بسمه تعالی

فاز دوم پروژه پایگاه داده‌ها

سیستم اختصاص صندوق امانات بانک

اعضا

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دانشگاه صنعتی شریف

بخش اول :

```
create table customer (
      nationalID      bigint not null,
      primary key (nationalID)
);

insert into customer values(1000000001);
insert into customer values(1000000002);
insert into customer values(1000000004);
insert into customer values(1000000003);
insert into customer values(1000000005);
insert into customer values(1000000006);
insert into customer values(1000000007);
insert into customer values(1000000008);
insert into customer values(1000000009);
insert into customer values(1000000010);
insert into customer values(1000000011);
insert into customer values(1000000012);
insert into customer values(1000000013);
insert into customer values(1000000014);
insert into customer values(1000000015);
insert into customer values(1000000016);
insert into customer values(1000000017);
insert into customer values(1000000018);
insert into customer values(1000000019);
insert into customer values(1000000020);
insert into customer values(1000000021);
insert into customer values(1000000022);
insert into customer values(1000000023);
insert into customer values(1000000024);
insert into customer values(1000000025);
insert into customer values(1000000026);
insert into customer values(1000000027);
insert into customer values(1000000028);
insert into customer values(1000000029);
insert into customer values(1000000030);
insert into customer values(1000000031);
insert into customer values(1000000032);
insert into customer values(1000000033);
insert into customer values(1000000034);
insert into customer values(1000000035);
insert into customer values(1000000036);
insert into customer values(1000000037);

select* from customer;
```

```
create table commercialCustomer (
    nationalID  bigint not null,
    firstName   varchar(20),
    lastName    varchar(20),
    gender      varchar(15),
    age         int,
    isCommercial bit,
    isOrdinary   bit,
    primary key (nationalID),
    foreign key(nationalID) references customer(nationalID)
     on delete cascade
     on update cascade,
    check       (age > 0)
);

insert into commercialCustomer
values(1000000001,'kian','kashefi','male',39,1,0)
insert into commercialCustomer
values(1000000002,'zahra','safari','female',20,1,0)
insert into commercialCustomer
values(1000000003,'fatemezahra','rezaei','female',21,1,0)
insert into commercialCustomer
values(1000000004,'nazaninzahra','jamalzade','female',19,1,0)
insert into commercialCustomer
values(1000000005,'farhad','esi','male',45,1,0)
insert into commercialCustomer
values(1000000006,'amirhossein','moradi','male',56,1,0)
insert into commercialCustomer
values(1000000007,'parimehr','radfar','male',15,1,0)
insert into commercialCustomer
values(1000000008,'koroush','khamesh','male',26,1,0)
insert into commercialCustomer
values(1000000009,'kave','mirzaei','male',25,1,0)
insert into commercialCustomer
values(1000000010,'artemis','kianian','female',11,1,0)
insert into commercialCustomer
values(1000000011,'laleh','arshadi','female',36,1,0)
insert into commercialCustomer
values(1000000012,'morteza','amini','male',43,1,0)
insert into commercialCustomer
values(1000000013,'lohrasb','suzuki','male',52,1,0)
insert into commercialCustomer
values(1000000014,'majid','farokhi','male',63,1,0)
insert into commercialCustomer
values(1000000015,'joey','king','female',22,1,0)
insert into commercialCustomer
values(1000000016,'amirali','yaghobi','male',18,1,0)
insert into commercialCustomer
values(1000000017,'mahdi','gheidi','male',21,1,0)
```

```
insert into commercialCustomer
values(1000000018,'ziba','barani','female',23,1,0)
insert into commercialCustomer
values(1000000019,'davood','khezri','male',87,1,0)
insert into commercialCustomer
values(1000000020,'mehdi','kharrazi','male',47,1,0)
select* from commercialCustomer


create table ordinaryCustomer (
      nationalID      bigint not null,
      firstName       varchar(20),
      lastName        varchar(20),
      gender          varchar(15),
      age             int,
      isCommercial    bit,
      isOrdinary      bit,
      primary key (nationalID),
      foreign key(nationalID) references customer(nationalID)
            on delete cascade
            on update cascade,
      check      (age > 0)
);

insert into ordinaryCustomer
values(1000000021,'ali','yashmi','male',22,0,1)
insert into ordinaryCustomer
values(1000000022,'naghi','mamoli','male',49,0,1)
insert into ordinaryCustomer
values(1000000023,'taghi','mamoli','male',51,0,1)
insert into ordinaryCustomer
values(1000000024,'reza','tarokh','male',38,0,1)
insert into ordinaryCustomer
values(1000000025,'neda','yasi','transGender',29,0,1)
insert into ordinaryCustomer
values(1000000026,'amir','tataloo','male',30,0,1)
insert into ordinaryCustomer
values(1000000027,'merlin','monro','female',22,0,1)
insert into ordinaryCustomer
values(1000000028,'melorin','memari','female',27,0,1)
insert into ordinaryCustomer
values(1000000029,'faeze','zohri','female',29,0,1)
insert into ordinaryCustomer
values(1000000030,'fateme','vahedi','female',36,0,1)
insert into ordinaryCustomer
values(1000000031,'roya','rostami','female',83,0,1)
insert into ordinaryCustomer
values(1000000032,'zahra','rahmani','female',12,0,1)
insert into ordinaryCustomer
values(1000000033,'ahmad','ahmadi','male',31,0,1)
```

```
insert into ordinaryCustomer
values(1000000034,'kazem','koohi','male',40,0,1)
insert into ordinaryCustomer
values(1000000035,'karen','lotfian','male',23,0,1)
insert into ordinaryCustomer
values(1000000036,'pari','rayej','female',31,0,1)
insert into ordinaryCustomer
values(1000000037,'nastaran','kavosh','female',22,0,1)

select* from ordinaryCustomer


create table commercialCustomerAddress (
      CID        bigint not null,
