



Do not forget to keep your IMS database in good shape

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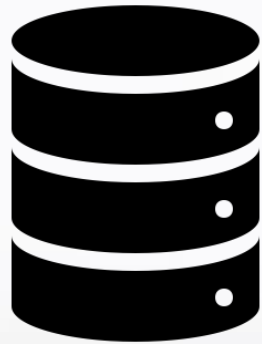
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Agenda

- Database performance
 - Why it matters
- Where it starts
 - Database design
 - Some parameters
- Database creation simulation
 - Let's play with our database
- Fixing DB performance
- Demo

| Database performance



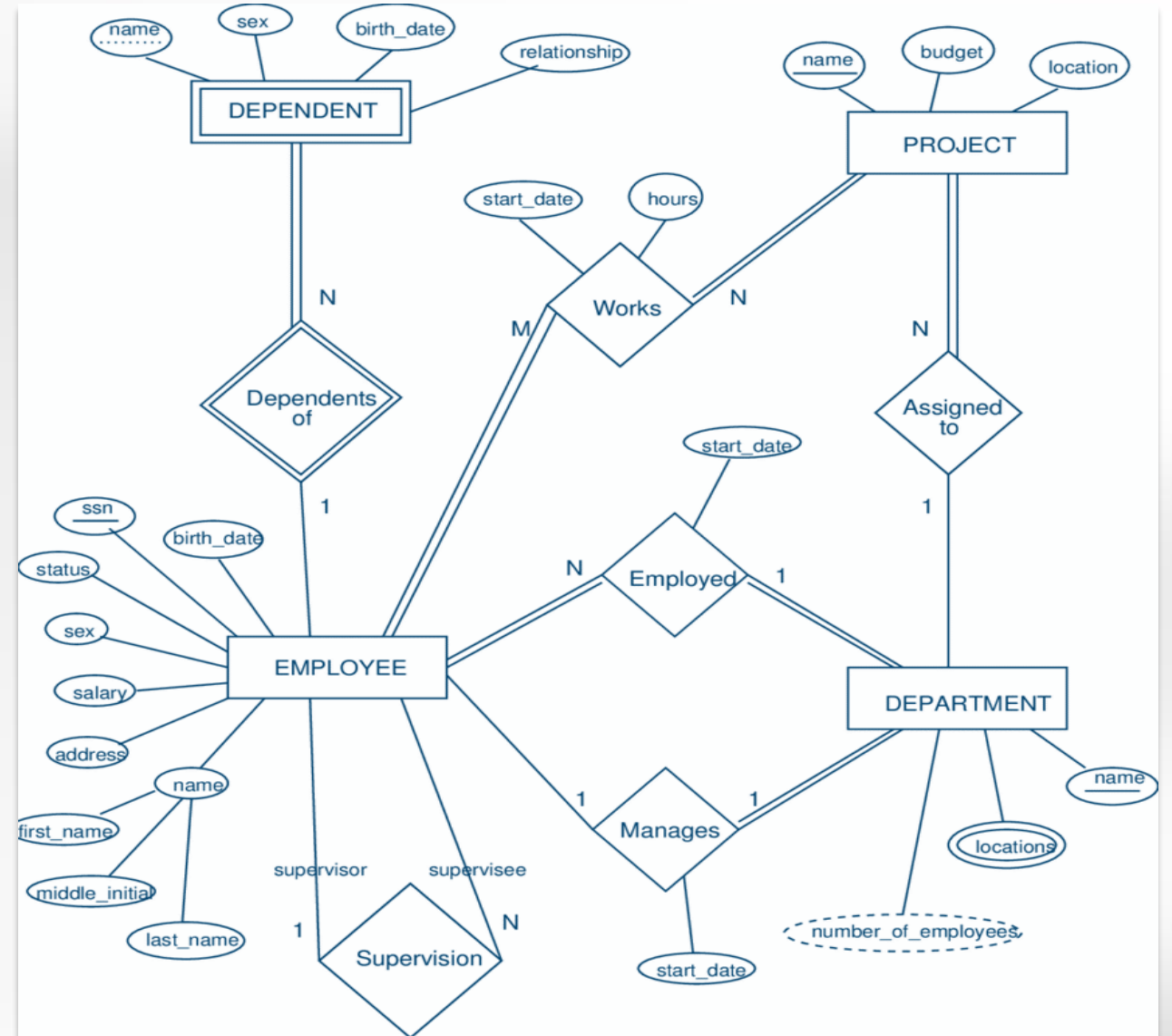
IMS DB



Security
Speed
Reliability

Where it starts

Database design



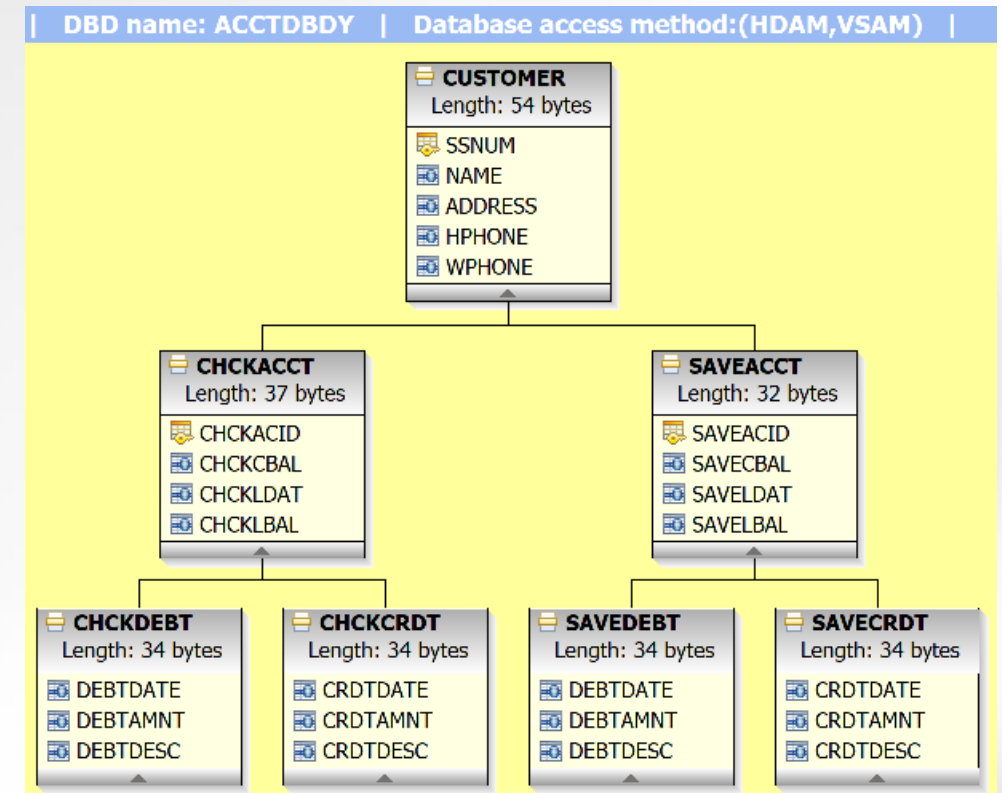
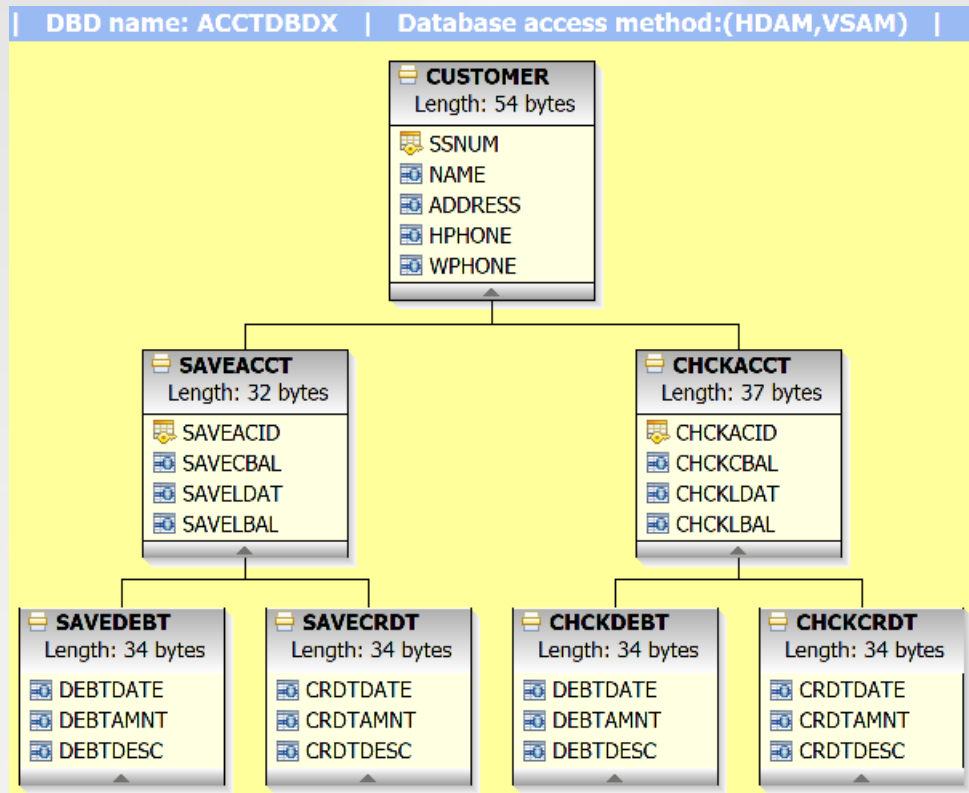
Where it starts

