MySQL data dictionary SQL 독학 강의#22편

sTricky 2020. 6. 23. 13:49

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전편 강의 보러 가기

2020/06/12 - [Database/sql 강의] - MySQL DDL문 완전정복 SQL 독학 강의#21편 -sTricky

	MySQL DDL문 완전정복 SQL 독학 강의#21편 -sTricky stricky.tistory.com

안녕하세요.

MySQL 독학 강의 22편을 포스팅합니다.

21편 이후로 약간의 공백이 있었지만, 다시 으라차차~! 힘을 내서 초보자 분들이 보시기 편한 포스팅을 할 수 있도록 노력하겠습니다.

0. Data Dictionary 란?

Data Dictionary란 무엇일까요? 우리말로는 데이터 사전이라고 하는데, Database에서 Data Dictionary란 지도가 될 수도 있고요, 목차가 될 수도 있구요, 요약 정보가 될 수도 있구요, 그냥 한마디로 하자면 MySQL Server내에 있는 데이터베이스 개체에 관한 정보가 모두 모아져 있는 곳입니다.

이 DB에 어떤 user가 생성되어 있는지, 어떤 스키마(데이터베이스), 테이블, 테이블에는 어떤 칼럼이 있고, 테이블 별로 데이터가 얼마나 있는지, 다른 오브젝트들이 어떻게 어떤 스키마에 종속되어 있는지 기타 등등 유저가 입력하는 데이터를 제외한 모든 정보가 들어 있는 것이라고 생각하면 됩니다.

MySQL에 있는 Data Dictionary는 크게 4가지가 있습니다.

information_schema와 mysql, sys 마지막으로 performance_schema 가 있습니다.

performance_schema 는 데이터베이스내 성능 지표를 호가인 할 수 있는 스키마 입니다. 이는 MySQL 소스 코드 곳곳에 심어져 있는 instruments를 통해서 수집되고 있습니다.

sys의 경우 역시 MySQL 5.7 버전부터 기본 제공되며, 이전 버전에서는 추가 설치로 사용하실 수 있습니다.

여기는 어떻게 보면 개발자나 사용자 입장에서 위 두 스키마는 자주 사용하는 스키마는 아니기에 이번 포스팅에서는 자세한 설명은 생략하고, information_schema와 mysql에 관해서 설명을 이어가도록 하겠습니다.

Information_schema

1. information_schema

위에서도 언급했다시피 information_schema는 Data Dictionary 또는 System Catalog라고도 합니다.

여기에 있는 테이블 목록은 아래와 같습니다.

```
select TABLE_SCHEMA, TABLE_NAME from information_schema.TABLES
where TABLE_SCHEMA = 'information_schema';
```

TABLE_SCHEMA	TABLE_NAME
information_schema	ALL_PLUGINS
information_schema	APPLICABLE_ROLES
information_schema	CHARACTER_SETS
information_schema	CLIENT_STATISTICS
information_schema	COLLATIONS
information_schema	COLLATION_CHARACTER_SET_APPLICABILITY
information_schema	COLUMNS
information_schema	COLUMN_PRIVILEGES
information_schema	ENABLED_ROLES
information_schema	ENGINES

information_schema	EVENTS
information_schema	FILES
information_schema	GLOBAL_STATUS
information_schema	GLOBAL_VARIABLES
information_schema	INDEX_STATISTICS
information_schema	KEY_CACHES
information_schema	KEY_COLUMN_USAGE
information_schema	PARAMETERS
information_schema	PARTITIONS
information_schema	PLUGINS
information_schema	PROCESSLIST
information_schema	PROFILING
information_schema	REFERENTIAL_CONSTRAINTS
information_schema	ROUTINES
information_schema	SCHEMATA
information_schema	SCHEMA_PRIVILEGES
information_schema	SESSION_STATUS
information_schema	SESSION_VARIABLES
information_schema	STATISTICS
information_schema	TABLES
information_schema	TABLESPACES

information_schema	TABLE_CONSTRAINTS
information_schema	TABLE_PRIVILEGES
information_schema	TABLE_STATISTICS
information_schema	TRIGGERS
information_schema	USER_PRIVILEGES
information_schema	USER_STATISTICS
information_schema	VIEWS
information_schema	INNODB_CMP
information_schema	XTRADB_INTERNAL_HASH_TABLES
information_schema	INNODB_SYS_DATAFILES
information_schema	XTRADB_RSEG
information_schema	INNODB_SYS_TABLESTATS
information_schema	INNODB_TRX
information_schema	INNODB_FT_BEING_DELETED
information_schema	INNODB_CMP_RESET
information_schema	INNODB_CMP_PER_INDEX
information_schema	INNODB_LOCKS
information_schema	INNODB_FT_DELETED
information_schema	XTRADB_READ_VIEW
information_schema	INNODB_LOCK_WAITS
information_schema	INNODB_CMPMEM_RESET

information_schema	INNODB_SYS_INDEXES
information_schema	INNODB_SYS_TABLES
information_schema	INNODB_SYS_FIELDS
information_schema	INNODB_BUFFER_PAGE_LRU
information_schema	INNODB_CHANGED_PAGES
information_schema	INNODB_FT_CONFIG
information_schema	INNODB_FT_INDEX_TABLE
information_schema	INNODB_CMP_PER_INDEX_RESET
information_schema	INNODB_SYS_TABLESPACES
information_schema	INNODB_FT_INDEX_CACHE
information_schema	INNODB_SYS_FOREIGN_COLS
information_schema	INNODB_METRICS
information_schema	INNODB_BUFFER_POOL_STATS
information_schema	INNODB_CMPMEM
information_schema	INNODB_SYS_FOREIGN
information_schema	INNODB_SYS_COLUMNS
information_schema	INNODB_FT_DEFAULT_STOPWORD
information_schema	INNODB_BUFFER_PAGE

이 많은 SYSTEM VIEW에 관해서 모두 다 알 필요는 없습니다.

