

Project Name: Mart Management System

Analyzed Application URL:

- 1.https://www.shopify.com/
- 2. https://www.daraz.pk/
- 3. https://www.hummart.com/

Class: BSCS - 4(A)

Group Members:

Student Name	Enrollment	Viva Marks
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Project Marks:

Head	Performance	Comments
Analysis & Report		
ERD		
Normalization		
DDL/DML/Triggers		
Stored Proc/ Views/		
Stored Functions		

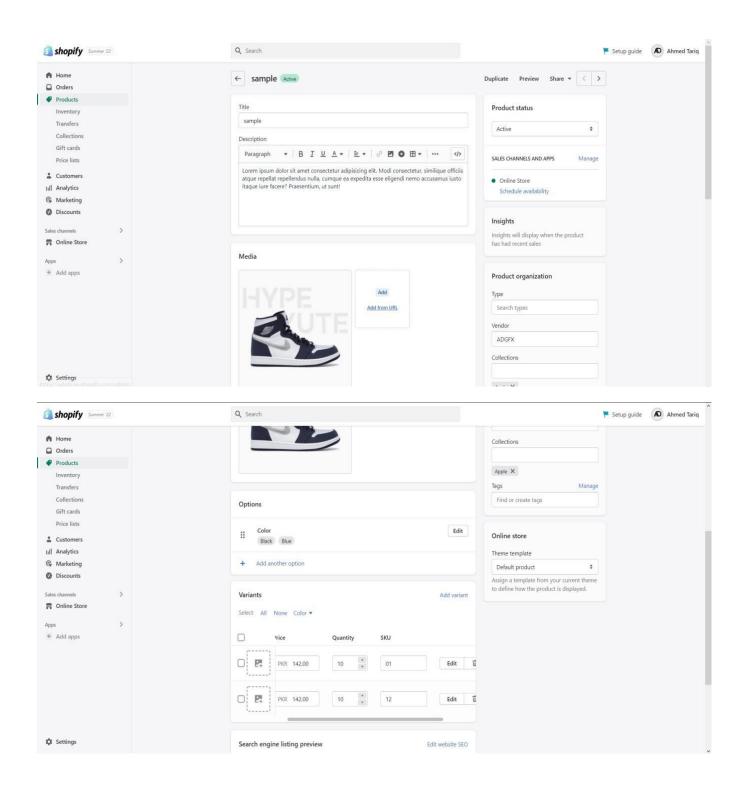
1) Analysis – Screenshots of the Application:

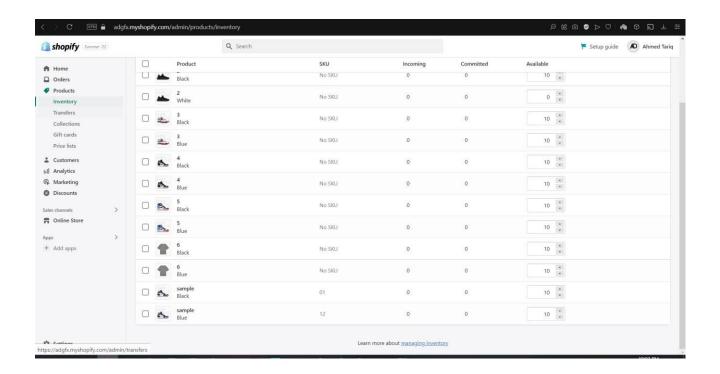
HUMMART:

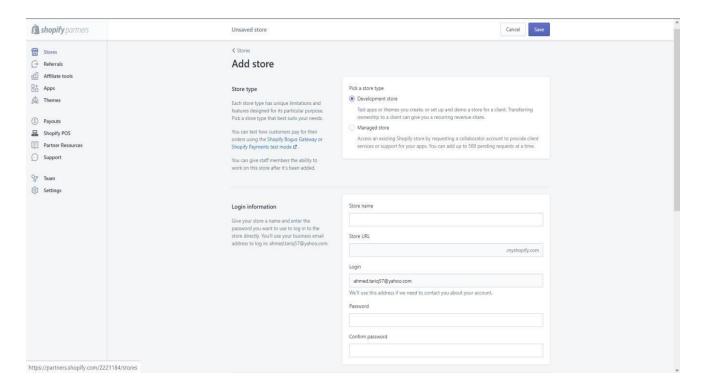




SHOPIFY:







DARAZ:





2) Business Rules for the DBMS:

STORE:

- Each store has a unique identification number, There are several departments in one store, each department has a unique identification number
- Departments can be further classified as ADMIN department, HR department and FINANCE department each of these departments have its unique department identification number
- Multiple employees are working under these departments. One employee is assigned to 1 department.

- Each of the employee has its unique identification number.
- Payroll of employees may change due to different factors. Each payroll has unique id and against each id, one employee is assigned.
- One employee may be assigned to different roles and one role may be given to more than 1 employee.
- Each employee is given a unique login id. One login-id will be assigned to only one particular employee.
- · Each employee will have a unique location id.

ADMIN:

- One admin can add multiple products and each product will be added by 1 admin only.
- One admin can initiate multiple promotions and each promotion will be initiated by 1 admin only.
- Multiple products can belong to 1 category and each product will have only one category.
- Each product with unique identification number will have multiple stocks.
- Multiple products may belong to a unique brand having unique brand id.
- One or more products may be supplied by a supplier having a unique supplier id.one supplier may supply multiple products.
- One or more products may be included in promotion having unique promotion id and one promotion may include multiple products.
- One or more products may be included in one order with a unique order identification number and one order may include different and multiple products.

