

AzureAD+CharbelNehme@DESKTOP-DHK1OHI MINGW64 ~/ Charbel Nehme/PC/Documents/usyd-syd-fin-pt-12-2021-u-c (master)

```
$ python live_data.py
```

```
INFO:alpaca_trade_api.stream:started crypto data stream
```

```
INFO:alpaca_trade_api.stream:starting crypto data websocket connection
```

```
INFO:alpaca_trade_api.stream:connected to:
```

```
wss://stream.data.alpaca.markets/v1beta1/crypto?exchanges=CBSE
```

```
INFO:alpaca_trade_api.stream:subscribed to trades: [], quotes: [], bars: ['ETHUSD', 'BTCUSD'],  
updatedBars: [], dailyBars: []
```

```
Bar({ 'close': 3087.75,  
      'exchange': 'CBSE',  
      'high': 3088.17,  
      'low': 3086.02,  
      'open': 3086.02,  
      'symbol': 'ETHUSD',  
      'timestamp': 1650518940000000000,  
      'trade_count': 193,  
      'volume': 16.28826664,  
      'vwap': 3087.2361163029})
```

```
Bar({ 'close': 41613.3,  
      'exchange': 'CBSE',  
      'high': 41618.78,  
      'low': 41590.59,  
      'open': 41590.59,  
      'symbol': 'BTCUSD',  
      'timestamp': 1650518940000000000,  
      'trade_count': 198,  
      'volume': 2.44255534,  
      'vwap': 41609.6449992871})
```

```
Bar({ 'close': 3087.11,  
      'exchange': 'CBSE',  
      'high': 3088.16,  
      'low': 3086.65,
```

'open': 3087.55,  
'symbol': 'ETHUSD',  
'timestamp': 1650519000000000000,  
'trade\_count': 181,  
'volume': 25.61515385,  
'vwap': 3087.5885910427}}

Bar({ 'close': 41596.09,  
'exchange': 'CBSE',  
'high': 41616.55,  
'low': 41592.92,  
'open': 41614.59,  
'symbol': 'BTCUSD',  
'timestamp': 1650519000000000000,  
'trade\_count': 219,  
'volume': 1.52730192,  
'vwap': 41606.8830047697})

Bar({ 'close': 41577.47,  
'exchange': 'CBSE',  
'high': 41598.22,  
'low': 41569.89,  
'open': 41595.02,  
'symbol': 'BTCUSD',  
'timestamp': 1650519060000000000,  
'trade\_count': 243,  
'volume': 3.23953357,  
'vwap': 41580.7396034985})

Bar({ 'close': 3085.86,  
'exchange': 'CBSE',  
'high': 3087.27,  
'low': 3084.93,  
'open': 3087.25,

'symbol': 'ETHUSD',  
'timestamp': 1650519060000000000,  
'trade\_count': 213,  
'volume': 25.55684224,  
'vwap': 3086.0629187586}}

Bar({'close': 41574.06,  
'exchange': 'CBSE',  
'high': 41581.53,  
'low': 41565.5,  
'open': 41577.41,  
'symbol': 'BTCUSD',  
'timestamp': 1650519120000000000,  
'trade\_count': 134,  
'volume': 1.96507843,  
'vwap': 41573.2035820786})

Bar({'close': 3085.32,  
'exchange': 'CBSE',  
'high': 3085.92,  
'low': 3084.26,  
'open': 3085.92,  
'symbol': 'ETHUSD',  
'timestamp': 1650519120000000000,  
'trade\_count': 206,  
'volume': 11.2867136,  
'vwap': 3085.1384279387})

Bar({'close': 41578.42,  
'exchange': 'CBSE',  
'high': 41588.13,  
'low': 41560.95,  
'open': 41574.06,  
'symbol': 'BTCUSD',

'timestamp': 1650519180000000000,  
'trade\_count': 220,  
'volume': 2.53953249,  
'vwap': 41573.456924227}}

Bar({ 'close': 3085.32,  
'exchange': 'CBSE',  
'high': 3085.69,  
'low': 3083.88,  
'open': 3085.09,  
'symbol': 'ETHUSD',  
'timestamp': 1650519180000000000,  
'trade\_count': 174,  
'volume': 13.22578673,  
'vwap': 3084.9192275423})

