

# Quadratic\_Programming\_Portfolio\_Optimization

Arunabha Sarkar

22 August 2019

## Quadratic Programming Portfolio Optimization

Quadratic Portfolio Optimization is a natural extensions of CAPM model (Capital Asset Pricing Model). While CAPM gives an estimate of goodness of individual assets, it doesn't directly help build a portfolio. Using Quadratic Programming Portfolio Optimization, it becomes possible to construct for a given desired return, the best portfolio (as evaluated by CAPM measure of risk: historical standard deviation).

Mathematically we can define the required rate of return from n-assets as:

$\sum_{i=1}^n w_i E(R_i) ::$  a fixed user defined value (e.g. 20% per year) **[Equation 1]**

For the same n-asset portfolio, we can define portfolio risk as the historical standard deviation as follows:

**Risk ::  $\sum_{i=1}^n w_i^2 \sigma_i^2 + 2 \sum_{i=1}^n \sum_{j=1}^n w_i w_j \sigma_{ij}$ , i not equal to j [Equation 2]**

In Quadratic Programming Portfolio Optimization, we minimize the risk (Equation 2) while maintaining the required returns (Equation 1). The weights of the equation provide constraints for the optimization.

The process can be stated mathematically as:

minimize quadratic function with (  $1/2 x^T Q x + c^T$  ), with linear constraints:

$Ax = b$ , ['b' is the desired returns]

$x^T Q_i x + d_i \leq b_i$ , [Standard deviation risk minimization]

$x \geq 0$  [no weights less than zero, thus no shorting]

Our choice of portfolio is the entire NIFTY 500 list, with no shorting allowed

In this study, we do the above described optimization for a wide range of required returns to plot the Efficient Frontier Curve as well.

We start with clearing the workspace and loading the necessary required packages.

```
rm(list=ls())
setwd("~/NISM/101 Marvelous Maths/HW3_QP_to_beat_market")
knitr::opts_chunk$set(echo = TRUE)
libraries_required = c('quantmod', 'quadprog', 'BatchGetSymbols', 'dplyr', 'stats', 'tidyr', 'Matrix', 'tidyr', 'xlsx')

for(i in seq(length(libraries_required)))
{
  if(!libraries_required[i] %in% rownames(installed.packages()))
  {
    try(expr = install.packages(libraries_required[i]), silent = T)
  }
  try(expr = library(libraries_required[i], character.only = T), silent = T)
}
options("getSymbols.warning4.0"=FALSE)
options(warn=-1)
```

