

## DBMS Assignment 2 Report

### Team Details :

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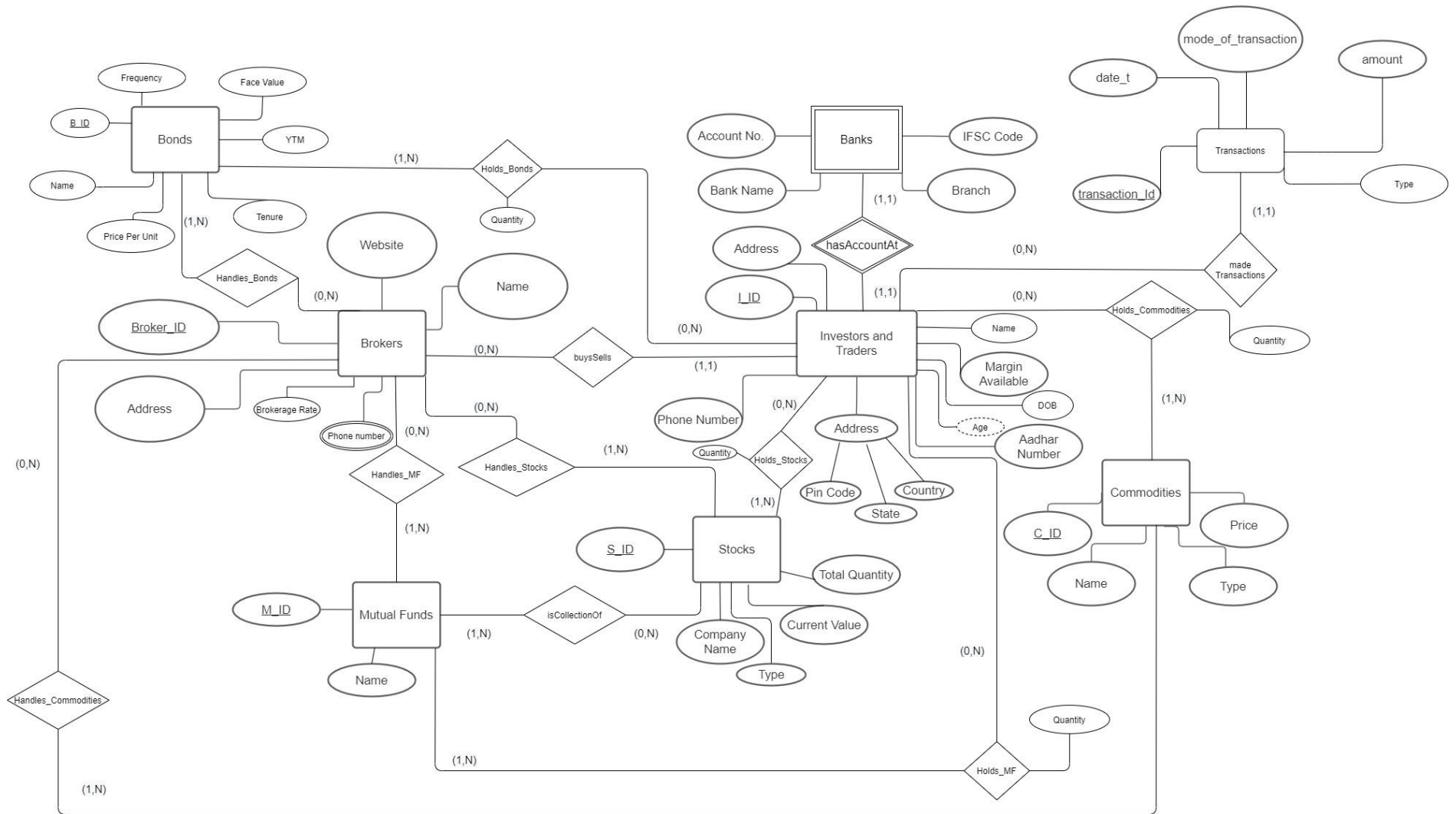
