

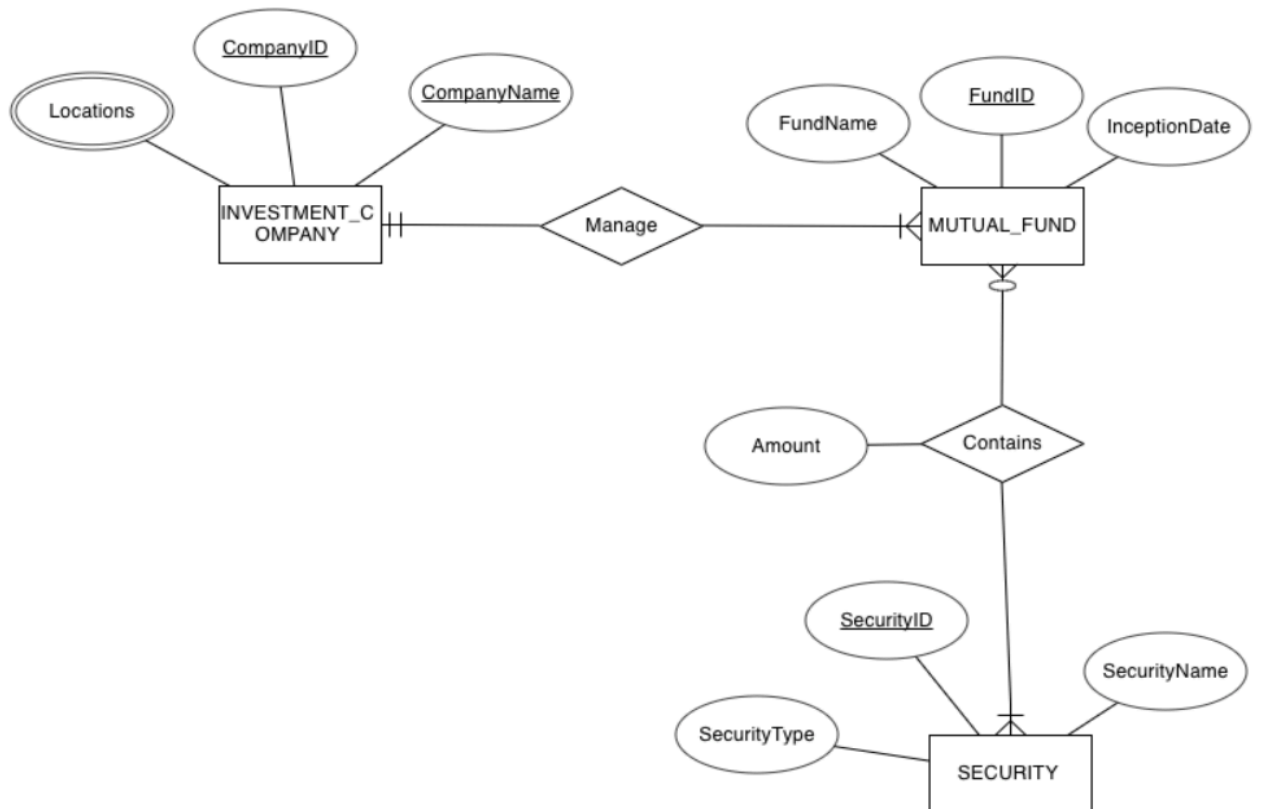
## Group 2

### Mini Case 2

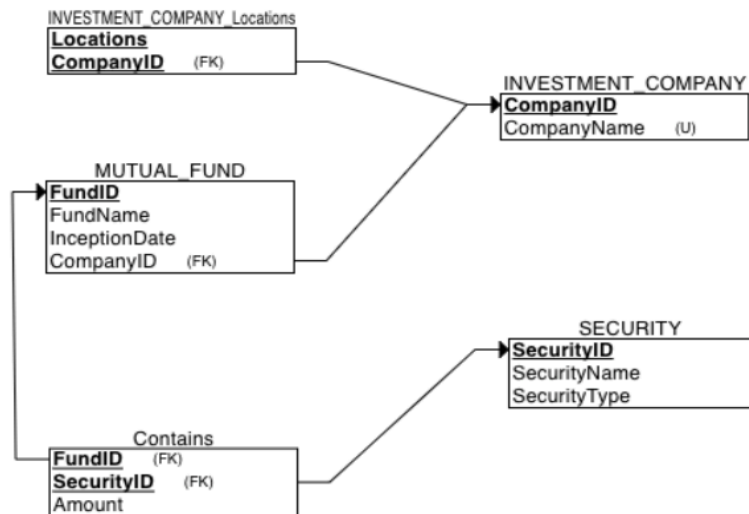
Investco Scout is an investment research company. Create the ER diagram for the Investco Scout Funds Database, based on the following requirements. (15 points)