HR:

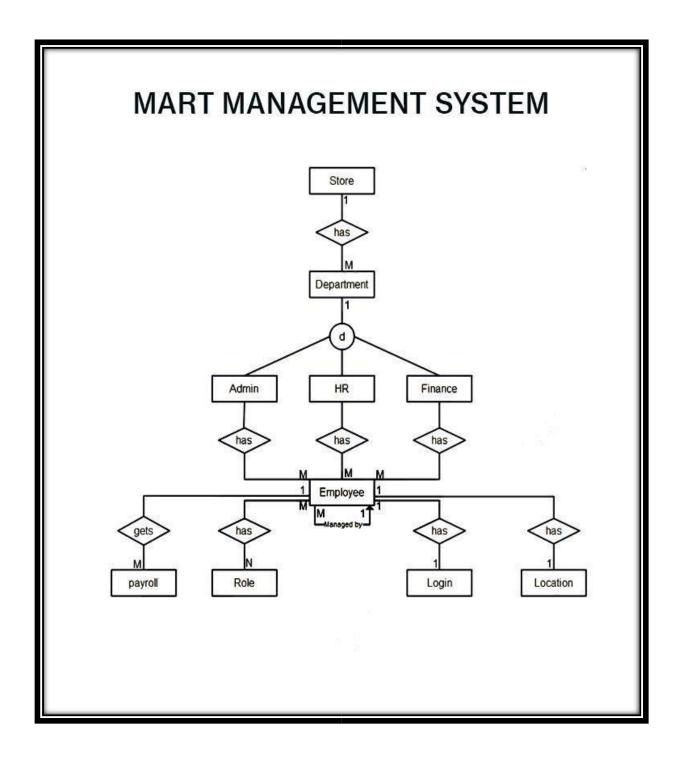
- Department manages multiple feedbacks. Each feedback will be having a unique feedback id.
- Department conducts multiple appraisals with each appraisal having a unique id.

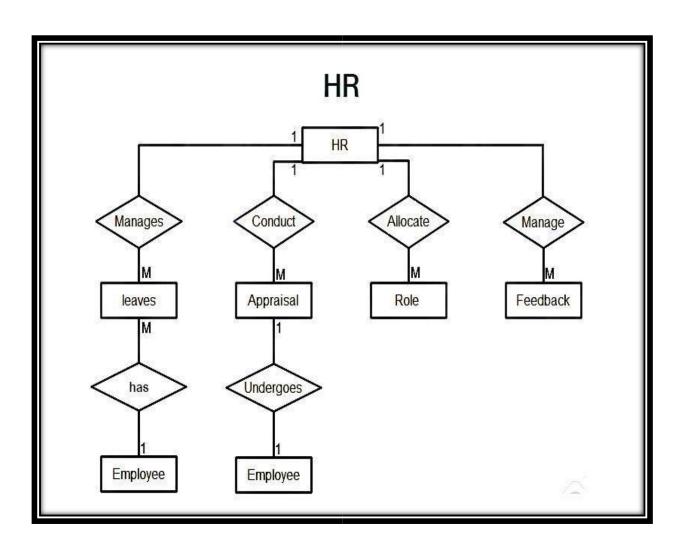
- An Employee may undergo an appraisal with a unique appraisal id.
- Department allocates multiple roles to different employees.
- Department manages multiple leaves and each leave have a unique leave id.

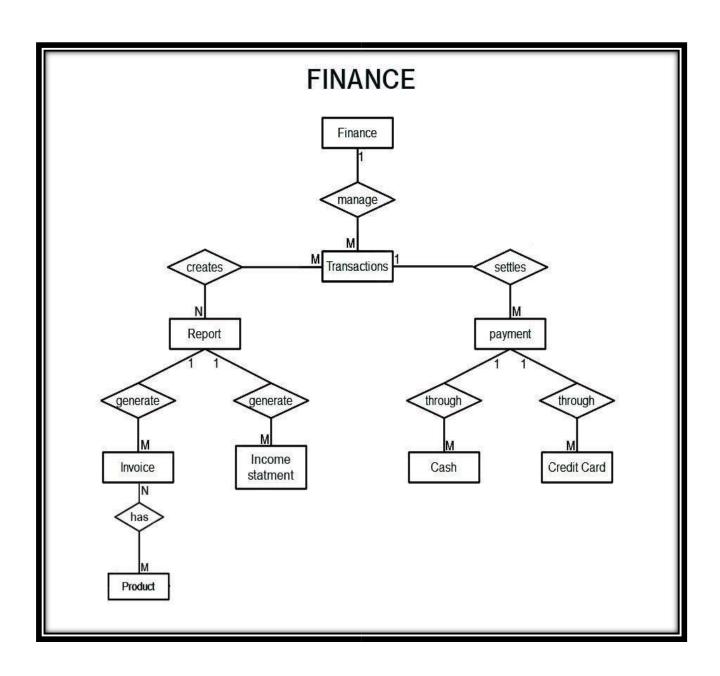
FINANCE:

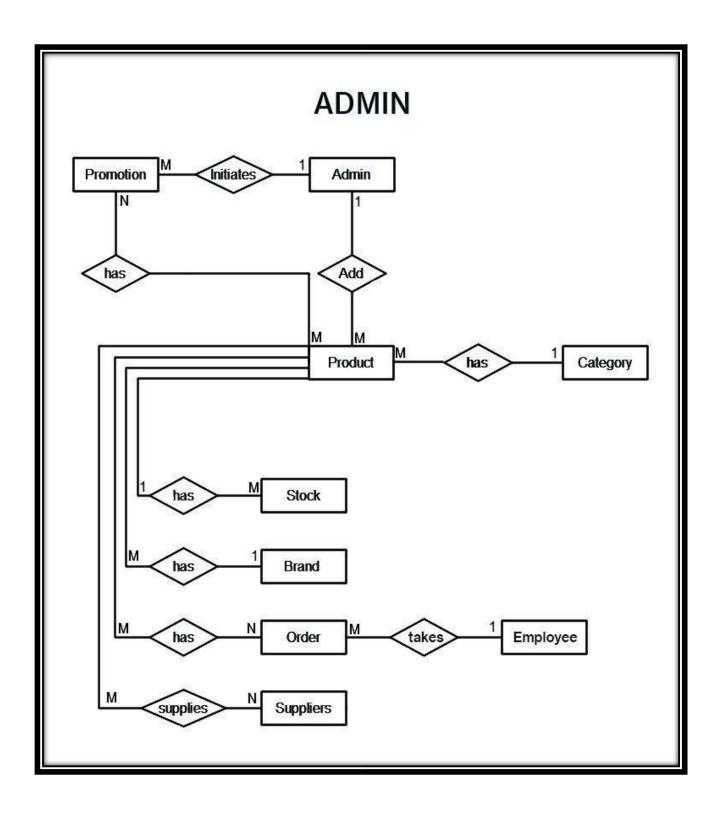
- Each report having its own unique report id may be generated by multiple invoices,
 each invoice will be included in only one report.
- Each report will be generated with multiple income statements and each income statement will be included in any one 1 report only.
- Each transaction having unique transaction id will settle multiple payments and each payment will have a particular transaction.
- Payment can be either made through cash or credit card each payment will have a unique payment id.
- Finance department manages transaction having a unique transaction id.
- Multiple transactions create report with a unique report id and 1 transaction can be included in multiple reports.
- One invoice may have multiple products included and one product may be included in multiple invoices.