Next we load read all the tickers of NIFTY 500 companies and gathers their stock time series data using 'BatchGetSymbols' function.

```
Required_Return = seq(0.01,3.00,0.01)
temp_data = read.csv(file = 'ind_nifty500list.csv', header = FALSE, sep = ",")$V3 # Nifty 500 List in NSE d
ocumentation(s) in this page (https://www.nseindia.com/products/content/equities/indices/nifty\_500.htm), .c
sv documentation, Link: https://www.nseindia.com/content/indices/ind\_nifty500list.csv
Tickers = paste0(sort(as.character(temp_data)[2:length(temp_data)]),'.NS',sep='')
Full_Data = BatchGetSymbols(tickers = Tickers, first.date = "2011-01-01", last.date = "2018-01-01", freq.da
ta = 'yearly', thresh.bad.data = 0.75)
```

```

##
## Running BatchGetSymbols for:
##   tickers = 3MINDIA.NS, 8KMILES.NS, AARTIIND.NS, ABB.NS, ABCAPITAL.NS, ABFRL.NS, ACC.NS, ADANIPOWER.NS, ADANIPORTS.NS, ADANITRANS.NS, ADVENZYMES.NS, AEGISCHEM.NS, AIAENG.NS, AJANTPHARM.NS, AKZOINDIA.NS, ALBK.NS, ALKEM.NS, ALLCARGO.NS, AMARAJABAT.NS, AMBUJACEM.NS, ANDHRABANK.NS, APLAPOLLO.NS, APLLTD.NS, APOLLOHOSP.NS, APOLLOTYRE.NS, ASHOKA.NS, ASHOKLEY.NS, ASIANPAINT.NS, ASTERDM.NS, ASTRAL.NS, ATUL.NS, AUBANK.NS, AUROPHARM A.NS, AVANTIFEED.NS, AXISBANK.NS, BAJAJ-AUTO.NS, BAJAJCORP.NS, BAJAJELEC.NS, BAJAJFINSV.NS, BAJAJHLDNG.NS, BAJFINANCE.NS, BALKRISIND.NS, BALMLAWRIE.NS, BALRAMCHIN.NS, BANDHANBNK.NS, BANKBARODA.NS, BANKINDIA.NS, BAS F.NS, BATAINDIA.NS, BBTC.NS, BDL.NS, BEL.NS, BEML.NS, BERGEPAIN.NS, BHARATFIN.NS, BHARATFORG.NS, BHARTIART L.NS, BHEL.NS, BIOCON.NS, BIRLACORPN.NS, BLISSGVS.NS, BLUEDART.NS, BLUESTARCO.NS, BOMDYEING.NS, BOSCHLTD.N S, BPCL.NS, BRIGADE.NS, BRITANNIA.NS, BSE.NS, CADILAH.NS, CANBK.NS, CANFINHOME.NS, CAPF.NS, CAPLIPOINT.NS, CARBORUNIV.NS, CARERATING.NS, CASTROLIND.NS, CCL.NS, CDSL.NS, CEATLTD.NS, CENTRALBK.NS, CENTURYPLY.NS, CENT URYTEX.NS, CERA.NS, CGPOWER.NS, CHAMBLFERT.NS, CHENNPETRO.NS, CHOLAFIN.NS, CIPLA.NS, COALINDIA.NS, COCHINSH IP.NS, COFFEEDAY.NS, COLPAL.NS, CONCOR.NS, COROMANDEL.NS, CRISIL.NS, CROMPTON.NS, CUB.NS, CUMMINSIND.NS, CY IENT.NS, DABUR.NS, DBCORP.NS, DBL.NS, DCAL.NS, DCBBANK.NS, DCMSHRIRAM.NS, DEEPAKFERT.NS, DELTACORP.NS, DEN. NS, DENABANK.NS, DHFL.NS, DISHTV.NS, DIVISLAB.NS, DIXON.NS, DLF.NS, DMART.NS, DREDGECORP.NS, DRREDDY.NS, EC LERX.NS, EDELWEISS.NS, EICHERMOT.NS, EIDPARRY.NS, EIHOTEL.NS, ELGIEQUIP.NS, EMAMILTD.NS, ENDURANCE.NS, ENGI NERSIN.NS, EQUITAS.NS, ERIS.NS, EROSMEDIA.NS, ESCORTS.NS, EVEREADY.NS, EXCELCROP.NS, EXIDEIND.NS, FCONSUME R.NS, FDC.NS, FEDERALBNK.NS, FINCABLES.NS, FINPIPE.NS, FLFL.NS, FRETAIL.NS, FSL.NS, GAIL.NS, GALAXYSURF.NS, GAYAPROJ.NS, GDL.NS, GEPIL.NS, GESHIP.NS, GET&D.NS, GHCL.NS, GICRE.NS, GILLETTE.NS, GLAXO.NS, GLENMARK.NS, GMDCLTD.NS, GMRINFRA.NS, GNFC.NS, GODFRYPHLP.NS, GODREJAGRO.NS, GODREJCP.NS, GODREJIND.NS, GODREJPROP.NS, G PPL.NS, GRANULES.NS, GRAPHITE.NS, GRASIM.NS, GREAVESCOT.NS, GREENPLY.NS, GRINDWELL.NS, GRUH.NS, GSFC.NS, GS KCONS.NS, GSPL.NS, GUJALKALI.NS, GUJFLUORO.NS, GUJGASLTD.NS, GULFOILLUB.NS, GVKPIL.NS, HAL.NS, HATHWAY.NS, HATSUN.NS, HAVELLS.NS, HCC.NS, HCL-INSYS.NS, HCLTECH.NS, HDFC.NS, HDFCBANK.NS, HDFCLIFE.NS, HEG.NS, HEIDELB ERG.NS, HERITGFOOD.NS, HEROMOTOCO.NS, HEXAWARE.NS, HFCL.NS, HIMATSEIDE.NS, HINDALCO.NS, HINDCOPPER.NS, HIND PETRO.NS, HINDUNILVR.NS, HINDZINC.NS, HONAUT.NS, HSCL.NS, HSIL.NS, HUDCO.NS, IBREALEST.NS, IBULHSGFIN.NS, I BVENTURES.NS, ICICIBANK.NS, ICICIGI.NS, ICICIPRULI.NS, ICIL.NS, IDBI.NS, IDEA.NS, IDFC.NS, IDFCBANK.NS, IE X.NS, IFBIND.NS, IFCI.NS, IGL.NS, IIFL.NS, IL&FSTRANS.NS, INDHOTEL.NS, INDIACEM.NS, INDIANB.NS, INDIGO.NS, INDOCO.NS, INDUSINDBK.NS, INFIBEAM.NS, INFRATEL.NS, INFY.NS, INOXLEISUR.NS, INOXWIND.NS, INTELLECT.NS, IOB. NS, IOC.NS, IPCALAB.NS, IRB.NS, ISEC.NS, ITC.NS, ITDC.NS, ITDCEN.NS, ITI.NS, J&KBANK.NS, JAGRAN.NS, JAICORP LTD.NS, JBCHEPHARM.NS, JCHAC.NS, JETAIRWAYS.NS, JINDALSAW.NS, JINDALSTEL.NS, JISLJALEQS.NS, JKCEMENT.NS, JK IL.NS, JKLAKSHMI.NS, JKYTYRE.NS, JMFINANCIL.NS, JPASSOCIAT.NS, JPPOWER.NS, JSL.NS, JSLHISAR.NS, JSWENERGY.N R.NS, JSWSTEEL.NS, JUBILANT.NS, JUBLFOOD.NS, JUSTDIAL.NS, JYOTHYLAB.NS, KAJARIACER.NS, KALPATPOWR.NS, KANSAIN E.NS, KARURVYSYA.NS, KEC.NS, KIOCL.NS, KNRCON.NS, KOLTEPATIL.NS, KOTAKBANK.NS, KPRMILL.NS, KRBL.NS, KSCL.N S, KTKBANK.NS, L&TFH.NS, LAKSHVILAS.NS, LALPATHLAB.NS, LAURUSLABS.NS, LAXMIMACH.NS, LEMONTREE.NS, LICHSGFI N.NS, LINDEINDIA.NS, LT.NS, LTI.NS, LTT.NS, LUPIN.NS, LUXIND.NS, M&M.NS, M&MFIN.NS, MAGMA.NS, MAHINDCIE.N S, MAHLOG.NS, MANAPPURAM.NS, MANPASAND.NS, MARICO.NS, MARUTI.NS, MASFIN.NS, MAXINDIA.NS, MCDOWELL-N.NS, MCL EODRUSS.NS, MERCK.NS, MFSL.NS, MGL.NS, MHRIL.NS, MINDACORP.NS, MINDAIND.NS, MINDTREE.NS, MMT.NS, MOIL.NS, MONSANTO.NS, MOTHERSUMI.NS, MOTILALOF.NS, MPHASIS.NS, MRF.NS, MRPL.NS, MUTHOOTFIN.NS, NATCOPHARM.NS, NATIO NALUM.NS, NAUKRI.NS, NAVINFLUOR.NS, NAVKARCORP.NS, NBCC.NS, NBVENTURES.NS, NCC.NS, NESCO.NS, NETWORK18.NS, NFL.NS, NH.NS, NHPC.NS, NIACL.NS, NIITTECH.NS, NILKAMAL.NS, NLCINDIA.NS, NMDC.NS, NTPC.NS, OBEROIRLTY.NS, O FSS.NS, OIL.NS, OMAXE.NS, ONGC.NS, ORIENTBANK.NS, ORIENTCEM.NS, PAGEIND.NS, PARAGMILK.NS, PCJEWELLER.NS, PE L.NS, PERSISTENT.NS, PETRONET.NS, PFC.NS, PFIZER.NS, PFS.NS, PGHH.NS, PHILIPCARB.NS, PHOENIXLTD.NS, PIDILIT IND.NS, PIIND.NS, PNB.NS, PNBHOUSING.NS, PNCINFRA.NS, POWERGRID.NS, PRAJIND.NS, PRESTIGE.NS, PRSMJOHNS.NS, PTC.NS, PVR.NS, QUESS.NS, RADICO.NS, RAIN.NS, RAJESHXPO.NS, RALLIS.NS, RAMCOCEM.NS, RAYMOND.NS, RBLBANK.N S, RCF.NS, RCOM.NS, RECLTD.NS, REDINGTON.NS, RELAXO.NS, RELCAPITAL.NS, RELIANCE.NS, RELINFRA.NS, RENUKA.NS, REPCOHOME.NS, RHFL.NS, RKFORGE.NS, RNAM.NS, RNAVAL.NS, RPOWER.NS, RUPA.NS, SADBHAV.NS, SADBHN.NS, SAIL.NS, SANOFI.NS, SBILIFE.NS, SBIN.NS, SCHAEFFLER.NS, SCI.NS, SHANKARA.NS, SHILPAMED.NS, SHK.NS, SHOPERSTOP.NS, SH REECEM.NS, SHRIRAMCIT.NS, SIEMENS.NS, SIS.NS, SJVN.NS, SKFINDIA.NS, SOBHA.NS, SOLARINDS.NS, SONATSOFTW.NS, SOUTHBANK.NS, SPARC.NS, SPTL.NS, SREINFRA.NS, SRF.NS, SRTRANSFIN.NS, STAR.NS, STARCEMENT.NS, STRTECH.NS, SU DARSCEM.NS, SUNDARFIN.NS, SUNDRMFAST.NS, SUNPHARMA.NS, SUNTECK.NS, SUNTV.NS, SUPREMEIND.NS, SUVEN.NS, SUZ LON.NS, SWANENERGY.NS, SYMPHONY.NS, SYNDIBANK.NS, SYNGENE.NS, TAKE.NS, TATACHEM.NS, TATACOFFEE.NS, TATAELXS I.NS, TATAGLOBAL.NS, TATAINVEST.NS, TATAMOTORS.NS, TATAMTRDVR.NS, TATAPOWER.NS, TATASPONGE.NS, TATASTEEL.N S, TCS.NS, TEAMLEASE.NS, TECHM.NS, TEXRAIL.NS, THERMAX.NS, THOMASCOOK.NS, THYROCARE.NS, TIFIN.NS, TIINDIA.N S, TIMETECHNO.NS, TIMKEN.NS, TITAN.NS, TNPL.NS, TORNTPHARM.NS, TORNTPOWER.NS, TRENT.NS, TRIDENT.NS, TTKPRES TIG.NS, TV18BRDCST.NS, TVSMOTOR.NS, TVSSRICHA.NS, TVTODAY.NS, UBL.NS, UCOBANK.NS, UFLEX.NS, UJJIVAN.NS, UL TRACEMCO.NS, UNICHEMLAB.NS, UNIONBANK.NS, UPL.NS, VAKRANGEE.NS, VBL.NS, VEDL.NS, VENKEYS.NS, VGUARD.NS, VIJ AYABANK.NS, VINATIORGA.NS, VIPIND.NS, VMART.NS, VOLTAS.NS, VRLLOG.NS, VTL.NS, WABAG.NS, WABCOINDIA.NS, WELC ORP.NS, WELSPUNIND.NS, WHIRLPOOL.NS, WIPRO.NS, WOCKPHARMA.NS, YESBANK.NS, ZEEL.NS, ZENSARTECH.NS, ZYDUSWEL L.NS
##   Downloading data for benchmark ticker | Found cache file
##   3MINDIA.NS | yahoo (1|501) | Found cache file - Got 95.0% of valid prices | Looking good!
##   8KMILES.NS | yahoo (2|501) | Found cache file - Got 53.3% of valid prices | OUT: not enough data (thres h.bad.data = 75.0%)
##   AARTIIND.NS | yahoo (3|501) | Found cache file - Got 95.0% of valid prices | You got it!
##   ABB.NS | yahoo (4|501) | Found cache file - Got 95.0% of valid prices | You got it!

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## ABCAPITAL.NS | yahoo (5|501) | Found cache file - Got 4.60% of valid prices | OUT: not enough data (thre
sh.bad.data = 75.0%)
## ABFRL.NS | yahoo (6|501) | Found cache file - Got 60.5% of valid prices | OUT: not enough data (thresh.b
ad.data = 75.0%)
## ACC.NS | yahoo (7|501) | Found cache file - Got 95.0% of valid prices | You got it!
## ADANIIMPORTS.NS | yahoo (8|501) | Found cache file - Got 95.0% of valid prices | You got it!
## ADANIPOWER.NS | yahoo (9|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## ADANITRANS.NS | yahoo (10|501) | Found cache file - Got 32.9% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## ADVENZYMES.NS | yahoo (11|501) | Found cache file - Got 19.4% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## AEGISCHEM.NS | yahoo (12|501) | Found cache file - Got 95.0% of valid prices | Good job!
## AIAENG.NS | yahoo (13|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## AJANTPHARM.NS | yahoo (14|501) | Found cache file - Got 95.0% of valid prices | You got it!
## AKZOINDIA.NS | yahoo (15|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## ALBK.NS | yahoo (16|501) | Found cache file - Got 95.0% of valid prices | Youre doing good!
## ALKEM.NS | yahoo (17|501) | Found cache file - Got 27.6% of valid prices | OUT: not enough data (thresh.
bad.data = 75.0%)
## ALLCARGO.NS | yahoo (18|501) | Found cache file - Got 95.0% of valid prices | Nice!
## AMARAJABAT.NS | yahoo (19|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## AMBUJACEM.NS | yahoo (20|501) | Found cache file - Got 95.0% of valid prices | Youre doing good!
## ANDHRABANK.NS | yahoo (21|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## APLAPOLLO.NS | yahoo (22|501) | Found cache file - Got 82.1% of valid prices | OK!
## APLLT.D.NS | yahoo (23|501) | Found cache file - Got 85.2% of valid prices | Good job!
## APOLLOHOSP.NS | yahoo (24|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## APOLLOTYRE.NS | yahoo (25|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## ASHOKA.NS | yahoo (26|501) | Found cache file - Got 95.0% of valid prices | Nice!
## ASHOKLEY.NS | yahoo (27|501) | Found cache file - Got 95.0% of valid prices | Good job!
## ASIANPAINT.NS | yahoo (28|501) | Found cache file - Got 95.0% of valid prices | Got it!
## ASTERDM.NS | yahoo (29|501) | Found cache file - Error in download..
## ASTRAL.NS | yahoo (30|501) | Found cache file - Got 95.0% of valid prices | OK!
## ATUL.NS | yahoo (31|501) | Found cache file - Got 95.0% of valid prices | Well done!
## AUBANK.NS | yahoo (32|501) | Found cache file - Got 6.70% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## AUROPHARMA.NS | yahoo (33|501) | Found cache file - Got 95.0% of valid prices | You got it!
## AVANTIFEED.NS | yahoo (34|501) | Found cache file - Got 95.0% of valid prices | Got it!
## AXISBANK.NS | yahoo (35|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## BAJAJ-AUTO.NS | yahoo (36|501) | Found cache file - Got 40.8% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## BAJAJCORP.NS | yahoo (37|501) | Found cache file - Got 95.0% of valid prices | Well done!
## BAJAJELEC.NS | yahoo (38|501) | Found cache file - Got 95.0% of valid prices | Well done!
## BAJAJFINSV.NS | yahoo (39|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## BAJAJHLDNG.NS | yahoo (40|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## BAJFINANCE.NS | yahoo (41|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## BALKRISIND.NS | yahoo (42|501) | Found cache file - Got 95.0% of valid prices | Good job!
## BALMLAWRIE.NS | yahoo (43|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## BALRAMCHIN.NS | yahoo (44|501) | Found cache file - Got 95.0% of valid prices | OK!
## BANDHANBNK.NS | yahoo (45|501) | Found cache file - Error in download..
## BANKBARODA.NS | yahoo (46|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## BANKINDIA.NS | yahoo (47|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## BASF.NS | yahoo (48|501) | Found cache file - Got 95.0% of valid prices | Nice!
## BATAINDIA.NS | yahoo (49|501) | Found cache file - Got 95.0% of valid prices | Good job!
## BBTC.NS | yahoo (50|501) | Found cache file - Got 95.0% of valid prices | Well done!
## BDL.NS | yahoo (51|501) | Found cache file - Error in download..
## BEL.NS | yahoo (52|501) | Found cache file - Got 95.0% of valid prices | Youre doing good!
## BEML.NS | yahoo (53|501) | Found cache file - Got 95.0% of valid prices | Well done!
## BERGEPAINT.NS | yahoo (54|501) | Found cache file - Got 95.0% of valid prices | You got it!
## BHARATFIN.NS | yahoo (55|501) | Found cache file - Got 95.0% of valid prices | You got it!
## BHARATFORG.NS | yahoo (56|501) | Found cache file - Got 95.0% of valid prices | Got it!
## BHARTIARTL.NS | yahoo (57|501) | Found cache file - Got 95.0% of valid prices | Nice!
## BHEL.NS | yahoo (58|501) | Found cache file - Got 95.0% of valid prices | Got it!
## BIOCON.NS | yahoo (59|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## BIRLACORPN.NS | yahoo (60|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## BLISSGV.S.NS | yahoo (61|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## BLUEDART.NS | yahoo (62|501) | Found cache file - Got 95.0% of valid prices | You got it!
## BLUESTARCO.NS | yahoo (63|501) | Found cache file - Got 95.0% of valid prices | Got it!

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## BOMDYEING.NS | yahoo (64|501) | Found cache file - Got 95.0% of valid prices | Nice!
## BOSCHLTD.NS | yahoo (65|501) | Found cache file - Got 95.0% of valid prices | You got it!
## BPCL.NS | yahoo (66|501) | Found cache file - Got 95.0% of valid prices | You got it!
## BRIGADE.NS | yahoo (67|501) | Found cache file - Got 95.0% of valid prices | OK!
## BRITANNIA.NS | yahoo (68|501) | Found cache file - Got 95.0% of valid prices | Got it!
## BSE.NS | yahoo (69|501) | Found cache file - Got 12.5% of valid prices | OUT: not enough data (thresh.b
d.data = 75.0%)
## CADILAH.NS | yahoo (70|501) | Found cache file - Got 95.0% of valid prices | Nice!
## CANBK.NS | yahoo (71|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## CANFINHOME.NS | yahoo (72|501) | Found cache file - Got 95.0% of valid prices | Nice!
## CAPF.NS | yahoo (73|501) | Found cache file - Got 95.0% of valid prices | Nice!
## CAPLIPOINT.NS | yahoo (74|501) | Found cache file - Got 47.9% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## CARBORUNIV.NS | yahoo (75|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## CARERATING.NS | yahoo (76|501) | Found cache file - Got 68.2% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## CASTROLIND.NS | yahoo (77|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## CCL.NS | yahoo (78|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## CDSL.NS | yahoo (79|501) | Found cache file - Got 6.98% of valid prices | OUT: not enough data (thresh.b
ad.data = 75.0%)
## CEATLTD.NS | yahoo (80|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## CENTRALBK.NS | yahoo (81|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## CENTURYPLY.NS | yahoo (82|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## CENTURYTEX.NS | yahoo (83|501) | Found cache file - Got 95.0% of valid prices | Good job!
## CERA.NS | yahoo (84|501) | Found cache file - Got 95.0% of valid prices | Got it!
## CGPOWER.NS | yahoo (85|501) | Found cache file - Got 95.0% of valid prices | Good job!
## CHAMBLFERT.NS | yahoo (86|501) | Found cache file - Got 95.0% of valid prices | Got it!
## CHENNPETRO.NS | yahoo (87|501) | Found cache file - Got 95.0% of valid prices | You got it!
## CHOLAFIN.NS | yahoo (88|501) | Found cache file - Got 95.0% of valid prices | You got it!
## CIPLA.NS | yahoo (89|501) | Found cache file - Got 95.0% of valid prices | Good job!
## COALINDIA.NS | yahoo (90|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## COCHINSHIP.NS | yahoo (91|501) | Found cache file - Got 5.34% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## COFFEEDAY.NS | yahoo (92|501) | Found cache file - Got 29.5% of valid prices | OUT: not enough data (thr
esh.bad.data = 75.0%)
## COLPAL.NS | yahoo (93|501) | Found cache file - Got 95.0% of valid prices | Got it!
## CONCOR.NS | yahoo (94|501) | Found cache file - Got 95.0% of valid prices | Mais contente que cusco de c
ozinheira!
## COROMANDEL.NS | yahoo (95|501) | Found cache file - Got 95.0% of valid prices | Got it!
## CRISIL.NS | yahoo (96|501) | Found cache file - Got 95.0% of valid prices | Nice!
## CROMPTON.NS | yahoo (97|501) | Found cache file - Got 22.4% of valid prices | OUT: not enough data (thre
sh.bad.data = 75.0%)
## CUB.NS | yahoo (98|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## CUMMINSIND.NS | yahoo (99|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## CYIENT.NS | yahoo (100|501) | Found cache file - Got 95.0% of valid prices | Good job!
## DABUR.NS | yahoo (101|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## DBCORP.NS | yahoo (102|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## DBL.NS | yahoo (103|501) | Found cache file - Got 19.0% of valid prices | OUT: not enough data (thresh.b
ad.data = 75.0%)
## DCAL.NS | yahoo (104|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## DCBBANK.NS | yahoo (105|501) | Found cache file - Got 95.0% of valid prices | Got it!
## DCMSHRIRAM.NS | yahoo (106|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## DEEPAKFERT.NS | yahoo (107|501) | Found cache file - Got 95.0% of valid prices | Well done!
## DELTACORP.NS | yahoo (108|501) | Found cache file - Got 95.0% of valid prices | OK!
## DEN.NS | yahoo (109|501) | Found cache file - Got 95.0% of valid prices | OK!
## DENABANK.NS | yahoo (110|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## DHFL.NS | yahoo (111|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## DISHTV.NS | yahoo (112|501) | Found cache file - Got 95.0% of valid prices | Well done!
## DIVISLAB.NS | yahoo (113|501) | Found cache file - Got 95.0% of valid prices | Well done!
## DIXON.NS | yahoo (114|501) | Found cache file - Got 4.03% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## DLF.NS | yahoo (115|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## DMART.NS | yahoo (116|501) | Found cache file - Got 10.8% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## DREDGECORP.NS | yahoo (117|501) | Found cache file - Got 95.0% of valid prices | Got it!
## DRREDDY.NS | yahoo (118|501) | Found cache file - Got 95.0% of valid prices | Feels good!

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## ECLERX.NS | yahoo (119|501) | Found cache file - Got 95.0% of valid prices | OK!
## EDELWEISS.NS | yahoo (120|501) | Found cache file - Got 95.0% of valid prices | Well done!
## EICHERMOT.NS | yahoo (121|501) | Found cache file - Got 95.0% of valid prices | Good job!
## EIDPARRY.NS | yahoo (122|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## EIHOTEL.NS | yahoo (123|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## ELGIEQUIP.NS | yahoo (124|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## EMAMILTD.NS | yahoo (125|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## ENDURANCE.NS | yahoo (126|501) | Found cache file - Got 16.5% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## ENGINEERSIN.NS | yahoo (127|501) | Found cache file - Got 95.0% of valid prices | Got it!
## EQUITAS.NS | yahoo (128|501) | Found cache file - Got 23.3% of valid prices | OUT: not enough data (thre
sh.bad.data = 75.0%)
## ERIS.NS | yahoo (129|501) | Found cache file - Got 7.04% of valid prices | OUT: not enough data (thresh.
bad.data = 75.0%)
