

# Interim Report

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**This document is the Interim Report for the Capstone Project. It shows the proto type for the database that will hold data the data from crypto-currency exchange Binance. I will have to collect data and come up with relevant strategies as I go along the project.**

## Introduction

I have prepared a database prototype for this report. The structure of the database is described below. The base for any trading is good data handling and the MySQL database is one way to achieve that. I decided to implemented. It should give us a lot functionality.

# Database Structure

I have included the below tables in this submission. The tables can be created and removed by SQL commands in the “mysql\_scripts.sql” file. The schema for the database is shows in Figure 1.

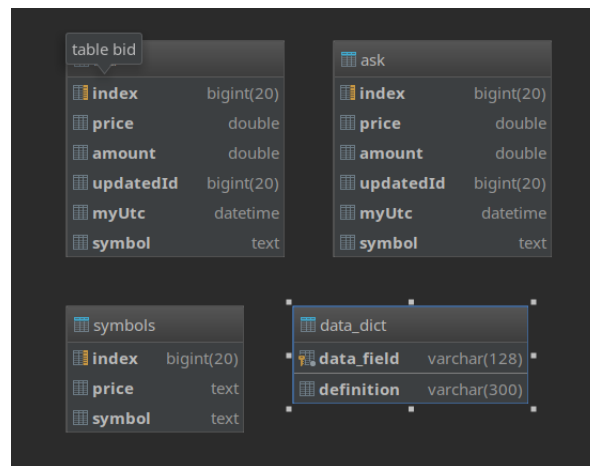


Figure 1: Schema

It should be noted that I am missing relationships in the database at the moment. The database structure is still a prototype.

## Bid and Ask

Bid and ask prices are split into two tables. The tables are identical. The tables from Figure 2 and Figure 3 carry the data for the symbol and specific Exchange time stamp as given by *updateId* column. My time stamps are in the *myUtc* column representing the time on my computer.

price	amount	updatedId	myUtc	symbol
0.00020497	1806	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020503	147	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020504	6	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020511	9	48208950	2018-11-19 21:03:04	TUSDBTC
0.0002052	4453	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020538	4453	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020546	18528	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020556	4453	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020558	1194	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020576	34	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020577	15	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020586	5	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020587	5	48208950	2018-11-19 21:03:04	TUSDBTC

Figure 2: Ask Price

price	amount	updatedId	myUtc	symbol
0.00020471	504	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020468	183	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020466	281728	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020465	10	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020463	49	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020461	20	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020456	20	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020455	10	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020454	5	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020453	10	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020452	10	48208950	2018-11-19 21:03:04	TUSDBTC
0.0002045	6	48208950	2018-11-19 21:03:04	TUSDBTC
0.00020449	30	48208950	2018-11-19 21:03:04	TUSDBTC

Figure 3: Bid Price

## All Symbols

We know that it is easy to start mirroring the whole exchange we have the the list of a all symbols. The symbols with latest prices are stored in *symbol* table. Symbol is the term the exchange uses. Currently, there are some 400 different currency pairs we can access through the exchange API.

price	symbol
0.03059800	ETHBTC
0.00733500	LTCBTC
0.00137230	BNBBTC
0.00208900	NEOBTC
0.01701900	QTUMETH
0.02676100	EOSETH
0.00016778	SNTEETH
0.00590400	BNTETH
0.00059600	GASBTC
0.04496700	BNBETH

Figure 4: Symbols

## Formatting Citations

Citations can be handled in one of three ways. The most straightforward (albeit labor-intensive) would be to hardwire your citations into your  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$  source, as you would if you were using an

ordinary word processor. Thus, your code might look something like this:

```
However, this record of the solar nebula may have been
partly erased by the complex history of the meteorite
parent bodies, which includes collision-induced shock,
thermal metamorphism, and aqueous alteration
({\it 1, 2, 5--7\}).
```

Compiled, the last two lines of the code above, of course, would give notecalls in *Science* style:

```
... thermal metamorphism, and aqueous alteration (1, 2, 5--7).
```

Under the same logic, the author could set up his or her reference list as a simple enumeration,

```
{\bf References and Notes}

\begin{enumerate}
\item G. Gamow, {\it The Constitution of Atomic Nuclei
and Radioactivity\} (Oxford Univ. Press, New York, 1931).
\item W. Heisenberg and W. Pauli, {\it Zeitschr.\ f.\
Physik\} {\bf 56}, 1 (1929).
\end{enumerate}
```

yielding

## References and Notes

1. G. Gamow, *The Constitution of Atomic Nuclei and Radioactivity* (Oxford Univ. Press, New York, 1931).

2. W. Heisenberg and W. Pauli, *Zeitschr. f. Physik* **56**, 1 (1929).

That's not a solution that's likely to appeal to everyone, however — especially not to users of  $\text{BIB}\text{T}_{\text{E}}\text{X}$  (?). If you are a  $\text{BIB}\text{T}_{\text{E}}\text{X}$  user, we suggest that you use the `Science.bst` bibliography style file and the `scicite.sty` package, both of which we are downloadable from our author help site ([http://www.sciencemag.org/about/authors/prep/TeX\\_help/](http://www.sciencemag.org/about/authors/prep/TeX_help/)). You can also generate your reference lists by using the list environment `{thebibliography}` at the end of your source document; here again, you may find the `scicite.sty` file useful.

