



Do not forget to keep
your IMS database in
good shape

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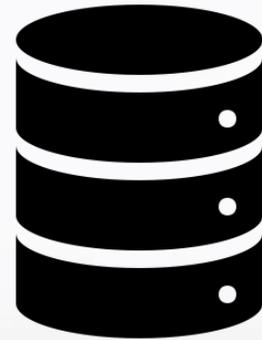
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Agenda

- 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



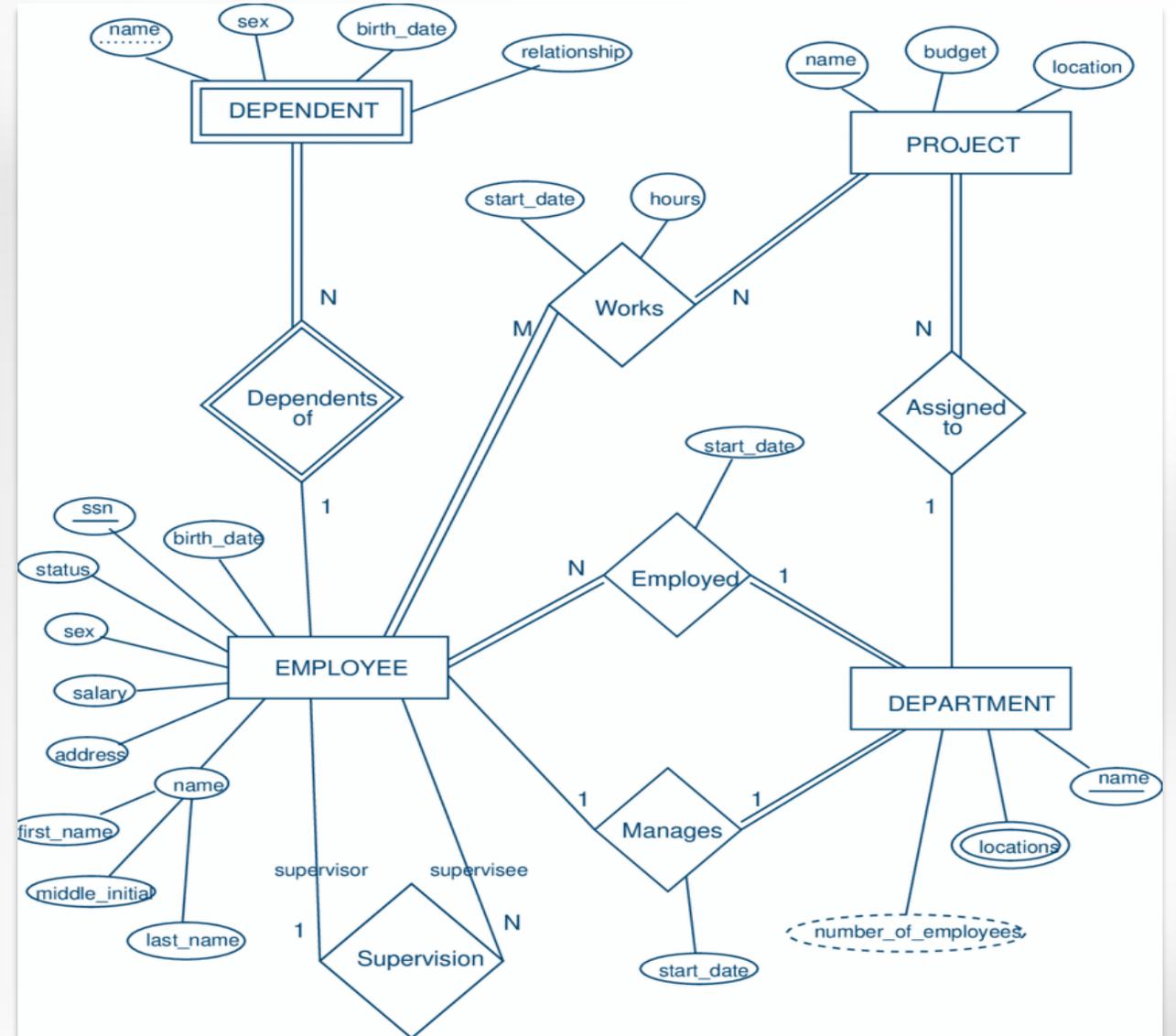
IMS DB



Security
Speed
Reliability

Where it starts

Database design



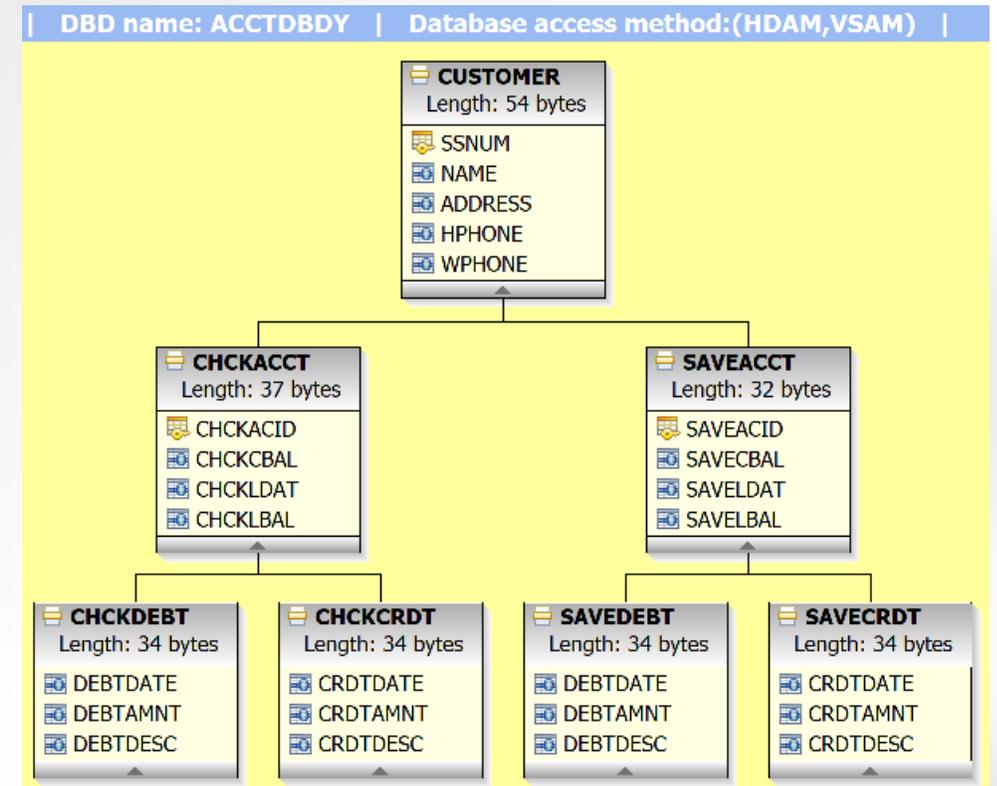
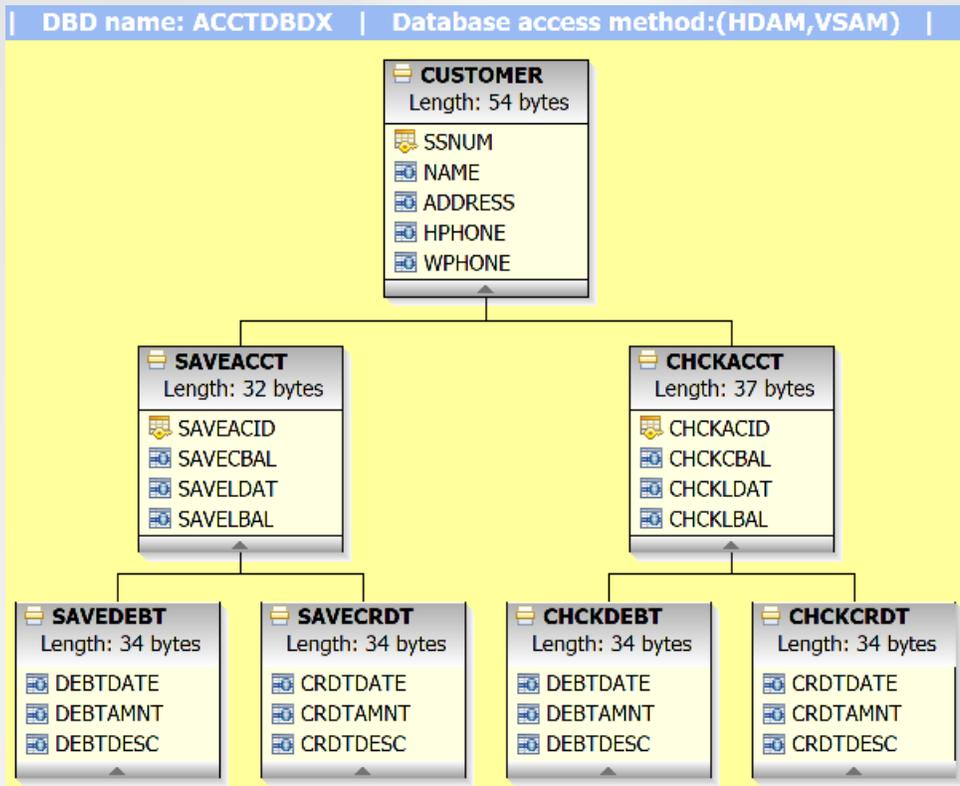
Where it starts