Bar({ 'close': 41570.83,  
'exchange': 'CBSE',  
'high': 41586.48,  
'low': 41561.48,  
'open': 41580.89,  
'symbol': 'BTCUSD',  
'timestamp': 1650519240000000000,  
'trade\_count': 213,  
'volume': 5.38496147,  
'vwap': 41570.8824346773})

Bar({ 'close': 3085.79,  
'exchange': 'CBSE',  
'high': 3085.94,  
'low': 3084.38,  
'open': 3085.52,  
'symbol': 'ETHUSD',  
'timestamp': 1650519240000000000,

'trade\_count': 155,  
'volume': 22.81722992,  
'vwap': 3085.1473445918}}

Bar({ 'close': 3086.79,  
'exchange': 'CBSE',  
'high': 3087.12,  
'low': 3085.63,  
'open': 3085.98,  
'symbol': 'ETHUSD',  
'timestamp': 1650519300000000000,  
'trade\_count': 163,  
'volume': 58.5654712,  
'vwap': 3086.3384742661})

Bar({ 'close': 41572.58,  
'exchange': 'CBSE',  
'high': 41577.41,  
'low': 41566.55,  
'open': 41572.26,  
'symbol': 'BTCUSD',  
'timestamp': 1650519300000000000,  
'trade\_count': 153,  
'volume': 1.63688844,  
'vwap': 41571.4583081849})

Bar({ 'close': 41568.59,  
'exchange': 'CBSE',  
'high': 41573.55,  
'low': 41565.83,  
'open': 41570.75,  
'symbol': 'BTCUSD',  
'timestamp': 1650519360000000000,  
'trade\_count': 158,

'volume': 0.53483169,  
'vwap': 41569.8690967886}}

Bar({ 'close': 3086.14,  
'exchange': 'CBSE',  
'high': 3086.87,  
'low': 3085.99,  
'open': 3086.37,  
'symbol': 'ETHUSD',  
'timestamp': 1650519360000000000,  
'trade\_count': 120,  
'volume': 14.23611281,  
'vwap': 3086.5621059052})

Bar({ 'close': 41553.18,  
'exchange': 'CBSE',  
'high': 41568.38,  
'low': 41546.62,  
'open': 41568.38,  
'symbol': 'BTCUSD',  
'timestamp': 1650519420000000000,  
'trade\_count': 210,  
'volume': 1.87402711,  
'vwap': 41554.3106442577})

Bar({ 'close': 3084.06,  
'exchange': 'CBSE',  
'high': 3085.99,  
'low': 3083.5,  
'open': 3085.99,  
'symbol': 'ETHUSD',  
'timestamp': 1650519420000000000,  
'trade\_count': 221,  
'volume': 36.86410955,

'vwap': 3084.4680611446}})

Bar({ 'close': 3083.32,  
'exchange': 'CBSE',  
'high': 3085.27,  
'low': 3083.32,  
'open': 3083.74,  
'symbol': 'ETHUSD',  
'timestamp': 1650519480000000000,  
'trade\_count': 130,  
'volume': 23.04492719,  
'vwap': 3084.1159597285}})

Bar({ 'close': 41553.28,  
'exchange': 'CBSE',  
'high': 41569.19,  
'low': 41546.19,  
'open': 41554.27,  
'symbol': 'BTCUSD',  
'timestamp': 1650519480000000000,  
'trade\_count': 164,  
'volume': 3.10329075,  
'vwap': 41557.0698834652}})

Bar({ 'close': 41528.59,  
'exchange': 'CBSE',  
'high': 41553.28,  
'low': 41502.2,  
'open': 41553.28,  
'symbol': 'BTCUSD',  
'timestamp': 1650519540000000000,  
'trade\_count': 383,  
'volume': 14.01369922,  
'vwap': 41534.7322441566}})

```
Bar({ 'close': 3081.23,  
      'exchange': 'CBSE',  
      'high': 3083.37,  
      'low': 3079.73,  
      'open': 3083.31,  
      'symbol': 'ETHUSD',  
      'timestamp': 1650519540000000000,  
      'trade_count': 310,  
      'volume': 89.83651359,  
      'vwap': 3081.2275178779})
```

```
Bar({ 'close': 3083.3,  
      'exchange': 'CBSE',  
      'high': 3083.73,  
      'low': 3081.16,  
      'open': 3081.38,  
      'symbol': 'ETHUSD',  
      'timestamp': 1650519600000000000,  
      'trade_count': 193,  
      'volume': 11.82794033,  
      'vwap': 3082.8077370785})
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```
Bar({ 'close': 41535.7,  
      'exchange': 'CBSE',  
      'high': 41545.82,  
      'low': 41525.26,  
      'open': 41528.54,  
      'symbol': 'BTCUSD',  
      'timestamp': 1650519600000000000,  
      'trade_count': 220,  
      'volume': 2.85662859,  
      'vwap': 41535.4347570877})
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```
Bar({ 'close': 3085.45,
```