여기에서 자주 쓰는 몇 가지 SYSTEM VIEW에 관해서 설명을 드리겠습니다.

1. information_schema.SCHEMATA

MySQL 내부에 있는 스키마(데이터베이스) 목록을 볼 수 있고, 스키마 별 캐릭터 셋을 확인할 수 있습니다.

```
select * from information_schema.SCHEMATA
```

	CATALOG_NAME	SCHEMA_NAME	DEFAULT_CHARACTER_SET_NAME	DEFAULT_COLLATION_NAME	SQL_PATH
1	def	information_schema	utf8	utf8_general_ci	<null>
2	def	address_svc_m	utf8	utf8_general_ci	<null>
3	def	city	utf8	utf8_general_ci	<null>
4	def	class	utf8	utf8_general_ci	<null>
5	def	kmong	utf8	utf8_general_ci	<null>
6	def	mysql	utf8	utf8_general_ci	<null>
7	def	performance_schema	utf8	utf8_general_ci	<null>
8	def	store_svc_m	utf8	utf8_general_ci	<null>
9	def	test	latin1	latin1_swedish_ci	<null>

2. information_schema.TABLES

MySQL 내부에 생성되어 있는 SYSTEM VIEW 및 테이블에 관련된 정보를 볼 수 있습니다.

생성일자, 수정 일자, 테이블 로우수, 테이블 코멘트, 테이블 스토리지 엔진 타입 등의 정보를 한눈에 확인 가능합니다.

```
select * from information_schema.TABLES
```

TABLE_CATALOG	TABLE_SCHEMA	TABLE_NAME	TABLE_TYPE	ENGINE	VERSION	ROW_FORMAT	TABLE_ROWS	AVG_ROW_LENGTH	DATA_LENGTH	MAX_DATA_LENGTH	INDEX_LENGTH
def	information_schema	INNODB_TABLESPACES_SCRUBBING	SYSTEM VIEW	MEMORY	11	Fixed	<null>	2016	0	16710624	0
def	information_schema	INNODB_SYS_SEMAPHORE_WAITS	SYSTEM VIEW	MEMORY	11	Fixed	<null>	60189	0	16732542	0
def	address_svc_m	add_info_m	BASE TABLE	InnoDB	10	Dynamic	6127578	103	635437056	0	492830720
def	address_svc_m	add_info_month	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	16384
def	address_svc_m	bak_add_info_m	BASE TABLE	InnoDB	10	Dynamic	6128861	118	724549632	0	0
def	address_svc_m	bak_jibun_info_m	BASE TABLE	InnoDB	10	Dynamic	8127543	154	1251983360	0	0
def	address_svc_m	bak_juso_info_m	BASE TABLE	InnoDB	10	Dynamic	6185369	300	1860157440	0	0
def	address_svc_m	bak_road_cd_info_m	BASE TABLE	InnoDB	10	Dynamic	348114	173	60391424	0	0
def	address_svc_m	crawling_table	BASE TABLE	InnoDB	10	Dynamic	18	910	16384	0	0
def	address_svc_m	customer	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	address_svc_m	jibun_info_m	BASE TABLE	InnoDB	10	Dynamic	8211048	133	1096810496	0	681574400
def	address_svc_m	jibun_info_month	BASE TABLE	InnoDB	10	Dynamic	0	0	1589248	0	360448
def	address_svc_m	juso_info_m	BASE TABLE	InnoDB	10	Dynamic	5988249	439	2629812224	0	0
def	address_svc_m	juso_info_month	BASE TABLE	InnoDB	10	Dynamic	0	0	2637824	0	1589248
def	address_svc_m	rel_jibun_info_month	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	16384
def	address_svc_m	road_cd_info_m	BASE TABLE	InnoDB	10	Dynamic	345287	193	66715648	0	11026432
def	address_svc_m	road_cd_info_month	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	16384
def	address_svc_m	send_log	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	address_svc_m	seoul_gu_xy	BASE TABLE	InnoDB	10	Dynamic	25	655	16384	0	0
def	address_svc_m	testtt	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	charge_log	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	config	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	daily_jackpot_log	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	daily_user_ethamount_log	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	event	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	item_price	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	matched_log	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	match_buyer	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	match_seller	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	notification	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	qna	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	recommend_referralcode	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	16384
def	city	send_log	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0
def	city	user	BASE TABLE	InnoDB	10	Dynamic	52	1260	65536	0	0
def	city	user_daily_reward_log	BASE TABLE	InnoDB	10	Dynamic	0	0	16384	0	0

3. information_schema.COLUMNS

MySQL 내부에 생성되어 있는 칼럼 정보를 확인할 수 있습니다.

