

CS 157A Intro to Database Management Systems

Project Data Model & DB Design Document

Project Title: Stock Data Aggregation Web-App

TEAM 34

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October 8th, 2019

ER-Model

For our Entity-Relationship Model diagram, we used red to represent entities, blue for attributes and green for relationships. As it shown on Figure 1 below.

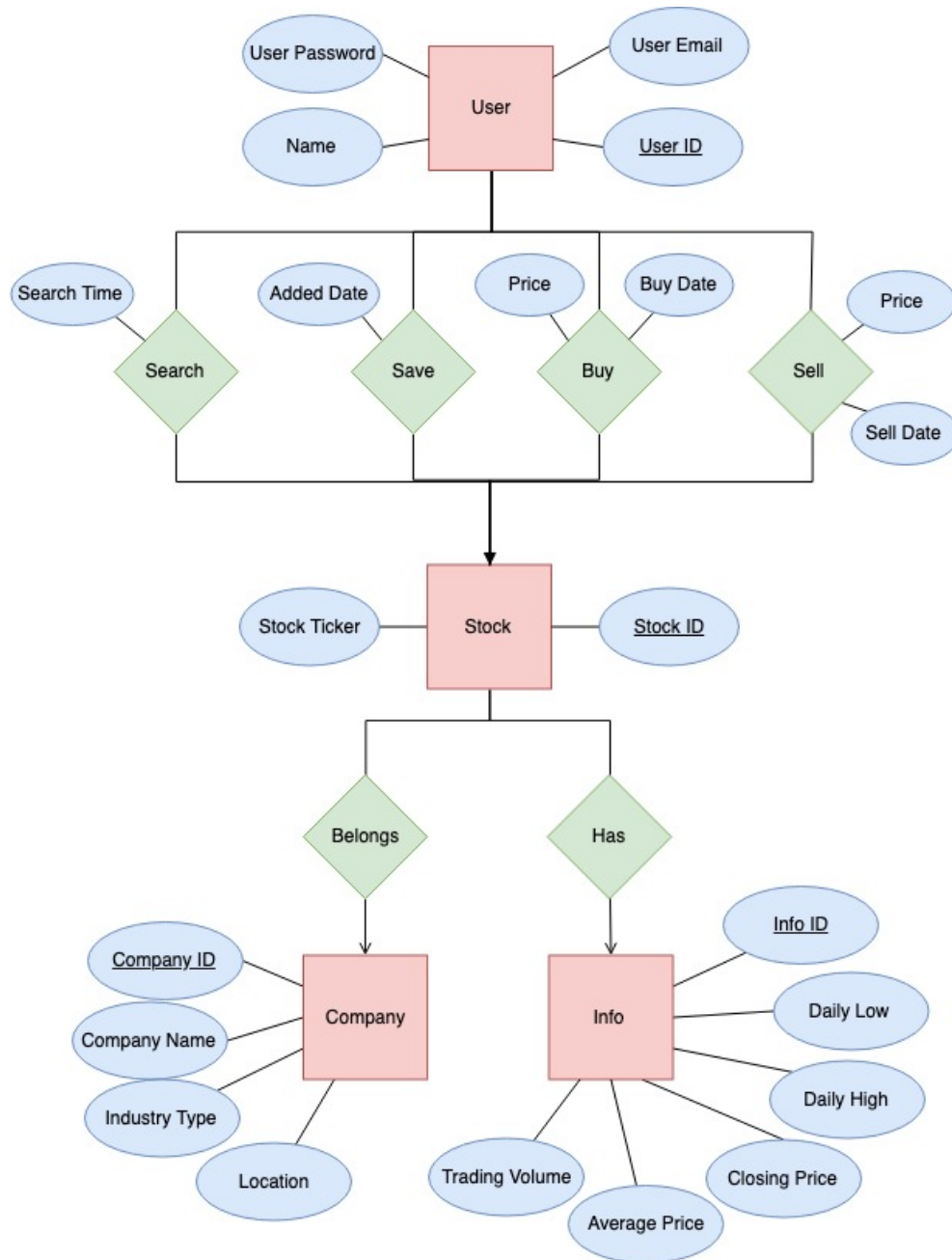


Figure 1. ER-Model

Table

Table 1) User (User ID, Name, User Email, User Password)

There are many users of our application, and this table is an example of how that information would be stored.

```
mysql> SELECT * FROM User;
```