Database parameters

```
>>-+-----+--DATASET--DD1=dbname1----->
|      (1) |
|'-label-----'
|
>+-----+-----+-----+----->
|      (2) | |      (4) |
|+-.BLOCK=size0-----+ '-,DEVICE=3380-----'
|      (3) |
|'-,SIZE=(,size1)-----'
|
>+-----+-----+-----+----->
|'-,SCAN=cyls-' '-,
|
>+-----+-----+-----+----->
|'-,SEARCHA=+-0+-'
|+--1--+
|
>>-DBD--NAME=(dbname1)-----+----->
|'-DBVER=dbd_vers_number-'
|
|'-,VSAM-.
|
>+-----+-----+-----+----->
|'-,ACCESS=--(--HDAM--+--OSAM--+--)-
|
|      (1)
>>-SEGM--NAME=segname1--+----->
|'-,EXTERNALNAME=
|
|'-,PARENT=0-----
|
>+-----+-----+-----+----->
|      .-,SINGL-.
|'-,PARENT=--((segname2+-----+)-
|'-,DBLE-'
|
|      .-DATA-.
|
>>+-.SOURCE=((segname,+-----+-,dbname1)----->
|'-,BYTES=--+max bytes-----
|'-,BYTES=((max bytes,min bytes)-----
|
>+-----+-----+-----+----->
|'-,FREQ=frequency-'
|
>+-----+-----+-----+----->
|      (1)
|      .-HIER----. .-,--LTWIN----- .-,LPARNT-----
|
|'-,PTR=-----+-----+-----+-----+-----+-----+-----+-----+----->
|'-,PTR=-----+-----+-----+-----+-----+-----+-----+-----+----->
|+--HIERBWD--+ |      (3) | |'-,CTR-' '-,PAIRED-'
|+--TWINBWD--+ |'-,LTWINBWD-----'
|+--TWINBWD--+
|'-NOTWIN--'
|
```