칼럼명, 초기입력값, 컬럼순서, 데이터타입, 데이터 길이, 컬럼 코멘트 등 칼럼에 관련된 대부분의 정보를 여기서 확인할 수 있습니다.

```
select * from information_schema.COLUMNS
```

	TABLE_CATALOG	TABLE_SCHEMA	TABLE_NAME	COLUMN_NAME	ORDINAL_POSITION	COLUMN_DEFAULT	IS_NULLABLE	DATA_TYPE	CHARACTER_MAXIMUM_LENGTH	CHARACTER_OCTET_LENGTH
1	def	information_schema	ALL_PLUGINS	PLUGIN_NAME	1	''	NO	varchar	64	192
2	def	information_schema	ALL_PLUGINS	PLUGIN_VERSION	2	''	NO	varchar	20	60
3	def	information_schema	ALL_PLUGINS	PLUGIN_STATUS	3	''	NO	varchar	16	48
4	def	information_schema	ALL_PLUGINS	PLUGIN_TYPE	4	''	NO	varchar	80	240
5	def	information_schema	ALL_PLUGINS	PLUGIN_TYPE_VERSION	5	''	NO	varchar	20	60
6	def	information_schema	ALL_PLUGINS	PLUGIN_LIBRARY	6	NULL	YES	varchar	64	192
7	def	information_schema	ALL_PLUGINS	PLUGIN_LIBRARY_VERSION	7	NULL	YES	varchar	20	60
8	def	information_schema	ALL_PLUGINS	PLUGIN_AUTHOR	8	NULL	YES	varchar	64	192
9	def	information_schema	ALL_PLUGINS	PLUGIN_DESCRIPTION	9	NULL	YES	longtext	4294967295	4294967295
10	def	information_schema	ALL_PLUGINS	PLUGIN_LICENSE	10	''	NO	varchar	80	240
11	def	information_schema	ALL_PLUGINS	LOAD_OPTION	11	''	NO	varchar	64	192
12	def	information_schema	ALL_PLUGINS	PLUGIN_MATURITY	12	''	NO	varchar	12	36
13	def	information_schema	ALL_PLUGINS	PLUGIN_AUTH_VERSION	13	NULL	YES	varchar	80	240
14	def	information_schema	APPLICABLE_ROLES	GRANTEE	1	''	NO	varchar	190	570
15	def	information_schema	APPLICABLE_ROLES	ROLE_NAME	2	''	NO	varchar	128	384
16	def	information_schema	APPLICABLE_ROLES	IS_GRANTABLE	3	''	NO	varchar	3	9
17	def	information_schema	APPLICABLE_ROLES	IS_DEFAULT	4	NULL	YES	varchar	3	9
18	def	information_schema	CHARACTER_SETS	CHARACTER_SET_NAME	1	''	NO	varchar	32	96
19	def	information_schema	CHARACTER_SETS	DEFAULT_COLLATE_NAME	2	''	NO	varchar	32	96
20	def	information_schema	CHARACTER_SETS	DESCRIPTION	3	''	NO	varchar	60	180
21	def	information_schema	CHARACTER_SETS	MAXLEN	4	0	NO	bigint	<null>	<null>
22	def	information_schema	CHECK_CONSTRAINTS	CONSTRAINT_CATALOG	1	''	NO	varchar	512	1536
23	def	information_schema	CHECK_CONSTRAINTS	CONSTRAINT_SCHEMA	2	''	NO	varchar	64	192
24	def	information_schema	CHECK_CONSTRAINTS	TABLE_NAME	3	''	NO	varchar	64	192
25	def	information_schema	CHECK_CONSTRAINTS	CONSTRAINT_NAME	4	''	NO	varchar	64	192
26	def	information_schema	CHECK_CONSTRAINTS	CHECK_CLAUSE	5	''	NO	varchar	64	192
27	def	information_schema	COLLATIONS	COLLATION_NAME	1	''	NO	varchar	32	96
28	def	information_schema	COLLATIONS	CHARACTER_SET_NAME	2	''	NO	varchar	32	96
29	def	information_schema	COLLATIONS	ID	3	0	NO	bigint	<null>	<null>
30	def	information_schema	COLLATIONS	IS_DEFAULT	4	''	NO	varchar	3	9
31	def	information_schema	COLLATIONS	IS_COMPILED	5	''	NO	varchar	3	9
32	def	information_schema	COLLATIONS	SORTLEN	6	0	NO	bigint	<null>	<null>
33	def	information_schema	COLLATION_CHARACTER_SET_APPLICABILITY	COLLATION_NAME	1	''	NO	varchar	32	96

4. information_schema.ROUTINES

MySQL 내부에 생성되어 있는 Function과 Procedule에 관한 내용들이 저장되어 있습니다.

각 프로그램별 입출력 데이터 정보와, 프로그램 소스 등의 정보가 저장되어 있습니다.