- The Investco Scout Funds Database will keep track of investment companies, the mutual funds they manage, and the securities contained in the mutual funds.
- For each investment company, Investco Scout will keep track of a unique investment company identifier and a unique investment company name as well as the names of multiple locations of the investment company.
- For each mutual fund, Investco Scout will keep track of a unique mutual fund identifier as well as the mutual fund name and inception date.
- For each security, Investco Scout will keep track of a unique security identifier as well as the security name and type.
- Investment companies can manage multiple mutual funds. Investco Scout does not keep track of investment companies that do not manage any mutual funds. A mutual fund is managed by one investment company.
- A mutual fund contains one or many securities. A security can be included in many mutual funds. Investco Scout keeps track of securities that are not included in any mutual funds.
- For each instance of a security included in a mutual fund, Investco Scout keeps track of the amount included.

1. Map the ER Diagram for the Investco Scout Funds Database into a relational schema. **(3 points)**



2. Write CREATE TABLE statements to create the tables for the Investco Scout Funds Database depicted by the relational schema. (3 points)



```
CREATE TABLE INVESTMENT_COMPANY(  
CompanyID int NOT NULL,  
CompanyName varchar(255) NOT NULL,  
PRIMARY KEY (CompanyID)  
);
```

```
CREATE TABLE INVESTMENT_COMPANY_Locations(  
Locations varchar(255) NOT NULL,  
PRIMARY KEY (CompanyID, Locations),  
FOREIGN KEY(CompanyID) REFERENCES  
INVESTMENT_COMPANY(CompanyID)  
);
```

```
CREATE TABLE SECURITY (  
SecurityID int NOT NULL,  
SecurityName varchar(255) NOT NULL,  
SecurityType varchar(255) NOT NULL,  
PRIMARY KEY (SecurityID)  
);
```

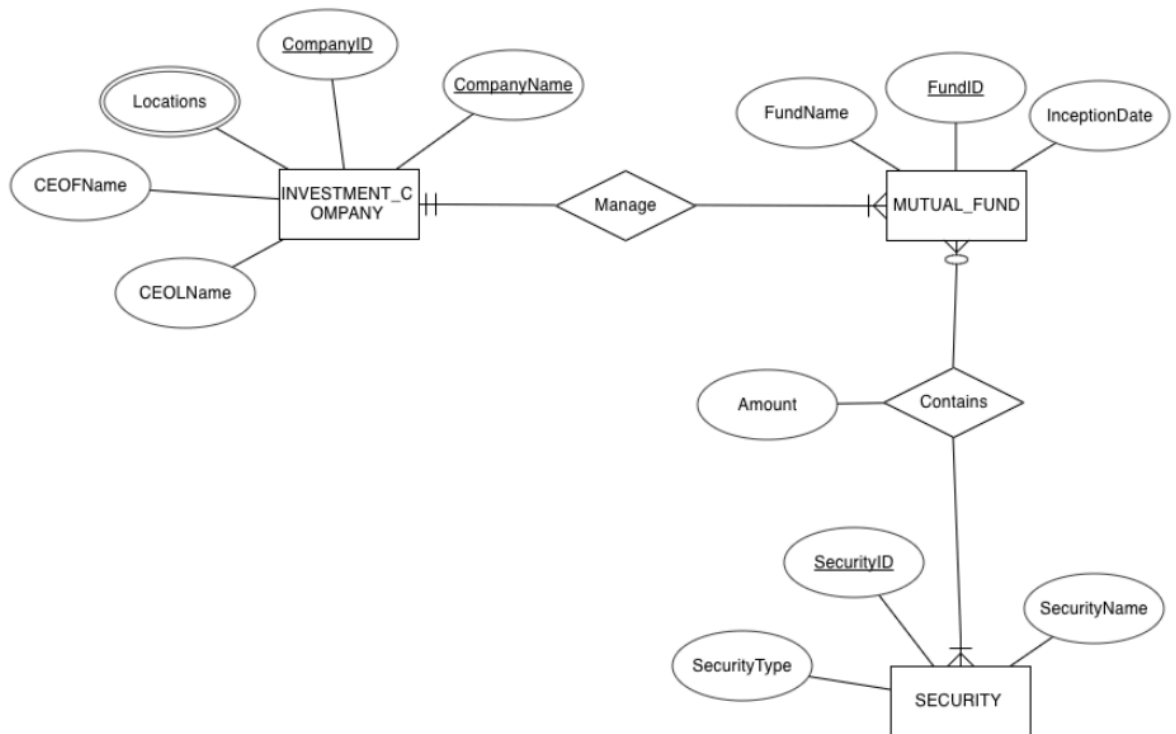
```
CREATE TABLE MUTUAL_FUND(  
FundID int NOT NULL,  
FundName varchar(255) NOT NULL,  
InceptionDate DATE NOT NULL,  
FOREIGN KEY (CompanyID) REFERENCES  
INVESTMENT_COMPANY(CompanyID),  
PRIMARY KEY (FundID)  
);
```

```
CREATE TABLE CONTAINS  
(FundID int NOT NULL,  
SecurityID int NOT NULL,  
Amount int  
PRIMARY KEY (FundID, SecurityID),  
Foreign Key (FundID) REFERENCES Mutal_Fund(FundID),  
Foreign Key (SecurityID) REFERENCES Security(SecurityID) );
```

