

ALAMSYS: DEVELOPMENT OF STOCK MARKET
PRICE FORECASTING SYSTEM USING DYNAMIC
MODE DECOMPOSITION, LONG SHORT-TERM
MEMORY WITH ARNAUD LEGOUX MOVING AVERAGE
CONVERGENCE-DIVERGENCE INTEGRATION

A Special Problem
Presented to
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In Partial Fulfillment
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Bachelor of Science in Computer Science by

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Abstract

Abstract here

Keywords: Keyword 1, keyword 2, keyword 3, keyword 4, etc.

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Appendix A

Source Code Repository

Follow this link to access the code repository for this special problem: https://github.com/GravitonXD/OLARTE_SP. It should be noted that this repository also contains all of the miscellaneous files, such as the .tex files used to create this paper, test codes, and so on. The following are the primary directories for this project:

- (a) alamSYS - contains the source code for alamSYS as well as the docker and docker-compose files.
- (b) DeepLearningModel - contains all of the Python notebooks used in the development of this special problem for training, testing, and cross-validation of the models, trading algorithm, and other calculations.
- (c) alamAPP - This directory contains the source code for the mobile-based test application.

Future developers who want to expand the functionality or dig deeper into this special problem can use the following repository links:

- (a) alamSYS - <https://github.com/GravitonXD/alamSYS>
- (b) DMD-LSTM - https://github.com/GravitonXD/alamSYS_DMD-LSTM
- (c) alamAPP - <https://github.com/GravitonXD/alamAPP>

Appendix B

Raw Data Figures

B.1 Exploratory Stocks Data Graphs

The figures below depict combined line graphs of the opening, high, low, and closing prices of each stock in the alamSYS. These figures also demonstrate why closing prices were chosen as the primary training feature of the models developed for this particular problem. Aside from being the most important price target in most trading and investing strategies, closing prices do not differ significantly from the other price metrics.



