

## Задание 1

```
CREATE TABLE new_jobs
```

```
AS (SELECT jobs.job_id, jobs.job_title, jobs.min_salary, jobs.max_salary, job_history.employee_id,
job_history.start_date, job_history.end_date, job_history.department_id
FROM jobs, job_history);
```

```
select * from new_jobs;
```

JOB_ID	JOB_TITLE	EMPLOYEE_ID	DEPARTMENT_ID	START_DATE	END_DATE	MIN_SALARY	MAX_SALARY
1 AD PRES	President	102	60	13-JAN-01	24-JUL-06	20080	40000
2 AD VP	Administration Vice President	102	60	13-JAN-01	24-JUL-06	15000	30000
3 AD ASST	Administration Assistant	102	60	13-JAN-01	24-JUL-06	3000	6000
4 FI_MGR	Finance Manager	102	60	13-JAN-01	24-JUL-06	8200	16000
5 FI_ACCOUNT	Accountant	102	60	13-JAN-01	24-JUL-06	4200	9000
6 AC_MGR	Accounting Manager	102	60	13-JAN-01	24-JUL-06	8200	16000
7 AC_ACCOUNT	Public Accountant	102	60	13-JAN-01	24-JUL-06	4200	9000
8 SA_MAN	Sales Manager	102	60	13-JAN-01	24-JUL-06	10000	20080
9 SA_REP	Sales Representative	102	60	13-JAN-01	24-JUL-06	6000	12008
10 PU_MAN	Purchasing Manager	102	60	13-JAN-01	24-JUL-06	8000	15000
11 PU_CLERK	Purchasing Clerk	102	60	13-JAN-01	24-JUL-06	2500	5500
12 ST_MAN	Stock Manager	102	60	13-JAN-01	24-JUL-06	5500	8500
13 ST_CLERK	Stock Clerk	102	60	13-JAN-01	24-JUL-06	2008	5000
14 SH_CLERK	Shipping Clerk	102	60	13-JAN-01	24-JUL-06	2500	5500
15 IT_PROG	Programmer	102	60	13-JAN-01	24-JUL-06	4000	10000
16 MK_MAN	Marketing Manager	102	60	13-JAN-01	24-JUL-06	9000	15000
17 MK_REP	Marketing Representative	102	60	13-JAN-01	24-JUL-06	4000	9000
18 HR_REP	Human Resources Representative	102	60	13-JAN-01	24-JUL-06	4000	9000
19 PR_REP	Public Relations Representative	102	60	13-JAN-01	24-JUL-06	4500	10500
20 AD PRES	President	101	110	21-SEP-97	27-OCT-01	20080	40000
21 AD VP	Administration Vice President	101	110	21-SEP-97	27-OCT-01	15000	30000
22 AD ASST	Administration Assistant	101	110	21-SEP-97	27-OCT-01	3000	6000
23 FI_MGR	Finance Manager	101	110	21-SEP-97	27-OCT-01	8200	16000
24 FI_ACCOUNT	Accountant	101	110	21-SEP-97	27-OCT-01	4200	9000

```
CREATE CLUSTER cluster_1 (job_id varchar(10)) SIZE 512;
CREATE CLUSTER cluster_2 (job_id varchar(10)) SIZE 1024;
CREATE CLUSTER cluster_3 (job_id varchar(10)) SIZE 2048;
CREATE CLUSTER cluster_4 (job_id varchar(10)) SIZE 4096;
```

Каждый кластер отличается размером ключа

CLUSTER_NAME	TABLESPACE_NAME	PCT_FREE	PCT_USED	KEY_SIZE	INI_TRANS	MAX_TRANS	INITIAL_EXTENT	NEXT_EXTENT	MIN_EXTENTS	MAX_EXTENTS	PCT_INCREASE	FREELISTS	FREELIST_GROUPS	AVG_BLOCKS_PER_KEY	CLUSTER_TYPE
1 C_USER#	SYSTEM	10	40	372	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX
2 C_TS#	SYSTEM	10	40	(null)	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX
3 C_TOID_VERSION#	SYSTEM	10	40	(null)	2	255	16384	106496	1	2147483645	(null)	1	1	(null)	INDEX
4 C_RG#	SYSTEM	10	40	(null)	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX
5 C_OBJ#_INTCOL#	SYSTEM	5	40	(null)	2	255	2097152	204800	1	2147483645	(null)	1	1	(null)	INDEX
6 C_OBJ#	SYSTEM	5	40	800	2	255	139264	204800	1	2147483645	(null)	1	1	(null)	INDEX
7 C_MLOG#	SYSTEM	10	40	(null)	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX
8 C_FILE#_BLOCK#	SYSTEM	10	40	225	2	255	24576	1048576	1	2147483645	(null)	1	1	(null)	INDEX
9 C_COBJ#	SYSTEM	0	50	300	2	255	57344	1048576	1	2147483645	(null)	1	1	(null)	INDEX
10 CLUSTERHASH	SYSTEM	10	40	512	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	HASH
11 CLUSTER4	SYSTEM	10	40	4096	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX
12 CLUSTER3	SYSTEM	10	40	2048	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX
13 CLUSTER2	SYSTEM	10	40	1024	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX
14 CLUSTER1	SYSTEM	10	40	512	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX
15 SMON_SCN_TO_TIME_AUX	SYSAUX	10	(null)	(null)	2	255	65536	1048576	1	2147483645	(null)	(null)	(null)	(null)	INDEX