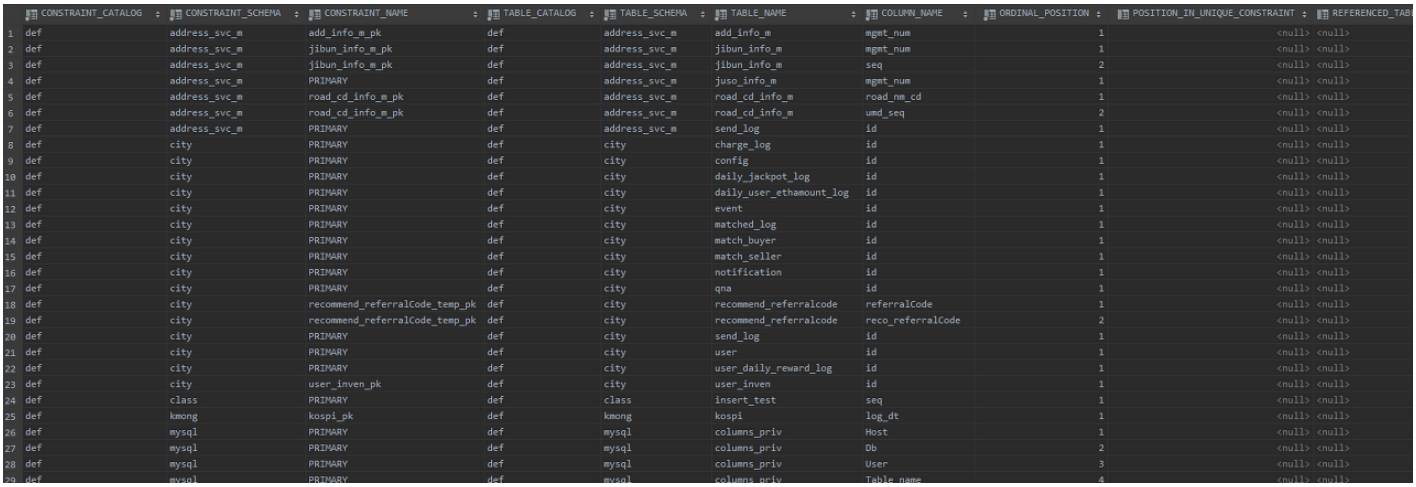
```
select * from information_schema.ROUTINES
```

	SPECIFIC_NAME	ROUTINE_CATALOG	ROUTINE_SCHEMA	ROUTINE_NAME	ROUTINE_TYPE	DATA_TYPE	CHARACTER_MAXIMUM_LENGTH	CHARACTER_OCTET_LENGTH	NUMERIC_PRECISION	NUMERIC_SCALE
1	daily_initialization	def	address_svc_m	daily_initialization	FUNCTION	int	<null>	<null>	10	
2	daily_inven_upgrade	def	address_svc_m	daily_inven_upgrade	FUNCTION	int	<null>	<null>	10	
3	freezed_user	def	address_svc_m	freezed_user	FUNCTION	int	<null>	<null>	10	
4	input_items	def	address_svc_m	input_items	FUNCTION	int	<null>	<null>	10	
5	leave_user	def	address_svc_m	leave_user	FUNCTION	int	<null>	<null>	10	
6	level_insert	def	address_svc_m	level_insert	FUNCTION	int	<null>	<null>	10	
7	match_buyer_register_building	def	address_svc_m	match_buyer_register_building	FUNCTION	int	<null>	<null>	10	
8	match_buyer_register_hotel	def	address_svc_m	match_buyer_register_hotel	FUNCTION	int	<null>	<null>	10	
9	match_buyer_register_villa	def	address_svc_m	match_buyer_register_villa	FUNCTION	int	<null>	<null>	10	
10	rank_maker	def	address_svc_m	rank_maker	FUNCTION	int	<null>	<null>	10	
11	jackpot_process	def	address_svc_m	jackpot_process	FUNCTION	int	<null>	<null>	10	
12	match_seller_register_building	def	address_svc_m	match_seller_register_building	FUNCTION	int	<null>	<null>	10	
13	un_freezed_user	def	address_svc_m	un_freezed_user	FUNCTION	int	<null>	<null>	10	
14	daily_initialization	def	city	daily_initialization	FUNCTION	int	<null>	<null>	10	
15	freezed_user	def	city	freezed_user	FUNCTION	int	<null>	<null>	10	
16	matching_building	def	address_svc_m	matching_building	FUNCTION	int	<null>	<null>	10	
17	leave_user	def	city	leave_user	FUNCTION	int	<null>	<null>	10	
18	matching_building_group	def	address_svc_m	matching_building_group	FUNCTION	int	<null>	<null>	10	
19	matching_hotel	def	address_svc_m	matching_hotel	FUNCTION	int	<null>	<null>	10	
20	match_buyer_register_building	def	city	match_buyer_register_building	FUNCTION	int	<null>	<null>	10	
21	matching_hotel_group	def	address_svc_m	matching_hotel_group	FUNCTION	int	<null>	<null>	10	
22	matching_villa	def	address_svc_m	matching_villa	FUNCTION	int	<null>	<null>	10	
23	match_buyer_register_hotel	def	city	match_buyer_register_hotel	FUNCTION	int	<null>	<null>	10	
24	matching_villa_group	def	address_svc_m	matching_villa_group	FUNCTION	int	<null>	<null>	10	
25	match_seller_register_hotel	def	address_svc_m	match_seller_register_hotel	FUNCTION	int	<null>	<null>	10	
26	match_seller_register_villa	def	address_svc_m	match_seller_register_villa	FUNCTION	int	<null>	<null>	10	
27	probability	def	address_svc_m	probability	FUNCTION	int	<null>	<null>	10	
28	daily_inven_upgrade	def	city	daily_inven_upgrade	FUNCTION	int	<null>	<null>	10	
29	match_buyer_register_villa	def	city	match_buyer_register_villa	FUNCTION	int	<null>	<null>	10	
30	rank_maker	def	city	rank_maker	FUNCTION	int	<null>	<null>	10	
31	un_freezed_user	def	city	un_freezed_user	FUNCTION	int	<null>	<null>	10	