## EROSMEDIA.NS | yahoo (130|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## ESCORTS.NS | yahoo (131|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## EVEREADY.NS | yahoo (132|501) | Found cache file - Got 95.0% of valid prices | Nice!
## EXCELCROP.NS | yahoo (133|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## EXIDEIND.NS | yahoo (134|501) | Found cache file - Got 95.0% of valid prices | Well done!
## FCONSUMER.NS | yahoo (135|501) | Found cache file - Got 83.5% of valid prices | You're doing good!
## FDC.NS | yahoo (136|501) | Found cache file - Got 95.0% of valid prices | You got it!
## FEDERALBNK.NS | yahoo (137|501) | Found cache file - Got 95.0% of valid prices | OK!
## FINCABLES.NS | yahoo (138|501) | Found cache file - Got 95.0% of valid prices | Well done!
## FINPIPE.NS | yahoo (139|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## FLFL.NS | yahoo (140|501) | Found cache file - Got 57.7% of valid prices | OUT: not enough data (thresh.
bad.data = 75.0%)
## FRETAIL.NS | yahoo (141|501) | Found cache file - Got 18.3% of valid prices | OUT: not enough data (thre
sh.bad.data = 75.0%)
## FSL.NS | yahoo (142|501) | Found cache file - Got 95.0% of valid prices | Good job!
## GAIL.NS | yahoo (143|501) | Found cache file - Got 95.0% of valid prices | Well done!
## GALAXYSURF.NS | yahoo (144|501) | Found cache file - Error in download..
## GAYAPROJ.NS | yahoo (145|501) | Found cache file - Got 86.2% of valid prices | Feels good!
## GDL.NS | yahoo (146|501) | Found cache file - Got 95.0% of valid prices | Nice!
## GEPIL.NS | yahoo (147|501) | Found cache file - Got 95.0% of valid prices | Good job!
## GESHIP.NS | yahoo (148|501) | Found cache file - Got 95.0% of valid prices | Well done!
## GET&D.NS | yahoo (149|501) | Found cache file - Got 95.0% of valid prices | OK!
## GHCL.NS | yahoo (150|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## GICRE.NS | yahoo (151|501) | Found cache file - Got 2.61% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## GILLETTE.NS | yahoo (152|501) | Found cache file - Got 95.0% of valid prices | You got it!
## GLAXO.NS | yahoo (153|501) | Found cache file - Got 95.0% of valid prices | Good job!
## GLENMARK.NS | yahoo (154|501) | Found cache file - Got 95.0% of valid prices | Got it!
## GMDCLTD.NS | yahoo (155|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## GMRINFRA.NS | yahoo (156|501) | Found cache file - Got 95.0% of valid prices | OK!
## GNFC.NS | yahoo (157|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## GODFRYPHLP.NS | yahoo (158|501) | Found cache file - Got 95.0% of valid prices | You got it!
## GODREJAGRO.NS | yahoo (159|501) | Found cache file - Got 2.95% of valid prices | OUT: not enough data (t
hresh.bad.data = 75.0%)
## GODREJCP.NS | yahoo (160|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## GODREJIND.NS | yahoo (161|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## GODREJPROP.NS | yahoo (162|501) | Found cache file - Got 95.0% of valid prices | Well done!
## GPPL.NS | yahoo (163|501) | Found cache file - Got 95.0% of valid prices | OK!
## GRANULES.NS | yahoo (164|501) | Found cache file - Got 95.0% of valid prices | Well done!
## GRAPHITE.NS | yahoo (165|501) | Found cache file - Got 95.0% of valid prices | Got it!
## GRASIM.NS | yahoo (166|501) | Found cache file - Got 95.0% of valid prices | OK!
## GREAVESCOT.NS | yahoo (167|501) | Found cache file - Got 95.0% of valid prices | You got it!
## GREENPLY.NS | yahoo (168|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## GRINDWELL.NS | yahoo (169|501) | Found cache file - Got 95.0% of valid prices | Well done!
## GRUH.NS | yahoo (170|501) | Found cache file - Got 95.0% of valid prices | Well done!
## GSFC.NS | yahoo (171|501) | Found cache file - Got 95.0% of valid prices | Nice!
## GSKCONS.NS | yahoo (172|501) | Found cache file - Got 95.0% of valid prices | OK!
## GSPL.NS | yahoo (173|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## GUJALKALI.NS | yahoo (174|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## GUJFLUORO.NS | yahoo (175|501) | Found cache file - Got 95.0% of valid prices | Good job!
## GUJGASLTD.NS | yahoo (176|501) | Found cache file - Got 31.2% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
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## GULFOILLUB.NS | yahoo (177|501) | Found cache file - Got 46.4% of valid prices | OUT: not enough data (t
hresh.bad.data = 75.0%)
## GVKPIL.NS | yahoo (178|501) | Found cache file - Got 95.0% of valid prices | Well done!
## HAL.NS | yahoo (179|501) | Found cache file - Error in download..
## HATHWAY.NS | yahoo (180|501) | Found cache file - Got 95.0% of valid prices | Well done!
## HATSUN.NS | yahoo (181|501) | Found cache file - Got 47.9% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## HAVELLS.NS | yahoo (182|501) | Found cache file - Got 95.0% of valid prices | You got it!
## HCC.NS | yahoo (183|501) | Found cache file - Got 95.0% of valid prices | Youre doing good!
## HCL-INSYS.NS | yahoo (184|501) | Found cache file - Got 40.8% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## HCLTECH.NS | yahoo (185|501) | Found cache file - Got 95.0% of valid prices | Well done!
## HDFC.NS | yahoo (186|501) | Found cache file - Got 95.0% of valid prices | Good job!
## HDFCBANK.NS | yahoo (187|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## HDFCLIFE.NS | yahoo (188|501) | Found cache file - Got 1.65% of valid prices | OUT: not enough data (thr
esh.bad.data = 75.0%)
## HEG.NS | yahoo (189|501) | Found cache file - Got 95.0% of valid prices | OK!
## HEIDELBERG.NS | yahoo (190|501) | Found cache file - Got 95.0% of valid prices | You got it!
## HERITGFOOD.NS | yahoo (191|501) | Found cache file - Got 95.0% of valid prices | Youre doing good!
## HEROMOTOCO.NS | yahoo (192|501) | Found cache file - Got 95.0% of valid prices | Got it!
## HEXAWARE.NS | yahoo (193|501) | Found cache file - Got 95.0% of valid prices | Nice!
## HFCL.NS | yahoo (194|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## HIMATSEIDE.NS | yahoo (195|501) | Found cache file - Got 95.0% of valid prices | OK!
## HINDALCO.NS | yahoo (196|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## HINDCOPPER.NS | yahoo (197|501) | Found cache file - Got 95.0% of valid prices | Nice!
## HINDPETRO.NS | yahoo (198|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## HINDUNILVR.NS | yahoo (199|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## HINDZINC.NS | yahoo (200|501) | Found cache file - Got 95.0% of valid prices | Good job!
## HONAUT.NS | yahoo (201|501) | Found cache file - Got 95.0% of valid prices | Nice!
## HSCL.NS | yahoo (202|501) | Found cache file - Got 95.0% of valid prices | Well done!
## HSIL.NS | yahoo (203|501) | Found cache file - Got 95.0% of valid prices | OK!
## HUDCO.NS | yahoo (204|501) | Found cache file - Got 8.57% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## IBREALEST.NS | yahoo (205|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## IBULHSGFIN.NS | yahoo (206|501) | Found cache file - Got 60.3% of valid prices | OUT: not enough data (t
hresh.bad.data = 75.0%)
## IVENTURES.NS | yahoo (207|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## ICICIBANK.NS | yahoo (208|501) | Found cache file - Got 95.0% of valid prices | Youre doing good!
## ICICIGI.NS | yahoo (209|501) | Found cache file - Got 3.63% of valid prices | OUT: not enough data (thre
sh.bad.data = 75.0%)
## ICICIPRULI.NS | yahoo (210|501) | Found cache file - Got 17.1% of valid prices | OUT: not enough data (t
hresh.bad.data = 75.0%)
## ICIL.NS | yahoo (211|501) | Found cache file - Got 95.0% of valid prices | Got it!
## IDBI.NS | yahoo (212|501) | Found cache file - Got 95.0% of valid prices | Youre doing good!
## IDEA.NS | yahoo (213|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## IDFC.NS | yahoo (214|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## IDFCBANK.NS | yahoo (215|501) | Found cache file - Got 29.2% of valid prices | OUT: not enough data (thr
esh.bad.data = 75.0%)
## IEX.NS | yahoo (216|501) | Found cache file - Got 2.73% of valid prices | OUT: not enough data (thresh.b
ad.data = 75.0%)
## IFBIND.NS | yahoo (217|501) | Found cache file - Got 95.0% of valid prices | You got it!
## IFCI.NS | yahoo (218|501) | Found cache file - Got 95.0% of valid prices | Youre doing good!
## IGL.NS | yahoo (219|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## IIFL.NS | yahoo (220|501) | Found cache file - Got 95.0% of valid prices | You got it!
## IL&FSTRANS.NS | yahoo (221|501) | Found cache file - Got 95.0% of valid prices | You got it!
## INDHOTEL.NS | yahoo (222|501) | Found cache file - Got 95.0% of valid prices | Youre doing good!
## INDIACEM.NS | yahoo (223|501) | Found cache file - Got 95.0% of valid prices | Well done!
## INDIANB.NS | yahoo (224|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## INDIGO.NS | yahoo (225|501) | Found cache file - Got 29.1% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## INDOCO.NS | yahoo (226|501) | Found cache file - Got 95.0% of valid prices | Got it!
## INDUSINDBK.NS | yahoo (227|501) | Found cache file - Got 95.0% of valid prices | Well done!
## INFIBEAM.NS | yahoo (228|501) | Found cache file - Got 23.9% of valid prices | OUT: not enough data (thr
esh.bad.data = 75.0%)
## INFRATEL.NS | yahoo (229|501) | Found cache file - Got 68.1% of valid prices | OUT: not enough data (thr
esh.bad.data = 75.0%)

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## INFY.NS | yahoo (230|501) | Found cache file - Got 95.0% of valid prices | Nice!
## INOXLEISUR.NS | yahoo (231|501) | Found cache file - Got 95.0% of valid prices | OK!
## INOXWIND.NS | yahoo (232|501) | Found cache file - Got 37.3% of valid prices | OUT: not enough data (thresh.bad.data = 75.0%)
## INTELLECT.NS | yahoo (233|501) | Found cache file - Got 41.3% of valid prices | OUT: not enough data (thresh.bad.data = 75.0%)
## IOB.NS | yahoo (234|501) | Found cache file - Got 95.0% of valid prices | Nice!
## IOC.NS | yahoo (235|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## IPCALAB.NS | yahoo (236|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## IRB.NS | yahoo (237|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## ISEC.NS | yahoo (238|501) | Found cache file - Error in download..
## ITC.NS | yahoo (239|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## ITDC.NS | yahoo (240|501) | Found cache file - Got 13.7% of valid prices | OUT: not enough data (thresh.bad.data = 75.0%)
## ITDCEN.NS | yahoo (241|501) | Found cache file - Got 95.0% of valid prices | Got it!
## ITI.NS | yahoo (242|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## J&KBANK.NS | yahoo (243|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## JAGRAN.NS | yahoo (244|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## JAICORPLTD.NS | yahoo (245|501) | Found cache file - Got 95.0% of valid prices | Good job!
## JBCHEPHARM.NS | yahoo (246|501) | Found cache file - Got 95.0% of valid prices | Good job!
## JCHAC.NS | yahoo (247|501) | Found cache file - Got 95.0% of valid prices | Good job!
## JETAIRWAYS.NS | yahoo (248|501) | Found cache file - Got 95.0% of valid prices | OK!
## JINDALSAW.NS | yahoo (249|501) | Found cache file - Got 95.0% of valid prices | OK!
## JINDALSTEL.NS | yahoo (250|501) | Found cache file - Got 95.0% of valid prices | Nice!
## JISLJALEQS.NS | yahoo (251|501) | Found cache file - Got 95.0% of valid prices | Feliz que nem lambari de sanga!
## JKCEMENT.NS | yahoo (252|501) | Found cache file - Got 95.0% of valid prices | OK!
## JKIL.NS | yahoo (253|501) | Found cache file - Got 95.0% of valid prices | Nice!
## JKLAKSHMI.NS | yahoo (254|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## JKYRE.NS | yahoo (255|501) | Found cache file - Got 95.0% of valid prices | OK!
## JMFINANCIL.NS | yahoo (256|501) | Found cache file - Got 95.0% of valid prices | Nice!
## JPASSOCIAT.NS | yahoo (257|501) | Found cache file - Got 95.0% of valid prices | You got it!
## JPOWER.NS | yahoo (258|501) | Found cache file - Got 95.0% of valid prices | You got it!
## JSL.NS | yahoo (259|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## JSLHISAR.NS | yahoo (260|501) | Found cache file - Got 26.3% of valid prices | OUT: not enough data (thresh.bad.data = 75.0%)
## JSWENERGY.NS | yahoo (261|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## JSWSTEEL.NS | yahoo (262|501) | Found cache file - Got 95.0% of valid prices | Good job!
## JUBILANT.NS | yahoo (263|501) | Found cache file - Got 95.0% of valid prices | Nice!
## JUBLFOOD.NS | yahoo (264|501) | Found cache file - Got 95.0% of valid prices | OK!
## JUSTDIAL.NS | yahoo (265|501) | Found cache file - Got 62.2% of valid prices | OUT: not enough data (thresh.bad.data = 75.0%)
## JYOTHYLAB.NS | yahoo (266|501) | Found cache file - Got 95.0% of valid prices | Well done!
## KAJARIACER.NS | yahoo (267|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## KALPATPOWR.NS | yahoo (268|501) | Found cache file - Got 95.0% of valid prices | Got it!
## KANSAINER.NS | yahoo (269|501) | Found cache file - Got 95.0% of valid prices | Well done!
## KARUVYSYA.NS | yahoo (270|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## KEC.NS | yahoo (271|501) | Found cache file - Got 95.0% of valid prices | Good job!
## KIOCL.NS | yahoo (272|501) | Found cache file - Got 15.0% of valid prices | OUT: not enough data (thresh.bad.data = 75.0%)
## KNRCON.NS | yahoo (273|501) | Found cache file - Got 95.0% of valid prices | Got it!
## KOLTEPATIL.NS | yahoo (274|501) | Found cache file - Got 95.0% of valid prices | OK!
## KOTAKBANK.NS | yahoo (275|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## KPRMILL.NS | yahoo (276|501) | Found cache file - Got 95.0% of valid prices | Well done!
## KRBL.NS | yahoo (277|501) | Found cache file - Got 95.0% of valid prices | OK!
## KSCL.NS | yahoo (278|501) | Found cache file - Got 95.0% of valid prices | You got it!
## KTKBANK.NS | yahoo (279|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## L&TFH.NS | yahoo (280|501) | Found cache file - Got 86.5% of valid prices | Well done!
## LAKSHVILAS.NS | yahoo (281|501) | Found cache file - Got 95.0% of valid prices | You got it!
## LALPATHLAB.NS | yahoo (282|501) | Found cache file - Got 27.6% of valid prices | OUT: not enough data (thresh.bad.data = 75.0%)
## LAURUSLABS.NS | yahoo (283|501) | Found cache file - Got 14.2% of valid prices | OUT: not enough data (thresh.bad.data = 75.0%)
## LAXMIMACH.NS | yahoo (284|501) | Found cache file - Got 95.0% of valid prices | Good job!
## LEMONTREE.NS | yahoo (285|501) | Found cache file - Error in download..
## LICHSGFIN.NS | yahoo (286|501) | Found cache file - Got 95.0% of valid prices | Feels good!

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## LINDEINDIA.NS | yahoo (287|501) | Found cache file - Got 95.0% of valid prices | Got it!
## LT.NS | yahoo (288|501) | Found cache file - Got 95.0% of valid prices | Well done!
## LTI.NS | yahoo (289|501) | Found cache file - Got 19.8% of valid prices | OUT: not enough data (thresh.b
ad.data = 75.0%)
## LTT.S.NS | yahoo (290|501) | Found cache file - Got 17.4% of valid prices | OUT: not enough data (thresh.
bad.data = 75.0%)
## LUPIN.NS | yahoo (291|501) | Found cache file - Got 95.0% of valid prices | Good job!
## LUXIND.NS | yahoo (292|501) | Found cache file - Got 28.5% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## M&M.NS | yahoo (293|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## M&MFIN.NS | yahoo (294|501) | Found cache file - Got 95.0% of valid prices | Got it!
## MAGMA.NS | yahoo (295|501) | Found cache file - Got 95.0% of valid prices | OK!
## MAHINDCIE.NS | yahoo (296|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## MAHLOG.NS | yahoo (297|501) | Found cache file - Got 1.93% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## MANAPPURAM.NS | yahoo (298|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## MANPASAND.NS | yahoo (299|501) | Found cache file - Got 33.8% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## MARICO.NS | yahoo (300|501) | Found cache file - Got 95.0% of valid prices | Good job!
## MARUTI.NS | yahoo (301|501) | Found cache file - Got 95.0% of valid prices | Got it!
## MASFIN.NS | yahoo (302|501) | Found cache file - Got 2.84% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## MAXINDIA.NS | yahoo (303|501) | Found cache file - Got 20.1% of valid prices | OUT: not enough data (thr
esh.bad.data = 75.0%)
## MCDOWELL-N.NS | yahoo (304|501) | Found cache file - Error in download..
## MCLEODRUSS.NS | yahoo (305|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## MERCK.NS | yahoo (306|501) | Found cache file - Got 95.0% of valid prices | Got it!
## MFSL.NS | yahoo (307|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## MGL.NS | yahoo (308|501) | Found cache file - Got 20.5% of valid prices | OUT: not enough data (thresh.b
ad.data = 75.0%)
## MHRIL.NS | yahoo (309|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## MINDACORP.NS | yahoo (310|501) | Found cache file - Got 78.6% of valid prices | Boa!
## MINDAIND.NS | yahoo (311|501) | Found cache file - Got 95.0% of valid prices | Boa!
## MINDTREE.NS | yahoo (312|501) | Found cache file - Got 95.0% of valid prices | Good job!
## MMT.C.NS | yahoo (313|501) | Found cache file - Got 95.0% of valid prices | Nice!
## MOIL.NS | yahoo (314|501) | Found cache file - Got 95.0% of valid prices | Nice!
## MONSANTO.NS | yahoo (315|501) | Found cache file - Got 95.0% of valid prices | Got it!
## MOTHERSUMI.NS | yahoo (316|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## MOTILALOFS.NS | yahoo (317|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## MPHASIS.NS | yahoo (318|501) | Found cache file - Got 95.0% of valid prices | You got it!
## MRF.NS | yahoo (319|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## MRPL.NS | yahoo (320|501) | Found cache file - Got 95.0% of valid prices | Got it!
## MUTHOOTFIN.NS | yahoo (321|501) | Found cache file - Got 90.3% of valid prices | Got it!
## NATCOPHARM.NS | yahoo (322|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## NATIONALUM.NS | yahoo (323|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## NAUKRI.NS | yahoo (324|501) | Found cache file - Got 95.0% of valid prices | Well done!
## NAVINFLUOR.NS | yahoo (325|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## NAVKARCORP.NS | yahoo (326|501) | Found cache file - Got 31.4% of valid prices | OUT: not enough data (t
hresh.bad.data = 75.0%)
## NBCC.NS | yahoo (327|501) | Found cache file - Got 77.7% of valid prices | Good stuff!
## NBVENTURES.NS | yahoo (328|501) | Found cache file - Got 95.0% of valid prices | You got it!
## NCC.NS | yahoo (329|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## NESCO.NS | yahoo (330|501) | Found cache file - Got 95.0% of valid prices | Good job!
## NETWORK18.NS | yahoo (331|501) | Found cache file - Got 95.0% of valid prices | Well done!
## NFL.NS | yahoo (332|501) | Found cache file - Got 95.0% of valid prices | Well done!
## NH.NS | yahoo (333|501) | Found cache file - Got 27.1% of valid prices | OUT: not enough data (thresh.ba
d.data = 75.0%)
## NHPC.NS | yahoo (334|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## NIACL.NS | yahoo (335|501) | Found cache file - Got 1.87% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## NIITTECH.NS | yahoo (336|501) | Found cache file - Got 95.0% of valid prices | Got it!
## NILKAMAL.NS | yahoo (337|501) | Found cache file - Got 95.0% of valid prices | Well done!
## NLCINDIA.NS | yahoo (338|501) | Found cache file - Got 95.0% of valid prices | Well done!
## NMDC.NS | yahoo (339|501) | Found cache file - Got 95.0% of valid prices | Got it!
## NTPC.NS | yahoo (340|501) | Found cache file - Got 95.0% of valid prices | You got it!
## OBEROIRLTY.NS | yahoo (341|501) | Found cache file - Got 95.0% of valid prices | Good stuff!