      address    varchar(100) not null,
      primary key(CID, address),
      foreign key(CID) references commercialCustomer(nationalID)
            on delete cascade
            on update cascade
);

insert into commercialCustomerAddress values(1000000001,'slkga;kfhj')
insert into commercialCustomerAddress values(1000000002,'.fjbnall')
insert into commercialCustomerAddress values(1000000003,'awkwjrg')
insert into commercialCustomerAddress values(1000000004,'dkhakhlll')
insert into commercialCustomerAddress values(1000000005,'wroigaoj')
insert into commercialCustomerAddress values(1000000006,'dorrihjajh')
insert into commercialCustomerAddress values(1000000007,'prspfbs;fl')
insert into commercialCustomerAddress values(1000000008,'[qeigpsdj')
insert into commercialCustomerAddress values(1000000009,'w[oyq[hn')
insert into commercialCustomerAddress values(1000000010,'pewuypom')
insert into commercialCustomerAddress values(1000000011,'algxvcbnxn')
insert into commercialCustomerAddress values(1000000012,'qeojtpqeo')
insert into commercialCustomerAddress values(1000000013,'qepegsfj[n')
insert into commercialCustomerAddress values(1000000014,'qpeiiqeyb')
insert into commercialCustomerAddress values(1000000015,'qoeiggjn')
insert into commercialCustomerAddress values(1000000016,'xaxxl')
insert into commercialCustomerAddress values(1000000017,'algnxn')
insert into commercialCustomerAddress values(1000000018,'qeojdftpqeo')
insert into commercialCustomerAddress values(1000000019,'qepeg[n')
insert into commercialCustomerAddress values(1000000020,'qpeiib')

select* from commercialCustomerAddress


create table ordinaryCustomerAddress (
      CID        bigint not null,
      address    varchar(100) not null,
      primary key(CID, address),
      foreign key(CID) references ordinaryCustomer(nationalID)
```

```
            on delete cascade
            on update cascade
);
insert into ordinaryCustomerAddress values(1000000021,'akgjag')
insert into ordinaryCustomerAddress values(1000000021,'lqowiuqoei')
insert into ordinaryCustomerAddress values(1000000022,'qoielknx')
insert into ordinaryCustomerAddress values(1000000023,'xncnvkj')
insert into ordinaryCustomerAddress values(1000000024,'xncbnwp')
insert into ordinaryCustomerAddress values(1000000025,'qoertogjk')
insert into ordinaryCustomerAddress values(1000000026,'xmaqpeoi')
insert into ordinaryCustomerAddress values(1000000027,'mxleij')
insert into ordinaryCustomerAddress values(1000000028,'qoeutpdj')
insert into ordinaryCustomerAddress values(1000000029,'aaoqjl')
insert into ordinaryCustomerAddress values(1000000030,'lqeigi')
insert into ordinaryCustomerAddress values(1000000031,'zqepqiue')
insert into ordinaryCustomerAddress values(1000000032,'adkqwegjsi')
insert into ordinaryCustomerAddress values(1000000033,'oqeiasfgon')
insert into ordinaryCustomerAddress values(1000000034,'qeitolvzlk')
insert into ordinaryCustomerAddress values(1000000035,'adkgjsi')
insert into ordinaryCustomerAddress values(1000000036,'oqeigon')
insert into ordinaryCustomerAddress values(1000000037,'qeilvzlk')

select * from ordinaryCustomerAddress


create table commercialCustomerAccount (
     CID                  bigint not null,
     accountNo            varchar(20) not null,
     credit               numeric(30,2),
     primary key(CID, accountNo),
     foreign key(CID) references commercialCustomer(nationalID)
          on delete cascade
          on update cascade
);

insert into commercialCustomerAccount values(1000000001,
87613713984679386, 28385738.00)
insert into commercialCustomerAccount values(1000000002,
99246872983948747, 235719358.)
insert into commercialCustomerAccount values(1000000003,
1938571937298524, 24989829.95)
insert into commercialCustomerAccount values(1000000004,
1038579867296729, 946258195829458.50)
insert into commercialCustomerAccount values(1000000005, 3948209509200,
230518106024986.00)
insert into commercialCustomerAccount values(1000000006,
19386794682946, 29395719358.00)
insert into commercialCustomerAccount values(1000000007, 9567945890143,
3945749948.00)
```

```
insert into commercialCustomerAccount values(1000000008,
2948672948524524, 938567989.05)
insert into commercialCustomerAccount values(1000000009,
496847598501134, 45925183.00)
insert into commercialCustomerAccount values(1000000010,
139581795829567, 6998452985.00)
insert into commercialCustomerAccount values(1000000011, 5837458713857,
359739458.00)
insert into commercialCustomerAccount values(1000000012, 2935793581938,
293472.00)
insert into commercialCustomerAccount values(1000000013, 4597928739574,
2379428123.20)
insert into commercialCustomerAccount values(1000000014,
24857981032342, 2358729581.00)
insert into commercialCustomerAccount values(1000000015, 349587013987,
24685766345.00)
insert into commercialCustomerAccount values(1000000016, 1938759135879,
2392857987.00)
insert into commercialCustomerAccount values(1000000017,
138723958913235, 23598279358.00)
insert into commercialCustomerAccount values(1000000018, 1294793823985,
91938759287.00)
insert into commercialCustomerAccount values(1000000019,
245928938572938, 234273.10)
insert into commercialCustomerAccount values(1000000020,
293587298523987, 23471935813859928579.00)
select* from commercialCustomerAccount


create table ordinaryCustomerAccount (
     CID                  bigint not null,
     accountNo            varchar(20) not null,
     credit               numeric(30,2),
     primary key(CID, accountNo),
     foreign key(CID) references ordinaryCustomer(nationalID)
          on delete cascade
          on update cascade
);

insert into ordinaryCustomerAccount values(1000000021, 13846984756187,
1876135.28)
insert into ordinaryCustomerAccount values(1000000022, 385762049682757,
839183.57)
insert into ordinaryCustomerAccount values(1000000023,
6024968204602940, 47952987.00)