5. information_schema.KEY_COLUMN_USAGE

MySQL 내부에 생성된 테이블별 PK칼럼 또는 unique 제약조건들의 목록을 확인할 수 있습니다.

```
select * from information_schema.KEY_COLUMN_USAGE
```



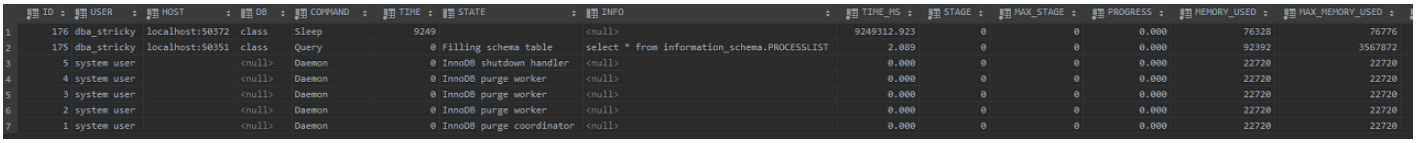
	CONSTRAINT_CATALOG	CONSTRAINT_SCHEMA	CONSTRAINT_NAME	TABLE_CATALOG	TABLE_SCHEMA	TABLE_NAME	COLUMN_NAME	ORDINAL_POSITION	POSITION_IN_UNIQUE_CONSTRAINT	REFERENCED_TABLE
1	def	address_svc_m	add_info_m_pk	def	address_svc_m	add_info_m	mgmt_num	1	<null>	<null>
2	def	address_svc_m	jibun_info_m_pk	def	address_svc_m	jibun_info_m	mgmt_num	1	<null>	<null>
3	def	address_svc_m	jibun_info_m_pk	def	address_svc_m	jibun_info_m	seq	2	<null>	<null>
4	def	address_svc_m	PRIMARY	def	address_svc_m	juso_info_m	mgmt_num	1	<null>	<null>
5	def	address_svc_m	road_cd_info_m_pk	def	address_svc_m	road_cd_info_m	road_nm_cd	1	<null>	<null>
6	def	address_svc_m	road_cd_info_m_pk	def	address_svc_m	road_cd_info_m	umd_seq	2	<null>	<null>
7	def	address_svc_m	PRIMARY	def	address_svc_m	send_log	id	1	<null>	<null>
8	def	city	PRIMARY	def	city	charge_log	id	1	<null>	<null>
9	def	city	PRIMARY	def	city	config	id	1	<null>	<null>
10	def	city	PRIMARY	def	city	daily_jackpot_log	id	1	<null>	<null>
11	def	city	PRIMARY	def	city	daily_user_ethamount_log	id	1	<null>	<null>
12	def	city	PRIMARY	def	city	event	id	1	<null>	<null>
13	def	city	PRIMARY	def	city	matched_log	id	1	<null>	<null>
14	def	city	PRIMARY	def	city	match_buyer	id	1	<null>	<null>
15	def	city	PRIMARY	def	city	match_seller	id	1	<null>	<null>
16	def	city	PRIMARY	def	city	notification	id	1	<null>	<null>
17	def	city	PRIMARY	def	city	qna	id	1	<null>	<null>
18	def	city	recommend_referralCode_temp_pk	def	city	recommend_referralcode	referralCode	1	<null>	<null>
19	def	city	recommend_referralCode_temp_pk	def	city	recommend_referralcode	reco_referralCode	2	<null>	<null>
20	def	city	PRIMARY	def	city	send_log	id	1	<null>	<null>
21	def	city	PRIMARY	def	city	user	id	1	<null>	<null>
22	def	city	PRIMARY	def	city	user_daily_reward_log	id	1	<null>	<null>
23	def	city	user_inven_pk	def	city	user_inven	id	1	<null>	<null>
24	def	class	PRIMARY	def	class	insert_test	seq	1	<null>	<null>
25	def	kmong	kospi_pk	def	kmong	kospi	log_dt	1	<null>	<null>
26	def	mysql	PRIMARY	def	mysql	columns_priv	Host	1	<null>	<null>
27	def	mysql	PRIMARY	def	mysql	columns_priv	Db	2	<null>	<null>
28	def	mysql	PRIMARY	def	mysql	columns_priv	User	3	<null>	<null>
29	def	mysql	PRIMARY	def	mysql	columns_priv	Table_name	4	<null>	<null>

6. information_schema.PROCESSLIST

현재 MySQL에 접속되어 있는 세션 정보들을 확인할 수 있습니다.

