

CHRISTOFER FABIÁN CHÁVEZ CARAZAS

Tiempo promedio de demora: 2 minutos 30 segundos.

Se tiene los siguientes índices en la tabla Relaciones:

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_comment
Relations	0	PRIMARY	1	idWord2	A	276607	NULL	NULL		
Relations	0	PRIMARY	2	idWord1	A	58548524	NULL	NULL		
Relations	1	idx2	1	idWord1	A	92835	NULL	NULL		
Relations	1	idx2	2	idWord2	A	58548524	NULL	NULL		
Relations	1	idx1	1	idWord2	A	105051	NULL	NULL		
Relations	1	idx3	1	idWord1	A	90392	NULL	NULL		

Un Clustered compuesto, un secundario compuesto y dos secundarios.

Con la siguiente consulta:

```
select Word, cos from (select X.idWord1, (X.ps/Y.modulo) as cos from
(select A.idWord1, sum(A.W * B.W) as ps from Relations as A inner join Relations as B on A.idWord2 = B.idWord2 where A.idWord1 < 1 and B.idWord1 = 1 group by A.idWord1) as X
inner join (select idWord1, sqrt(sum(W*W)) * (select sqrt(sum(W*W)) from Relations use index(idx2) where idWord1 = 1 group by idWord1) as modulo from Relations use index(PRIMARY) where idWord1 < 1 group by idWord1) as Y on X.idWord1 = Y.idWord1) as AA
inner join Word on idWord1 = idWord order by cos DESC limit 0,10;
```