

University of British Columbia, Department of Computer Science

CPSC 304

Summer 2018

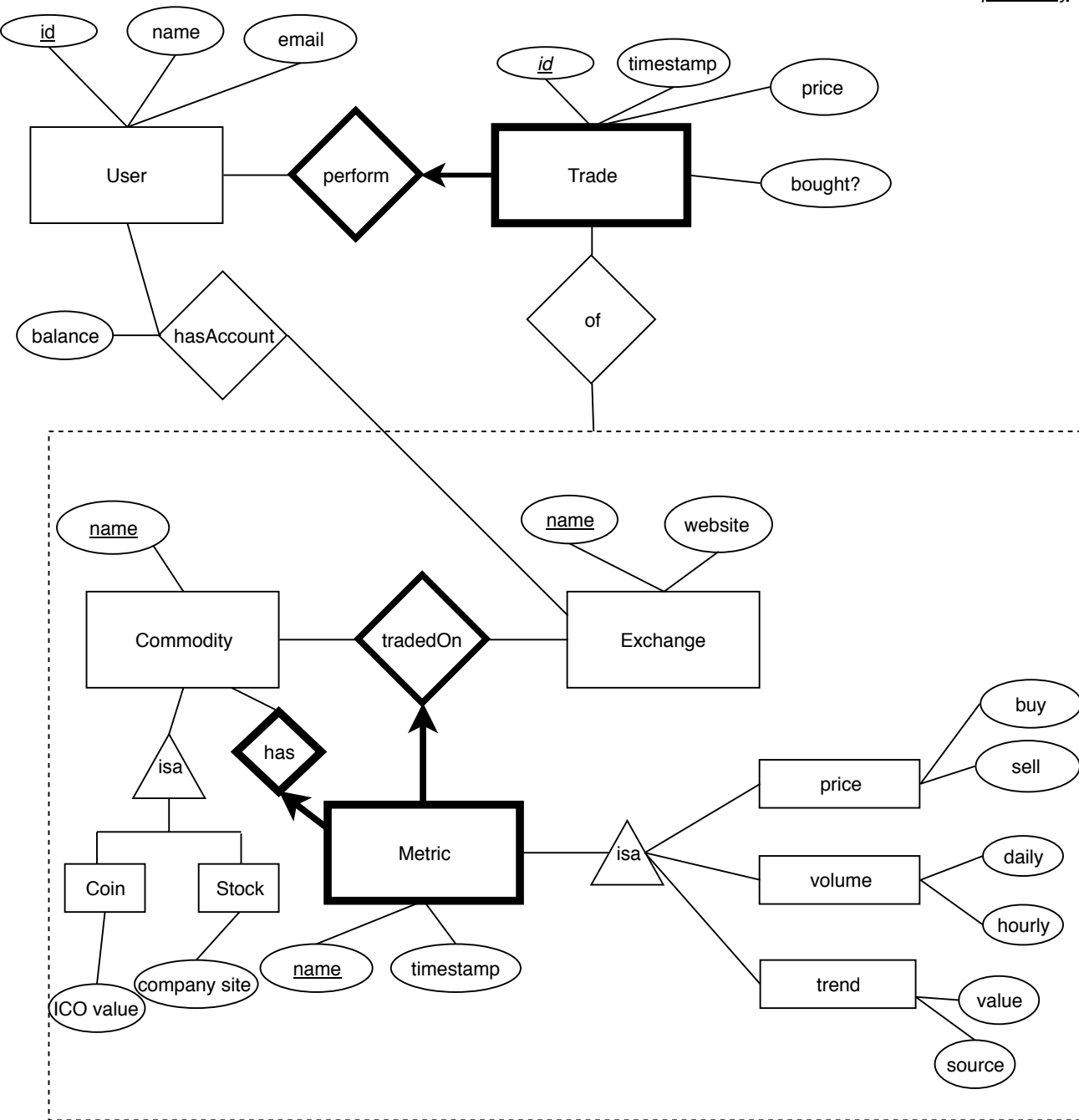
Project Part 2

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above.

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia.



User(id: INT, name: CHAR(20), email: CHAR(30))

Trade(id: INT, timestamp: INT, price: DOUBLE, userID: INT, bought?: BOOL)

Exchange(name: CHAR(20), website: CHAR(30))

Traded_On(exchange_name: CHAR(20), commodity_name: CHAR(20))

Account (user_id: INT, exchange_name: CHAR(20), balance: DOUBLE)

Metric(name: CHAR(20), timestamp: INT, tradedon_commodity: CHAR(20),
tradedon_exchange: CHAR(20))

Price(metric_name: CHAR(20), buy: DOUBLE, sell: DOUBLE)

Volume(metric_name: CHAR(20), daily: INT, hourly: INT)

Trend (metric_name: CHAR(20), value: INT, source CHAR(30))

Commodity(name: CHAR(20), metric_name: CHAR(20))