각 세션별 상태와, 어떤 user로 어디서 접속을 하고 있는지, 어떤 SQL을 실행하고 있는지 등의 정보를 확인할 수 있습니다.

```
select * from information_schema.PROCESSLIST
```



	ID	USER	HOST	DB	COMMAND	TIME	STATE	INFO	TIME_MS	STAGE	MAX_STAGE	PROGRESS	MEMORY_USED	MAX_MEMORY_USED
1	176	dba_stricky	localhost:50372	class	Sleep	9249		<null>	9249312.923	0	0	0.000	76328	76776
2	175	dba_stricky	localhost:50351	class	Query	0	Filling schema table	select * from information_schema.PROCESSLIST	2.089	0	0	0.000	92392	3567872
3	5	system user		<null>	Daemon	0	InnoDB shutdown handler	<null>	0.000	0	0	0.000	22720	22720
4	4	system user		<null>	Daemon	0	InnoDB purge worker	<null>	0.000	0	0	0.000	22720	22720
5	3	system user		<null>	Daemon	0	InnoDB purge worker	<null>	0.000	0	0	0.000	22720	22720
6	2	system user		<null>	Daemon	0	InnoDB purge worker	<null>	0.000	0	0	0.000	22720	22720
7	1	system user		<null>	Daemon	0	InnoDB purge coordinator	<null>	0.000	0	0	0.000	22720	22720

위에서 말씀드렸다시피 더 많은 내용들이 있지만 이 정도로만 정리를 하겠습니다. 더욱 자세한 내용을 확인하고 싶으신 분들은 아래 링크에 가셔서 공식 문서를 확인하시면 상세하고 방대한 양의 정보를 확인하실 수 있으실 겁니다.

https://dev.mysql.com/doc/mysql-infoschema-excerpt/8.0/en/information-schema.html

MySQL :: MySQL Information Schema :: 1 INFORMATION_SCH...

dev.mysql.com

2. mysql

mysql 스키마에서 조회할 수 있는 정보 가운데 위에서 설명드린 information_schema를 통해 조회할 수 있는 내용들도 중복이 되어 있습니다.

다른 부분도 많이 있으니 따로 생성이 되어 있겠죠.

우선 mysql 스키마 내 테이블 목록은 아래와 같습니다.

TABLE_SCHEMA	TABLE_NAME
mysql	columns_priv
mysql	column_stats
mysql	db
mysql	event
mysql	func
mysql	general_log
mysql	gtid_slave_pos
mysql	help_category
mysql	help_keyword
mysql	help_relation
mysql	help_topic
mysql	host
mysql	index_stats
mysql	innodb_index_stats
mysql	innodb_table_stats
mysql	plugin
mysql	proc

mysql	procs_priv
mysql	proxies_priv
mysql	roles_mapping
mysql	servers
mysql	slow_log
mysql	tables_priv
mysql	table_stats
mysql	time_zone
mysql	time_zone_leap_second
mysql	time_zone_name
mysql	time_zone_transition
mysql	time_zone_transition_type
mysql	transaction_registry
mysql	user

여기서 우리가 자주 보게 되는 몇 가지를 안내해 드리겠습니다.

1. mysql.user

MySQL 내부에 생성된 user에 관한 정보가 들어 있습니다.

user명과 함께 host(접속지) 정보, 그리고 password가 암호화되어 저장되어 있습니다.

기본 권한을 어떻게 가지고 있는지도 확인이 가능합니다.

```
select * from mysql.user
```

	Host	User	Password	Select_priv	Insert_priv	Update_priv	Delete_priv	Create_priv	Drop_priv	Reload_priv	Shutdown_priv	Process_priv	File_pr
1	localhost	root	*B888821DB1779596B4386A5C229CC370FDFFC98A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2	desktop-9m7q3ke	root	*B888821DB1779596B4386A5C229CC370FDFFC98A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3	127.0.0.1	root	*B888821DB1779596B4386A5C229CC370FDFFC98A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4	::1	root	*B888821DB1779596B4386A5C229CC370FDFFC98A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
5	%	root	*B888821DB1779596B4386A5C229CC370FDFFC98A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
6	117.52.176.%	dba_stricky	*13F2D6808862D708AE2D4C7FED910125CBD3BBEF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
7	localhost	dba_stricky	*13F2D6808862D708AE2D4C7FED910125CBD3BBEF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

2. mysql.general_log

MySQL에서 DB 로그를 Table 타입으로 저장할 때 그 로그가 쌓이는 테이블입니다.

물론 설정을 하지 않았다면 이 테이블에는 아무런 정보가 없겠죠.

SQL 실행 시간, host 및 user 정보, 상세 SQL이 저장되어 있어 필요한 데이터를 select 하여 확인할 수 있습니다.

* DB 로그 설정법은 아래 링크에서 확인할 수 있습니다.