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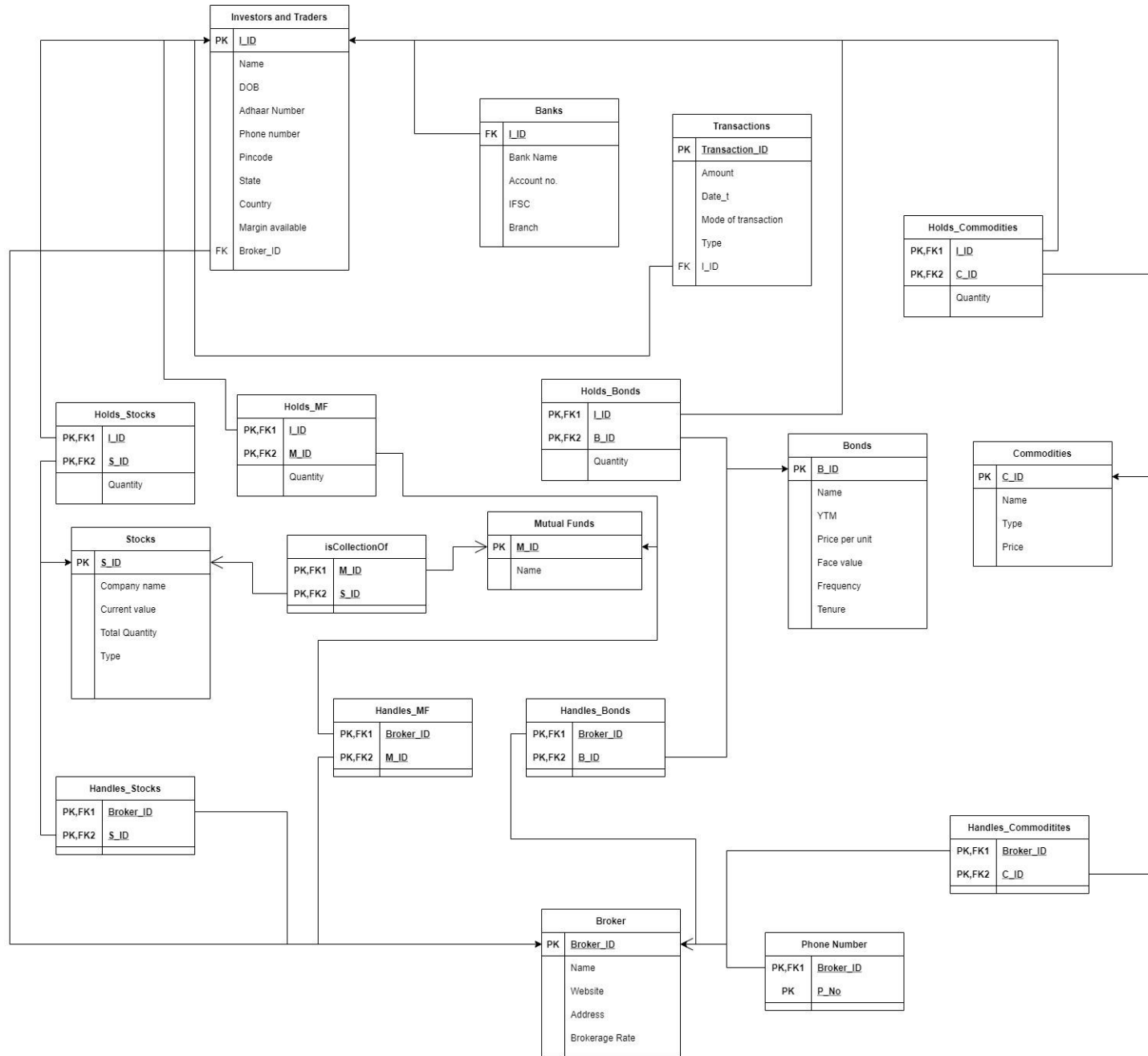
### Reasons for choosing PostgreSQL(RDBMS):