```

```

## OFSS.NS | yahoo (342|501) | Found cache file - Got 95.0% of valid prices | OK!
## OIL.NS | yahoo (343|501) | Found cache file - Got 95.0% of valid prices | You got it!
## OMAXE.NS | yahoo (344|501) | Found cache file - Got 95.0% of valid prices | Well done!
## ONGC.NS | yahoo (345|501) | Found cache file - Got 95.0% of valid prices | You got it!
## ORIENTBANK.NS | yahoo (346|501) | Found cache file - Got 95.0% of valid prices | You got it!
## ORIENTCEM.NS | yahoo (347|501) | Found cache file - Got 60.7% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## PAGEIND.NS | yahoo (348|501) | Found cache file - Got 95.0% of valid prices | Mais contente que cusco de
cozinha!
## PARAGMILK.NS | yahoo (349|501) | Found cache file - Got 22.2% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## PCJEWELLER.NS | yahoo (350|501) | Found cache file - Got 68.1% of valid prices | OUT: not enough data (t
hresh.bad.data = 75.0%)
## PEL.NS | yahoo (351|501) | Found cache file - Got 95.0% of valid prices | You got it!
## PERSISTENT.NS | yahoo (352|501) | Found cache file - Got 95.0% of valid prices | Good job!
## PETRONET.NS | yahoo (353|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## PFC.NS | yahoo (354|501) | Found cache file - Got 95.0% of valid prices | Well done!
## PFIZER.NS | yahoo (355|501) | Found cache file - Got 95.0% of valid prices | Well done!
## PFS.NS | yahoo (356|501) | Found cache file - Got 91.7% of valid prices | You're doing good!
## PGHH.NS | yahoo (357|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## PHILIPCARB.NS | yahoo (358|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## PHOENIXLTD.NS | yahoo (359|501) | Found cache file - Got 95.0% of valid prices | Nice!
## PIDILITIND.NS | yahoo (360|501) | Found cache file - Got 95.0% of valid prices | Nice!
## PIIND.NS | yahoo (361|501) | Found cache file - Got 88.8% of valid prices | You're doing good!
## PNB.NS | yahoo (362|501) | Found cache file - Got 95.0% of valid prices | Good job!
## PNBHOUSING.NS | yahoo (363|501) | Found cache file - Got 15.8% of valid prices | OUT: not enough data (t
hresh.bad.data = 75.0%)
## PNCINFRA.NS | yahoo (364|501) | Found cache file - Got 35.6% of valid prices | OUT: not enough data (thr
esh.bad.data = 75.0%)
## POWERGRID.NS | yahoo (365|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## PRAJIND.NS | yahoo (366|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## PRESTIGE.NS | yahoo (367|501) | Found cache file - Got 95.0% of valid prices | Nice!
## PRSMJOHNSN.NS | yahoo (368|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## PTC.NS | yahoo (369|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## PVR.NS | yahoo (370|501) | Found cache file - Got 95.0% of valid prices | Got it!
## QUESS.NS | yahoo (371|501) | Found cache file - Got 20.2% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## RADICO.NS | yahoo (372|501) | Found cache file - Got 95.0% of valid prices | You got it!
## RAIN.NS | yahoo (373|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## RAJESHEXPO.NS | yahoo (374|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## RALLIS.NS | yahoo (375|501) | Found cache file - Got 95.0% of valid prices | Good job!
## RAMCOCEM.NS | yahoo (376|501) | Found cache file - Got 95.0% of valid prices | Nice!
## RAYMOND.NS | yahoo (377|501) | Found cache file - Got 95.0% of valid prices | Nice!
## RBLBANK.NS | yahoo (378|501) | Found cache file - Got 18.2% of valid prices | OUT: not enough data (thre
sh.bad.data = 75.0%)
## RCF.NS | yahoo (379|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## RCOM.NS | yahoo (380|501) | Found cache file - Got 95.0% of valid prices | OK!
## RECLTD.NS | yahoo (381|501) | Found cache file - Got 95.0% of valid prices | Got it!
## REDINGTON.NS | yahoo (382|501) | Found cache file - Got 95.0% of valid prices | You got it!
## RELAXO.NS | yahoo (383|501) | Found cache file - Got 88.7% of valid prices | Feels good!
## RELCAPITAL.NS | yahoo (384|501) | Found cache file - Got 95.0% of valid prices | Good job!
## RELIANCE.NS | yahoo (385|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## RELINFRA.NS | yahoo (386|501) | Found cache file - Got 95.0% of valid prices | OK!
## RENUKA.NS | yahoo (387|501) | Found cache file - Got 95.0% of valid prices | You got it!
## REPCOHOME.NS | yahoo (388|501) | Found cache file - Got 64.6% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## RHFL.NS | yahoo (389|501) | Found cache file - Got 3.80% of valid prices | OUT: not enough data (thresh.
bad.data = 75.0%)
## RKFORGE.NS | yahoo (390|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## RNAM.NS | yahoo (391|501) | Found cache file - Got 2.16% of valid prices | OUT: not enough data (thresh.
bad.data = 75.0%)
## RNAVAL.NS | yahoo (392|501) | Found cache file - Got 95.0% of valid prices | Good job!
## RPOWER.NS | yahoo (393|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## RUPA.NS | yahoo (394|501) | Found cache file - Got 82.4% of valid prices | Good stuff!
## SADBHAV.NS | yahoo (395|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## SADBHIN.NS | yahoo (396|501) | Found cache file - Got 31.1% of valid prices | OUT: not enough data (thre