Coin(commodity_name: CHAR(20), ICO_value: DOUBLE)

Stock(commodity_name: CHAR(20), company_site: CHAR(30))

Normalization

We have yet to find any functional dependencies in the attributes of our entities, so the database (as it is now) is trivially in BCNF.

```
CREATE TABLE User (id INT PRIMARY KEY, name CHAR(20), email CHAR(30))
```

```
CREATE TABLE Trade (id INT, timestamp INT, price DOUBLE, user_id INT, bought?
BOOL,
    PRIMARY KEY(id, user_id),
    FOREIGN KEY (user_id)
        REFERENCES User(id)
        ON DELETE CASCADE)
```

```
CREATE TABLE Account (exchange_name CHAR(20), user_id INT, balance DOUBLE,
    PRIMARY KEY(exchange_name , user_id)
    FOREIGN KEY (exchange_name) REFERENCES Exchange(name)
    FOREGIN KEY(user_id) REFERENCES User(id))
```

```
CREATE TABLE Exchange (name CHAR(20) PRIMARY KEY, website CHAR(30))
```

```
CREATE TABLE Traded_On(exchange_name CHAR(20), commodity_name CHAR(20),
    PRIMARY KEY(exchange_name, commodity_name),
    FOREIGN KEY (exchange_name) REFERENCES Exchange(name),
    FOREIGN KEY (commodity_name) REFERENCES Commodity(name))
```

```
CREATE TABLE Metric (id INT, name CHAR(20), timestamp INT, tradedon_commodity
    CHAR(20), tradedon_exchange CHAR(20),
    PRIMARY KEY(name, tradedon_exchange, id)
    FOREIGN KEY (tradedon_exchange, tradedon_commodity)
        REFERENCES Traded_On(exchange_name, commodity_name)
        ON DELETE CASCADE)
```

```
CREATE TABLE Price (metric_id, INT PRIMARY KEY, metric_name CHAR(20), buy
    DOUBLE, sell DOUBLE, tradedon_commodity CHAR(20), tradedon_exchange
    FOREIGN KEY (metric_id) REFERENCES Metric(id))
```

```
CREATE TABLE Volume (metric_id INT PRIMARY KEY, daily INT, hourly INT,
    FOREIGN KEY (metric_id) REFERENCES Metric(id))
```

```
CREATE TABLE Trend (metric_id INT, value INT, source CHAR(30),
    FOREIGN KEY (metric_id) REFERENCES Metric(id))
```

```
CREATE TABLE Commodity (name CHAR(20) PRIMARY KEY)
```

```
CREATE TABLE Coin (commodity_name CHAR(20) PRIMARY KEY, ICO_value
DOUBLE,
    FOREIGN KEY (commodity_name) REFERENCES Commodity(name))
```

```
CREATE TABLE Stock (commodity_name CHAR (20) PRIMARY KEY, company_site  
CHAR(30)  
FOREIGN KEY (commodity_name) REFERENCES Commodity(name))
```

Trade_On

exchange_name	commodity_name
QuadrigaCX	Ether
QuadrigaCX	Bitcoin
Kraken	Bitcoin
Kraken	Ether
NYSE	AAPL
AML	Dirt

User

id	name	email
1	Fred Smith	fsmith@yahoo.com
2	Germaine Chu	gchu@gmail.com
3	Bob Jones	bjones@bjones.com
4	Aiden Lepinski	alepin@fire.net
5	Potato Washington	ardnet@net.net

Commodity

name
Ether
Bitcoin
AAPL
Blackbird

Coin

commodity_name	ico_value
Ether	823472340
Bitcoin	24023492323984

Stock

commodity_name	company site
AAPL	apple.com
Blackbird	blackbirdstock.com

Trade

id	timestamp	price	bought?	user_id
1	824782347	500	true	1
2	289423092	850	false	1
3	238109245	900	true	4
4	238492340	384	true	5
5	294923404	894	false	3

Account

user_id	exchange_name	balance
1	QuadrigaCX	28348.00
2	Kraken	23940234.50
3	NYSE	49234.80
4	AML	0.00
5	XE88	249.35

Exchange

name	website
QuadrigaCX	quadrigacx.com
Kraken	kraken.io
NYSE	nyse.com
AML	aml.com
XE88	xe88.com

Metric

name	timestamp	tradedon_commodity	tradedon_exchange	id
price	10221473450	Ether	QuadrigaCX	1
volume	12938230143	Ether	QuadrigaCX	2
trend	13513473677	Ether	QuadrigaCX	3
price	14223472349	Bitcoin	QuadrigaCX	4
volume	61462348923	Bitcoin	Kraken	5

Price

metric_id	buy	sell
1	780.14	750.39
2	1000.30	900.03

Volume

metric_id	daily	hourly
2	10023	139
5	8234248	2348

Trend

metric_id	value	source
3	10	google