Database parameters

```
>>-+-----+--DATASET--DD1=ddname1----->
|      (1) |
|'-label'-----|
>+-----+-----+-----+----->
|      (2) | |      (4) |
+-- ,BLOCK=size0-----+ '- ,DEVICE=3380-----'
|      (3) |
|'- ,SIZE=( ,size1)-----|
>+-----+-----+-----+----->
|'- ,SCAN=cyls- ' '- ,
|'- ,VSAM- .
>+-----+-----+-----+----->
|'- ,ACCESS=(--HDAM--+- ,OSAM--+-)----->
|'- ,SEARCHA=+-0-+-|
|+--1-+|
>>-DBD--NAME=(dbname1)-----+----->
|'-DBVER=dbd_vers_number- '
|'- ,VSAM- .
>+-----+-----+-----+----->
|'- ,ACCESS=(--HDAM--+- ,OSAM--+-)----->
|'- ,SEARCHA=+-0-+-|
|+--1-+|
>>-SEGM--NAME=segname1-----+----->
|'- ,EXTERNALNAME=
|'- ,PARENT=0-----|
>+-----+-----+-----+----->
|'- ,SINGL- .
|'- ,PARENT=((segname2+-----+))
|'- ,DBLE- '
|'- ,PASSWD=--YES--|
>+-----+-----+-----+----->
|'- ,RMNAME=(mod+-----+ )----->
|'- ,anch-- ,rbn-- ,bytes- '
|'- ,DATA- .
>+-----+-----+-----+----->
|'- ,SOURCE=((segname, +-----+ ,db
|'- ,BYTES=--+max bytes-----|
|'- (max bytes,min bytes)-----|
>+-----+-----+-----+----->
|'- ,FREQ=frequency- '
|'- ,EXIT=----- (+-NONE-----+ )-----|
|+-- | A | - | C |-----+
>+-----+-----+-----+----->
|'- ,PTR=-----|
|'- ,PTR=-----| +--HIERBWD+ | |      (3) | |'- ,CTR- ' '- ,PAIRED- '
|+--TWIN+-----+ |'- ,LTWINBWD-----|
|+--TWINBWD+-----|
|'-NOTWIN--|
```

Database simulation

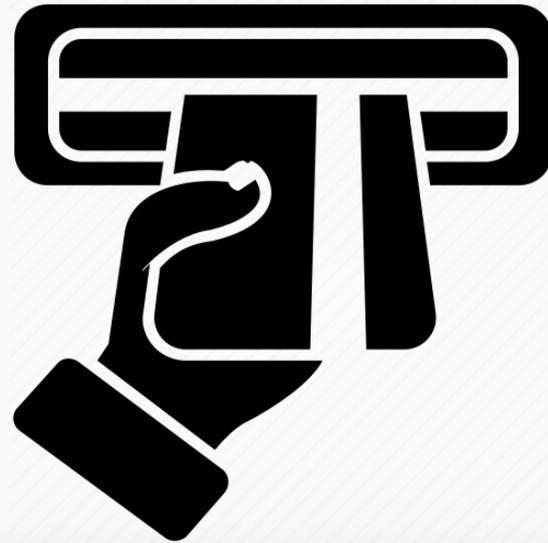
Database design



| Database simulation

Database design

GU	CUSTOMER(SSNUM	EQ0001)
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

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DATE: 07 OCT

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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	PERCENT	0	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