Whether you use  $\text{BIB}\text{T}_{\text{E}}\text{X}$  or `{thebibliography}`, be very careful about how you set up your in-text reference calls and notecalls. In particular, observe the following requirements:

1. Please follow the style for references outlined at our author help site and embodied in recent issues of *Science*. Each citation number should refer to a single reference; please do not concatenate several references under a single number.
2. Please cite your references and notes in text *only* using the standard  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$  `\cite` command, not another command driven by outside macros.
3. Please separate multiple citations within a single `\cite` command using commas only; there should be *no space* between reference keynames. That is, if you are citing two papers whose bibliography keys are `keyname1` and `keyname2`, the in-text cite should read `\cite{keyname1, keyname2}`, *not* `\cite{keyname1, keyname2}`.

Failure to follow these guidelines could lead to the omission of the references in an accepted paper when the source file is translated to Word via HTML.

## Handling Math, Tables, and Figures

Following are a few things to keep in mind in coding equations, tables, and figures for submission to *Science*.

**In-line math.** The utility that we use for converting from L<sup>A</sup>T<sub>E</sub>X to HTML handles in-line math relatively well. It is best to avoid using built-up fractions in in-line equations, and going for the more boring “slash” presentation whenever possible — that is, for  $a/b$  (which comes out as  $a/b$ ) rather than  $\frac{a}{b}$  (which compiles as  $\frac{a}{b}$ ). Likewise, HTML isn’t tooled to handle certain overaccented special characters in-line; for  $\hat{\alpha}$  (coded  $\hat{\alpha}$ ), for example, the HTML translation code will return  $^{\wedge}(\alpha)$ . Don’t drive yourself crazy — but if it’s possible to avoid such constructs, please do so. Please do not code arrays or matrices as in-line math; display them instead. And please keep your coding as T<sub>E</sub>X-y as possible — avoid using specialized math macro packages like `amstex.sty`.

**Displayed math.** Our HTML converter sets up T<sub>E</sub>X displayed equations using nested HTML tables. That works well for an HTML presentation, but Word chokes when it comes across a nested table in an HTML file. We surmount that problem by simply cutting the displayed equations out of the HTML before it’s imported into Word, and then replacing them in the Word document using either images or equations generated by a Word equation editor. Strictly speaking, this procedure doesn’t bear on how you should prepare your manuscript — although, for reasons best consigned to a note (?), we’d prefer that you use native T<sub>E</sub>X commands within displayed-math environments, rather than L<sup>A</sup>T<sub>E</sub>X sub-environments.

**Tables.** The HTML converter that we use seems to handle reasonably well simple tables generated using the L<sup>A</sup>T<sub>E</sub>X `{tabular}` environment. For very complicated tables, you may want

to consider generating them in a word processing program and including them as a separate file.

**Figures.** Figure callouts within the text should not be in the form of L<sup>A</sup>T<sub>E</sub>X references, but should simply be typed in — that is, (Fig. 1) rather than `\ref{fig1}`. For the figures themselves, treatment can differ depending on whether the manuscript is an initial submission or a final revision for acceptance and publication. For an initial submission and review copy, you can use the L<sup>A</sup>T<sub>E</sub>X `{figure}` environment and the `\includegraphics` command to include your PostScript figures at the end of the compiled PostScript file. For the final revision, however, the `{figure}` environment should *not* be used; instead, the figure captions themselves should be typed in as regular text at the end of the source file (an example is included here), and the figures should be uploaded separately according to the Art Department’s instructions.

## What to Send In

What you should send to *Science* will depend on the stage your manuscript is in:

- **Important:** If you’re sending in the initial submission of your manuscript (that is, the copy for evaluation and peer review), please send in *only* a PostScript or PDF version of the compiled file (including figures). Please do not send in the T<sub>E</sub>X source, `.sty`, `.bbl`, or other associated files with your initial submission. (For more information, please see the instructions at our Web submission site, <http://www.submit2science.org/>.)
- When the time comes for you to send in your revised final manuscript (i.e., after peer review), we require that you include all source files and generated files in your upload. Thus, if the name of your main source document is `ltxfile.tex`, you need to include:

- `ltxfile.tex`.

- `ltxfile.aux`, the auxilliary file generated by the compilation.
  - A PostScript file (compiled using `dvips` or some other driver) of the `.dvi` file generated from `ltxfile.tex`, or a PDF file distilled from that PostScript. You do not need to include the actual `.dvi` file in your upload.
  - From BIB<sub>T</sub><sub>E</sub>X users, your bibliography (`.bib`) file, *and* the generated file `ltxfile.bbl` created when you run BIB<sub>T</sub><sub>E</sub>X.
  - Any additional `.sty` and `.bst` files called by the source code (though, for reasons noted earlier, we *strongly* discourage the use of such files beyond those mentioned in this document).
1. We’ve included in the template file `scifile.tex` a new environment, `{scilastnote}`, that generates a numbered final citation without a corresponding signal in the text. This environment can be used to generate a final numbered reference containing acknowledgments, sources of funding, and the like, per *Science* style.



**Fig. 1.** Please do not use figure environments to set up your figures in the final (post-peer-review) draft, do not include graphics in your source code, and do not cite figures in the text using  $\LaTeX$  `\ref` commands. Instead, simply refer to the figure numbers in the text per *Science* style, and include the list of captions at the end of the document, coded as ordinary paragraphs as shown in the `scifile.tex` template file. Your actual figure files should be submitted separately.