Figure B.1: Opening, High, Low, and Closing Prices on AC



Figure B.2: Opening, High, Low, and Closing Prices for ALI

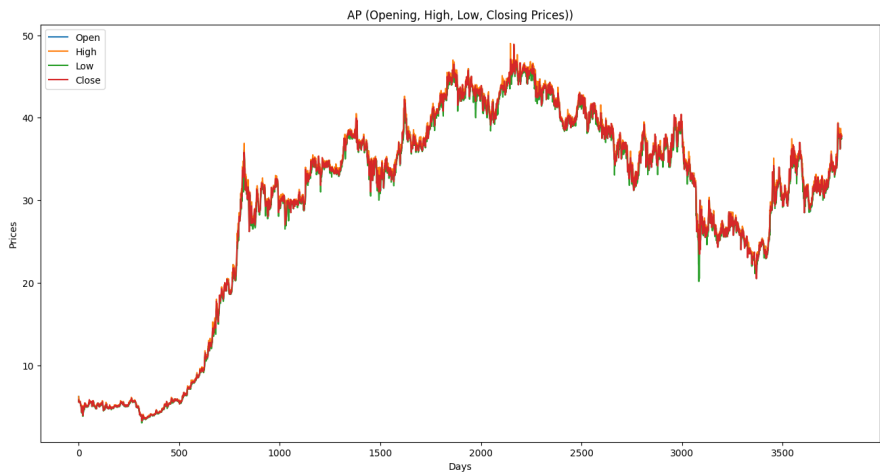


Figure B.3: Opening, High, Low, and Closing Prices for AP

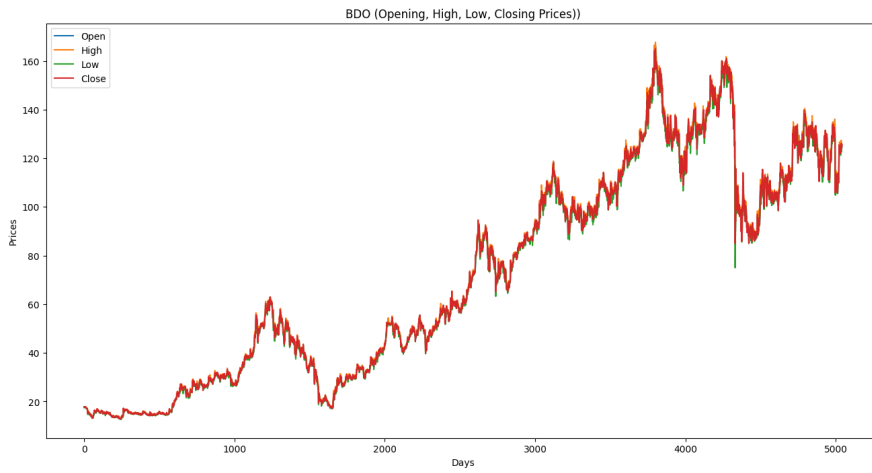


Figure B.4: Opening, High, Low, and Closing Prices for BDO

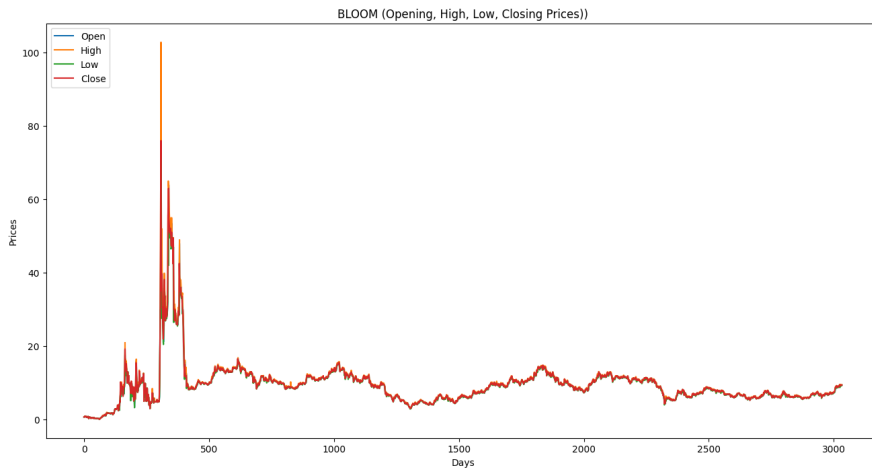


Figure B.5: Opening, High, Low, and Closing Prices for BLOOM

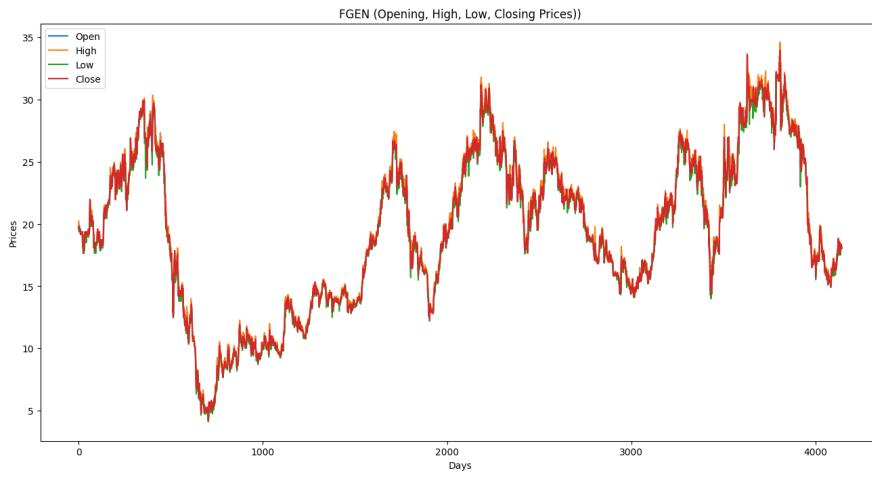


Figure B.6: Opening, High, Low, and Closing Prices for FGEN

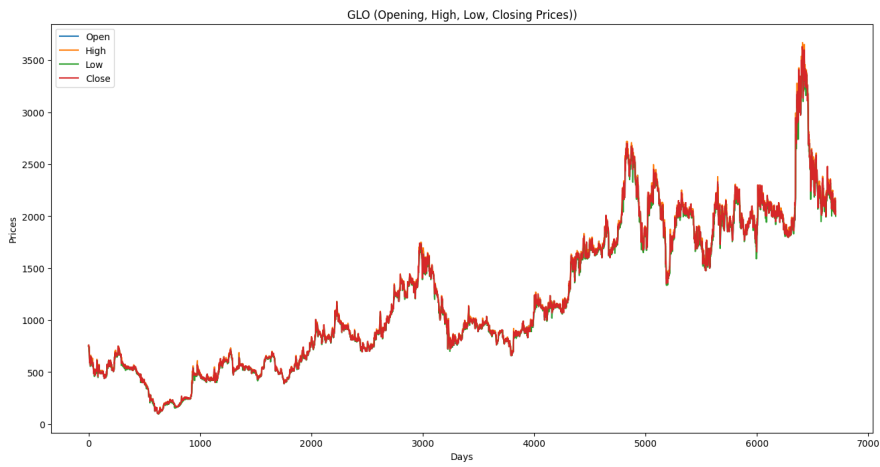


Figure B.7: Opening, High, Low, and Closing Prices for GLO