User_id	User_name	User_email	User_password
1	Dal Tregear	dtregear0@zimbio.com	9rRQnRx
2	Dene Merring	dmerring1@bluehost.com	aED8WfG
3	Merrill Smeeton	msmeeton2@icio.us	4F5qCbGzJP
4	Nataline Newvill	nnewvill3@wordpress.org	lLorTJK
5	Annie Totterdell	atotterdell4@naver.com	IzmqHCe8NF
6	Gertie Konzel	gkonzel5@ezinearticles.com	t3qrSnbpnJ
7	Mame Hoffner	mhoffner6@goo.gl	srB2U41Y
8	Coraline Hattiff	chattiff7@e-recht24.de	3x18xJuKeE
9	Orbadiah Woolmington	owoolmington8@reuters.com	mDBt5IoV8Wh
10	Agna Erridge	aerridge9@samsung.com	6roISlrARpoq
11	Addia Adenot	aadenota@pagesperso-orange.fr	uq2vGxZdZHue
12	Pearla Askaw	paskaw@newyorker.com	w0YaR6l3wF
13	Palmer Corcut	pcorcutc@gnu.org	dk6ya1
14	Noll Rochester	nrochesterd@devhub.com	lfbJBmIA4r3
15	Gino Kingcote	gkingcotee@oaic.gov.au	fEvMBCUs

Table 2) User Has (User, Favorite List, Search History, Deleted History)

Each unique user is associated with three more tables which contain the user's favorite stocks, the user's recent search history, and the user's recently deleted searches.

```
mysql> SELECT * FROM User_has;
```

User	Favorite_list	Search_history	Deleted_history
1	17Z97N5Epku1EiwzKfwYVRC2HX4dXVXqbd	13Tb6cRpzG4EXhqFCaZEdUWAmRVhFuTsuW	19UdNaCAiH8LUne9E1VcmdJaK7k6RKzS1s
2	1EYSkelXHNK5srQmVHDocUgpPUSjJKBfsX	1Mqb5JJfv8z2ry5U9p9MFRdLJC4wFGpJ61	1CF9WoXS5LtUUGLeXzU6WmEhLrNrXZwx1g
3	15qQTte2iP7471e9q4fmaoXJxxRKAFTRAY	1BsRmsVJFEFLJ71aNjHTM1wPuXaeADvrbPc	18DissGmDi5Zm5x7q2cpBLH2kjwgQshXBF
4	1CiVCSQCoTtJCS4aqGtRqRUFFRCSEwuaaX	1CVLZYT1dYuDTSvy7AWraQZcGCeohLjU1	165SYYjdaf1qKvHHKxABXx5bYipDjYiRjX
5	1AGJorjRiFhzcaYEodjcd8FC5ywUFUM4zL	1Ge9BULyzVgW5jQGeF4fiM41rATAbSsy3y	1DFMCAEbXkiGWEoLhiadSjdAmuX5NiwwFB
6	1DSTxr7FiRrPifc3sTyC6adeLAmiT25P1X	14v4KW6ByXHJqAd5troeWCbj5KLrnG9ADu	17p1oAJc19ze1BfYmN3z5LWFVjR8svSBx
7	1HC1uzq6NMxm5izJNEatqu8qQ7AvGvW3CL	15PFKT5GkofWrftNXsW59LQ4BVEcLsdsKB	1DgUe7gjeU7ZZR1RHPMurpcMpTatYc3zmG
8	1MB51yqPd7BjqUdZTSwuThfArzkBVBjn5B	197yWgzAtxY7eWSvpkNVSLhCepKi5ucTcH	1LQ2t6yvk52vMoi1GuJEtKKKKZUX3rdK
9	1Apx7Xuoxb2zAWdVvF7dWbGbhbnkufQUsj	138ctWQ7mviLxK5pTshgkdRuj9cYdUv99	1JQ3vwjH1K2JtrdWdf2Rm6WaKYBwDFkNs3
10	1NTAbjaYtFD92qioFaLJznMyhiaMXKEAFW	1PjhdwED1apPH3838qoqebU49Tkuujh8w1	1GszHs2zgvvniNne2otsjSyb1rbUzu57e
11	1HbttDKRVzd1pHJ3Fg7tbizBaL72f5Ad8h	196AwNYRBDhmEkqmiVywwVGJF9vdpH2bn	13xAY3SMXGdujZMBEtpXTWF53GZN1oDPN3
12	1NkBJCwp7a8Y9KgZwZmRpbAEbqzHkxV9H5	1jDDTHxNYTmochrircXivQka7KPZ9CYEm	1MZssdQU4ywQg4BakyV1kcd29HvAdjnB2T
13	16Q5SxyUMFiUqg4iA9tBsba16oEG6FUap6	1DeYHooiuMjJq89JhsQeCYaaaEQW5cwFBA	16xBoVwhsBrJvHkGYxAFr3DPcUBbWM5FVz
14	12uJqdDRKvpLRXtwhQdTV9Fzz694wMvTy	1DsabDD9RmqHaGkSaUyifdD4Ve1fpzoG6x	19duYyDJmBarh1KPg6kyeY5D7DqWtfnnwf
15	1AgiswCVMLsAg6BCiRGZnsF1Q9cppMoVU8	1AMXnmGPGtT5DGjs8azcY1qkwcLfrLw5q3	1CJwzWV193NyBbtTMvW8Phykt9312sqdxy
17	1AgiswCVMLsAg6BCiRGZnsF1Q9cppMoVU8	1AMXnmGPGtT5DGjs8azcY1qkwcLfrLw5q3	1CJwzWV193NyBbtTMvW8Phykt9312sqdxy