insert into ordinaryCustomerAccount values(1000000024, 698258035985098,
4579581759.00)
insert into ordinaryCustomerAccount values(1000000025,
10357139589873513, 43498572.00)
```

```
insert into ordinaryCustomerAccount values(1000000026,
3103513013098313, 13958959.00)
insert into ordinaryCustomerAccount values(1000000027,
12948175913013515, 318571.00)
insert into ordinaryCustomerAccount values(1000000028, 103481305051510,
31918719894.00)
insert into ordinaryCustomerAccount values(1000000029,
13041350193293294, 1135130958.50)
insert into ordinaryCustomerAccount values(1000000030, 575698429852498,
83460498.95)
insert into ordinaryCustomerAccount values(1000000031, 44529358298723,
39487251.50)
insert into ordinaryCustomerAccount values(1000000032, 69869348794891,
5834759879.00)
insert into ordinaryCustomerAccount values(1000000033, 1305813059809,
492489487.00)
insert into ordinaryCustomerAccount values(1000000034, 158698981204920,
249686895.02)
insert into ordinaryCustomerAccount values(1000000035, 989568400981395,
498672941.00)
insert into ordinaryCustomerAccount values(1000000036, 103513958279845,
28529485.00)
insert into ordinaryCustomerAccount values(1000000037,
33984579384501234, 29384.00)
select * from ordinaryCustomerAccount


create table bussinessPlan (
 planID    int not null,
 discountPercent  numeric(5,2),
 primary key(planID)
);

insert into businessPlan values(1000000001, 42.05)
insert into businessPlan values(1000000002, 30.00)
insert into businessPlan values(1000000003, 22.00)
insert into businessPlan values(1000000004, 36.26)
insert into businessPlan values(1000000005, 47.50)
insert into businessPlan values(1000000006, 45.60)
insert into businessPlan values(1000000007, 15.00)
insert into businessPlan values(1000000008, 27.00)
insert into businessPlan values(1000000009, 18.00)
insert into businessPlan values(1000000010, 88.00)
insert into businessPlan values(1000000011, 53.00)
insert into businessPlan values(1000000012, 13.00)
insert into businessPlan values(1000000013, 19.00)
insert into businessPlan values(1000000014, 34.00)
insert into businessPlan values(1000000015, 14.00)
insert into businessPlan values(1000000016, 29.00)
```

```
insert into businessPlan values(1000000017, 90.00)
insert into businessPlan values(1000000018, 73.00)
insert into businessPlan values(1000000019, 46.00)
insert into businessPlan values(1000000020, 20.00)
insert into businessPlan values(1000000021, 13.00)
insert into businessPlan values(1000000020, 16.00)

select * from businessPlan


create table inchargeEmployee(
  nationalID    bigint not null,
  fistName      VARCHAR(20),
  lastName      VARCHAR(20),
  gender        VARCHAR(15),
  age           int,
  EPassword     VARCHAR(20) ,
  salary        numeric(20,2),
  check         (age > 0),
  primary key   (nationalID)
);

insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000001, 'amir', 'lashkari', 'male', 20, 'qwertyui',
2550.23);
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000002, 'naser', 'amini', 'male', 23, 'wertyuio', 23456.22);
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000003, 'akbar', 'azimi', 'male', 24, 'ertyuiop', 1234.5);
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000004,'mina' , 'salehani', 'female', 25, 'rtyuiopa',
3456.87);
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000005, 'ilia', 'shiravand', 'male', 26, 'asdfghjk',
3456.87);
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000006, 'ali', 'nikkhah', 'male', 27, 'sdfghjkl', 1975.34);
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000007, 'sadegh', 'ahmadi', 'male', 28, 'dfghjklz',
2687.97);
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000008, 'javad', 'nemati', 'male', 22, 'fghjklzx', 2376.98);
```

```
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000009, 'mohadese', 'fayazi', 'female', 23, 'ghjklzxc',
1287.34);
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000010, 'fatemeh', 'mosavi', 'female', 24,
'hjklzxcv',2367.87 );
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000011, 'mehran', 'ahmadi', 'male', 25, 'jklzxcvb',
9809.34);
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000012, 'asgharali', 'akbari', 'male', 26, 'klzxcvbn',
3456.77);
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000013, 'artam', 'tehrani', 'male', 22, 'lzxcvbnm',
2478.76);
insert into inchargeEmployee (nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000014, 'sepanta', 'ahmadi', 'male', 26, 'mnbvcxza',
2367.98);

select * from inchargeEmployee


create table regularEmployee(
  nationalID    bigint not null,
  fistName      VARCHAR(20),
  lastName      VARCHAR(20),
  gender        VARCHAR(15),
  age           int,
  EPassword     VARCHAR(20) ,
  salary        numeric(20,2),
  check         (age > 0),
  primary key   (nationalID)
);

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000015, 'amir', 'lashkari', 'male', 20, 'qwertyui',
2550.23);
insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000016, 'naser', 'amini', 'male', 23, 'wertyuio', 23456.22);

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
```

```
values(2000000017, 'akbar', 'azimi', 'male', 24, 'ertyuiop', 1234.5);

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000018,'mina' , 'salehani', 'female', 25, 'rtyuiopa',
3456.87);

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000019, 'ilia', 'shiravand', 'male', 26, 'asdfghjk',
3456.87);

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000020, 'ali', 'nikkhah', 'male', 27, 'sdfghjkl', 1975.34);

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000021, 'sadegh', 'ahmadi', 'male', 28, 'dfghjklz',
2687.97);

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000022, 'javad', 'nemati', 'male', 22, 'fghjklzx', 2376.98);

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000023, 'mohadese', 'fayazi', 'female', 23, 'ghjklzxc',
1287.34);