```

```

sh.bad.data = 75.0%)
## SAIL.NS | yahoo (397|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## SANOFI.NS | yahoo (398|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## SBILIFE.NS | yahoo (399|501) | Found cache file - Got 3.46% of valid prices | OUT: not enough data (thre
sh.bad.data = 75.0%)
## SBIN.NS | yahoo (400|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## SCHAEFFLER.NS | yahoo (401|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## SCI.NS | yahoo (402|501) | Found cache file - Got 95.0% of valid prices | Got it!
## SHANKARA.NS | yahoo (403|501) | Found cache file - Got 10.3% of valid prices | OUT: not enough data (thr
esh.bad.data = 75.0%)
## SHILPAMED.NS | yahoo (404|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## SHK.NS | yahoo (405|501) | Found cache file - Got 29.0% of valid prices | OUT: not enough data (thresh.b
ad.data = 75.0%)
## SHOPERSTOP.NS | yahoo (406|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## SHREECEM.NS | yahoo (407|501) | Found cache file - Got 95.0% of valid prices | Good job!
## SHRIRAMCIT.NS | yahoo (408|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## SIEMENS.NS | yahoo (409|501) | Found cache file - Got 95.0% of valid prices | Feliz que nem lambari de s
anga!
## SIS.NS | yahoo (410|501) | Found cache file - Got 5.39% of valid prices | OUT: not enough data (thresh.b
ad.data = 75.0%)
## SJVN.NS | yahoo (411|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## SKFINDIA.NS | yahoo (412|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## SOBHA.NS | yahoo (413|501) | Found cache file - Got 95.0% of valid prices | Got it!
## SOLARINDS.NS | yahoo (414|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## SONATSOFTW.NS | yahoo (415|501) | Found cache file - Got 95.0% of valid prices | Got it!
## SOUTHBANK.NS | yahoo (416|501) | Found cache file - Got 95.0% of valid prices | Good job!
## SPARC.NS | yahoo (417|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## SPTL.NS | yahoo (418|501) | Found cache file - Error in download..
## SREINFRA.NS | yahoo (419|501) | Found cache file - Got 95.0% of valid prices | Nice!
## SRF.NS | yahoo (420|501) | Found cache file - Got 95.0% of valid prices | Good job!
## SRTRANSFIN.NS | yahoo (421|501) | Found cache file - Got 95.0% of valid prices | Good job!
## STAR.NS | yahoo (422|501) | Found cache file - Got 95.0% of valid prices | You got it!
## STARCEMENT.NS | yahoo (423|501) | Found cache file - Got 7.44% of valid prices | OUT: not enough data (t
hresh.bad.data = 75.0%)
## STRTECH.NS | yahoo (424|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## SUDARSCHEM.NS | yahoo (425|501) | Found cache file - Got 95.0% of valid prices | Mais contente que cusco
de cozinha!
## SUNDARMFIN.NS | yahoo (426|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## SUNDRMFAST.NS | yahoo (427|501) | Found cache file - Got 95.0% of valid prices | You got it!
## SUNPHARMA.NS | yahoo (428|501) | Found cache file - Got 95.0% of valid prices | Well done!
## SUNTECK.NS | yahoo (429|501) | Found cache file - Got 95.0% of valid prices | OK!
## SUNTV.NS | yahoo (430|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## SUPREMEIND.NS | yahoo (431|501) | Found cache file - Got 95.0% of valid prices | OK!
## SUVEN.NS | yahoo (432|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## SUZLON.NS | yahoo (433|501) | Found cache file - Got 95.0% of valid prices | Good job!
## SWANENERGY.NS | yahoo (434|501) | Found cache file - Got 75.9% of valid prices | Feels good!
## SYMPHONY.NS | yahoo (435|501) | Found cache file - Got 88.8% of valid prices | You got it!
## SYNDIBANK.NS | yahoo (436|501) | Found cache file - Got 95.0% of valid prices | Well done!
## SYNGENE.NS | yahoo (437|501) | Found cache file - Got 32.5% of valid prices | OUT: not enough data (thre
sh.bad.data = 75.0%)
## TAKE.NS | yahoo (438|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## TATACHEM.NS | yahoo (439|501) | Found cache file - Got 95.0% of valid prices | Nice!
## TATACOFFEE.NS | yahoo (440|501) | Found cache file - Got 95.0% of valid prices | You got it!
## TATAELXSI.NS | yahoo (441|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## TATAGLOBAL.NS | yahoo (442|501) | Found cache file - Got 95.0% of valid prices | OK!
## TATAINVEST.NS | yahoo (443|501) | Found cache file - Got 95.0% of valid prices | Nice!
## TATAMOTORS.NS | yahoo (444|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## TATAMTRDVR.NS | yahoo (445|501) | Found cache file - Got 95.0% of valid prices | Nice!
## TATAPOWER.NS | yahoo (446|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## TATASPONGE.NS | yahoo (447|501) | Found cache file - Got 95.0% of valid prices | Good job!
## TATASTEEL.NS | yahoo (448|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## TCS.NS | yahoo (449|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## TEAMLEASE.NS | yahoo (450|501) | Found cache file - Got 25.7% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## TECHM.NS | yahoo (451|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## TEXRAIL.NS | yahoo (452|501) | Found cache file - Got 92.8% of valid prices | Feliz que nem lambari de s