3) Entity Relationship Diagram:



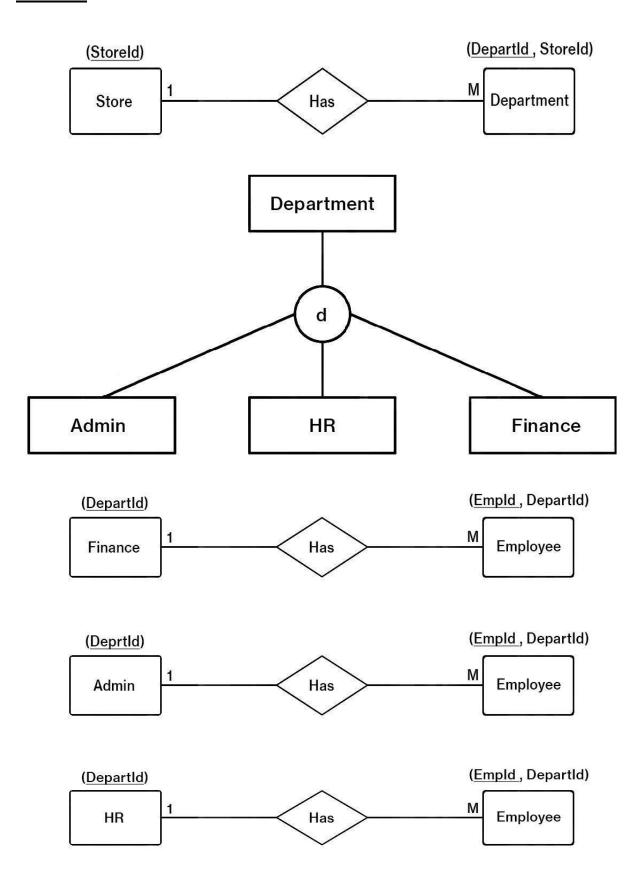


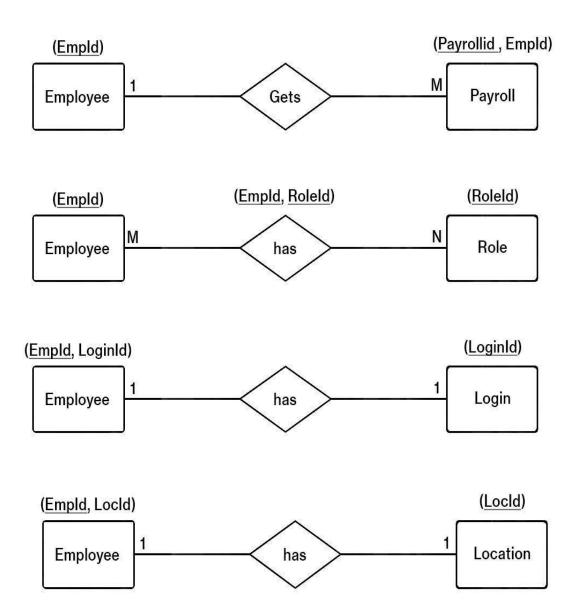




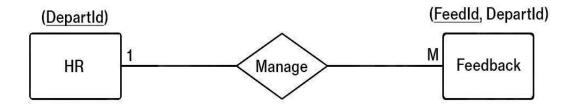
4) Conceptual to Logical Mapping:

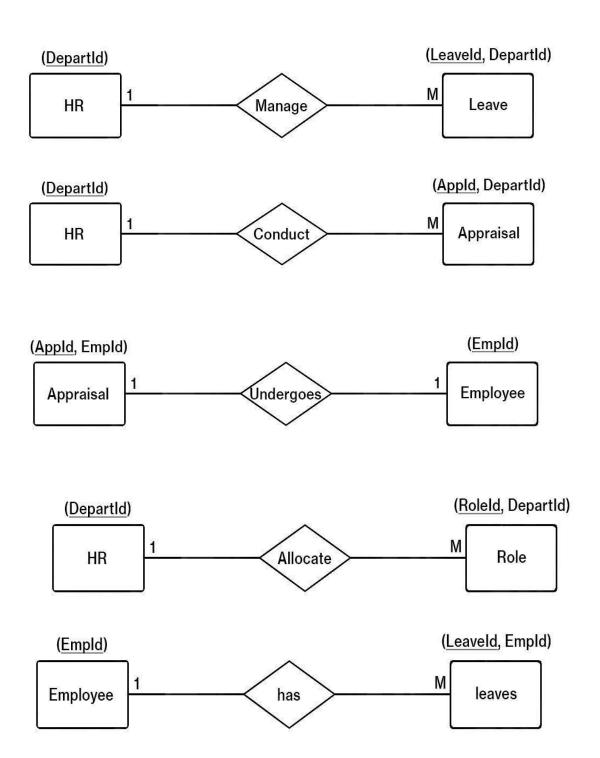
STORE:



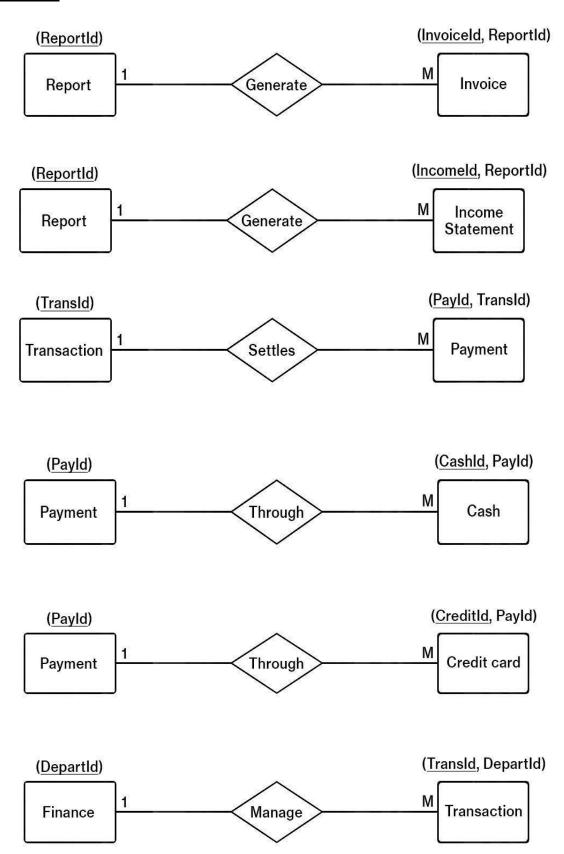


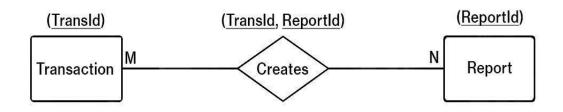
HR:

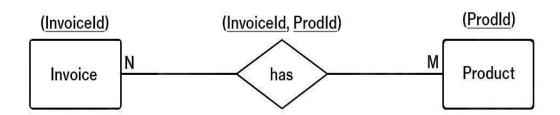




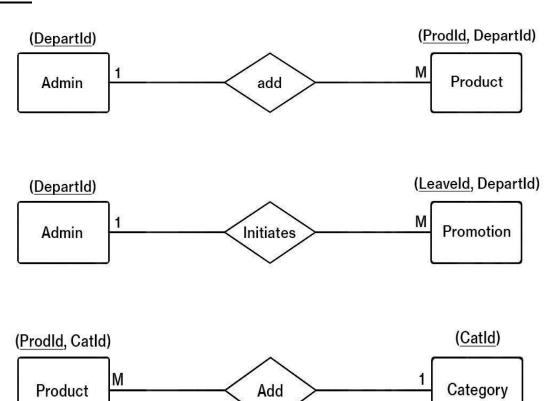
FINANCE:

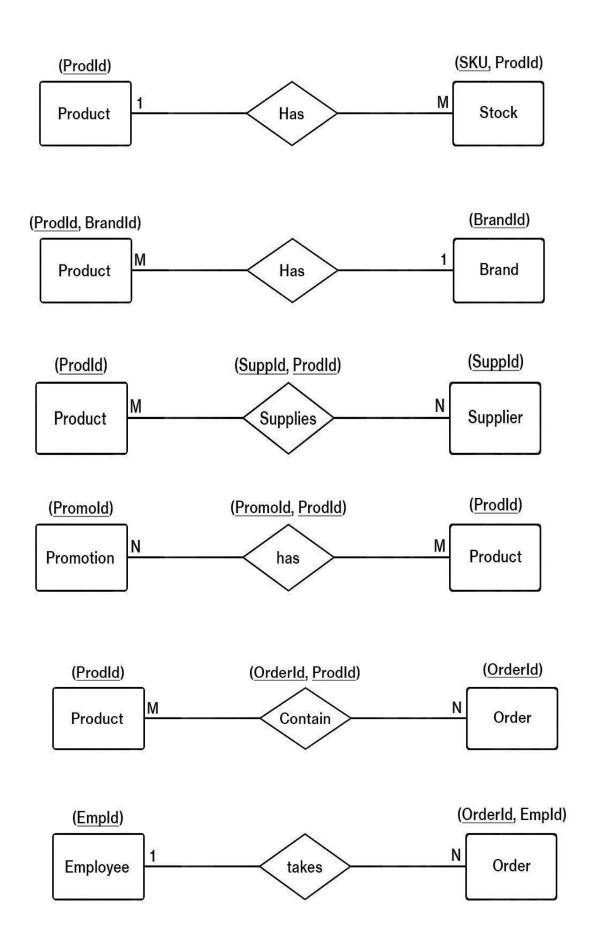






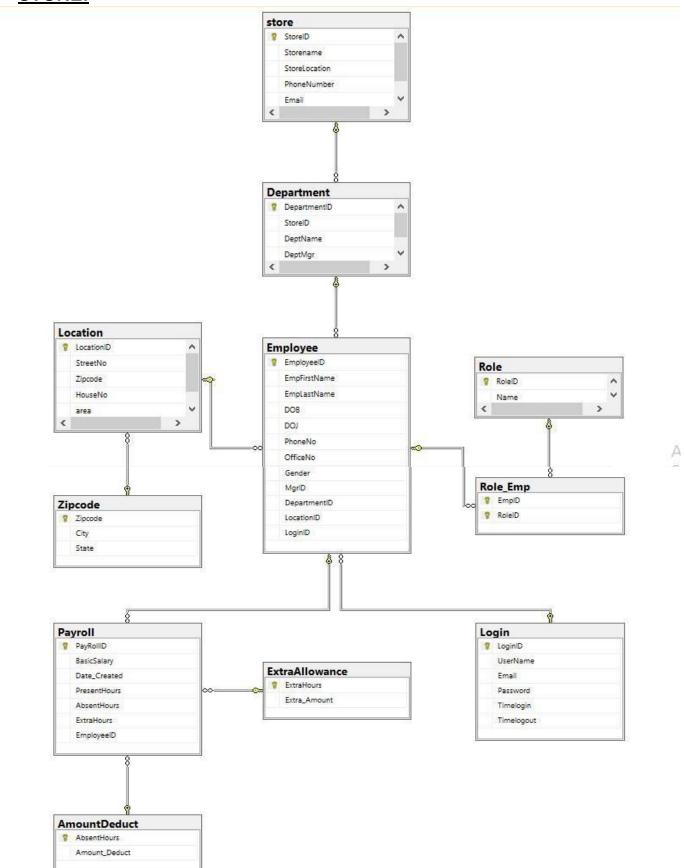
ADMIN:



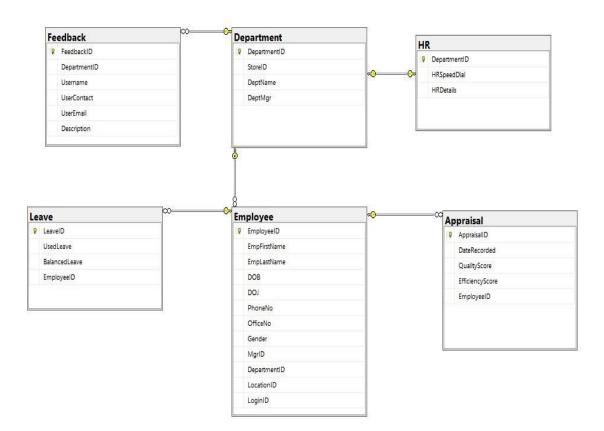


5) Normalized Tables up to BCNF (SQL Server Schema Diagram)

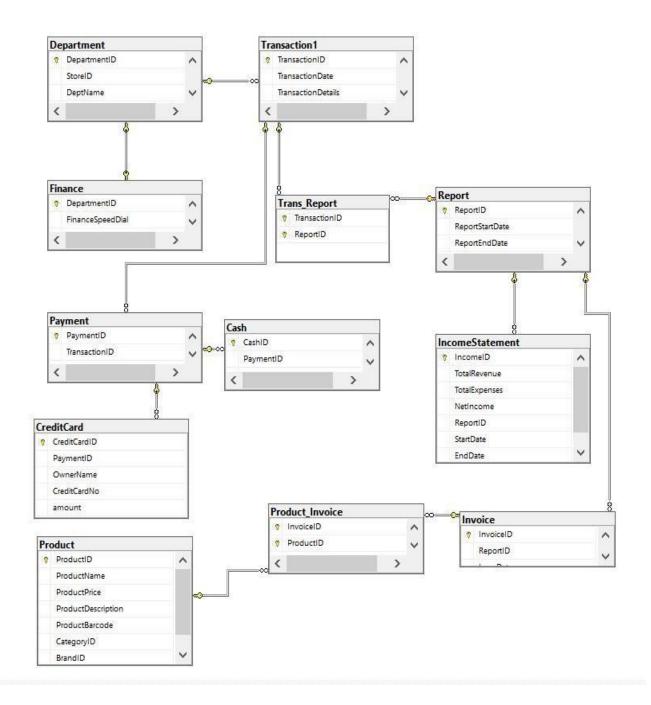
STORE:



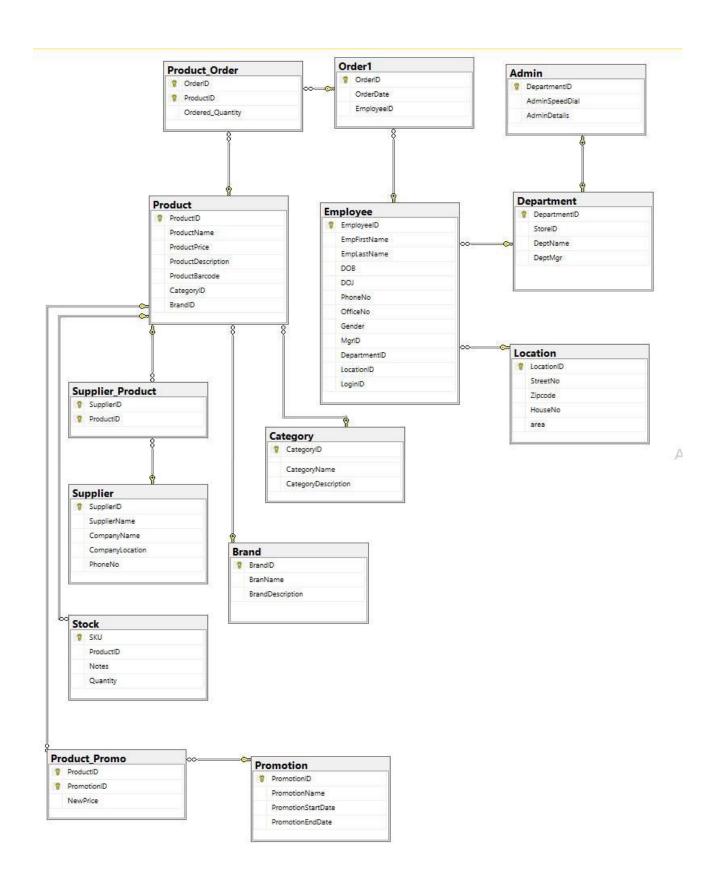
HR:



FINANCE:



ADMIN:



5)Sample Reports (6 samples):

 select p.ProductID , p.ProductName ,ProductPrice as old_price , pp.NewPrice as new_price ,

s.Quantity, pr.PromotionName from product p, Product_Promo pp,

Promotion pr, Category c, Stock s where

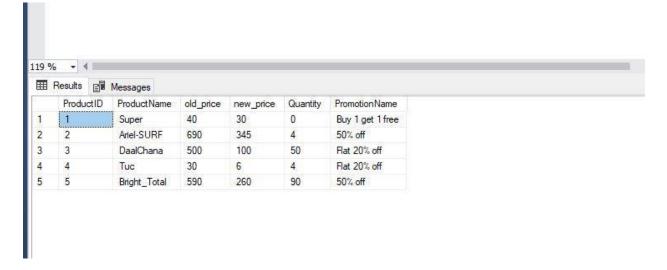
p.CategoryID = c.CategoryID and

p.ProductID = s.ProductID and

p.ProductID = pp.ProductID and

pp.PromotionID = pr.PromotionID order

by p.ProductID



2) select p.ProductID, p.ProductName, su.SupplierName, su.CompanyName, s.SKU, s.Quantity from product p, Supplier su, Supplier_Product sp,