- User defined data types for simulating the mini-world of the Stock market.
- Different Views for entities in different entity sets.
- RDBMS reduces redundancy due to normalization.
- Our purpose of simulation of the stock market requires structural data with data integrity and consistency.
- All Stocks, investors, Brokers, Mutual Funds, Bonds, Commodities have particular predefined data structure to be stored.
- Transactions of securities and funds require checks which are handled by the constraints.
- Each entity on the database are independent entities in the mini-world, therefore relating them using relationships is much more efficient to handle.
- Security of data using access privileges for the DB. Frontend interface authentication to be used for safer transactions.
- Transaction(savepoints) for commits and rollbacks.

## Updated ER Diagram:



# Relational Schema:



Postgres code folder:

- [Drive Link for the postgres code](#)

## Screenshots:

1. List of tables in stockexchange database:

```
stockexchange=# \d
               List of relations
 Schema |          Name          | Type  | Owner
-----+-----+-----+-----
 public | banks                  | table | postgres
 public | bonds                  | table | postgres
 public | brokers                | table | postgres
 public | commodities            | table | postgres
 public | handlesbonds           | table | postgres
 public | handlescommodities     | table | postgres
 public | handlesmf              | table | postgres
 public | handlesstocks          | table | postgres
 public | holdsbonds             | table | postgres
 public | holdscommodities       | table | postgres
 public | holdsmf                | table | postgres
 public | holdsstocks            | table | postgres
 public | investorsandtraders    | table | postgres
 public | iscollectionsof        | table | postgres
 public | mutualfunds            | table | postgres
 public | phonenumbers           | table | postgres
 public | stocks                 | table | postgres
 public | transactions            | table | postgres
(18 rows)
```

## 2. Investors and traders and their bank and transaction details:

```
stockexchange=# SELECT * FROM investorsandtraders;
 i_id | name_i | dob | aadharnumber | phonenumber | pincode | city | state_i | marginavailable | broker_id
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
  1 | Abhishek | 2001-04-25 | 449775290764 | +91 9886542986 | 560019 | Bengaluru | Karnataka | 10000.00 | 55
  2 | Adithya | 2001-09-03 | 696189254337 | +91 8162885283 | 560038 | Bengaluru | Karnataka | 10000.00 | 66
  3 | Abhiram Puranik | 1999-06-21 | 511987622976 | +91 9971822973 | 570012 | Mysore | Karnataka | 10000.00 | 77
(3 rows)

stockexchange=# SELECT * FROM banks;
 i_id | bankname | accountnumber | ifsc | branch
-----+-----+-----+-----+-----
  1 | Kotak Bank | 8816228345 | KB01248234 | Basavangudi
  2 | Axis Bank | 24341323254 | AB15462280 | JP nagar
  3 | Bank of Baroda | 715620916 | BB10243329 | Kengeri
(3 rows)

stockexchange=# SELECT * FROM transactions;
 transaction_id | amount | dateoftransaction | modeoftransaction | typeoftransaction | i_id
-----+-----+-----+-----+-----+-----
      779 | 88000.00 | 2018-09-05 | Debit Card | Deposit | 3
      651 | 16000.00 | 2019-01-24 | Credit Card | Deposit | 2
      801 | 52000.00 | 2019-12-18 | Bank Transfer | Withdraw | 1
(3 rows)
```

## 3. Brokers and their phone number details:

```
stockexchange=# SELECT * FROM brokers;
 broker_id | name | website | address | brokeragerate
-----+-----+-----+-----+-----
      55 | Zerodha | www.zerodha.com | #67, High rise Tower, Bengaluru,Karnataka | 3.00
      66 | Upstox | www.upstox.com | #96, Jubilee Building,Mumbai,Maharashtra | 2.85
      77 | Groww | www.groww.com | #21, Bagmane Tech Park, Bengaluru,Karnataka | 2.42
(3 rows)

stockexchange=# SELECT * FROM phonenumber;
 broker_id | p_no
-----+-----
      55 | +91 8627386451
      55 | 080 26765180
      66 | +91 7722871925
      66 | 080 46681627
      77 | +91 8819263371
      77 | 080 611286382
(6 rows)
```