```

```

anga!
## THERMAX.NS | yahoo (453|501) | Found cache file - Got 95.0% of valid prices | Nice!
## THOMASCOOK.NS | yahoo (454|501) | Found cache file - Got 95.0% of valid prices | Nice!
## THYROCCARE.NS | yahoo (455|501) | Found cache file - Got 22.6% of valid prices | OUT: not enough data (th
resh.bad.data = 75.0%)
## TIFIN.NS | yahoo (456|501) | Found cache file - Got 95.0% of valid prices | Nice!
## TIINDIA.NS | yahoo (457|501) | Found cache file - Got 2.27% of valid prices | OUT: not enough data (thre
sh.bad.data = 75.0%)
## TIMETECHNO.NS | yahoo (458|501) | Found cache file - Got 95.0% of valid prices | OK!
## TIMKEN.NS | yahoo (459|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## TITAN.NS | yahoo (460|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## TNPL.NS | yahoo (461|501) | Found cache file - Got 95.0% of valid prices | You got it!
## TORNTPHARM.NS | yahoo (462|501) | Found cache file - Got 95.0% of valid prices | Nice!
## TORNTPOWER.NS | yahoo (463|501) | Found cache file - Got 95.0% of valid prices | OK!
## TRENT.NS | yahoo (464|501) | Found cache file - Got 95.0% of valid prices | OK!
## TRIDENT.NS | yahoo (465|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## TTKPRESTIG.NS | yahoo (466|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## TV18BRODCST.NS | yahoo (467|501) | Found cache file - Got 95.0% of valid prices | Nice!
## TVSMOTOR.NS | yahoo (468|501) | Found cache file - Got 95.0% of valid prices | Nice!
## TVSSRICHA.NS | yahoo (469|501) | Found cache file - Got 95.0% of valid prices | Good job!
## TVTODAY.NS | yahoo (470|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## UBL.NS | yahoo (471|501) | Found cache file - Got 95.0% of valid prices | OK!
## UCOBANK.NS | yahoo (472|501) | Found cache file - Got 95.0% of valid prices | Got it!
## UFLEX.NS | yahoo (473|501) | Found cache file - Got 95.0% of valid prices | Mais faceiro que guri de bom
bacha nova!
## UJJIVAN.NS | yahoo (474|501) | Found cache file - Got 22.6% of valid prices | OUT: not enough data (thre
sh.bad.data = 75.0%)
## ULTRACEMCO.NS | yahoo (475|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## UNICHEMLAB.NS | yahoo (476|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## UNIONBANK.NS | yahoo (477|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## UPL.NS | yahoo (478|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## VAKRANGEE.NS | yahoo (479|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## VBL.NS | yahoo (480|501) | Found cache file - Got 15.7% of valid prices | OUT: not enough data (thresh.b
ad.data = 75.0%)
## VEDL.NS | yahoo (481|501) | Found cache file - Got 95.0% of valid prices | Good job!
## VENKEYS.NS | yahoo (482|501) | Found cache file - Got 95.0% of valid prices | OK!
## VGUARD.NS | yahoo (483|501) | Found cache file - Got 95.0% of valid prices | Well done!
## VIJAYABANK.NS | yahoo (484|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## VINATIORGA.NS | yahoo (485|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## VIPIND.NS | yahoo (486|501) | Found cache file - Got 95.0% of valid prices | Good job!
## VMART.NS | yahoo (487|501) | Found cache file - Got 66.1% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## VOLTAS.NS | yahoo (488|501) | Found cache file - Got 95.0% of valid prices | Feels good!
## VRLLOG.NS | yahoo (489|501) | Found cache file - Got 36.5% of valid prices | OUT: not enough data (thres
h.bad.data = 75.0%)
## VTL.NS | yahoo (490|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## WABAG.NS | yahoo (491|501) | Found cache file - Got 95.0% of valid prices | Got it!
## WABCOINDIA.NS | yahoo (492|501) | Found cache file - Got 95.0% of valid prices | Good stuff!
## WELCORP.NS | yahoo (493|501) | Found cache file - Got 95.0% of valid prices | Well done!
## WELSPUNIND.NS | yahoo (494|501) | Found cache file - Got 95.0% of valid prices | Well done!
## WHIRLPOOL.NS | yahoo (495|501) | Found cache file - Got 95.0% of valid prices | You're doing good!
## WIPRO.NS | yahoo (496|501) | Found cache file - Got 95.0% of valid prices | Well done!
## WOCKPHARMA.NS | yahoo (497|501) | Found cache file - Got 95.0% of valid prices | Looking good!
## YESBANK.NS | yahoo (498|501) | Found cache file - Got 95.0% of valid prices | You got it!
## ZEEL.NS | yahoo (499|501) | Found cache file - Got 95.0% of valid prices | You got it!
## ZENSARTECH.NS | yahoo (500|501) | Found cache file - Got 95.0% of valid prices | Well done!
## ZYDUSWELL.NS | yahoo (501|501) | Found cache file - Got 95.0% of valid prices | Good job!