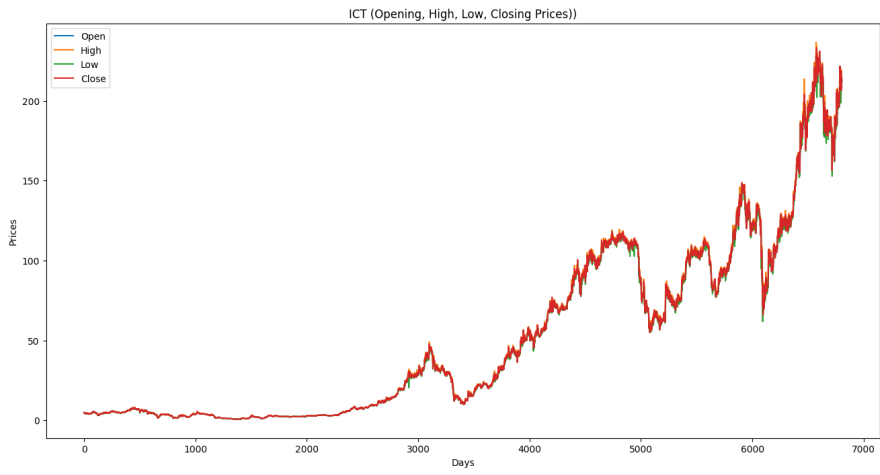


Figure B.8: Opening, High, Low, and Closing Prices for ICT

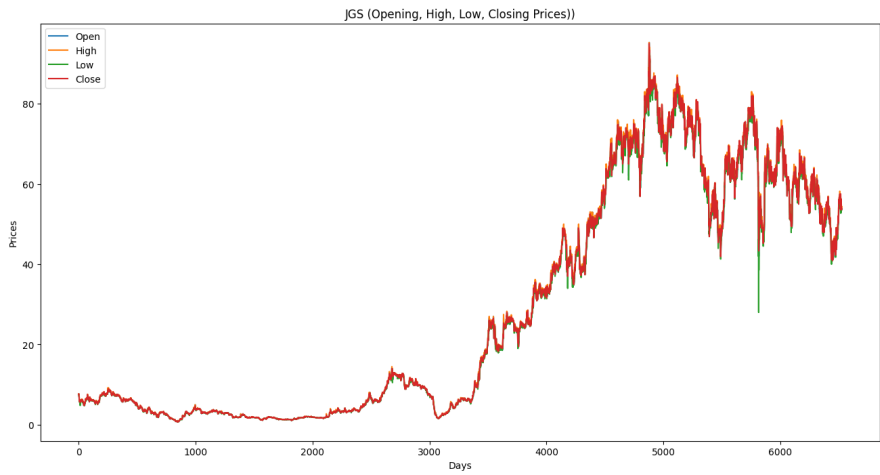


Figure B.9: Opening, High, Low, and Closing Prices on JGS

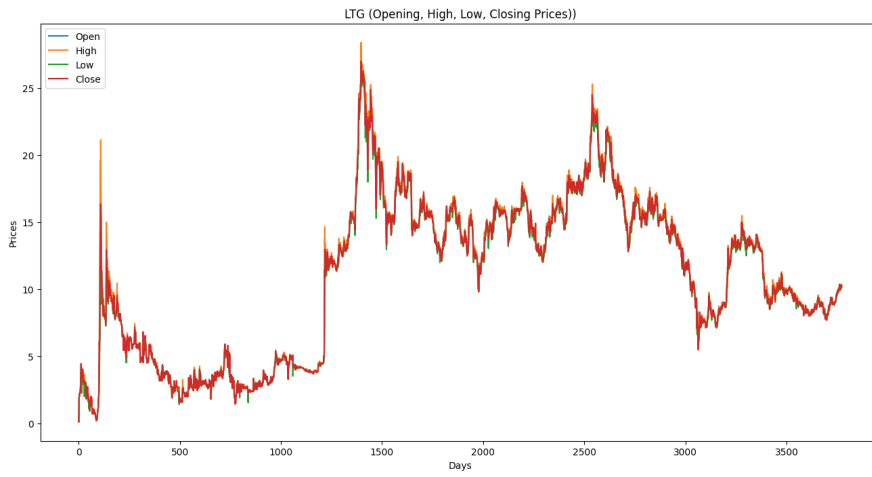


Figure B.10: Opening, High, Low, and Closing Prices on LTG

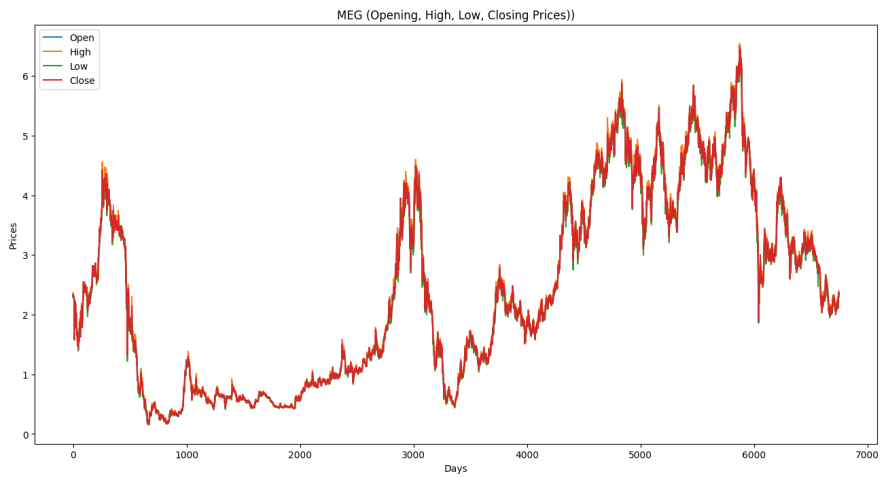


Figure B.11: Opening, High, Low, and Closing Prices on MEG

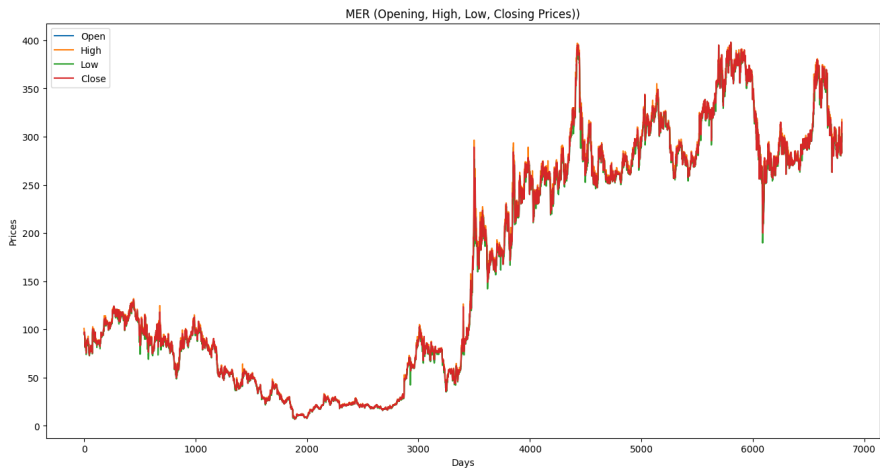


Figure B.12: Opening, High, Low, and Closing Prices on MER

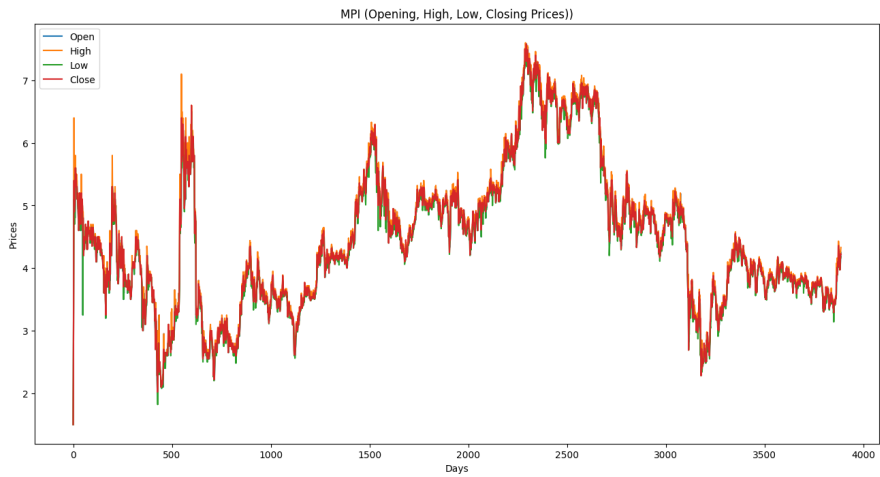


Figure B.13: Opening, High, Low, and Closing Prices on MPI



