

Comparatie intre Oracle si MySql

Referat realizat de *Buhai Darius*
Grupa 234

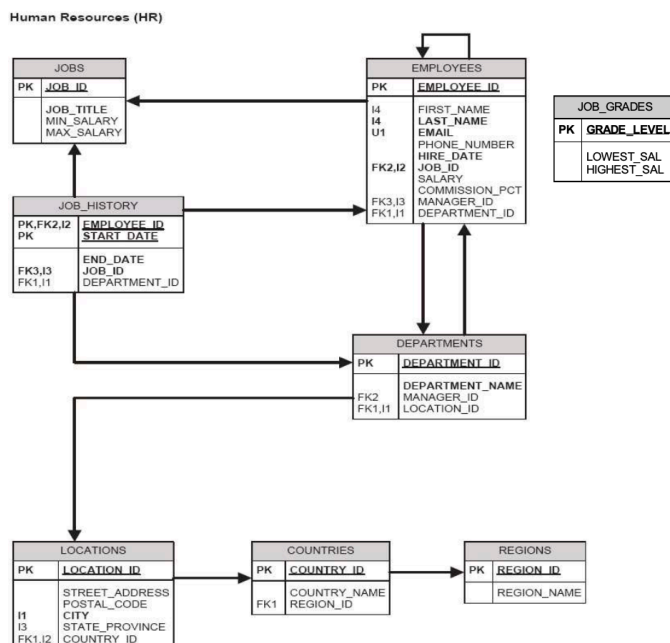
Introdurre

In acest referat voi compara bazele de date Oracle si Mysql, axandu-ma pe complexitatea lor in timp. Voi incepe prin a stabili un model entitate-relatie (deja existent de la curs) si tabelele corespunzatoare atat in MySql cat si in Oracle cu care voi compara cele 2 baze.

Pregatirea mediului de testare

Stiind ca in Oracle avem deja o baza de date creata (cea a grupei 234), voi selecta tabelele asociate modelului ER a schemei HR si le voi adauga in baza mea de date MySql. Pentru a face o comparatie corecta, ma voi conecta la un server hostat MySql.

Modelul entitate-relatie utilizat va fi acesta:



Pentru a exporta tabelele corespunzatoare din Oracle in MySql, am facut mici modificari de structura. Astfel, variabilele de tip NUMBER au devenit INT si VARCHAR2 a devenit VARCHAR(255). De asemenea, formatul Date a trebuit convertit de la *zi-luna-an* la *an-luna-zi*. In final, baza noastra de date MySql va arata asa:

Items	Queries	History	EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMISSION_PCT	MANAGER_ID	DEPARTM
Q Search for item...			100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	48000	NULL	NULL	
▼ Functions			101	Neena	Kochhar	NKOCHH...	515.123.4568	1989-09-21	AD_VP	20570	NULL	100	
▼ Tables			102	Lex	De Haan	LDEHAAN	515.123.4569	1993-01-13	AD_VP	20570	NULL	100	
COUNTRIES			103	Alexander	Hunold	AHUNOLD	590.423.4567	1990-01-03	IT_PROG	10890	NULL	102	
DEPARTMENTS			104	Bruce	Ernst	BERNST	590.423.4568	1991-05-21	IT_PROG	7260	NULL	103	
EMPLOYEES			105	David	Austin	DAUSTIN	590.423.4569	1997-06-25	IT_PROG	5808	NULL	103	
JOB_GRADES			106	Valli	Pataballa	VPATABAL	590.423.4560	1998-02-05	IT_PROG	5808	NULL	103	
JOB_HISTORY			107	Diana	Lorentz	DLORENTZ	590.423.5567	1999-02-07	IT_PROG	5082	NULL	103	
JOBS			108	Nancy	Greenberg	NGREENBE	515.124.4569	1994-08-17	FL_MGR	13200	NULL	101	
LOCATIONS			109	Daniel	Faviet	DFAVIET	515.124.4169	1994-08-16	FL_ACCO...	9900	NULL	108	
REGIONS			110	John	Chen	JCHEN	515.124.4269	1997-09-28	FL_ACCO...	9020	NULL	108	
			111	Ismael	Sciarra	ISCIARRA	515.124.4369	1997-09-30	FL_ACCO...	8470	NULL	108	
			112	Jose Manuel	Urman	JMURMAN	515.124.4469	1998-03-07	FL_ACCO...	8580	NULL	108	
			113	Luis	Popp	LPOPP	515.124.4567	1999-12-07	FL_ACCO...	7590	NULL	108	
			114	Den	Raphaely	DRAPHEAL	515.127.4561	1994-12-07	PU_MAN	13310	NULL	100	
			115	Alexander	Khoo	AKHOO	515.127.4562	1995-05-18	PU_CLERK	3410	NULL	114	
			116	Shelli	Baida	SBAIDA	515.127.4563	1997-12-24	PU_CLERK	3190	NULL	114	
			117	Sigal	Tobias	STOBIAS	515.127.4564	1997-07-24	PU_CLERK	3080	NULL	114	
			118	Guy	Himuro	GHIMURO	515.127.4565	1998-11-15	PU_CLERK	2860	NULL	114	
			119	Karen	Colmenares	KCOLME...	515.127.4566	1999-08-10	PU_CLERK	2750	NULL	114	
			120	Matthew	Weiss	MWEISS	650.123.1234	1996-07-18	ST_MAN	9680	NULL	100	
			121	Adam	Fripp	AFRIPP	650.123.2234	1997-04-10	ST_MAN	9922	NULL	100	
			122	Payam	Kauffling	PKAUFLIN	650.123.3234	1995-05-01	ST_MAN	9559	NULL	100	
			123	Shanta	Vollman	SVOLLM...	650.123.4234	1997-10-10	ST_MAN	7865	NULL	100	
			124	Kevin	Mourgos	KMOURG...	650.123.5234	1999-11-16	ST_MAN	7018	NULL	100	
			125	Julia	Nayer	JNAYER	650.124.1214	1997-07-16	ST_CLERK	3520	NULL	120	
			126	Irene	Mikkilineni	IMIKKILI	650.124.1224	1998-09-28	ST_CLERK	2970	NULL	120	
			127	James	Landry	JLANDRY	650.124.1334	1999-01-14	ST_CLERK	2772	NULL	120	
			128	Steven	Markle	SMARKLE	650.124.1434	2000-03-08	ST_CLERK	2541	NULL	120	