'exchange': 'CBSE',  
'high': 3085.55,  
'low': 3082.94,  
'open': 3083.05,  
'symbol': 'ETHUSD',  
'timestamp': 1650519660000000000,  
'trade\_count': 274,  
'volume': 96.6426573,  
'vwap': 3084.0399391719}}

Bar({ 'close': 41548.74,  
'exchange': 'CBSE',  
'high': 41553.8,  
'low': 41532.94,  
'open': 41535.14,  
'symbol': 'BTCUSD',  
'timestamp': 1650519660000000000,  
'trade\_count': 161,  
'volume': 1.45777196,  
'vwap': 41544.2939131556})

Bar({ 'close': 41522.91,  
'exchange': 'CBSE',  
'high': 41549.22,  
'low': 41515.45,  
'open': 41545.07,  
'symbol': 'BTCUSD',  
'timestamp': 1650519720000000000,  
'trade\_count': 256,  
'volume': 8.2755836,  
'vwap': 41536.4337348053})

Bar({ 'close': 3082.36,  
'exchange': 'CBSE',

'high': 3085.55,  
'low': 3082.05,  
'open': 3085.05,  
'symbol': 'ETHUSD',  
'timestamp': 1650519720000000000,  
'trade\_count': 275,  
'volume': 27.89215983,  
'vwap': 3084.1242065842}}

Bar({ 'close': 3077.97,  
'exchange': 'CBSE',  
'high': 3082.73,  
'low': 3076.62,  
'open': 3082.4,  
'symbol': 'ETHUSD',  
'timestamp': 1650519780000000000,  
'trade\_count': 323,  
'volume': 43.803919,  
'vwap': 3079.1399318664})

Bar({ 'close': 41494.65,  
'exchange': 'CBSE',  
'high': 41522.9,  
'low': 41467.43,  
'open': 41522.9,  
'symbol': 'BTCUSD',  
'timestamp': 1650519780000000000,  
'trade\_count': 479,  
'volume': 13.34164793,  
'vwap': 41491.0417497145})

Bar({ 'close': 3080.95,  
'exchange': 'CBSE',  
'high': 3081.62,

'low': 3078.21,  
'open': 3078.3,  
'symbol': 'ETHUSD',  
'timestamp': 1650519840000000000,  
'trade\_count': 243,  
'volume': 36.58705389,  
'vwap': 3080.2815480799}}

Bar({'close': 41515.82,  
'exchange': 'CBSE',  
'high': 41520.33,  
'low': 41494.65,  
'open': 41494.65,  
'symbol': 'BTCUSD',  
'timestamp': 1650519840000000000,  
'trade\_count': 180,  
'volume': 2.24491698,  
'vwap': 41509.9253428501})

Bar({'close': 3082.22,  
'exchange': 'CBSE',  
'high': 3083.32,  
'low': 3080.48,  
'open': 3080.79,  
'symbol': 'ETHUSD',  
'timestamp': 1650519900000000000,  
'trade\_count': 289,  
'volume': 98.0356511,  
'vwap': 3081.4222943249})

Bar({'close': 41525.27,  
'exchange': 'CBSE',  
'high': 41542.76,  
'low': 41510.57,

'open': 41515.45,  
'symbol': 'BTCUSD',  
'timestamp': 1650519900000000000,  
'trade\_count': 270,  
'volume': 2.06515215,  
'vwap': 41530.6486540953}}

Bar({ 'close': 3081.84,  
'exchange': 'CBSE',  
'high': 3082.43,  
'low': 3080.67,  
'open': 3082.26,  
'symbol': 'ETHUSD',  
'timestamp': 1650519960000000000,  
'trade\_count': 238,  
'volume': 30.48443376,  
'vwap': 3081.7779521447})

