

HASH

```
CREATE CLUSTER hash(dpt integer) single TABLE hashkeys 371 PCTFREE 0;
```

```
CREATE TABLE seus (  
  id INTEGER,  
  ciutat CHAR(40)  
  ) PCTFREE 0 ENABLE ROW MOVEMENT;  
-- Id és clau candidata
```

```
CREATE TABLE departaments (  
  id INTEGER,  
  nom CHAR(200),  
  seu INTEGER,  
  tasques CHAR(2000)  
  ) PCTFREE 0 ENABLE ROW MOVEMENT;  
-- Id és clau candidata
```

```
CREATE TABLE empleats (  
  id INTEGER,  
  nom CHAR(20),  
  sou INTEGER,  
  edat INTEGER,  
  dpt INTEGER,  
  historial CHAR(50)  
  ) CLUSTER hash(dpt);  
-- Id és clau candidata
```

```
--ALTER TABLE empleats SHRINK SPACE;  
ALTER TABLE departaments SHRINK SPACE;  
ALTER TABLE seus SHRINK SPACE;
```

#ad

```
SELECT TABLE_NAME, ((NUM_ROWS * AVG_ROW_LEN)/(8*1024)) AS B FROM  
USER_TABLES;
```

B\*1,25

```
SELECT * FROM USER_TS_QUOTAS;
```

BITMAP

```
CREATE TABLE seus (  
  id INTEGER,  
  ciutat CHAR(40)  
  ) PCTFREE 0 ENABLE ROW MOVEMENT;  
-- Id és clau candidata
```

```
CREATE TABLE empleats (  
  id INTEGER,  
  nom CHAR(200),  
  sou INTEGER,  
  edat INTEGER,  
  dpt INTEGER,  
  historial CHAR(500)  
  ) PCTFREE 0 ENABLE ROW MOVEMENT;  
-- Id és clau candidata
```

```
CREATE TABLE departaments (  
  id INTEGER,  
  nom CHAR(200),  
  seu INTEGER,  
  tasques CHAR(2000)  
  ) PCTFREE 0 ENABLE ROW MOVEMENT;  
-- Id és clau candidata
```

```
ALTER TABLE empleats SHRINK SPACE;  
ALTER TABLE departaments SHRINK SPACE;  
ALTER TABLE seus SHRINK SPACE;
```

```
ALTER TABLE departaments MINIMIZE RECORDS_PER_BLOCK;  
CREATE bitmap INDEX dptseu ON departaments(seu) PCTFREE 0;
```

B+

```
CREATE TABLE seus (  
  id INTEGER,  
  ciutat CHAR(40)  
  ) PCTFREE 0 ENABLE ROW MOVEMENT;  
-- Id és clau candidata
```

```
CREATE TABLE empleats (  
  id INTEGER,  
  nom CHAR(200),  
  sou INTEGER,  
  edat INTEGER,  
  dpt INTEGER,  
  historial CHAR(500)  
  ) PCTFREE 0 ENABLE ROW MOVEMENT;  
-- Id és clau candidata
```

```
CREATE TABLE departaments (  
  id INTEGER,  
  nom CHAR(200),  
  seu INTEGER,  
  tasques CHAR(2000)  
  ) PCTFREE 0 ENABLE ROW MOVEMENT;  
-- Id és clau candidata
```

```
ALTER TABLE empleats SHRINK SPACE;  
ALTER TABLE departaments SHRINK SPACE;  
ALTER TABLE seus SHRINK SPACE;
```

```
CREATE INDEX dpt ON empleats(dpt) PCTFREE 33;
```

SOLU ex 2:

```
CREATE TABLE seus (  
  id INTEGER,  
  ciutat CHAR(40)  
  ) PCTFREE 0 ENABLE ROW MOVEMENT;  
-- Id és clau candidata
```

```
CREATE TABLE departaments (  
  id INTEGER,  
  nom CHAR(200),  
  seu INTEGER,  
  tasques CHAR(2000)  
  ) PCTFREE 0 ENABLE ROW MOVEMENT;  
-- Id és clau candidata
```

```
CREATE TABLE empleats (  
  id INTEGER,  
  nom CHAR(20),  
  sou INTEGER,  
  edat INTEGER,  
  dpt INTEGER,  
  historial CHAR(50)  
  ) PCTFREE 0 ENABLE ROW MOVEMENT;  
-- Id és clau candidata
```

```
ALTER TABLE empleats SHRINK SPACE;  
ALTER TABLE departaments SHRINK SPACE;  
ALTER TABLE seus SHRINK SPACE;
```

```
ALTER TABLE DEPARTAMENTS MINIMIZE RECORDS_PER_BLOCK;  
CREATE bitmap INDEX seu ON departaments(seu) PCTFREE 0;
```

```
ALTER TABLE empleats MINIMIZE RECORDS_PER_BLOCK;  
CREATE bitmap INDEX dpt ON empleats(dpt) PCTFREE 0;
```

```
CREATE INDEX edat ON empleats(edat,sou) PCTFREE 33;
```

```
SELECT * FROM empleats e, departaments d WHERE e.dpt = d.id AND sou > 30000;  
SELECT AVG(sou) FROM empleats WHERE edat > 35;  
SELECT COUNT(*) FROM empleats WHERE dpt = 4;  
SELECT * FROM departaments WHERE seu = 2 AND nom > 'CMP';
```

## CLUSTERED STRUCTURE:

```
CREATE CLUSTER cluster_name (a1 type) PCTFREE 33;
```

```
CREATE INDEX index_name ON CLUSTER cluster_name PCTFREE  
33;
```

```
CREATE TABLE table_name1 (...a2 type,...) CLUSTER  
cluster_name(a2);
```

```
CREATE TABLE table_name2 (...a3 type,...) CLUSTER  
cluster_name(a3);
```

Execute insertions

```
ALTER INDEX index_name REBUILD;
```

## CLUSTERED INDEX:

```
CREATE TABLE name (attributes, PRIMARY KEY(...))  
ORGANIZATION INDEX PCTFREE 33;
```

Execute insertions

```
ALTER TABLE name MOVE;
```