

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:

-- 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 (  

```

```
    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
-> );
```

OUTPUT:

1/1/2024\uccca - HeidiSQL Portable 12.6.0.6765

File Edit Search Query Tools Go to Help

Database: ucca Host: 127.0.0.1 Database: ucca Query

1/1/2024

- inform...
- mysql
- perfor...
- sys
- ucca 64.0 KiB

Name	Rows	Size	Created	Updated	Engine	Comment	Type
advertisement	0	16.0 KiB	2024-01-05 22:5...		InnoDB		Table
comment	0	16.0 KiB	2024-01-05 22:5...		InnoDB		Table
content	0	16.0 KiB	2024-01-05 22:5...		InnoDB		Table
user	0	16.0 KiB	2024-01-05 22:5...		InnoDB		Table

Filter: Regular expression

```
10 SHOW TABLES FROM 'information_schema';
11 SHOW DATABASES;
12 /* Entering session "1/1/2024" */
13 /* Scaling controls to screen DPI: 150% */
14 USE 'ucca';
15 SELECT 'DEFAULT_COLLATION_NAME' FROM 'information_schema'. 'SCHEMATA' WHERE 'SCHEMA_NAME'='ucca';
16 SHOW TABLE STATUS FROM 'ucca';
17 SHOW FUNCTION STATUS WHERE 'Db'='ucca';
18 SHOW PROCEDURE STATUS WHERE 'Db'='ucca';
19 SHOW TRIGGERS FROM 'ucca';
20 SELECT *, EVENT_SCHEMA AS 'Db', EVENT_NAME AS 'Name' FROM information_schema. 'EVENTS' WHERE 'EVENT_SCHEMA'='ucca';
```

Connected: 0 MySQL 8.2.0 Uptime: 00:49 h Server time: 1 Idle.

Columns: Add Remove Up Down

#	Name	Datatype	Length/Set	Unsign...	Allow N...	Zerofill	Default	Comme
4	placement	VARCHAR	50	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
5	advertiser_id	VARCHAR	50	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
6	expiration_d...	DATE		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
7	region_limit	TEXT		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
8	device_limit	TEXT		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
9	clicks	INT	10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	

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Filter: Regular expression

```
18 SHOW PROCEDURE STATUS WHERE 'Db'='ucca';
19 SHOW TRIGGERS FROM 'ucca';
20 SELECT *, EVENT_SCHEMA AS 'Db', EVENT_NAME AS 'Name' FROM information_schema. 'EVENTS' WHERE 'EVENT_SCHEMA'='ucca';
21 SELECT * FROM 'information_schema'. 'COLUMNS' WHERE TABLE_SCHEMA='ucca' AND TABLE_NAME='advertisement' ORDER BY ORDINAL_POSITION;
22 SHOW INDEXES FROM 'advertisement' FROM 'ucca';
23 SELECT * FROM information_schema.REFERENTIAL_CONSTRAINTS WHERE CONSTRAINT_SCHEMA='ucca' AND TABLE_NAME='advertisement' AND RE
24 SELECT * FROM information_schema.KEY_COLUMN_USAGE WHERE TABLE_SCHEMA='ucca' AND TABLE_NAME='advertisement' AND REFERENCED_TAB
25 SHOW ENGINES;
```

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

Columns: Add Remove Up Down

#	Name	Datatype	Length/Set	Unsign...	Allow N...	Zerofill	Default	Comm
1	user_id	INT	10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
2	comment_id	INT	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No default	
3	news_id	INT	10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
4	comment_co...	TEXT		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
5	comment_ti...	TIMESTAMP		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
6	quoted com	INT	10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	

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Filter: Regular expression

```
34 SELECT tc.CONSTRAINT_NAME, cc.CHECK_CLAUSE FROM 'information_schema'. 'CHECK_CONSTRAINTS' AS cc, 'information_schema'. 'TABLE_CONS
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';
```

Columns: + Add - Remove ▲ Up ▼ Down

#	Name	Datatype	Length/Set	Unsign...	Allow N...	Zerofill	Default	Com
1	news_id	INT	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No default	
2	title	VARCHAR	255	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
3	cover_image	VARCHAR	255	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
4	publish_date...	DATETIME		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
5	author	VARCHAR	100	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
6	content	TEXT		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	

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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_CONSTR
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.

Columns: + Add - Remove ▲ Up ▼ Down

#	Name	Datatype	Length/Set	Unsign...	Allow N...	Zerofill	Default	Com
1	uid	INT	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No default	
2	phone_num...	VARCHAR	15	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
3	avatar	VARCHAR	255	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
4	nickname	VARCHAR	50	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
5	favorites	TEXT		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	
6	news prefer	TEXT		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NULL	

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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_CONSTR

```

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