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000024, 'fatemeh', 'mosavi', 'female', 24,
'hjklzxcv',2367.87 );

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000025, 'mehran', 'ahmadi', 'male', 25, 'jklzxcvb',
9809.34);

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
values(2000000026, 'asgharali', 'akbari', 'male', 26, 'klzxcvbn',
3456.77);

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)
```

```
values(2000000027, 'artam', 'tehrani', 'male', 22, 'lzxcvbnm',
2478.76);

insert into regularEmployee(nationalID, firstName, lastName, gender,
age, EPassword, salary)

values(2000000028, 'sepanta', 'ahmadi', 'male', 26, 'mnbvcxza',
2367.98);

select * from regularEmployee


create table inchargeEmployeeAddress(
    EID         bigint not null,
    address     VARCHAR(100),
    primary key(EID, address),
    foreign key(EID) references inchargeEmployee(nationalID)
           on delete cascade
           on update cascade
);

insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000001,'jhbgvfcd');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000002,'lkjhgfdg');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000003,'kjuhygtr');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000004,'jhygtfrd');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000005,'hgfdsdfg');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000006,'jhgfdsdf');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000007,'jdnfvonw');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000008,'kjfvnfjv');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000009,'evnsvojs');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000010,'wirbvie');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000011,'sefkvjn');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000012,'dfvkjne');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000013,'xfjvfnf');
insert into inchargeEmployeeAddress(EID, EAddress)
values(2000000014,'dfvjnfv');
```

```
select* from inchargeEmployeeAddress


create table regularEmployeeAddress(
    EID         bigint not null,
    address     VARCHAR(100),
    primary key(EID, address),
    foreign key(EID) references regularEmployee(nationalID)
           on delete cascade
           on update cascade
);

insert into regularEmployeeAddress(EID, EAddress)
values(2000000015,'dfvhj b');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000016,'dfvhjbd');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000017,'fvjnfvk');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000018,'sfvhvjb');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000019,'dfvjnff');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000020,'fvjfvjn');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000021,'dfjvndf');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000022,'dfvjb d');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000023,'dfvnfvv');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000024,'dfvnjfv');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000025,'fvhbfvh');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000026,'fvhbrvj');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000027,'fvnjfvn');
insert into regularEmployeeAddress(EID, EAddress)
values(2000000028,'fvbjfvn');

select * from regularEmployeeAddress


create table hall (
     hallNo                int not null unique,
     EID                   bigint not null,
     numberOfSafeboxes     int,
     numberOfCameras       int,
     wallMaterial          varchar(20),
     primary key(hallNo),
```

```
      foreign key(EID) references inchargeEmployee(nationalID)
            on delete cascade
            on update cascade
);

insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(1, 2000000001, 2, 2, 'metal');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(2, 2000000002, 2, 3, 'wood');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(3, 2000000003, 2, 4, 'glass');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(4, 2000000004, 2, 2, 'metal');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(5, 2000000005, 2, 3, 'wood');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(6, 2000000006, 3, 4, 'glass');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(7, 2000000007, 3, 2, 'metal');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(8, 2000000008, 3, 3, 'wood');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(9, 2000000009, 3, 4, 'glass');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(10, 2000000010, 3, 2, 'metal');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(11, 2000000011, 4, 3, 'wood');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(12, 2000000012, 4, 4, 'glass');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(13, 2000000013, 4, 2, 'metal');
insert into hall(hallNo, EID, numberOfSafeboxes, numberOfCameras,
wallMaterial) values(14, 2000000014, 4, 3, 'wood');


create table safebox (
  SID             int not null,
  CID             bigint,
  hallNo          int not null,
  securityLevel   int,
  trustValue      numeric(30,2),
  priceClass      int,
  primary key(SID),
  foreign key(CID) references customer(nationalID)
    on delete cascade
    on update cascade,
  foreign key(hallNo) references hall(hallNo)
    on delete cascade
    on update cascade
);
```

```
insert into safebox values(1, , 1, 2, 10000000.00, 2);
insert into safebox values(2, , 2, 2, 10000000.00, 2);
insert into safebox values(3, 1000000003, 3, 1, 1000000.00, 1);
insert into safebox values(4, 1000000004, 4, 3, 100000000.00, 3);
insert into safebox values(5, 1000000005, 5, 3, 100000000.00, 3);
insert into safebox values(6, 1000000006, 6, 2, 10000000.00, 2);
insert into safebox values(7, 1000000007, 7, 1, 1000000.00, 1);
insert into safebox values(8, 1000000008, 8, 3, 100000000.00, 3);
insert into safebox values(9, 1000000009, 9, 1, 1000000.00, 1);