```

Next we prep data for the QP for getting the entire Efficient Frontier Curve. We also make constructs to capture the output.

```

Number_Of_Stocks_Selected = sum(Full_Data$df.control$threshold.decision=='KEEP')
Full_Data_Wide <- reshape.wide(Full_Data$df.tickers)
Returns_Data_Wide_No_NA = as.data.frame(Full_Data_Wide$ret.adjusted.prices) %>% drop_na()
Covariance_Matrix = as.matrix(cbind(cov>Returns_Data_Wide_No_NA[,2:dim>Returns_Data_Wide_No_NA)[2]])))
Covariance_Matrix = as.matrix(nearPD(Covariance_Matrix)$mat)
dvec_LS = rep(0,each=dim(Covariance_Matrix)[1])
Amat_LS = t(as.matrix(rbind(rep(1,each=dim>Returns_Data_Wide_No_NA)[2]-1),as.numeric(colMeans>Returns_Data_Wide_No_NA[,2:dim>Returns_Data_Wide_No_NA)[2]])))
Efficient_Frontier = data.frame(Risk = double(),Returns = double(), stringsAsFactors = FALSE)
All_Returns_Weights = list()
Return_And_Weights_WorkBook = createWorkbook()
Long_And_Short_Sheet = createSheet(Return_And_Weights_WorkBook, sheetName="Long_&_Short")
Outfilename = 'QP_NIFTY500_Weights.xlsx'
Starting_Column_Number = 1
Weight_Index = colnames>Returns_Data_Wide_No_NA)
Weight_Index = Weight_Index[2:length(Weight_Index)]
Required_Return = seq(0.01,3.00,0.01)