Items

Queries

History

SQL Query

EMPLOYEES

Q Search for item...

NameEMPLOYEESPrimaryEMPLOYEE_IDQ Column name... (⌘F)

▼ Functions

▼ Tables

COUNTRIES

DEPARTMENTS

EMPLOYEES

JOB_GRADES

JOB_HISTORY

JOBS

LOCATIONS

REGIONS

#	column_name	data_type	character_set	collation	is_nullable	column_default	extra	foreign_key
1	EMPLOYEE_ID	bigint(20) unsigned	NULL	NULL	NO	NULL	auto_increment	EMPTY
2	FIRST_NAME	varchar(255)	utf8	utf8_general_ci	YES	NULL	EMPTY	EMPTY
3	LAST_NAME	varchar(255)	utf8	utf8_general_ci	YES	NULL	EMPTY	EMPTY
4	EMAIL	varchar(255)	utf8	utf8_general_ci	YES	NULL	EMPTY	EMPTY
5	PHONE_NUMBER	varchar(255)	utf8	utf8_general_ci	YES	NULL	EMPTY	EMPTY
6	HIRE_DATE	date	NULL	NULL	YES	NULL	EMPTY	EMPTY
7	JOB_ID	varchar(255)	utf8	utf8_general_ci	YES	NULL	EMPTY	EMPTY
8	SALARY	int(11)	NULL	NULL	YES	NULL	EMPTY	EMPTY
9	COMMISSION_PCT	int(11)	NULL	NULL	YES	NULL	EMPTY	EMPTY
10	MANAGER_ID	int(11)	NULL	NULL	YES	NULL	EMPTY	EMPTY
11	DEPARTMENT_ID	int(11)	NULL	NULL	YES	NULL	EMPTY	EMPTY
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Testarea

Drept prima comparatie voi determina timpii de executie la selectarea datelor din fiecare tabela:

Tabela	Timp de executie Oracle	Timp de executie MySql	Coloane
COUNTRIES	16 ms	19 ms	25
DEPARTMENTS	17 ms	18 ms	30
EMPLOYEES	22 ms	27 ms	107
JOB_GRADES	16 ms	19 ms	7
JOB_HISTORY	11 ms	19 ms	10
JOBS	10 ms	18 ms	19
LOCATIONS	17 ms	20 ms	23
REGIONS	9 ms	19 ms	4

Conform tabelului, putem observa un timp de executie mai mic la Oracle, in special pentru tabelele cu putine coloane. Spre exemplu, din tabela REGIONS, au fost preluate 4 coloane de 2 ori mai rapid in Oracle fata de MySql.

Testarea pe cazuri mai complexe

De asemenea, vom compara cele 2 baze de date, pe task-uri mai complexe.

- Selectati toti angajatii care au un salariu mai mare decat media salariilor din departamentul lor.
- Selectati toate departamentele in care media salariilor este mai mare decat 10000.
- Selectati toti managerii care au cel putin 5 subordonati.

Tabelul de mai jos exprima timpii de executie pentru cele 3 task-uri definite:

Task	Timp de executie Oracle	Timp de executie Oracle folosind proceduri	Timp de executie MySql
a	12 ms	48 ms	30 ms
b	10 ms	50 ms	32 ms
c	11 ms	52 ms	33 ms

In concluzie, putem observa cum Oracle ruleaza mai eficient decat MySql pe task-uri complexe.