insert into safebox values(10, 1000000010, 10, 3, 100000000.00, 3);
insert into safebox values(11, 1000000011, 11, 2, 10000000.00, 2);
insert into safebox values(12, 1000000012, 12, 1, 1000000.00, 1);
insert into safebox values(13, 1000000013, 13, 2, 10000000.00, 2);
insert into safebox values(14, 1000000014, 14, 3, 100000000.00, 3);
insert into safebox values(15, 1000000015, 1, 2, 10000000.00, 2);
insert into safebox values(16, 1000000016, 2, 2, 10000000.00, 2);
insert into safebox values(17, 1000000017, 3, 2, 10000000.00, 2);
insert into safebox values(18, 1000000018, 4, 3, 100000000.00, 3);
insert into safebox values(19, 1000000019, 5, 3, 100000000.00, 3);
insert into safebox values(20, 1000000020, 6, 2, 10000000.00, 2);
insert into safebox values(21, 1000000021, 7, 1, 1000000.00, 1);
insert into safebox values(22, 1000000022, 8, 2, 10000000.00, 2);
insert into safebox values(23, 1000000023, 9, 1, 1000000.00, 1);
insert into safebox values(24, 1000000024, 10, 3, 100000000.00, 3);
insert into safebox values(25, 1000000025, 11, 3, 100000000.00, 3);
insert into safebox values(26, 1000000026, 12, 2, 10000000.00, 2);
insert into safebox values(27, 1000000027, 13, 2, 10000000.00, 2);
insert into safebox values(28, 1000000028, 14, 2, 10000000.00, 2);
insert into safebox values(29, 1000000029, 6, 1, 1000000.00, 1);
insert into safebox values(30, 1000000030, 7, 1, 10000000.00, 2);
insert into safebox values(31, 1000000031, 8, 3, 100000000.00, 3);
insert into safebox values(32, 1000000032, 9, 3, 100000000.00, 3);
insert into safebox values(33, 1000000033, 10, 2, 10000000.00, 2);
insert into safebox values(34, 1000000034, 11, 3, 100000000.00, 3);
insert into safebox values(35, 1000000035, 12, 1, 1000000.00, 1);
insert into safebox values(36, 1000000036, 13, 2, 10000000.00, 2);
insert into safebox values(37, 1000000037, 14, 1, 1000000.00, 1);
insert into safebox values(38, 1000000001, 11 , 1, 1000000.00, 1);
insert into safebox values(39, 1000000002, 12, 3, 100000000.00, 3);
insert into safebox values(40, 1000000003, 13, 2, 10000000.00, 2);
insert into safebox values(41, 1000000004, 14, 1, 1000000.00, 1);
insert into safebox values(42, 1000000005, 1, 1, 1000000.00,1);
insert into safebox values(43, 1000000006, 1, 2, 1000000.00,2);
insert into safebox values(44, 1000000007, 2, 3, 1000000.00,3);
insert into safebox values(45, 1000000008, 3, 2, 1000000.00,2);insert
into safebox values(46, 1000000009, 4, 1, 1000000.00,1);


create table damage (
```

```
      SID             int not null,
      amountOfDamage  bigint not null,
      description     varchar(100),
      primary key(SID, amountOfDamage),
      foreign key(SID) references safebox(SID)
            on delete cascade
            on update cascade
);

insert into damage(SID, amountOfDamage, description) values(2, 200,
'atash soozi shod');
insert into damage(SID, amountOfDamage, description) values(17, 100,
'seil omad khis shod');
insert into damage(SID, amountOfDamage, description) values(11, 300,
'mooriane omad khordesh');
insert into damage(SID, amountOfDamage, description) values(6, 270,
'atash soozi shod');
insert into damage(SID, amountOfDamage, description) values(5, 500,
'seil ziad');
insert into damage(SID, amountOfDamage, description) values(4, 900,
'zelzele');
insert into damage(SID, amountOfDamage, description) values(10, 900,
'zelzele');

create table settlement (
      SID        int not  null,
      CID        bigint not null,
      leftover   bigint,
      primary key(SID, CID),
      foreign key(SID) references safebox(SID)
            on delete cascade
            on update cascade,
      foreign key(CID) references customer(nationalID)
            on delete cascade
            on update cascade
);

insert into settlement values (4, 1000000004, 16);
insert into settlement values (5, 1000000005, 20);
insert into settlement values (6, 1000000006, 24);
insert into settlement values (7, 1000000007, 28);
insert into settlement values (8, 1000000008, 32);
insert into settlement values (9, 1000000009, 36);
insert into settlement values (10,1000000010, 40);
insert into settlement values (11,1000000011, 44);
insert into settlement values (12,1000000012, 48);
insert into settlement values (13,1000000013, 52);


create table oneMonthTimePlan (
      duration   int not null,
      SID        int not null,
```

```
      discount   numeric(5,2),
      primary key(duration,SID),
      foreign key(SID) references safebox(SID)
            on delete cascade
            on update cascade
);


insert into oneMonthTimePlan values( 1, 1, 2);
insert into oneMonthTimePlan values( 1, 2, 4);
insert into oneMonthTimePlan values( 1, 3, 6);
insert into oneMonthTimePlan values(1,42,10.00);
insert into oneMonthTimePlan values(1,43,10.00);



create table threeMonthTimePlan (
      duration   int not null,
      SID        int not null,
      discount   numeric(5,2),
      primary key(duration,SID),
      foreign key(SID) references safebox(SID)
            on delete cascade
            on update cascade
);
insert into threeMonthTimePlan values( 3, 14, 28)
insert into threeMonthTimePlan values( 3, 15, 30)
insert into threeMonthTimePlan values( 3, 16, 32)
insert into threeMonthTimePlan values( 3, 17, 34)
insert into threeMonthTimePlan values( 3, 18, 36)
insert into threeMonthTimePlan values( 3, 19, 38)
insert into threeMonthTimePlan values(3,44,20.00)
insert into threeMonthTimePlan values(3,45,20.00)



create table oneYearTimePlan (
      duration   int not null,
      SID        int not null,
      discount   numeric(5,2),
      primary key(duration,SID),
      foreign key(SID) references safebox(SID)
            on delete cascade
            on update cascade
);

insert into oneYearTimePlan values(12,46,30.00)
insert into oneYearTimePlan values(12, 20, 40)
insert into oneYearTimePlan values(12, 21, 42)