https://stricky.tistory.com/289?category=1013545

> slow_query_log general_log 테이블 설정 방법
>
> stricky.tistory.com

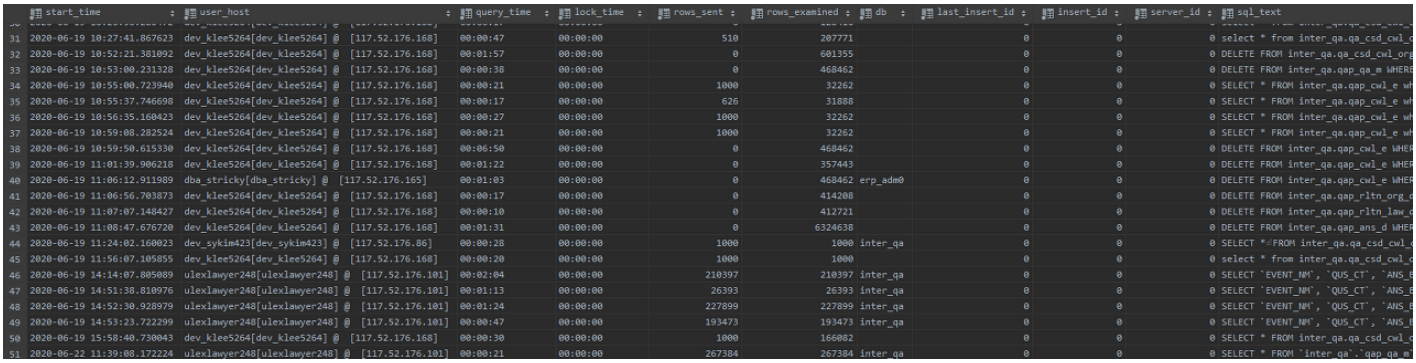
```
select * from mysql.general_log
```

	event_time	user_host	thread_id	server_id	command_type	argument
1	2020-06-18 15:20:04.788515	[root] @ localhost []	2	0	Connect	root@localhost as anonymous on
2	2020-06-18 15:20:04.793528	[root] @ localhost []	2	0	Connect	Access denied for user 'root'@'localhost' (using password: NO)
3	2020-06-18 15:20:05.741582	[ulexlawyer248] @ [183.111.127.172]	3	0	Connect	ulexlawyer248@183.111.127.172 as anonymous on erp_adm3
4	2020-06-18 15:20:05.741683	ulexlawyer248[ulexlawyer248] @ [183.111.127.172]	3	0	Query	SET NAMES utf8
5	2020-06-18 15:20:05.742150	ulexlawyer248[ulexlawyer248] @ [183.111.127.172]	3	0	Query	SET NAMES utf8
6	2020-06-18 15:20:05.892964	ulexlawyer248[ulexlawyer248] @ [183.111.127.172]	3	0	Quit	
7	2020-06-18 15:20:19.026038	[dba_stricky] @ [117.52.176.165]	4	0	Connect	dba_stricky@117.52.176.165 as anonymous on
8	2020-06-18 15:20:19.032823	dba_stricky[dba_stricky] @ [117.52.176.165]	4	0	Query	set autocommit=1, sql_mode = concat(@@sql_mode,',STRICT_TRANS_TABLES')
9	2020-06-18 15:20:19.033000	dba_stricky[dba_stricky] @ [117.52.176.165]	4	0	Query	SELECT @@max_allowed_packet,@@system_time_zone,@@time_zone,@@auto_increment_increment
10	2020-06-18 15:20:19.074867	dba_stricky[dba_stricky] @ [117.52.176.165]	4	0	Query	select version(), @@version_comment, database()
11	2020-06-18 15:20:19.091930	dba_stricky[dba_stricky] @ [117.52.176.165]	4	0	Query	SELECT @ApplicationName
12	2020-06-18 15:20:19.098644	dba_stricky[dba_stricky] @ [117.52.176.165]	4	0	Query	SET @ApplicationName='DataGrip 2019.3.5'
13	2020-06-18 15:20:19.125649	dba_stricky[dba_stricky] @ [117.52.176.165]	4	0	Query	select @@lower_case_table_names
14	2020-06-18 15:20:19.146982	dba_stricky[dba_stricky] @ [117.52.176.165]	4	0	Query	SELECT @@tx_isolation
15	2020-06-18 15:20:19.161405	dba_stricky[dba_stricky] @ [117.52.176.165]	4	0	Query	use erp_adm0
16	2020-06-18 15:20:19.173590	dba_stricky[dba_stricky] @ [117.52.176.165]	4	0	Query	show global variables like '%tmp%'
17	2020-06-18 15:20:19.218230	dba_stricky[dba_stricky] @ [117.52.176.165]	4	0	Query	select database()
18	2020-06-18 15:20:19.233893	dba_stricky[dba_stricky] @ [117.52.176.165]	4	0	Query	SELECT @@tx_isolation
19	2020-06-18 15:20:21.775798	[ulexlawyer248] @ [183.111.127.172]	5	0	Connect	ulexlawyer248@183.111.127.172 as anonymous on erp_adm3
20	2020-06-18 15:20:21.775859	ulexlawyer248[ulexlawyer248] @ [183.111.127.172]	5	0	Query	SET NAMES utf8
21	2020-06-18 15:20:21.776346	ulexlawyer248[ulexlawyer248] @ [183.111.127.172]	5	0	Query	SET NAMES utf8
22	2020-06-18 15:20:22.192659	ulexlawyer248[ulexlawyer248] @ [183.111.127.172]	5	0	Quit	
23	2020-06-18 15:20:32.137348	[ulexlawyer248] @ [183.111.127.172]	6	0	Connect	ulexlawyer248@183.111.127.172 as anonymous on erp_adm3
24	2020-06-18 15:20:32.137398	ulexlawyer248[ulexlawyer248] @ [183.111.127.172]	6	0	Query	SET NAMES utf8
25	2020-06-18 15:20:32.137899	ulexlawyer248[ulexlawyer248] @ [183.111.127.172]	6	0	Query	SET NAMES utf8
26	2020-06-18 15:20:32.508717	ulexlawyer248[ulexlawyer248] @ [183.111.127.172]	6	0	Quit	
27	2020-06-18 15:20:37.139375	[ulexlawyer248] @ [183.111.127.172]	7	0	Connect	ulexlawyer248@183.111.127.172 as anonymous on erp_adm3