Figure B.14: Opening, High, Low, and Closing Prices on PGOLD

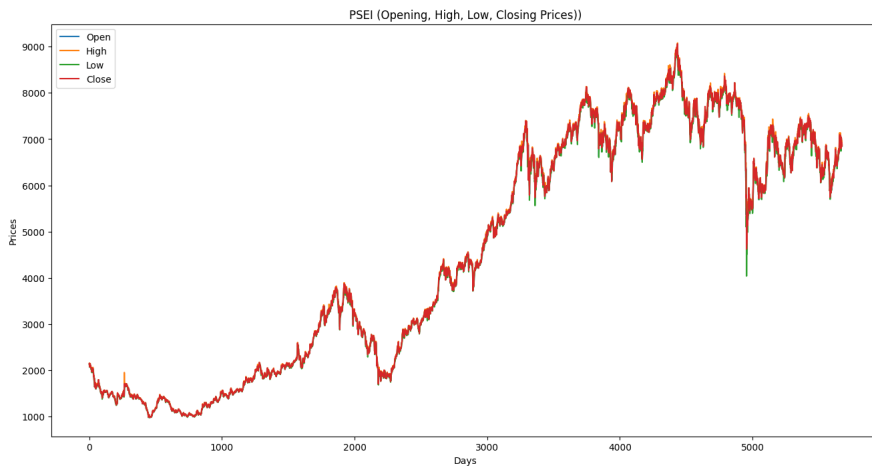


Figure B.15: Opening, High, Low, and Closing Prices on PSEI

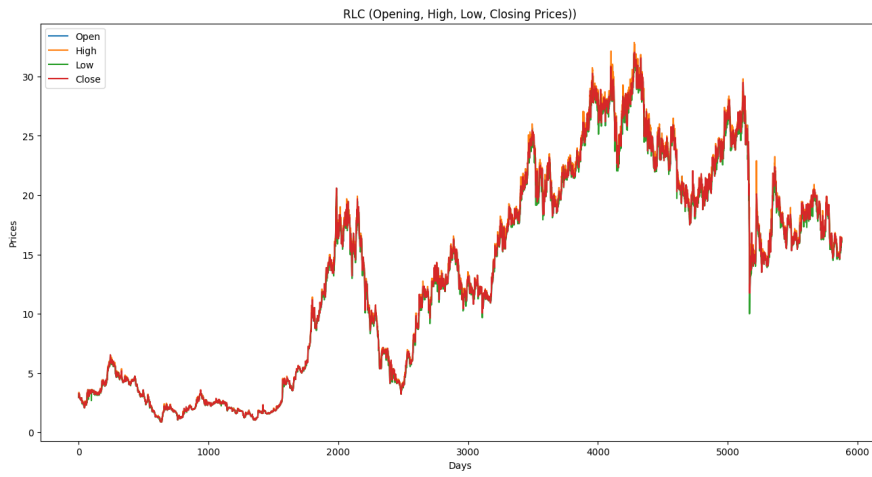


Figure B.16: Opening, High, Low, and Closing Prices on RLC

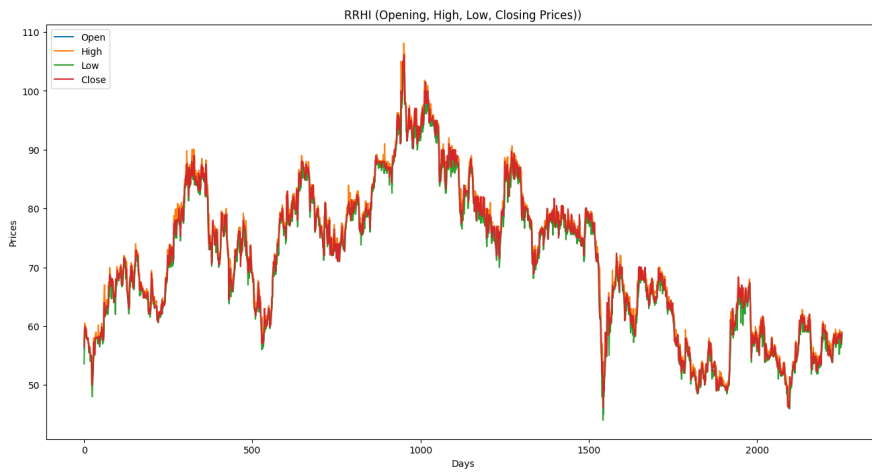


Figure B.17: Opening, High, Low, and Closing Prices on RRHI

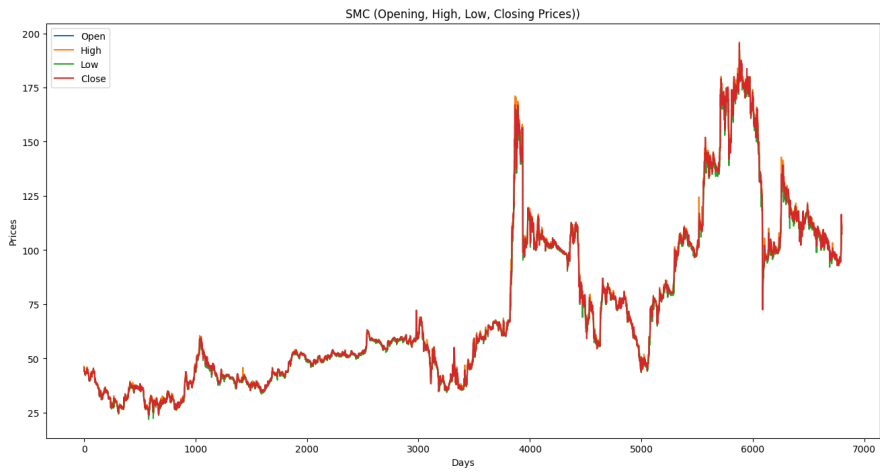


Figure B.18: Opening, High, Low, and Closing Prices on SMC

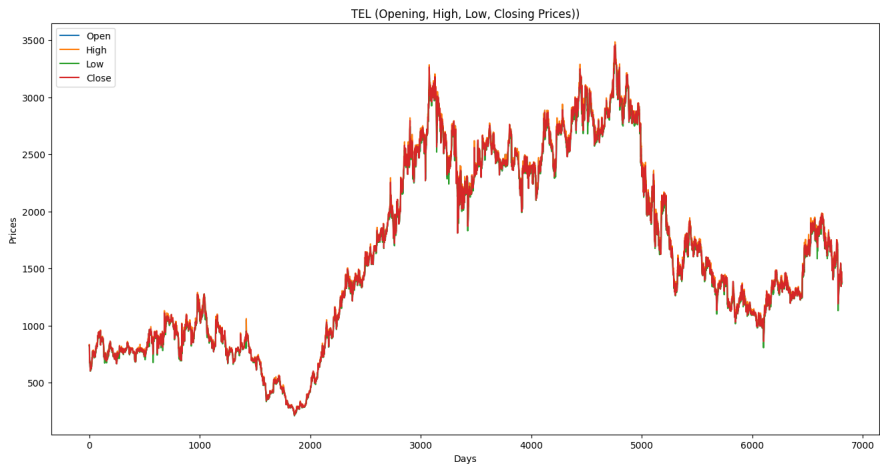


Figure B.19: Opening, High, Low, and Closing Prices on TEL

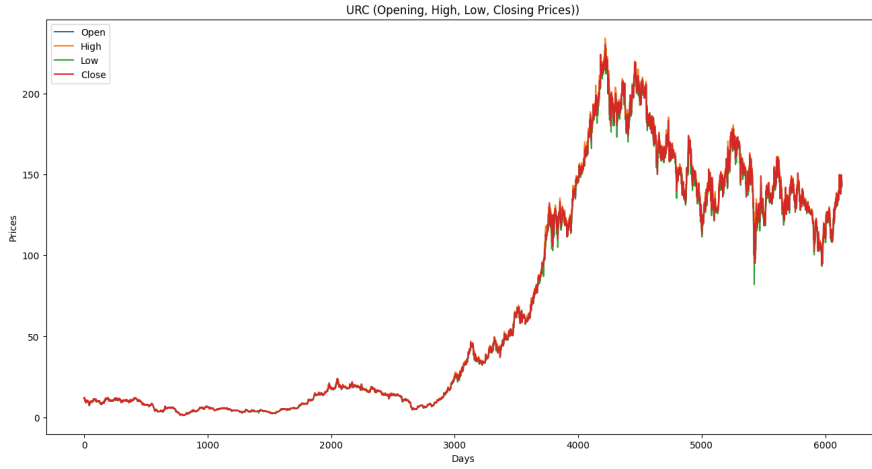