insert into oneYearTimePlan values(12, 22, 44)
insert into oneYearTimePlan values(12, 23, 46)
insert into oneYearTimePlan values(12, 24, 48)
```

```
insert into oneYearTimePlan values(12, 25, 50)
insert into oneYearTimePlan values(12, 26, 52)
insert into oneYearTimePlan values(12, 27, 54)
insert into oneYearTimePlan values(12, 28, 56)
insert into oneYearTimePlan values(12, 29, 58)
insert into oneYearTimePlan values(12, 30, 60)
insert into oneYearTimePlan values(12, 31, 62)
insert into oneYearTimePlan values(12, 32, 64)
insert into oneYearTimePlan values(12, 33, 66)
insert into oneYearTimePlan values(12, 34, 68)
insert into oneYearTimePlan values(12, 35, 70)
insert into oneYearTimePlan values(12, 36, 72)
insert into oneYearTimePlan values(12, 37, 74)
insert into oneYearTimePlan values(12, 38, 76)
insert into oneYearTimePlan values(12, 39, 78)
insert into oneYearTimePlan values(12, 40, 80)
insert into oneYearTimePlan values(12, 41, 82)
```

```
create table insurance (
      SID         int  not null,
      CID         bigint not null,
      price       int,
      primary key(SID, CID),
      foreign key(SID) references safebox(SID)
            on delete cascade
            on update cascade,
      foreign key(CID) references customer(nationalID)
            on delete cascade
            on update cascade
);

insert into insurance values(16, 1000000016, 10000)
insert into insurance values(17, 1000000017, 10000)
insert into insurance values(18, 1000000018, 10000)
insert into insurance values(19, 1000000019, 10000)
insert into insurance values(20, 1000000020, 10000)
insert into insurance values(21, 1000000021, 10000)
insert into insurance values(22, 1000000022, 10000)
insert into insurance values(23, 1000000023, 10000)
insert into insurance values(24, 1000000024, 10000)


create table guide (
      SID         int  not null,
      CID         bigint not null,
```

```
      price int,
      primary key(SID, CID),
      foreign key(SID) references safebox(SID)
            on delete cascade
            on update cascade,
      foreign key(CID) references customer(nationalID)
            on delete cascade
            on update cascade
);

insert into guide values(1, 1000000001, 2)
insert into guide values(2, 1000000002, 4)
insert into guide values(3, 1000000003, 6)
--insert into guide values(10, 1000000010, 20)
--insert into guide values(11, 1000000011, 22)
--insert into guide values(12, 1000000012, 24)
--insert into guide values(13, 1000000013, 26)
insert into guide values(14, 1000000014, 28)
insert into guide values(15, 1000000015, 30)
insert into guide values(16, 1000000016, 32)
insert into guide values(17, 1000000017, 34)
insert into guide values(18, 1000000018, 36)
insert into guide values(19, 1000000019, 38)
insert into guide values(20, 1000000020, 40)
insert into guide values(21, 1000000021, 42)
insert into guide values(22, 1000000022, 44)
insert into guide values(23, 1000000023, 46)
insert into guide values(24, 1000000024, 48)
insert into guide values(25, 1000000025, 50)
insert into guide values(26, 1000000026, 52)
insert into guide values(27, 1000000027, 54)
insert into guide values(28, 1000000028, 56)


create table contract (
      SID             int not null,
      CID             bigint not null,
      rentDuration    int,
      rent            numeric(10,2),
      endDate         Date,
      primary key(SID, CID),
      foreign key(SID) references safebox(SID)
            on delete cascade
            on update cascade,
      foreign key(CID) references customer(nationalID)
            on delete cascade
            on update cascade
);

insert into contract values(42, 1000000005,1,90000000.00,'2005-05-05')
insert into contract values(43, 1000000006,1,9000000.00,'2006-06-06')
insert into contract values(44, 1000000007,3,2400000.00,'2007-07-07')
```

```
insert into contract values(45, 1000000008,3,24000000.00,'2008-08-08')
insert into contract values(46, 1000000009,12,84000000.00,'2009-09-09')
insert into contract values(1, 1000000001, 1, 1000000.43, '2001-01-01')
insert into contract values(2, 1000000002, 1, 1000000.43, '2002-02-02')
insert into contract values(3, 1000000003, 1, 1000000.43, '2003-03-03')
insert into contract values(4, 1000000004, 1, 1000000.43, '2004-04-04')
insert into contract values(5, 1000000005, 1, 1000000.43, '2005-05-05')
insert into contract values(6, 1000000006, 1, 1000000.43, '2006-06-06')
insert into contract values(7, 1000000007, 1, 1000000.43, '2007-07-07')
insert into contract values(8, 1000000008, 1, 1000000.43, '2008-08-08')
insert into contract values(9, 1000000009, 1, 1000000.43, '2009-09-09')
insert into contract values(10,1000000010, 3, 1000000.43, '2010-10-10')
insert into contract values(11, 1000000011, 3, 1000000.43, '2001-01-
01')
insert into contract values(12, 1000000012, 3, 1000000.43, '2002-02-
02')
insert into contract values(13, 1000000013, 3, 1000000.43, '2003-03-
03')
insert into contract values(14, 1000000014, 3, 1000000.43, '2004-04-
04')
insert into contract values(15, 1000000015, 3, 1000000.43, '2005-05-
05')
insert into contract values(16, 1000000016, 3, 1000000.43, '2006-06-
06')
insert into contract values(17, 1000000017, 3, 1000000.43, '2007-07-
07')
insert into contract values(18, 1000000018, 3, 1000000.43, '2008-08-
08')
insert into contract values(19, 1000000019, 3, 1000000.43, '2009-09-
09')
insert into contract values(20, 1000000020, 12, 1000000.43, '2011-11-
11')
insert into contract values(21, 1000000021, 12, 1000000.43, '2001-01-
01')
insert into contract values(22, 1000000022, 12, 1000000.43, '2002-02-
02')
insert into contract values(23, 1000000023, 12, 1000000.43, '2003-03-
03')
insert into contract values(24, 1000000024, 12, 1000000.43, '2004-04-
04')
insert into contract values(25, 1000000025, 12, 1000000.43, '2005-05-
05')