```

Next to arrive at the Efficient Frontier curve, we use a for loop to run over the various returns and store the output.

```

for (i in seq_along(Required_Return))
{
  bvec_LS = c(1,Required_Return[i])
  Q = solve.QP(Covariance_Matrix,dvec_LS,Amat_LS,bvec_LS)
  if (sum(Q$solution) > 1){next}
  TEMP_DF = data.frame(Q$value, Required_Return[i], stringsAsFactors = FALSE)
  names(TEMP_DF) = c("Risk","Returns")
  Weights_DF = data.frame(Weight_Index, Q$solution, stringsAsFactors = FALSE)
  names(Weights_DF) = c("Name",paste0(Required_Return[i]*100, "% Ret Wt", sep=''))
  addDataFrame(Weights_DF, Long_And_Short_Sheet, startRow=1, startColumn=Starting_Column_Number)
  Starting_Column_Number = Starting_Column_Number + 4
  Efficient_Frontier = rbind(Efficient_Frontier,TEMP_DF)
  All_Returns_Weights = append(All_Returns_Weights,list(Q$solution))
}

```

Now we save the output of various returns in a .csv file. We also plot the Efficient frontier.

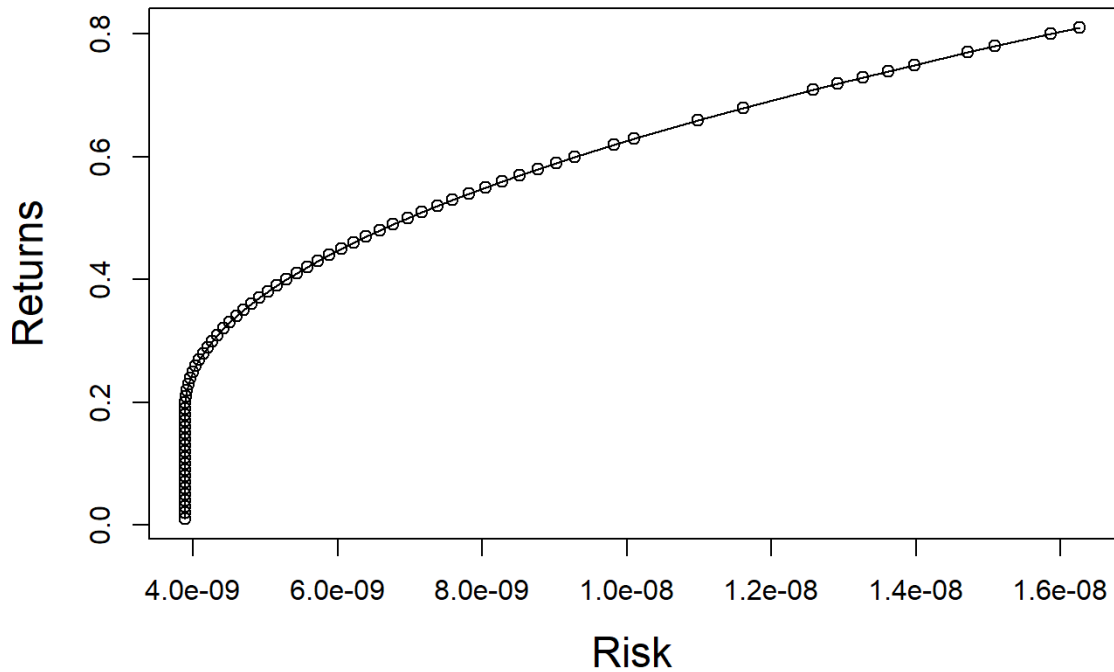
```

saveWorkbook(Return_And_Weights_WorkBook, Outfilename)

plot(Efficient_Frontier, type = 'o', main="Portfolio Efficient Frontier Curve", cex.axis = 1, cex.lab = 1.5,
, cex.main = 2.5)

```

# Portfolio Efficient Frontier Curve



```
png(filename=paste0("Portfolio Efficient Frontier Curve LS ",gsub('-', '_ ',strsplit(as.character(Sys.time()),split=" ")[[1]][1]),".png",sep=''), width = 1280, height = 720)
plot(Efficient_Frontier, type = 'o', main="Portfolio Efficient Frontier Curve", cex.axis = 1, cex.lab = 1.5, cex.main = 2.5)
dev.off()
```

```
## png
## 2
```

Our excel sheet with data from the same looks like this, with instructive :

# Results

Required Returns, till 81% →

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Name	1% Ret Wt		Name	2% Ret Wt			Name	3% Ret Wt			Name	4% Ret Wt	
1	3MINDIA.NS	0.002283185		1	3MINDIA.NS	0.002283185		1	3MINDIA.NS	0.002283185		1	3MINDIA.NS	0.002283185
2	ARTIND.NS	0.00266211		2	ARTIND.NS	0.00266211		2	ARTIND.NS	0.00266211		2	ARTIND.NS	0.00266211
3	ACC.NS	0.002658044		3	ACC.NS	0.002658044		3	ACC.NS	0.002658044		3	ACC.NS	0.002658044
4	ADANIPOWER.NS	0.002503513		4	ADANIPOWER.NS	0.002503513		4	ADANIPOWER.NS	0.002503513		4	ADANIPOWER.NS	0.002503513
5	AEGISCHEM.NS	0.002120117		5	AEGISCHEM.NS	0.002120117		5	AEGISCHEM.NS	0.002120117		5	AEGISCHEM.NS	0.002120117
6	AJANTPHARM.NS	0.00336635		6	AJANTPHARM.NS	0.00336635		6	AJANTPHARM.NS	0.00336635		6	AJANTPHARM.NS	0.00336635
7	AKZOINDIA.NS	0.002661448		7	AKZOINDIA.NS	0.002661448		7	AKZOINDIA.NS	0.002661448		7	AKZOINDIA.NS	0.002661448
8	ALBK.NS	0.00262146		8	ALBK.NS	0.00262146		8	ALBK.NS	0.00262146		8	ALBK.NS	0.00262146
9	ALLCARGO.NS	0.00269176		9	ALLCARGO.NS	0.00269176		9	ALLCARGO.NS	0.00269176		9	ALLCARGO.NS	0.00269176
10	AMBUJACEM.NS	0.002737305		10	AMBUJACEM.NS	0.002737305		10	AMBUJACEM.NS	0.002737305		10	AMBUJACEM.NS	0.002737305
11	ANDHRABANK.NS	0.002504579		11	ANDHRABANK.NS	0.002504579		11	ANDHRABANK.NS	0.002504579		11	ANDHRABANK.NS	0.002504579
12	APLLTD.NS	0.002902778		12	APLLTD.NS	0.002902778		12	APLLTD.NS	0.002902778		12	APLLTD.NS	0.002902778
13	APOLLOHOSP.NS	0.002746486		13	APOLLOHOSP.NS	0.002746486		13	APOLLOHOSP.NS	0.002746486		13	APOLLOHOSP.NS	0.002746486
14	APOLLOTY.NS	0.002675063		14	APOLLOTY.NS	0.002675063		14	APOLLOTY.NS	0.002675063		14	APOLLOTY.NS	0.002675063
15	ASHOKA.NS	0.00229134		15	ASHOKA.NS	0.00229134		15	ASHOKA.NS	0.00229134		15	ASHOKA.NS	0.00229134
16	ASHOKLEY.NS	0.002447671		16	ASHOKLEY.NS	0.002447671		16	ASHOKLEY.NS	0.002447671		16	ASHOKLEY.NS	0.002447671
17	ASIANPAIN.NS	0.002715401		17	ASIANPAIN.NS	0.002715401		17	ASIANPAIN.NS	0.002715401		17	ASIANPAIN.NS	0.002715401
18	ASTRAL.NS	0.001945547		18	ASTRAL.NS	0.001945547		18	ASTRAL.NS	0.001945547		18	ASTRAL.NS	0.001945547
19	ATUL.NS	0.002809452		19	ATUL.NS	0.002809452		19	ATUL.NS	0.002809452		19	ATUL.NS	0.002809452
20	AUROPHARMA.NS	0.002708196		20	AUROPHARMA.NS	0.002708196		20	AUROPHARMA.NS	0.002708196		20	AUROPHARMA.NS	0.002708196
21	AVANTIFEED.NS	-0.000488275		21	AVANTIFEED.NS	-0.000488275		21	AVANTIFEED.NS	-0.000488275		21	AVANTIFEED.NS	-0.000488275
22	AXISBANK.NS	0.002685169		22	AXISBANK.NS	0.002685169		22	AXISBANK.NS	0.002685169		22	AXISBANK.NS	0.002685169
23	BAJAJCORP.NS	0.002544876		23	BAJAJCORP.NS	0.002544876		23	BAJAJCORP.NS	0.002544876		23	BAJAJCORP.NS	0.002544876

Output of portfolio weights for various returns

Lastly we close this report by clearing the workspace

```
rm(list=ls())
```