Figure B.20: Opening, High, Low, and Closing Prices on URC

B.2 Raw Model Testing and Cross-Validation Results

The loss metric scores for all eight models trained in this special problem are shown in the figures below.

model_baseline5.csv X

	MSE	RMSE	MAE	MAPE
NEG	0.08072020880069887	0.2841130211741427	0.27684353215352125	1174375793447.243
JGS	0.07874435548854763	0.2806142467668875	0.27468463899133194	38927690524.79277
BDO	0.07657096858490822	0.27671459770837575	0.2738142088271028	0.07038134913330009
FGEN	0.07827957682896561	0.2797848759832554	0.2758278796079067	0.09700174437968641
ICT	0.0781394551452297	0.27953435414136435	0.2736751085473064	1438507573768.6584
ALI	0.0782312069917634	0.2796984215038823	0.27508077757070465	0.1147421270770546
SMC	0.07691227333252271	0.2773306209788647	0.27482445944890904	0.06707341533873201
TEL	0.07692274391391254	0.27734949777115614	0.2741700883069239	0.038119574269088366
GLO	0.07723200155169901	0.2779064618746729	0.2740521994194121	0.040133964505169824
BLOOM	0.09321696719529625	0.30531453813288395	0.2859447234165783	499188752957.71985
RLC	0.07891466401483171	0.2809175395286519	0.27499496364466064	0.2790370163068907
NER	0.07860945075825411	0.28037376974006345	0.2748269458519563	0.06180059505843166
AC	0.0775170120978667	0.2784187710946708	0.2741992480954101	0.04794242756170382
PGOLD	0.07650623749204255	0.2765976093389864	0.2738838287046534	0.07546795486985015
LTG	0.09027857607286971	0.30046393472906147	0.2845669124314392	2960460439858.6323
MPI	0.07896762492375467	0.2810117878733109	0.2764535402803122	0.19535308715023528
AP	0.07613355995038901	0.27592310514052465	0.2735462968120787	0.09278031794532755
RRHI	0.07715208334861212	0.277762638503835	0.2753872091002812	0.06488774012116955
URC	0.07801107752908334	0.27930463212965756	0.2739888283647051	0.10613413435989405
PSEI	0.07615895487932436	0.27596911943064273	0.275949626259796	0.12659175356184194