insert into contract values(26, 1000000026, 12, 1000000.43, '2006-06-
06')
insert into contract values(27, 1000000027, 12, 1000000.43, '2007-07-
07')
insert into contract values(28, 1000000028, 12, 1000000.43, '2008-08-
08')
```

```
insert into contract values(29, 1000000029, 12, 1000000.43, '2009-09-
09')
insert into contract values(30, 1000000030, 12, 1000000.43, '2013-01-
05')
insert into contract values(31, 1000000031, 12, 1000000.43, '2001-01-
01')
insert into contract values(32, 1000000032, 12, 1000000.43, '2002-02-
02')
insert into contract values(33, 1000000033, 12, 1000000.43, '2003-03-
03')
insert into contract values(34, 1000000034, 21, 1000000.43, '2004-04-
04')
insert into contract values(35, 1000000035, 12, 1000000.43, '2005-05-
05')
insert into contract values(36, 1000000036, 12, 1000000.43, '2006-06-
06')
insert into contract values(37, 1000000037, 12, 1000000.43, '2007-07-
07')
insert into contract values(38, 1000000001, 12, 1000000.43, '2008-08-
08')
insert into contract values(39, 1000000002, 12, 1000000.43, '2009-09-
09')
insert into contract values(40, 1000000003, 12, 1000000.43, '2012-12-
12')
insert into contract values(41, 1000000004, 12, 1000000.43, '2001-01-
01')


create table settlementReport (
     settlementTime        date,
     SID                   int not null,
     CID                   bigint not null,
     EID                   bigint,
     settlementCost        numeric(30,2),
     situation             varchar(15),
     primary key (settlementTime, SID, CID),
     foreign key(SID) references safebox(SID),
     foreign key(CID) references customer(nationalID)
     foreign key(EID) references inchargeEmployee(nationalID)
);

insert into settlementReport values('2004-03-03', 4,
1000000004,2000000004, 1000000.43, 'dfhnfhndfgfnf' )
insert into settlementReport values('2005-04-04', 5,
1000000005,2000000005, 1000000.43, 'bmcvfgfnf' )
insert into settlementReport values('2006-05-05', 6,
1000000006,2000000006, 1000000.43, 'dftykffnf' )
insert into settlementReport values('2007-06-06', 7,
1000000007,2000000007, 1000000.43, 'dfhnfhadndfgfnf' )
```

```
insert into settlementReport values('2008-07-07', 8,
1000000008,2000000008, 1000000.43, 'dfhnfhndfgftknf' )
insert into settlementReport values('2009-08-08', 9,
1000000009,2000000009, 1000000.43, 'qwekhdgfnf' )
insert into settlementReport values('2010-09-09',10,
1000000010,2000000010, 1000001.44, 'done')
insert into settlementReport values('2000-09-09',11,
1000000011,2000000011, 1000003.44, 'done')
insert into settlementReport values('2002-01-01',12,
1000000012,2000000012, 1000002.44, 'done')
insert into settlementReport values('2003-02-02',13,
1000000013,2000000013, 1000004.44, 'done')


create table contractReport (
      contractTime          date,
      SID                        int not null,
      CID                        bigint not null,
      EID                        bigint,
      contractCost          numeric(30,2),
      situation             varchar(15),
      rentDuration          int,
      rent                  numeric(10,2),
      endDate                    Date,
      primary key (contractTime, SID, CID),
      foreign key(SID) references safebox(SID),
      foreign key(CID) references customer(nationalID),
      foreign key(EID) references inchargeEmployee(nationalID)
);

-- insert into contractReport values('2001-01-
01',1,1000000001,2000000001,2000000.00,'not
finished',1,1000000.43,'2001-04-01')
-- insert into contractReport values('2002-02-
02',2,1000000002,2000000002,2000000.00,'not
finished',1,1000000.43,'2002-05-02')
insert into contractReport values('2003-03-
03',3,1000000003,2000000003,2000000.00,'not
finished',1,1000000.43,'2003-04-03')
insert into contractReport values('2004-04-
04',4,1000000004,2000000004,2000000.00,'settled',1,1000000.43,'2004-07-
04')
insert into contractReport values('2005-05-
05',5,1000000005,2000000005,2000000.00,'settled',1,1000000.43,'2005-08-
05')
insert into contractReport values('2006-06-
06',6,1000000006,2000000006,2000000.00,'settled',1,1000000.43,'2006-09-
06')
insert into contractReport values('2007-07-
07',7,1000000007,2000000007,2000000.00,'settled',1,1000000.43,'2007-10-
07')
```

```
insert into contractReport values('2008-08-
08',8,1000000008,2000000008,2000000.00,'settled',1,1000000.43,'2008-11-
08')
insert into contractReport values('2009-09-
09',9,1000000009,2000000009,2000000.00,'settled',1,1000000.43,'2009-12-
09')



create table dischargeReport (
     dischargeTime         date,
     SID                   int not null,
     CID                   bigint not null,
     EID                   bigint,
     dischargeCost         numeric(30,2),
     situation             varchar(15),
     primary key (dischargeTime, SID, CID),
     foreign key(SID) references safebox(SID),
     foreign key(CID) references customer(nationalID),
     foreign key(EID) references inchargeEmployee(nationalID)
);

insert into dischargeReport values('2005-04-
04',14,1000000014,2000000014,3000000.00,'discharged')

insert into dischargeReport values('2006-05-
05',15,1000000015,2000000001,3000000.00,'discharged')
insert into dischargeReport values('2007-06-
06',16,1000000016,2000000002,3000000.00,'discharged')
insert into dischargeReport values('2008-07-
07',17,1000000017,2000000003,3000000.00,'discharged')
insert into dischargeReport values('2009-08-
08',18,1000000018,2000000004,3000000.00,'discharged')
insert into dischargeReport values('2010-09-
09',19,1000000019,2000000005,3000000.00,'discharged')



create table goingToBank (
     CID             bigint not null,
     referDate       Date not null,
     hallNo          not null,
     safeboxNo       not null,
     primary key (CID, referDate),
     foreign key(CID) references customer(nationalID),
     foreign key(hallNo) references hall(hallNo),
     foreign key(safeboxNo) references safebox(SID)
);
```