Table 3) Search History (Stock, Search Time)

From each user's search history list, each stock will have a timestamp of when the user have searched for the search via the search bar.

```
mysql> select * from Search_history;
+-----+-----+
| Stock | Search_time |
+-----+-----+
| 29922 | 2018-11-24 20:39:09 |
| 60668 | 2019-07-05 05:49:22 |
| 105065 | 2018-12-19 09:10:02 |
| 167625 | 2019-10-03 04:24:05 |
| 207507 | 2018-11-20 20:07:57 |
| 227058 | 2019-01-22 14:09:49 |
| 230374 | 2019-05-26 22:47:41 |
| 431661 | 2019-05-05 10:09:52 |
| 449829 | 2018-12-11 02:22:02 |
| 478260 | 2019-01-29 06:22:38 |
| 577007 | 2019-02-17 15:54:48 |
| 718952 | 2019-08-26 06:42:45 |
| 763991 | 2019-07-11 04:30:27 |
+-----+-----+
```

Table 4) Favorite List (Stock, Added Date)

From each user's favorite list, each stock has a Stock ID and a timestamp of when it was added to the user's favorite list.

```
mysql> SELECT * FROM Favorite_list;
+-----+-----+
| Stock | Added_date |
+-----+-----+
| 241182 | 2019-07-21 17:47:28 |
| 339275 | 2019-08-18 11:54:53 |
| 428400 | 2019-04-05 09:01:46 |
| 529090 | 2019-06-21 12:17:20 |
| 563739 | 2019-03-07 08:04:20 |
| 573312 | 2019-02-18 18:56:57 |
| 593020 | 2019-05-11 09:08:57 |
| 681154 | 2019-04-14 05:23:38 |
| 811910 | 2019-03-22 07:16:32 |
| 947570 | 2019-08-14 10:33:13 |
| 956123 | 2018-11-30 19:17:50 |
| 983622 | 2018-11-13 11:45:37 |
| 997849 | 2019-09-22 17:08:53 |
+-----+-----+
```

Table 5) Deleted History (Stock, Deleted Date)

Deleted history table aggregates stock objects, primary key of the relationship is the Stock ID.

```
mysql> select * from Deleted_history;
```

Stock	Deleted_date
29024	2019-01-05 08:02:36
58594	2019-06-28 05:49:29
186690	2019-01-11 21:45:32
198129	2018-10-18 07:01:29
258264	2019-10-02 01:09:27
357605	2019-04-04 13:03:46
370760	2019-06-10 01:27:07
404796	2019-02-21 02:30:36
534952	2018-12-15 14:39:48
551670	2018-11-02 09:19:03
583356	2019-09-10 03:38:12
676214	2018-11-17 11:39:06
784233	2018-10-16 07:54:02
858346	2019-01-21 10:39:38
874273	2019-05-27 06:18:51

15 rows in set (0.00 sec)

Table 6) Contained (Stock, Favorite List, Search History, Deleted History)

In the relationship between Favorite List, Search History and deleted history, each of these tables aggregate stock objects so Stock is its own entity with attributes. In a one to many relationships, one of each of the tables mentioned can hold several stock objects.

```
mysql> select * from Contained;
```