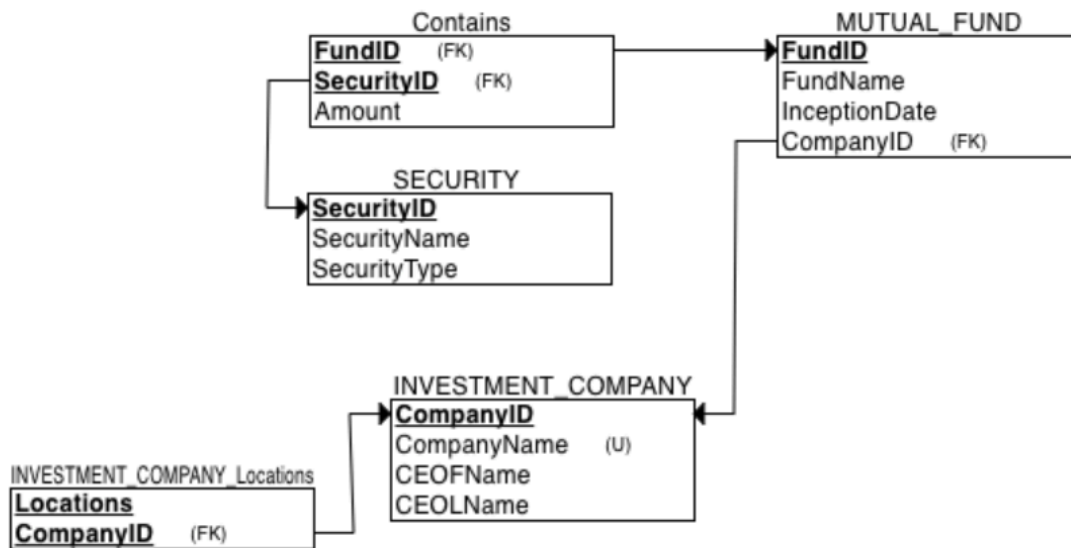
3. Assume that the following addition is made to the Investco Scout Funds Database requirements listed before.

- Investco Scout will keep track of the CEOFName and CEOLName for each investment company (in addition to keeping track of unique investment company identifier, a unique investment company name, and name of multiple locations of the investment company for each investment company).

Change the ER Diagram you created before to reflect the new addition and show it below. **(3 points)**



4. Change the relational schema you created before to reflect the new addition and show it below. **(3 points)**



5. Write ALTER TABLE command that reflects the change in the relational schema. **(3 points)**

```

ALTER TABLE INVESTMENT_COMPANY ADD (
    CEOFName VARCHAR(255)
    CEOLName VARCHAR(255)
);
  
```

6. Observe the following information about investment companies and mutual funds, and create INSERT INTO statements below that insert the information listed below into the created tables of the Investco Scout Funds Database. Please note the data you insert must match the new design structure of your database from question 4. **(20 points)**

### Investment Companies

Company: ACF, Acme Finance	CEO: Mick Dempsey	Locations: Chicago, Denver
Company: TCA, Tara Capital	CEO: Ava Newton	Locations: Houston, New York City
Company: ALB, Albritton	CEO: Lena Dollar	Locations: Atlanta, New York City

### Securities (ID, Name, Type)

AE	Abhi Engineering	Stock
BH	Blues Health	Stock
CM	County Municipality	Bond
DU	Downtown Utility	Bond
EM	Emmitt Machines	Stock

### Mutual Funds by Investment Company (Inception Date, ID, Name, Mix)

ACF:			
1/1/2005	BG	Big Growth	(500 AE Stocks, 300 EM Stocks)
1/1/2006	SG	Steady Growth	(300 AE Stocks, 300 DU Bonds)
TCA:			
1/1/2005	LF	Tiger Fund	(1000 EM Stocks, 1000 BH Stocks)
1/1/2006	OF	Owl Fund	(1000 CMBonds, 1000 DU Bonds)
ALB:			
1/1/2005	JU	Jupiter	(2000 EM Stock, 1000 DU Bonds)
1/1/2006	SA	Saturn	(1000 EM Stock, 2000 DU Bonds)

(Hint: Mutual Funds by Investment Company refers to the M:M relationship between those two entities, so you enter data as the structure of that entity dictates.)