Database simulation

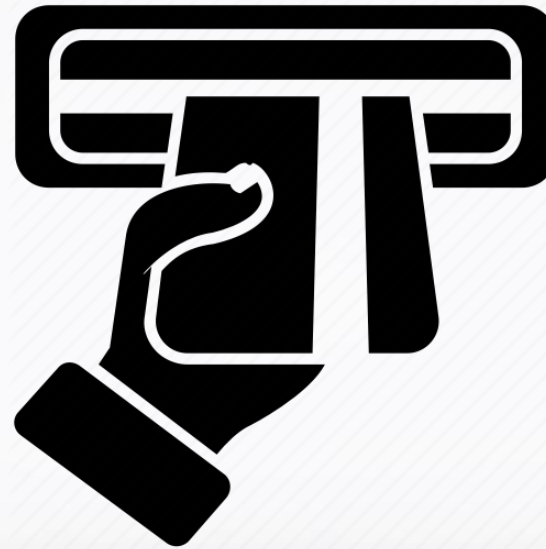
Database design



| Database simulation

Database design

GU	CUSTOMER(SSNUM	EQ0001)
GN		
GN		
GN		
GN		
GN		
GN		



GU	CUSTOMER(SSNUM	EQ0001)
GN		
GN		
GN		

| Database simulation

Some parameters

```
DBD  NAME=ACCTDBDA,  
      ACCESS=(HDAM,VSAM),  
      RMNAME=(DFSHDC40,9,1100,675),  
      PASSWD=NO,  
      VERSION='17SEP19-RMR',  
      DATXEXIT=NO,  
      ENCODING=CP1047  
      DATASET DD1=ACCTDBDA,  
      DEVICE=3380,  
      SIZE=4096,  
      SCAN=3,  
      FRSPC=(0,0),  
      SEARCHA=0
```

```
DBD  NAME=ACCTDBDB,  
      ACCESS=(HDAM,VSAM),  
      RMNAME=(DFSHDC40,2,5,10),  
      PASSWD=NO,  
      VERSION='17SEP19-RMR',  
      DATXEXIT=NO,  
      ENCODING=CP1047  
      DATASET DD1=ACCTDBDB,  
      DEVICE=3380,  
      SIZE=512,  
      SCAN=3,  
      FRSPC=(5,0),  
      SEARCHA=0
```

| Database simulation

Some parameters

SIZE	FRSPC	ANCH	RBN	BYTES	Buffers
<ul style="list-style-type: none">• How many database records will fit in your CI Block	<ul style="list-style-type: none">• Will reduce the performance impact caused by insert operations	<ul style="list-style-type: none">• Number of RAPs in a block or CI	<ul style="list-style-type: none">• Number of blocks or CIs in the root addressable area	<ul style="list-style-type: none">• Maximum number of bytes of a database record to be put in the root addressable area when segments in the database records are inserted consecutively.	<ul style="list-style-type: none">• The entire block or CI containing the segment is read from the database into a buffer.

| Database simulation

Bad example

RMNAME=(DFSHDC40,2,5,10),
DATASET SIZE=512,FRSPC=5

DATABASE ANALYZER Version 20.0
CA Technologies
2019

ROOT PLACEMENT REPORT

PAGE: 4
DATE: 07 OCT

TIME: 04 08 23

DBD NAME: ACCTDBDB HDAM/VSAM

DD NAME : ACCTDBDB

DS NAME : ID.PDQA.DB.ACCTDBDB - IDI003

DISPLACEMENT, IN BLOCKS, OF DATABASE ROOTS FROM THE HOME BLOCK CHOSEN BY RANDOMIZER DFSHDC40

OFFSET

FROM HOME	NUMBER OF ROOTS	0 PERCENT	10	20	30	40	50	60	70	80	90	100
			+	+	+	+	+	+	+	+	+	+
-10	0	0.0										
-9	0	0.0										
-8	0	0.0										
-7	0	0.0										
-6	0	0.0										
-5	0	0.0										
-4	0	0.0										
-3	0	0.0										
-2	2	0.0										
-1	4	0.1										
0	14	0.3										
+1	1	0.0										
+2	0	0.0										
+3	0	0.0										
+4	0	0.0										
+5	1	0.0										
+6	1	0.0										
+7	0	0.0										
+8	1	0.0										
+9	0	0.0										
+10	0	0.0										
OTHER	4,976	99.5	*****									