Script Output x Explain Plan x Autotrace x Query Result x Query Result 1 x Query Result 2 x Query Result 3 x Query Result 4 x																	
All Rows Fetched: 15 in 0.191 seconds																	
	MIN_EXTENTS	MAX_EXTENTS	PCT_INCREASE	FREELISTS	FREELIST_GROUPS	AVG_BLOCKS_PER_KEY	CLUSTER_TYPE	FUNCTION	HASHKEYS	DEGREE	INSTANCES	CACHE	BUFFER_POOL	FLASH_CACHE	CELL_FLASH_CACHE	SINGLE_TABLE	DEPENDENCIES
1.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
2.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
3.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
4.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
5.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
6.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
7.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
8.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
9.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
10.	1	2147483645	(null)	1	1	(null)	HASH	DEFAULT T2	11	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
11.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
12.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
13.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
14.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
15.	1	2147483645	(null)	(null)	(null)	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED

Задание 2

CREATE CLUSTER cluster\_hash(job\_id varchar(10)) SIZE 512 HASHKEYS 10;  
select \* from USER\_CLUSTERS;

	CLUSTER_NAME	TABLESPACE_NAME	PCT_FREE	PCT_USED	KEY_SIZE	INI_TRANS	MAX_TRANS	INITIAL_EXTENT	NEXT_EXTENT	MIN_EXTENTS	MAX_EXTENTS	PCT_INCREASE	FREELISTS	FREELIST_GROUPS	AVG_BLOCKS_PER_KEY	CLUSTER_TYPE	FUNCTION
1	C_USER#	SYSTEM	10	40	372	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX	(null)
2	C_TS#	SYSTEM	10	40	(null)	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX	(null)
3	C_TOTD_VERSION#	SYSTEM	10	40	(null)	2	255	16384	106496	1	2147483645	(null)	1	1	(null)	INDEX	(null)
4	C_RG#	SYSTEM	10	40	(null)	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX	(null)
5	C_OBJ#_INTCOL#	SYSTEM	5	40	(null)	2	255	2097152	204800	1	2147483645	(null)	1	1	(null)	INDEX	(null)
6	C_OBJ#	SYSTEM	5	40	800	2	255	139264	204800	1	2147483645	(null)	1	1	(null)	INDEX	(null)
7	C_MLOG#	SYSTEM	10	40	(null)	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX	(null)
8	C_FILE#_BLOCK#	SYSTEM	10	40	225	2	255	24576	1048576	1	2147483645	(null)	1	1	(null)	INDEX	(null)
9	C_COBJ#	SYSTEM	0	50	300	2	255	57344	1048576	1	2147483645	(null)	1	1	(null)	INDEX	(null)
10	CLUSTERHASH	SYSTEM	10	40	512	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	HASH	DEFAULT
11	CLUSTER4	SYSTEM	10	40	4096	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX	(null)
12	CLUSTER3	SYSTEM	10	40	2048	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX	(null)
13	CLUSTER2	SYSTEM	10	40	1024	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX	(null)
14	CLUSTER1	SYSTEM	10	40	512	2	255	65536	1048576	1	2147483645	(null)	1	1	(null)	INDEX	(null)
15	SMON_SCN_TO_TIME_AUX_SYSAUX	SYSTEM	10	(null)	(null)	2	255	65536	1048576	1	2147483645	(null)	(null)	(null)	(null)	INDEX	(null)

	MIN_EXTENTS	MAX_EXTENTS	PCT_INCREASE	FREELISTS	FREELIST_GROUPS	AVG_BLOCKS_PER_KEY	CLUSTER_TYPE	FUNCTION	HASHKEYS	DEGREE	INSTANCES	CACHE	BUFFER_POOL	FLASH_CACHE	CELL_FLASH_CACHE	SINGLE_TABLE	DEPENDENCIES
1.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
2.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
3.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
4.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
5.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
6.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
7.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
8.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
9.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
10.	1	2147483645	(null)	1	1	(null)	HASH	DEFAULT2	11	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
11.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
12.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
13.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
14.	1	2147483645	(null)	1	1	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED
15.	1	2147483645	(null)	(null)	(null)	(null)	INDEX	(null)	0	1	1	N	DEFAULT	DEFAULT	DEFAULT	N	DISABLED

Задание 3

CREATE TYPE employees\_typ AS OBJECT (  
  employee\_id  NUMBER(6),  
  first\_name   VARCHAR2(20),  
  last\_name    VARCHAR2(25),  
  email        VARCHAR2(25),  
  phone\_number VARCHAR2(20),  
  hire\_date    DATE CONSTRAINT,  
  job\_id       VARCHAR2(10),  
  salary       NUMBER(8,2),  
  commission\_pct NUMBER(2,2),  
  manager\_id   NUMBER(6),  
  department\_id NUMBER(4)  
);

CREATE TABLE employee\_nested1(emp\_nest1 employees\_type ) NESTED TABLE empNest1 STORE AS NESTED\_CHAIRS;  
CREATE TABLE employee\_nested2 (emp\_nest2 employees\_type) NESTED TABLE empNest2 STORE AS NESTED\_CHAIRS RETURN AS VALUE;  
CREATE TABLE employee\_nested3 (emp\_nest3 employees\_type ) NESTED TABLE empNest3 STORE AS NESTED\_CHAIRS RETURN AS LOCATOR;

#### Задание 4

```
CREATE TYPE employee_type AS OBJECT (  
    employee_id    NUMBER(1),  
    job_id varchar(10)  
);
```

```
CREATE TABLE employee_table OF employee_type;
```