Category c, Stock s where

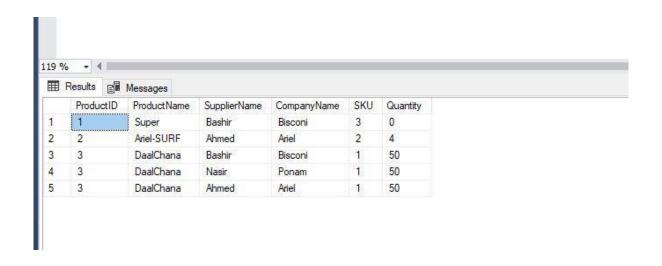
p.CategoryID = c.CategoryID and

p.ProductID = s.ProductID and

p.ProductID = sp.ProductID and

sp.SupplierID = su.SupplierID order

by p.ProductID



 select e.EmployeeID , e.EmpFirstName +' ' +e.EmpLastName as Emp_name , a.QualityScore ,

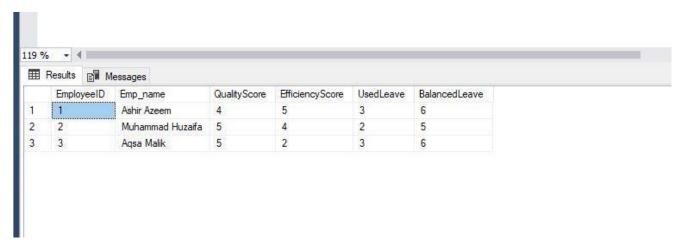
a.EfficiencyScore, I.UsedLeave, I.BalancedLeave from

Employee e, Appraisal a, Leave I, Department d

where e.EmployeeID = I.EmployeeID and

d.DepartmentID = e.EmployeeID and

e.EmployeeID = a.EmployeeID



4) select e.EmployeeID , e.EmpFirstName+' '+e.EmpLastName as emp_name,d.DeptName , r.Name as

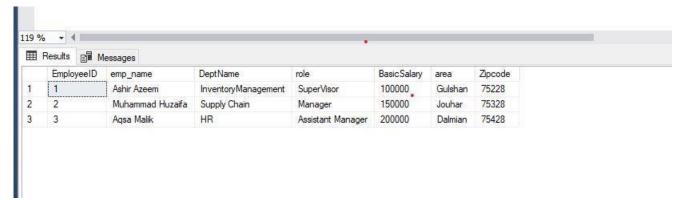
role, p.BasicSalary, l.area, l.Zipcode

from Employee e,Role r,Role_Emp re,Location I, Payroll p, Department d where

e.EmployeeID = re.EmplD and

re.RoleID = r.RoleID and

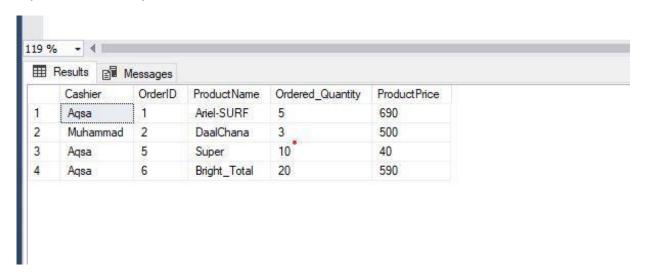
- e.LocationID = I.LocationID and
- e.EmployeeID = p.EmployeeID and
- d.DepartmentID = e.DepartmentID



select e.EmpFirstName as Cashier , o.OrderID, p.ProductName ,po.Ordered_Quantity ,
 p.ProductPrice

from Employee e , Order1 o , Product_Order po , Product p where

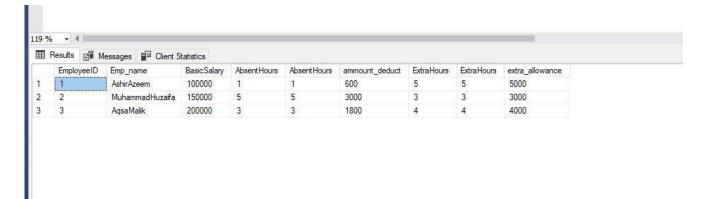
- e.EmployeeID = o.EmployeeID and
- o.OrderID = po.OrderID and
- po.ProductID = p.ProductID



- 6) select e.EmployeeID, e.EmpFirstName +e.EmpLastName as Emp_name, p.BasicSalary
- ,ad.AbsentHours, ad.AbsentHours,ad.Amount_Deduct as ammount_deduct ,ea.ExtraHours,
- ea.ExtraHours ,ea.extraAmount as extra_allowance

from Employee e , Role r , Role_Emp re , Payroll p , AmountDeduct ad , Extra Allowance ea where

- e.EmployeeID = re.EmpID and re.RoleID
- = r.RoleID and
- e.EmployeeID = p.EmployeeID and
- p.AbsentHours = ad.AbsentHours and
- p.ExtraHours = ea.ExtraHours



7) Sample DDL/DML/Triggers/Stored Proc/Views/Stored Functions:

DML: (6 samples)

```
1)
----create table Employee(
----EmployeeID int-EmpFirstName varchar(20),
----EmpLastName varchar(20),
----DOB varchar (10),
----DOJ varchar (10),
----PhoneNumber varchar(11),
----OfficeNo varchar(11),
----Gender varchar (4),
----MGRID int,
----DepartmentID int,
----locationid int,
----Loginid varchar(20),
----constraint pk_employee primary key (employeeID),
----constraint fk_employee foreign key (departmentID) references
department(departmentID),
----constraint fk_emp_loc foreign key (locationID) references location(locationID),
----constraint fk emplogin foreign key (loginid) references login(loginid),
----)
2)
----create table store
```

```
----(
  ----StoreID int,
 ----Storename varchar(20),
 ----Storelocation varchar(20),
 ----PhoneNumber varchar(11),
 ----Email varchar(20),
 ----constraint pk store primary key (StoreID)
 ----)
  3)
 ----create table department
 ----(
  ----DepartmentID int,
 ----StoreID int,
 ----DeptName varchar(20),
 ----DeptMgr varchar(20),
 ----constraint pk_department primary key (Departmentid),
 ----constraint fk store foreign key (StoreID) references store(StoreID)
 ----)
 4)
  ----create table location
 ----(
 ----locationid int,
 ----StreetNO varchar(10),
  ----Zipcode varchar(5),
 ----HouseNo varchar(30),
 ----area varchar (20),
 ----constraint pk_location primary key (locationid),
 ---- constraint fk_zip_code foreign key (zipcode) references zipcode (zipcode)
 ----)
  5)
----- create table Order1(
----- OrderID int,
----- OrderDate varchar(20),
----- Employeeld int,
----- constraint pk_ORDER1 primary key (orderid),
----- constraint fk_order1 foreign key (employeeID) references Employee(employeeID)
-----)
```

```
6)
----- create table ADMIN (
----- DepartmentID int,
----- AdminSpeedDial varchar (11),
----- AdminDetails varchar (30),
----- constraint pk_Admin primary key (DepartmentID),
----- constraint fk_admin foreign key (departmentid) references department (DepartmentID)
------ )
```

DDL: (6 samples)

```
ASHIR-AZEEM-JET.M...ystem - dbo.store project.sql - ASHIR...T√Ashir Azeem (52))* ⇒ ×
            INSERT INTO store (StoreID, StoreName, Storelocation, PhoneNumber, Email)
           (1,'1 General Store', 'Memon Goth', '03334456877','generalstore@gmail.com'),
(2,'2 General Store', 'Machhar Colony', '03215869756','store@gmail.com'),
(3,'3 general store', 'Nagin Chourangi', '03334154587','aqsastore@gmail.com'),
(4,'4 general store', 'Gulistan e jouhar', '033341584587','ashirstore@gmail.com'),
(5,'5 general store', 'Malir Colony', '03334156987','huzaifastore@gmail.com')
157 % - 4
Results Messages

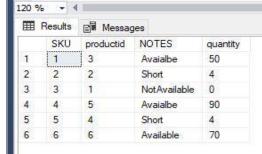
        StoreID
        Storename
        Storelocation

        1
        1 General Store
        Memon Goth

                                                             Phone Number
                                                             03334456877
                                                                              generalstore@gmail.com
      1
                    2 General Store Machhar Colony
                                                             03215869756
                                                                                store@gmail.com
                    3 general store
                                        Nagin Chourangi 03334154587
                                                                                 agsastore@gmail.com
                    4 general store
                                        Gulistan e jouhar 033341584587
                                                                               ashirstore@gmail.com
                   5 general store Malir Colony
                                                             03334156987 huzaifastore@gmail.com
```

```
4)
         ∃select * from login
        --insert into login(loginid, UserName, Email, Password, Timelogin, Timeloginout)
          --(2, 'huzaifa', 'huz@gmail.com', '654321', '10:00 AM', '12:00 AM'),
          --(3,'Aqsa','aqsa@gmail.com','897654','9:00 AM','9:00 PM')
     157 % - 4
     Results Messages
        loginid UserName Email
                             Password Timelogin Timeloginout
            Ashir Azeem ashir@gmail.com 123456
                                   11:00 AM 11:00 PM
             huzaifa
                   huz@gmail.com 654321
                                   10:00 AM 12:00 AM
        3
             Agsa
                    aqsa@gmail.com 897654 9:00 AM 9:00 PM
```

```
insert into Promotion(PromotionID, promotionName, promotionStartDate, promotionEndDate)
    values(1, 'Buy 1 get 1 free', '11-1-2023', '20-1-2023'),
    (2, '50% off', '20-2-2023', '30-2-2023'),
    (3, 'Flat 20% off', '30-3-2023', '5-4-2023')
    select * from Promotion
120 % + 4
Results Messages
    PromotionID promotionName promotionStartDate promotionEndDate
             Buy 1 get 1 free 11-1-2023
                                    20-1-2023
2
   2
             50% off
                                    30-2-2023
                     20-2-2023
   3
             Flat 20% off
                     30-3-2023
                                    5-4-2023
```



TRIGGERS:

1)

```
⊨
∃create table AdminAudit(
   Details ntext
  create trigger tr tblAdmin forInsert
   on Admin
   for insert
   as
  begin
   declare @ID int
   select @ID=DepartmentID from inserted
  insert into AdminAudit
   values ('New DEpartment with id ='+
   cast(@id as nvarchar(5))+
   'is added at '+ cast(GETDATE() as nvarchar(20))
  SELECT * FROM AdminAudit
Results Messages
   New DEpartment with id =4is added at Jan 15 2023...
```

```
SQLQuery1.sql - I...Q3\M.HUZAIFA (52))* + X
   create trigger tr_tblAdmin_fordelete
    on Admin
    for delete
    as
   begin
    declare @ID int
    select @ID=DepartmentID from deleted
   insert into AdminAudit
    values ('An existing Department with id ='+
    cast(@id as nvarchar(5))+
    ' is deleted at '+ cast(GETDATE() as nvarchar(20))
    End
   create trigger tr_tblAdmin_forupdate
    on Admin
    for update
    as
   begin
    select * from inserted
    select * from deleted
    end
```

```
3)
```

```
-----Supplier

create table SupplierAudit(
Details ntext
)

create trigger tr_tblSup_forInsert

on Supplier

for insert

as

begin

declare @ID int

select @ID=SupplierID from inserted

insert into SupplierAudit

values ('New Supplier with id ='+cast(@id as nvarchar(5))+

'is added at '+ cast(GETDATE() as nvarchar(20))

end
```

```
create trigger tr_tblSup_fordelete
on Supplier
for delete
as
begin
declare @ID int
select @ID=SupplierID from deleted
insert into SupplierAudit
values ('An existing Supplier with id ='+
cast(@id as nvarchar(5))+
' is deleted at '+ cast(GETDATE() as nvarchar(20))

End
```

```
create trigger tr_tblSup_forupdate
on Supplier
for update
as
begin
select * from inserted
select * from deleted
end
```

```
------Report

create table ReportAudit(
Details ntext
)

create trigger tr_tblReport_forInsert

on Report

for insert

as

begin

declare @ID int

select @ID=ReportID from inserted

insert into ReportAudit

values ('New Report with id ='+

cast(@id as nvarchar(5))+

'is added at '+ cast(GETDATE() as nvarchar(20))

end
```

```
create trigger tr_tblReport_fordelete

on Report

for delete

as

begin

declare @ID int

select @ID=ReportID from deleted

insert into ReportAudit

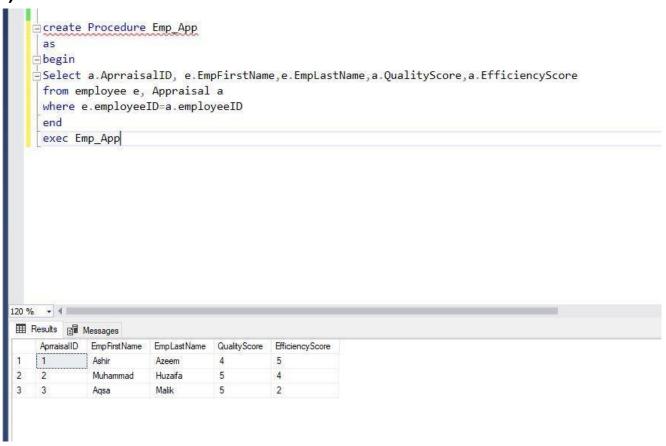
values ('An existing Report with id ='+

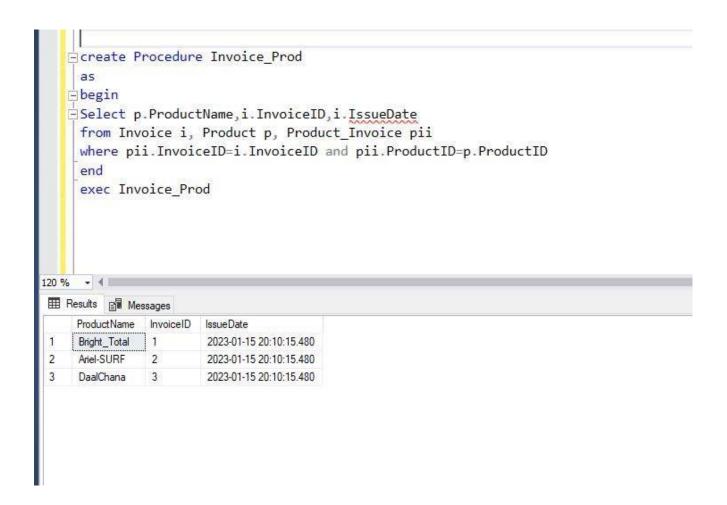
cast(@id as nvarchar(5))+

' is deleted at '+ cast(GETDATE() as nvarchar(20))

End
```

STORED PROCEDURES:

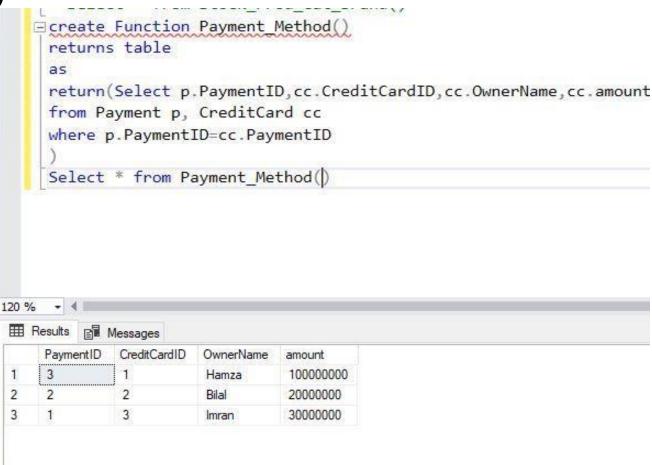




FUNCTIONS:

1)

```
□create Function Stock Prod Cat Brand()
     returns table
     return(Select
     p.ProductID,p.ProductName,s.SKU,s.Quantity,c.CategoryID,c.CategoryName,b.BrandID,b.BrandName
     from Product p, Stock s, Category c, Brand b
     where p.ProductID=s.ProductID and p.CategoryID=c.CategoryID and b.BrandID=p.BrandID
     Select * from Stock_Prod_Cat_Brand()
120 % → ◀
Results Messages
    Product1D ProductName SKU Quantity CategoryID CategoryName BrandID BrandName
    3
            DaalChana 1 50
                                  3
                                           pulses
                                                     3
                                                            Ponam
             Ariel-SURF
                       2
                           0
                                           DETERGENT
3
             Super
                                  2
                                           COOKIES
                                                            Bisconi
                              1
            Bright_Total 4
                         90
                                          DETERGENT
                                                            Ariel
    5
             Tuc
                                           COOKIES
                                                            Bisconi
             DaalMasoor
```



```
create Function T_Sal(@EmpID int)
     returns table
     return(Select e.EmpFirstName, e.EmpLastName, p.BasicSalary, p.ExtraHours, ea.ExtraAmount,
     (p.BasicSalary+ea.ExtraAmount) as T_Sal
     from Employee e, Payroll p, ExtraAllowance ea
     where e.EmployeeID=p.EmployeeID and ea.ExtraHours=p.ExtraHours and
     e.EmployeeID=@EmpID
     Select * from T_Sal(3)
120 % → ◀ ■
Results Messages
     EmpFirstName
                EmpLastName
                           BasicSalary
                                                      T_Sal
                                    ExtraHours
                                            Extra Amount
    Agsa
                Malik
                           200000
                                             4000
                                                       2000004000
```

VIEWS:

