◯ Idle.