3. mysql.slow_log

MySQL에서 실행되는 SQL 가운데 long_query_time 파라미터에 저장되어 있는 값 보다 오래 걸리는 SQL이 저장되는 테이블입니다. 성능 분석을 할 때 용이한 테이블 입니다.

```
select * from mysql.slow_log
```



	start_time	user_host	query_time	lock_time	rows_sent	rows_examined	db	last_insert_id	insert_id	server_id	sql_text
31	2020-06-19 10:27:41.867623	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:00:47	00:00:00	510	207771		0	0	0	select * from inter_qa.qa_csd_cwl_c
32	2020-06-19 10:52:21.381092	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:01:57	00:00:00	0	601355		0	0	0	DELETE FROM inter_qa.qa_csd_cwl_org
33	2020-06-19 10:53:00.231328	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:00:38	00:00:00	0	468462		0	0	0	DELETE FROM inter_qa.qap_qa_m WHERE
34	2020-06-19 10:55:00.723940	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:00:21	00:00:00	1000	32262		0	0	0	SELECT * FROM inter_qa.qap_cwl_e wh
35	2020-06-19 10:55:37.746698	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:00:17	00:00:00	626	31888		0	0	0	SELECT * FROM inter_qa.qap_cwl_e wh
36	2020-06-19 10:56:35.160423	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:00:27	00:00:00	1000	32262		0	0	0	SELECT * FROM inter_qa.qap_cwl_e wh
37	2020-06-19 10:59:08.282524	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:00:21	00:00:00	1000	32262		0	0	0	SELECT * FROM inter_qa.qap_cwl_e wh
38	2020-06-19 10:59:50.615330	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:06:50	00:00:00	0	468462		0	0	0	DELETE FROM inter_qa.qap_cwl_e WHER
39	2020-06-19 11:01:39.906218	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:01:22	00:00:00	0	357443		0	0	0	DELETE FROM inter_qa.qap_cwl_e WHER
40	2020-06-19 11:06:12.911989	dba_stricky[dba_stricky] @ [117.52.176.165]	00:01:03	00:00:00	0	468462	erp_adm0	0	0	0	DELETE FROM inter_qa.qap_cwl_e WHER
41	2020-06-19 11:06:56.703873	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:00:17	00:00:00	0	414208		0	0	0	DELETE FROM inter_qa.qap_rltn_org_c
42	2020-06-19 11:07:07.148427	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:00:10	00:00:00	0	412721		0	0	0	DELETE FROM inter_qa.qap_rltn_law_c
43	2020-06-19 11:08:47.676720	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:01:31	00:00:00	0	6324638		0	0	0	DELETE FROM inter_qa.qap_ans_d WHER
44	2020-06-19 11:24:02.160023	dev_sykim423[dev_sykim423] @ [117.52.176.86]	00:00:28	00:00:00	1000	1000	inter_qa	0	0	0	SELECT *FROM inter_qa.qa_csd_cwl_c
45	2020-06-19 11:56:07.105855	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:00:20	00:00:00	1000	1000		0	0	0	select * from inter_qa.qa_csd_cwl_c
46	2020-06-19 14:14:07.805089	ulexlawyer248[ulexlawyer248] @ [117.52.176.101]	00:02:04	00:00:00	210397	210397	inter_qa	0	0	0	SELECT `EVENT_NM`, `QUS_CT`, `ANS_C
47	2020-06-19 14:51:38.810976	ulexlawyer248[ulexlawyer248] @ [117.52.176.101]	00:01:13	00:00:00	26393	26393	inter_qa	0	0	0	SELECT `EVENT_NM`, `QUS_CT`, `ANS_C
48	2020-06-19 14:52:30.928979	ulexlawyer248[ulexlawyer248] @ [117.52.176.101]	00:01:24	00:00:00	227899	227899	inter_qa	0	0	0	SELECT `EVENT_NM`, `QUS_CT`, `ANS_C
49	2020-06-19 14:53:23.722299	ulexlawyer248[ulexlawyer248] @ [117.52.176.101]	00:00:47	00:00:00	193473	193473	inter_qa	0	0	0	SELECT `EVENT_NM`, `QUS_CT`, `ANS_C
50	2020-06-19 15:58:40.730043	dev_klee5264[dev_klee5264] @ [117.52.176.168]	00:00:30	00:00:00	1000	166082		0	0	0	SELECT * FROM inter_qa.qa_csd_cwl_c
51	2020-06-22 11:39:08.172224	ulexlawyer248[ulexlawyer248] @ [117.52.176.101]	00:00:21	00:00:00	267384	267384	inter_qa	0	0	0	SELECT * FROM `inter_qa`.`qap_qa_m

주로 일반 사용자들이 볼만한 테이블은 이 정도입니다.

mysql schema와 관련하여 더 많은 정보를 보고 싶으신 분들은 아래 링크로 이동하시면 됩니다.

https://dev.mysql.com/doc/refman/8.0/en/system-schema.html

MySQL :: MySQL 8.0 Reference Manual :: 5.3 The mysql Syste...

dev.mysql.com

이젠 DB를 그냥 사용하기만 하지 마시고, Data Dictionary를 통해서 더 많은 정보를 조회하셔서 편리하게 사용하실 수 있었으면 좋겠습니다.

다음 강의 보러 가기

2020/07/08 - [Database/sql 강의] - mysql 제약조건 알아보기 SQL 독학 강의#23편

mysql 제약조건 알아보기 SQL 독학 강의#23편

stricky.tistory.com

오늘은 이렇게 MySQL의 Data Dictionary에 관해서 강의 포스팅을 해보았습니다.