#### 4. Various holdings and their details:

```
stockexchange=# SELECT * FROM stocks;
```

s_id	companyname	currentvalue	totalquantity	typeofstock
10	Tata Motors	3012.34	9000000	Large Cap
20	JK Lakshmi Cement	976.66	250000	Small Cap
30	Cred Inc.	1784.89	897000	Mid Cap

(3 rows)

```
stockexchange=# SELECT * FROM bonds;
```

b_id	name	ytm	priceperunit	facevalue	frequency	tenure
300	REC CAPITAL GAIN BOND	5 Years	2000.00	10000.00	2	5 years
400	STATE BANK OF INDIA PERPETUAL	2 years	1400.00	1000000.00	6	2 years
500	BAJAJ FINANCE LIMITED	9 Years	5000.00	600000.00	5	9 years

(3 rows)

```
stockexchange=# SELECT * FROM mutualfunds;
```

m_id	name
1024	Axis Bank Prduential Fund
2048	High Growth Momentum Fund
4096	Bajaj Alliance growth Fund

(3 rows)

```
stockexchange=# SELECT * FROM commodities;
```

c_id	name	typeofcommodity	price
101	GOLD	Bullion	46283.00
102	COTTON	Agriculture	28230.00
103	CRUDEOIL	ENERGY	5793.00

(3 rows)

```
stockexchange=# SELECT * FROM iscollectionsof;
```

m_id	s_id
1024	10
1024	30
2048	10
2048	20
4096	20
4096	30

(6 rows)

## 5. Various 'handles' tables and their details:

```
stockexchange=# SELECT * FROM handlescommodities;  
broker_id | c_id  
-----+-----  
55 | 101  
55 | 102  
55 | 103  
66 | 101  
66 | 102  
66 | 103  
(6 rows)
```

```
stockexchange=# SELECT * FROM handlesbonds;  
broker_id | b_id  
-----+-----  
55 | 300  
55 | 400  
55 | 500  
66 | 300  
66 | 400  
66 | 500  
(6 rows)
```

```
stockexchange=# SELECT * FROM handlesmf;  
broker_id | m_id  
-----+-----  
55 | 1024  
55 | 2048  
55 | 4096  
66 | 1024  
66 | 2048  
66 | 4096  
(6 rows)
```

```
stockexchange=# SELECT * FROM handlesstocks;  
broker_id | s_id  
-----+-----  
55 | 10  
55 | 20  
55 | 30  
66 | 10  
66 | 20  
66 | 30  
(6 rows)
```

## 6. Various 'holds' tables and their details:

```
stockexchange=# SELECT * FROM holdsstocks;
```

i_id	s_id	quantity
1	10	102
2	30	38
3	20	77

(3 rows)

```
stockexchange=# SELECT * FROM holdsmf;
```

i_id	m_id	quantity
3	1024	5
2	4096	2
3	2048	4

(3 rows)

```
stockexchange=# SELECT * FROM holdsbonds;
```

i_id	b_id	quantity
3	500	5
2	300	7
1	400	9

(3 rows)

```
stockexchange=# SELECT * FROM holdsstocks;
```

i_id	s_id	quantity
1	10	102
2	30	38
3	20	77

(3 rows)



## **Contribution and Time Spent:**

**Abhiram Puranik** - Converted ER diagram to Relational Schema using appropriate tools and software.

( 5.5 hrs)

**Abhishek Aditya BS** - Implementation of the Relational schema in PostgreSQL (DDL.sql + DML.sql files).

(5 hrs)

**Adithya M S** - Logic building for converting into Relational Schema and implementation with appropriate constraints and report write up. (4 hrs)