| Database simulation

Better example

RMNAME=(DFSHDC40,9,1100,676),
DATASET SIZE=4096

DATABASE ANALYZER Version 20.0
CA Technologies
2019

ROOT PLACEMENT REPORT

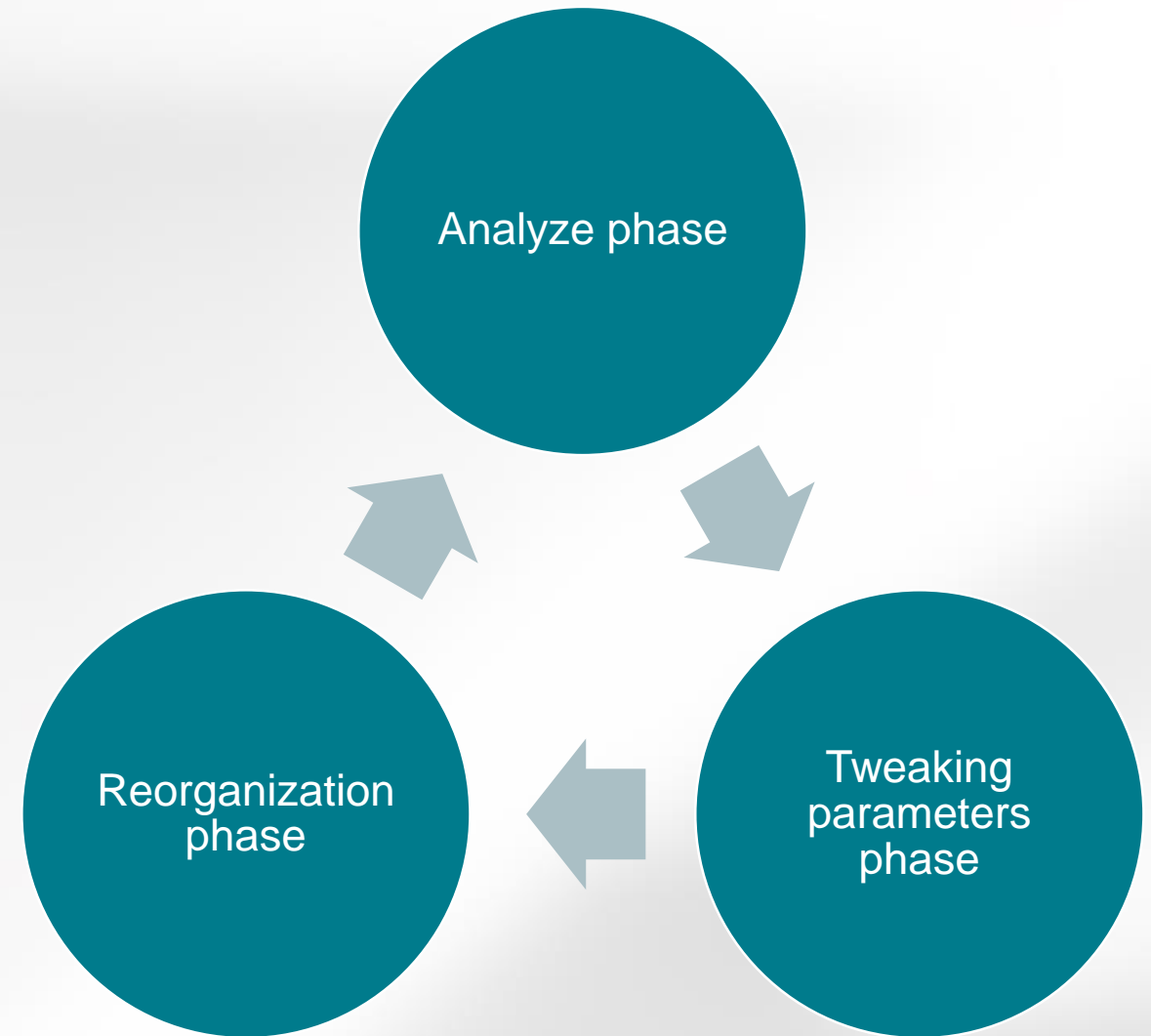
PAGE: 4
DATE: 15 OCT

TIME: 07 20 26

DBD NAME: ACCTDBDA HDAM/VSAM
DD NAME : ACCTDBDA
DS NAME : IDI.PDQA.DB.ACCTDBDA - IDI003
DISPLACEMENT, IN BLOCKS, OF DATABASE ROOTS FROM THE HOME BLOCK CHOSEN BY RANDOMIZER DFSHDC40
OFFSET