بخش دوم:

-- 1

در این بانک هرگاه مهلت استفاده یک مشتری از یک صندوق بگذرد و صندوق تخلیه شود یا خودش آن را تسویه کند، یعنی اگر تحت هر شرایطی صندوق دیگر متعلق به آن مشتری نباشد در جدول مربوط به صندوق آیدی مشتری مربوط به آن صندوق خاص نال خواهد شد. پس در کوئری زیر نال نبودن آیدی مشتری مربوطه نشان دهنده این است که کسی از این صندوق استفاده میکند.

```
select customer.nationalID, safebox.securityLevel from
customer join safebox on customer.nationalID = safebox.CID
where safebox.CID is not null;
```

-- 2

```
select rent from contract
where contract.SID in (select safebox.SID
from safebox join contract
on safebox.SID = contract.SID
where safebox.securityLevel = 'level')
and rentDuration = 'month';
```

تصاویر نمونه به فایل پروژه پیوست گردیده است.

-- 3

```
select avg(age) from commercialCustomer
where PID = 'plan_id'
and nationalID in (select commercialCustomer.nationalID from
commercialCustomer join safebox
on commercialCustomer.nationalID = safebox.CID
and hallNo = 'room_id');
```

تصاویر نمونه به فایل پروژه پیوست گردیده است.

-- 4

```
select salary from inchargeEmployee
where nationalID in (select hall.EID from inchargeEmployee join
hall
on hall.EID = inchargeEmployee.nationalID join safebox on
safebox.hallNo = hall.hallNo
where safebox.securityLevel > 'from_level'
and safebox.securityLevel < 'to_levell');
```

تصاویر نمونه به فایل پروژه پیوست گردیده است.

-- 5

```
select * from safebox
where safebox.CID is null
and securityLevel = 'level'
and trustValue <= 'max_price';
```

تصاویر نمونه به فایل پروژه پیوست گردیده است.

-- 6

برای پیدا کردن حداکثر زمان به تعداد ماه تعداد را به عدد صحیح کست میکنیم:

```
select cast(max(c1/rent) as int) from (select credit as c1 from
commercialCustomerAccount
where commercialCustomerAccount.CID = 'usr_id'
union
select credit as c1 from ordinaryCustomerAccount where
ordinaryCustomerAccount.CID = 'usr_id')
as findCredit, contract join safebox
on contract.SID=safebox.SID
where safebox.securityLevel = 'sec_level'
and c1 >= safebox.trustValue;
```

تصاویر نمونه به فایل پروژه پیوست گردیده است.

-- 7

```
select * from safebox
where CID is not null
and SID in (select safebox.SID from safebox join contractReport
                    on safebox.SID = contractReport.SID
                    where endDate < now() - interval '1 month');
```

تصاویر نمونه به فایل پروژه پیوست گردیده است.

-- 8

```
select * from goingToBank
where CID = 'usr_id';
```

تصاویر نمونه به فایل پروژه پیوست گردیده است.

بخش سوم :

```
--1
create view damageCustomer(nationalID, firstname, lastname, SID) as
select commercialCustomer.nationalID, commercialCustomer.firstname,
commercialCustomer.lastname, safebox.SID from
safebox join commercialCustomer on
safebox.CID=commercialCustomer.nationalID join damage on
safebox.SID=damage.SID
union
select ordinaryCustomer.nationalID, ordinaryCustomer.firstname,
ordinaryCustomer.lastname, safebox.SID from
safebox join ordinaryCustomer on
safebox.CID=ordinaryCustomer.nationalID join damage on
safebox.SID=damage.SID;

select * from damageCustomer;
```

```
--2
```

با توجه به استفاده زیاد و انجام مقایسات زیاد در شروط where روی ستون securityLevel از جدول safebox روی این ستون شاخص تعریف میکنیم از طرفی با توجه به اینکه در مقایسات بازه ای ظاهر شده باید خوشه ای باشد و نمی توانیم از hashing استفاده کنیم:

```
create index level on safebox(securityLevel);
```

در کوئری دوم بخش دو از rentDuration نیز استفاده شده هرچند این زیاد از این ستون استفاده نشده پس به نظر نیازی نیست که روی این ستون شاخص بزنیم اما میزان اجرای کوئری در بانک زیاد باشد می توانیم روی این ستون نیز شاخص داشته باشیم:

```
create index rentDur on contract(rentDuration);
```

```
CREATE FUNCTION prevent()
  RETURNS trigger AS

$$ BEGIN
      if (select count(*) from safebox where CID = NEW.CID) > 5 then
      RAISE EXCEPTION 'can not be inserted';
       END IF;
       RETURN NEW;
END;

$$ LANGUAGE plpgsql;

CREATE TRIGGER preventInsert
  BEFORE UPDATE or INSERT
  ON safebox
  FOR EACH ROW
  EXECUTE PROCEDURE prevent();
```