Stock	Favorite_list	Search_history	Deleted_history
70981	1LtJpDmb9sGKiPxr6ij5Eo66taaYq5y29c	1LBXq38xTnuN6TmQQ2Vyh3YTLNkfK7WpeX	1NB9hXopbLgXeEQ6FnYRAor2dxE6MZxUTn
223587	15qXeYQjtLJafyVJZUsnsZNRQ1HS7JEUqX	15FDpYJgFAy94kfZiab4XHW97dG7mbsVzV	198qnTY248u9hoYQj9hFYbhhZ8erbFPXxq
229687	1MdFyAUsEJFvA5kL8Tvh55wdguEuihdaXL	14C8vThH5z5i1FNQbSDTBahmtQYwQBq1Xi	1NrHiCuF4ECVCXeYQkfwhuUEEJbBoauCjs
314637	1muy7aW2bxY1wnns3nPfXSFgqhRPEksYk	1JPKsa8PPNxedwR9WGFkwUbyya1qN6RMFW	1GxbjE64EUCojEjkEnE44Cx7xyXGs1Kvmc
474042	15t18HhAuJoRRL6bJsyZ4mpjEyyKAETGTV	1C3Y53UeJHqnxto9RQaShhp9amo59sXK28	17tNQ4DMZ5Y4sfwuhepkro61FocByxkTQF
488236	1ANSFiSsLDuqeynXVRbTuf6MWAoGMWpiXc	18vT9jk18WR5smQWamR6RHxfUaK78nXoMX	1Hxx1Cc4BVWc9VKudM861CSGsnMpEN3SqP
562214	15UfwjwmYVtjLzXKe2JTQdEowhWb8ufMXV	1Pq1hteQV8HoqnZjou83YWMqCyJJCzkNeP	177hN1yuXYVhB8G2oRjfdxppm24FZPNiGu
666497	17ZSYfdjrdVybHpf05PYp6vm1tbzwQbKiW	1PagxS9SMdQNGfRxQDtYUHcrJ8JLQsquaH	1LKqYNLy2WqnfeW4ozmRuXApWWLdFqxM3S
682137	1Q2zXCM8WpKvBLKPQXYCfWTZTPpycTq3bj	1Nop9zS93TewtUtXcJNemdYv38aTHpv14P	1PsTYFR7MNRbQqar8vbooDS2CBCWWpL9Ut
741461	1PHErq4zyXc5qr9wriEPay3RQNhHPVA3FX	192mnhVnTzbg6k75btQx8UJoh2XjrDGweK	189yJGf7okU7nCzmHnyV3mdb9uSwHsmPJt
759706	1PS9s7XCbqrPG6HH23GWX41RVCUX4Vx7CW	12QparJv5PfXqRqNCERTnWrrNcG5YSs7MEmx	1ECfDxW2WW227J445WTF5T1PLgKTUYPCK
844528	163zfWD7iJ5RhQ6P2dpg1WJ4x2dZuGCvjb	1BWuuCXcDndFytoMHv9jNpgTHFTStoNRWM	1KUKC7ogtbPr64dqyBJMkrhFcxjq7jSop
914136	1DYvg4pJyWLL9BrRmYaYpxbaAriwMpias	15My6uk5EB5yoDNwJMiMgi2mo1pj6Hg65w	1Bmi64Ln9u1ATvtYSJnapce2GwwTy9pfUS
917173	17riVTBBeh4Gt7dATeFdXoyL4zQGQKpbSR	1PCDTXpM8DBfEYRNEXf6PPUTAZGqfTgW7v	13onjkybkrdeUYQzSPzNEBvwxPPGGdb4U

Table 7) Stock (Stock ID, Stock Ticker)

Each Stock has a table called information associated with it, Stock ID is again the primary key of the relationship.

```
mysql> select * from Stock;
```

Stock_id	Stock_ticker
1	RMTI
2	SNH
3	GGP
4	BIT
5	AKR
6	UMH^A
7	BBGI
8	AFI
9	SBNY
10	DSKEW
11	UIS
12	DSX^B
13	GTT
14	KBWP
15	CWAY

Table 8) Stock has (Stock, Info, Price)

This is a table demonstrating a join between Stock, and its two entities Information and Price.

```
mysql> select * from Stock_has;
```

Stock	Info	Price
64223	1JrTvY38Jx5pwrY9gCwyVjApFfM8Zs1N1Z	12yD3N249cmxa1RAfUJzDtMxmm7iD1xmvx
200209	18yt9dZJGCeB27R9BkUg5zZKLjKW455ZNE	1PH45Fmq3oPFmUzeV2mm35yJZhkfJibu5b
279816	1KsgQEXDpxVw3DSSneRsMxVns5vNxbsFhj	1D3SpgUaTA8rN3exrRLhfEai9oWW6gsiXB
484875	17TD6P1iHbvNDxUJo3dmCmnfXJ83n4Hjcs	16SJW7thbTyBaiziMfH4MoUbQwppzDAzb3
519422	1J9Nc4BVSh7223o5oxpoUBeH67AvGRuFe1	19tPRwgTtcr6dtKq7nvi89JHnZnAZXjjAn
609016	1GD4M7UEvmG9GTWKxFNZHhr8EXN2Usuasb	19qJCj38vr6kUicctfBCMVLWWaeVyD7zmX
681574	1AWgdXSXY7MiF9B64HN4zV1iEiQnmoe91un	1KvoX6okw68Mdavrbzh5Jnv2xs27sfWep3
685883	1Bfs1Mhd75PBvKerdPu2PVJYLgQ6yxV812	19WT49PK9s5uShrXKY3P5d3PoSy6pcxNy1
709662	1GsJg36GJxGtzkc2VMof3KHkjb3Q2Gna94	17J21PBsFt9KxRWdudw7GZDYa3S6sUWk7c
755827	17iDHUHnf2HEE1agXZmZ45zX5QNC8ZpDFc	18DCkxLfrVuTyW9xDVA7oNcEuffeyM46Fy
792936	1HnHFhrJDBYs2HeWfEH9ZJ4udHXyrfJQiP	1CJ4oqWg7jE69q8JSWEQ6gyGHCap9wpReY

Table 9) Info (Stock, Moving Average, Trading Volume, Beta Value, Value for Buy, Value for Sell)

Each Stock has a table called information(info) associated with it, Stock ID is again the primary key of the relationship.

```
mysql> select * from info;
```

Stock	Moving_average	Trading_volume	Beta_value	Value_for_buy	Value_for_sell
1090	\$20.79	\$19781091.00	\$190.36	\$68.96	\$155.95
207075	\$14.53	\$17132879.82	\$184.81	\$3.34	\$288.15
211472	\$237.10	\$14736648.14	\$136.20	\$226.32	\$67.60
357466	\$142.00	\$2510452.66	\$135.73	\$138.68	\$121.16
378231	\$284.61	\$1593165.02	\$148.06	\$257.25	\$232.35
463091	\$277.74	\$8700351.48	\$107.82	\$183.43	\$29.68
464198	\$102.63	\$1053706.48	\$114.41	\$161.45	\$272.85
464219	\$269.55	\$17483379.65	\$193.24	\$99.58	\$89.36
479373	\$244.14	\$4241269.42	\$142.05	\$188.08	\$160.92
491134	\$30.88	\$9972580.48	\$169.82	\$40.95	\$182.76
524162	\$286.36	\$4402902.59	\$133.37	\$182.36	\$40.13
716635	\$29.89	\$7581936.01	\$188.49	\$194.97	\$44.74
717477	\$185.75	\$2481886.11	\$129.85	\$248.53	\$37.42
759573	\$274.93	\$2925158.25	\$190.60	\$4.13	\$229.22
807626	\$148.92	\$4101948.10	\$146.78	\$121.25	\$172.12

15 rows in set (0.00 sec)

Table 10) Price (Stock, Closing Price, Daily Low, Daily High, Average Price)

Each Stock also has a table called price associated with it to store information about the price.

```
mysql> select * from price;
```

Stock	Closing_price	Daily_low	Daily_high	Average_price
67589	\$42.14	\$164.00	\$284.51	\$212.40
100199	\$279.86	\$129.59	\$249.60	\$218.85
110190	\$11.74	\$181.92	\$251.90	\$236.88
188620	\$298.71	\$33.06	\$277.92	\$122.35
189741	\$50.46	\$257.42	\$60.34	\$117.05
242760	\$192.36	\$107.25	\$104.44	\$181.70
307560	\$58.12	\$8.96	\$11.99	\$256.12
403070	\$259.14	\$297.67	\$113.23	\$249.82
421486	\$8.98	\$96.90	\$140.33	\$146.20
425566	\$220.81	\$195.13	\$88.36	\$291.24
441526	\$174.31	\$21.26	\$13.20	\$201.11
452912	\$118.43	\$270.32	\$28.44	\$149.62
482449	\$127.51	\$184.81	\$227.26	\$106.49
496001	\$181.42	\$179.04	\$180.97	\$145.77
503106	\$231.91	\$185.38	\$262.93	\$20.15
517015	\$82.57	\$13.16	\$188.22	\$223.24
679612	\$40.93	\$245.04	\$65.08	\$156.63
726411	\$137.33	\$100.37	\$80.67	\$41.12
783448	\$35.10	\$209.56	\$226.32	\$247.77
857561	\$283.76	\$279.07	\$157.76	\$176.20
863422	\$73.44	\$267.79	\$140.18	\$208.29
901290	\$107.96	\$292.55	\$159.89	\$40.22

22 rows in set (0.00 sec)