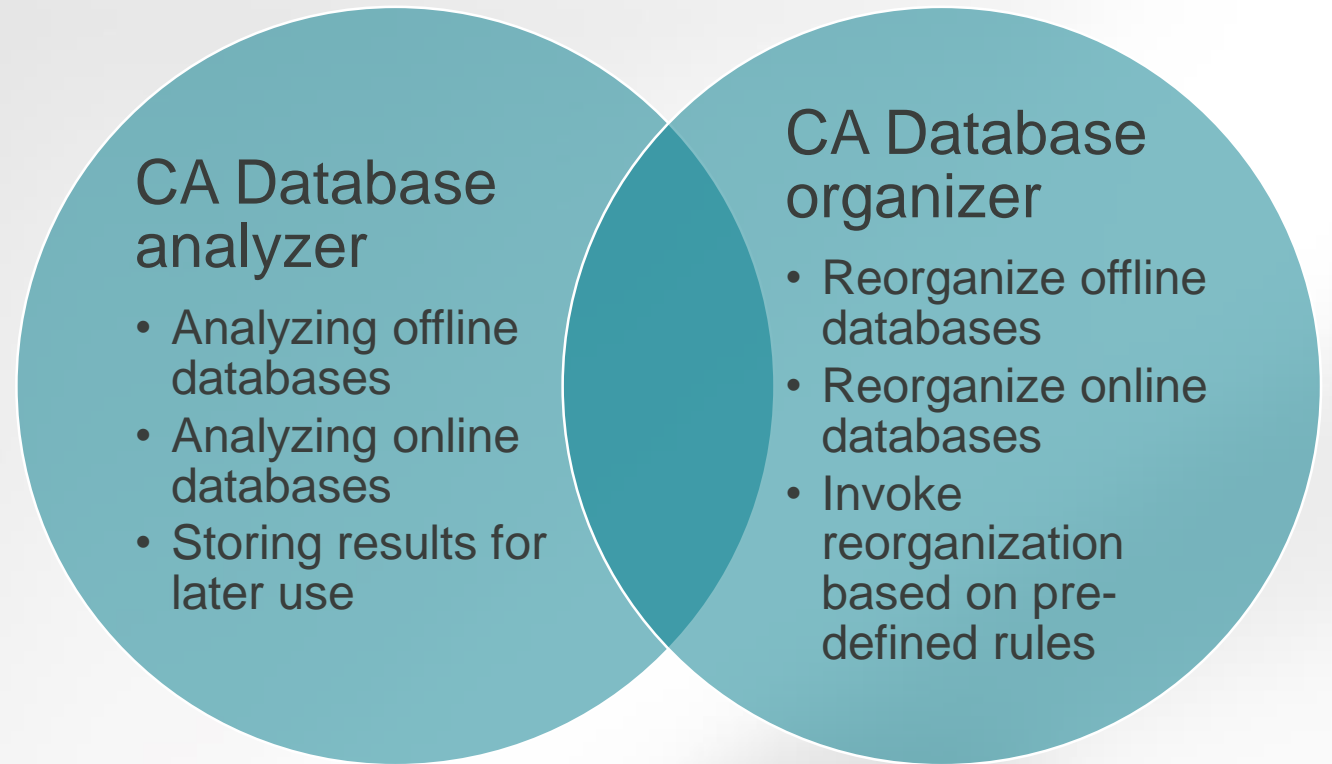
FROM HOME	NUMBER OF ROOTS	0 PERCENT	10	20	30	40	50	60	70	80	90	100
			+	+	+	+	+	+	+	+	+	+
-10	0	0.0										
-9	0	0.0										
-8	0	0.0										
-7	0	0.0										
-6	0	0.0										
-5	0	0.0										
-4	0	0.0										
-3	0	0.0										
-2	0	0.0										
-1	0	0.0										
0	4,999	100.0	*****									
+1	0	0.0										
+2	0	0.0										
+3	0	0.0										
+4	0	0.0										
+5	0	0.0										
+6	0	0.0										
+7	0	0.0										
+8	0	0.0										
+9	0	0.0										
+10	0	0.0										
OTHER	1	0.0										

Fixing database performance



Fixing database performance

Your friends





Demo time



| Thank you