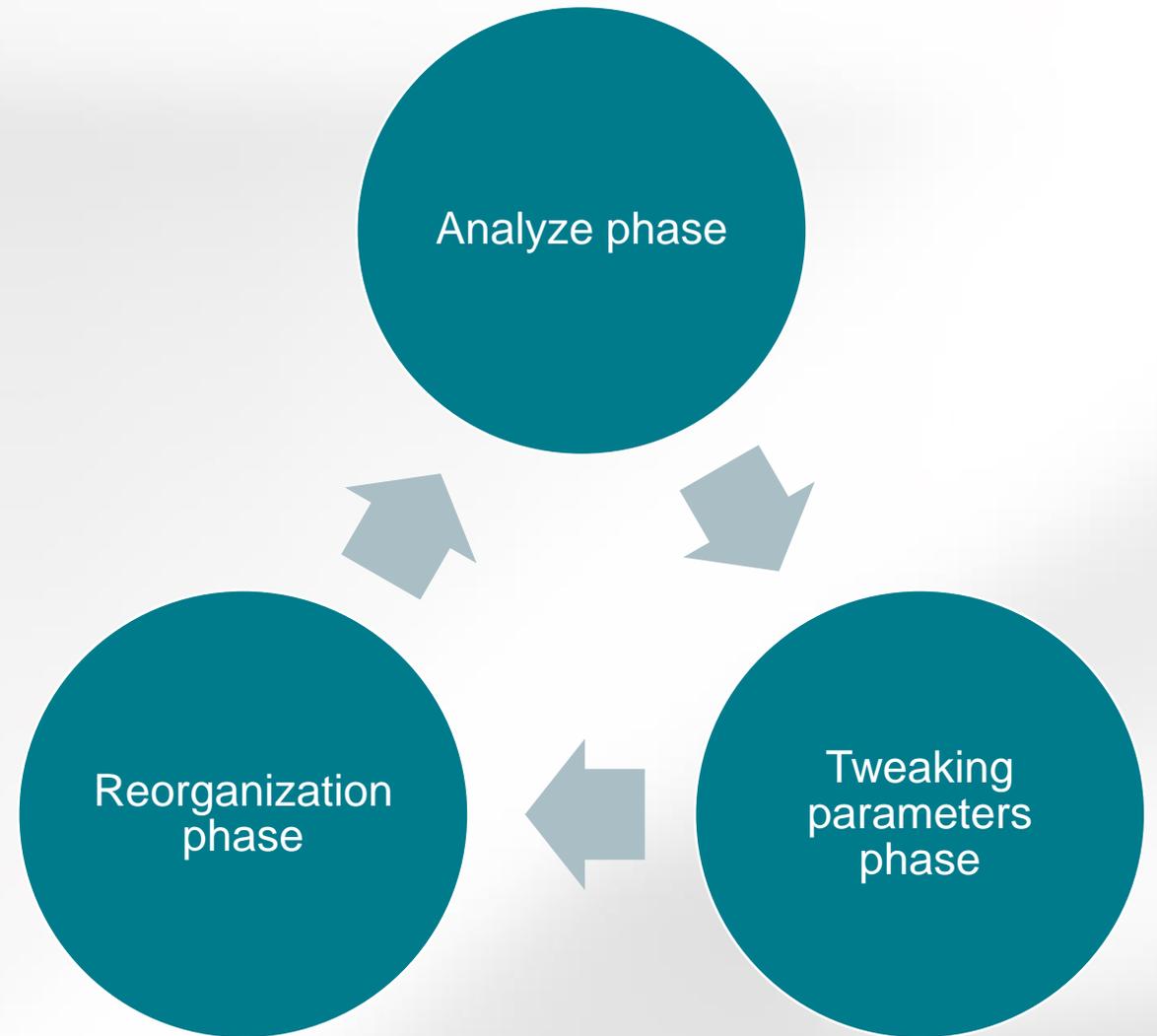
DBD NAME: ACCTDBDA HDAM/VSAM
DD NAME : ACCTDBDA
DS NAME : IDI.PDQA.DB.ACCTDBDA - IDI003

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

OFFSET

FROM HOME	NUMBER OF ROOTS	PERCENT	0	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

CA Database analyzer

- Analyzing offline databases
- Analyzing online databases
- Storing results for later use

CA Database organizer

- Reorganize offline databases
- Reorganize online databases
- Invoke reorganization based on pre-defined rules



Demo time



| Thank you