SOLUTION BRIEF

HYPERTEST FOR STOCK BROKING APPS

Stock trading apps see a huge influx of traffic in the form of traders on a daily basis. If someone is looking to invest in the stock market, it is likely that their first point of contact to interact with the stock market is a stock market app for android or IOS. Stock market apps have come a long way.

Users spend the most time tracking stock price changes, sometimes by sectors or simply daily top losers and winners. Most apps hence use a feature called MarketWatch to display daily swings in stock prices. But what if Marketwatch starts displaying incorrect feed to users?

Let's consider this scenario:
A user opens the stock trading app and navigates to the MarketWatch section. They click on Market Overview where they see the top 5 winners and top 5 losers of the day. They Should see something like this

SYMBOL ⬍	OPEN	HIGH	LOW	PREV. CLOSE	LTP	%CHNG ⬍	VOLUME (Shares) ⬍	VALUE (₹ Lakhs) ⬍
	155.80	157.85	155.20	155.00	**157.40**	1.55	42,51,232	6,652.33
	153.10	155.30	152.80	151.60	**153.70**	1.39	1,14,60,595	17,671.09
	601.95	611.80	601.05	602.70	**610.20**	1.24	7,00,994	4,258.68
	960.95	975.00	960.50	960.95	**971.40**	1.09	4,32,645	4,201.98
	3,660.00	3,869.75	3,650.50	3,672.70	**3,708.85**	0.98	1,61,016	5,991.32

The names of 5 stocks, their price in winners with percentage increase

SYMBOL	OPEN	HIGH	LOW	PREV. CLOSE	LTP	%CHNG	VOLUME (Shares)	VALUE (₹ Lakhs)
BAJFINANCE	12,689.00	12,689.00	12,352.05	12,691.60	12,361.30	-2.60	81,419	10,157.79
TCIHM	1,146.00	1,147.75	1,117.25	1,147.90	1,123.45	-2.13	9,38,530	10,564.94
BRITANNIA	3,530.00	3,535.00	3,452.45	3,530.00	3,455.05	-2.12	60,537	2,107.71
ADANIENT	2,871.10	2,872.00	2,814.90	2,886.90	2,828.50	-2.02	2,32,468	6,602.44
HEROMOTOCO	2,565.00	2,594.45	2,531.30	2,583.75	2,532.95	-1.97	2,69,921	6,896.16

The names of 5 stocks, their price in losers with percentage decrease

But a bug or issue in the API can distort the order of the stocks, making users see the stocks not the right order as gainers or losers.

As an example below, the second stock is lower than the lowest on the list, and still is being displayed as a part of the top gainers list.

SYMBOL	OPEN	HIGH	LOW	PREV. CLOSE	LTP	%CHNG	VOLUME (Shares)	VALUE (₹ Lakhs)
NTPC	155.80	157.85	155.20	155.00	157.40	1.55	42,51,232	6,652.33
ONGC	153.10	155.30	152.80	151.60	153.70	0.01	1,14,60,595	17,671.09
HDFCLIFE	601.95	611.80	601.05	602.70	610.20	1.24	7,00,994	4,258.68
CIPLA	960.95	975.00	960.50	960.95	971.40	1.09	4,32,645	4,201.98
BAJAJAUTO	3,660.00	3,869.75	3,650.50	3,672.70	3,708.85	0.98	1,61,016	5,991.32

HyperTest caught this bug for one of India's largest stock broking application pre-release. Saved this app the embarrassment of reporting incorrect Marketwatch data.

What type of error is this?

ARRAY ORDER CHANGE ERROR

Check out the table below to know more about the an Array Order Change error.

SEVERITY	**High**
WHAT DOES THIS ERROR MEAN?	Order of data received is different
EXAMPLE	Users listed by ratings are shown in the wrong order in the new version
WHY DOES THIS USUALLY HAPPEN?	1. No order enforced on downstreams 2. Change in sorting logic 3. Bug in queries that fetch data
POSSIBLE NEGATIVE IMPACTS	1. Users would be reported incorrect data or in the wrong priority This might be a huge problem for stricty ordered data, timeseries data, etc 2. Orderless data can lead to cache misses and lead to more costs, bandwidth and response times
SUGGESTED ACTIONS FOR WARRANTED CHANGE	1. If the reported data should be sorted in a particular order, this is a huge bug 2. Ignore otherwise

HyperTest detects these errors way ahead of time, before production and reports them back to the developers.

WHAT KIND OF API ERRORS HYPERTEST CATCHS AND WHAT DO THEY MEAN?

List of high severity errors HyperTest will never miss

CONTENT TYPE CHANGES

Content type header has changed in the new version

KEY REMOVED

Contract failure with removal of Key in the response object

DATA TYPE CHANGE

Contract schema remains similar, but data type changes i.e. integer to string etc

ARRAY ORDER CHANGE

Order of data received is different

VALUE MODIFIED

Contract schema remains similar, but data changes

SLOWENESS IN APIs

Change in Latency or Bandwidth wrt stable app

SENSITIVE DATA EXPOSURE

Leakage of critical user details in APIs that shouldn't

STATUS CODE CHANGE

Fatal crashes with status code failures 400s, 500s etc