INSERT INTO INVESTMENT\_COMPANY (CompanyID, CompanyName, CEOFName, CEOLName) VALUES ( 'ACF', 'Acme Finance', 'Mick', 'Dempsey');

INSERT INTO INVESTMENT\_COMPANY (CompanyID, CompanyName, CEOFName, CEOLName) VALUES ('TCA', 'Tara Capital', 'Ava', 'Newton');

INSERT INTO INVESTMENT\_COMPANY (CompanyID, CompanyName, CEOFName, CEOLName) VALUES ('ALB', 'Albritton', 'Lena', 'Dollar');

INSERT INTO INVESTMENT\_COMPANY\_Locations (LocationID, CompanyID) VALUES ('ACF', 'Chicago');

INSERT INTO INVESTMENT\_COMPANY\_Locations (LocationID, CompanyID) VALUES ('ACF', 'Denver');

INSERT INTO INVESTMENT\_COMPANY\_Locations (LocationID, CompanyID) VALUES ('TCA', 'Houston');

INSERT INTO INVESTMENT\_COMPANY\_Locations (LocationID, CompanyID) VALUES ('TCA', 'New York City');

INSERT INTO INVESTMENT\_COMPANY\_Locations (LocationID, CompanyID) VALUES ('ALB', 'Atlanta');

INSERT INTO INVESTMENT\_COMPANY\_Locations (LocationID, CompanyID) VALUES ('ALB', 'New York City');

INSERT INTO SECURITY (SecurityID, SecurityName, SecurityType) VALUES ('AE', 'Abhi Engineering', 'Stock');

INSERT INTO SECURITY (SecurityID, SecurityName, SecurityType) VALUES ('BH', 'Blues Health', 'Stock');

INSERT INTO SECURITY (SecurityID, SecurityName, SecurityType) VALUES ('CM', 'County Municipality', 'Bond');

INSERT INTO SECURITY (SecurityID, SecurityName, SecurityType) VALUES ('DU', 'Downtown Utility', 'Bond');

INSERT INTO SECURITY (SecurityID, SecurityName, SecurityType) VALUES ('EM', 'Emmitt Machines', 'Stock');

INSERT INTO MUTUAL\_FUND (FundID, FundName, InceptionDate, CompanyID) VALUES ('BG', 'Big Growth', 1/1/2005, 'ACF');

INSERT INTO MUTUAL\_FUND (FundID, FundName, InceptionDate, CompanyID) VALUES ('SG', 'Steady Growth', 1/1/2006, 'ACF');

INSERT INTO MUTUAL\_FUND (FundID, FundName, InceptionDate, CompanyID) VALUES ('LF', 'Tiger Fund', 1/1/2005, 'TCA');

INSERT INTO MUTUAL\_FUND (FundID, FundName, InceptionDate, CompanyID) VALUES ('OF', 'OWL Fund', 1/1/2006, 'TCA');

INSERT INTO MUTUAL\_FUND (FundID, FundName, InceptionDate, CompanyID) VALUES ('JU', 'Jupiter', 1/1/2005, 'ALB');

INSERT INTO MUTUAL\_FUND (FundID, FundName, InceptionDate, CompanyID) VALUES ('SA', 'Saturn', 1/1/2006, 'ALB');

INSERT CONTAINS (FundID, SecurityID, Amount) VALUES ('BG', 'AE', '500');

INSERT CONTAINS (FundID, SecurityID, Amount) VALUES ('BG', 'EM', '300');

INSERT CONTAINS (FundID, SecurityID, Amount) VALUES ('SG', 'AE', '300');

INSERT CONTAINS (FundID, SecurityID, Amount) VALUES ('SG', 'DU', '300');

INSERT CONTAINS (FundID, SecurityID, Amount) VALUES ('LF', 'EM', '1000');

INSERT CONTAINS (FundID, SecurityID, Amount) VALUES ('LF', 'BH', '1000');

INSERT CONTAINS (FundID, SecurityID, Amount) VALUES ('OF', 'CM', '1000');

INSERT CONTAINS (FundID, SecurityID, Amount) VALUES ('OF', 'DU', '1000');

INSERT CONTAINS (FundID, SecurityID, Amount) VALUES ('JU', 'EM', '2000');

INSERT CONTAINS (FundID, SecurityID, Amount) VALUES ('JU', 'DU', '1000');



```
INSERT CONTAINS (FundID, SecurityID, Amount) VALUES ('SA', 'EM',  
'1000');
```

```
INSERT CONTAINS (FundID, SecurityID, Amount) VALUES ('SA', 'DU',  
'2000');
```