Bar({ 'close': 41517.8,  
'exchange': 'CBSE',  
'high': 41532.0,  
'low': 41513.5,  
'open': 41529.66,  
'symbol': 'BTCUSD',  
'timestamp': 1650519960000000000,  
'trade\_count': 247,  
'volume': 2.39586091,  
'vwap': 41523.5899238099})

Bar({ 'close': 3080.93,  
'exchange': 'CBSE',  
'high': 3082.16,  
'low': 3080.47,  
'open': 3081.87,

'symbol': 'ETHUSD',  
'timestamp': 1650520020000000000,  
'trade\_count': 222,  
'volume': 35.29579982,  
'vwap': 3081.1369549352}}

Bar({ 'close': 41525.27,  
'exchange': 'CBSE',  
'high': 41532.32,  
'low': 41499.19,  
'open': 41520.41,  
'symbol': 'BTCUSD',  
'timestamp': 1650520020000000000,  
'trade\_count': 220,  
'volume': 3.80692455,  
'vwap': 41517.2463187304})

Bar({ 'close': 41507.21,  
'exchange': 'CBSE',  
'high': 41525.41,  
'low': 41486.88,  
'open': 41525.41,  
'symbol': 'BTCUSD',  
'timestamp': 1650520080000000000,  
'trade\_count': 305,  
'volume': 3.41762251,  
'vwap': 41504.6214037458})

Bar({ 'close': 3079.44,  
'exchange': 'CBSE',  
'high': 3081.41,  
'low': 3077.37,  
'open': 3081.41,  
'symbol': 'ETHUSD',

'timestamp': 1650520080000000000,  
'trade\_count': 286,  
'volume': 37.95786996,  
'vwap': 3078.598248224}}

Bar({ 'close': 3080.66,  
'exchange': 'CBSE',  
'high': 3081.46,  
'low': 3078.69,  
'open': 3079.86,  
'symbol': 'ETHUSD',  
'timestamp': 1650520140000000000,  
'trade\_count': 300,  
'volume': 24.58001867,  
'vwap': 3080.2433118978})

Bar({ 'close': 41510.74,  
'exchange': 'CBSE',  
'high': 41525.41,  
'low': 41499.28,  
'open': 41508.93,  
'symbol': 'BTCUSD',  
'timestamp': 1650520140000000000,  
'trade\_count': 236,  
'volume': 3.93583878,  
'vwap': 41508.858124584})

Bar({ 'close': 3077.75,  
'exchange': 'CBSE',  
'high': 3081.45,  
'low': 3077.75,  
'open': 3080.36,  
'symbol': 'ETHUSD',  
'timestamp': 1650520200000000000,

'trade\_count': 279,  
'volume': 23.81969327,  
'vwap': 3080.2072267644}}

Bar({ 'close': 41486.69,  
'exchange': 'CBSE',  
'high': 41522.58,  
'low': 41484.56,  
'open': 41511.1,  
'symbol': 'BTCUSD',  
'timestamp': 1650520200000000000,  
'trade\_count': 321,  
'volume': 4.94078847,  
'vwap': 41511.9178945804})

Bar({ 'close': 3071.76,  
'exchange': 'CBSE',  
'high': 3078.51,  
'low': 3071.48,  
'open': 3077.76,  
'symbol': 'ETHUSD',  
'timestamp': 1650520260000000000,  
'trade\_count': 534,  
'volume': 91.41397176,  
'vwap': 3073.9814069589})

Bar({ 'close': 41458.6,  
'exchange': 'CBSE',  
'high': 41502.01,  
'low': 41452.87,  
'open': 41487.55,  
'symbol': 'BTCUSD',  
'timestamp': 1650520260000000000,  
'trade\_count': 368,

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'volume': 9.73232149,  
'vwap': 41469.8603037372}}
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```
Bar({ 'close': 3073.56,  
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      'high': 3074.91,  
      'low': 3071.8,  
      'open': 3072.3,  
      'symbol': 'ETHUSD',  
      'timestamp': 1650520320000000000,  
      'trade_count': 368,  
      'volume': 37.75548795,  
      'vwap': 3073.2131761206})
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```
Bar({ 'close': 41454.81,  
      'exchange': 'CBSE',  
      'high': 41472.0,  
      'low': 41452.84,  
      'open': 41458.6,  
      'symbol': 'BTCUSD',  
      'timestamp': 1650520320000000000,  
      'trade_count': 328,  
      'volume': 7.11110996,  
      'vwap': 41459.2627239881})
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