Figure B.21: Raw Model Scores for Baseline 5

model_baseline10.csv X

```
,MSE,RMSE,MAE,MAPE
NEG,0.009889911754036293,0.0994480354458362,0.06758199064508962,434720971982.4056
JGS,0.007846138726297082,0.08857843262497414,0.06152327438608147,85566335564.84262
BDO,0.0032789824378326032,0.05726239986092622,0.04134258195038248,0.010787188658697832
FGEN,0.004700003599831854,0.06855657225847755,0.049436469316649294,0.018101504501868163
ICT,0.007829080848597167,0.08848209337824896,0.05683387085820871,357524334780.4415
ALI,0.005405470132370961,0.07352190239901958,0.05348223646735878,0.023718671100290755
SMC,0.0032675047380823336,0.05716209179239624,0.03835913806689466,0.009415067971236714
TEL,0.003890710198736975,0.06237555770281317,0.046544974902766156,0.006570764404334346
GLO,0.004703932277881038,0.06858521909187895,0.049996579018796145,0.0074512575673198805
BLOOM,0.042053914090353764,0.20507051004557864,0.10369141607734932,2475475634567.023
RLC,0.007579224342571167,0.0870587407591631,0.05984216628062193,0.09443111972264119
MER,0.006914484697945786,0.08315338055632968,0.056430766701572516,0.013803759059196301
AC,0.004979648327052059,0.07056662332187973,0.05068551267808547,0.009095293073218335
PGOLD,0.0031896313274378794,0.05647682115202554,0.042048119990808236,0.011758645358492095
LTG,0.03750821267854841,0.193670371194327,0.08933890463198181,3758594209106.506
MPI,0.0055622165729049065,0.07458026932711466,0.04957733886385026,0.03681429790598718
AP,0.0025557353305988954,0.05055428103137157,0.036624170155080946,0.013458472431218822
RRHI,0.0028975891955775315,0.05382925966031422,0.040626489078535964,0.009641290779521416
URC,0.0068894743382426505,0.08300285741010757,0.057194705397388856,0.028217183434511548
PSEI,9.232829705334228e-05,0.009608761473433623,0.008494095263759951,0.0038998382619416603
```

Figure B.22: Raw Model Scores for Baseline 10

model_baseline15.csv X

```
,MSE,RMSE,MAE,MAPE
NEG,0.034015743948385566,0.18443357597895663,0.15164354569027236,633909811283.2087
JGS,0.029592741877537167,0.17202541055767653,0.1445349665493625,8993505239.85993
BDO,0.02056771950246394,0.14341450241333314,0.12778323238785438,0.03305043108059346
FGEN,0.024561083742794965,0.15671976181322816,0.13684348348281122,0.04888985126466148
ICT,0.028606631454426018,0.16913495042251325,0.139251839245286,961503494279.2739
ALI,0.02492924006341544,0.15780996188300078,0.13549120794438474,0.05804993752172819
SMC,0.021793949272348297,0.14762773883098088,0.13474004267869616,0.03296828985038888
TEL,0.0214783746770632,0.1465550226947654,0.1297835904754104,0.01812192661107948
GLO,0.0229663087789239,0.15154639150743213,0.13391374503363138,0.01978636490688916
BLOOM,0.07631830893786716,0.2762576857534776,0.18855400548274345,5347063331582.995
RLC,0.028379670384273657,0.16846266762779716,0.1432028414731735,0.19419272464274054
MER,0.0272509810000031,0.16507871152878284,0.1409521830313707,0.032682665435146876
AC,0.023753398655402828,0.15412137637395673,0.13366109786697314,0.023605071006055328
PGOLD,0.020648336647877637,0.14369529097321748,0.12934035195131813,0.035568815339653496
LTG,0.07658990441865482,0.27674881105192634,0.1774756863473615,2504326275497.088
MPI,0.026182659841909636,0.161810567769567,0.14017747870431393,0.10104140736854278
AP,0.019192122314937974,0.13853563554168283,0.12615347917006875,0.042758910225015656
RRHI,0.021215358356749883,0.14565492905065,0.13197476027457852,0.03120428832678116
URC,0.02678486002453064,0.16366080784516077,0.13675722964040252,0.05989435898919455
PSEI,0.017520964135483975,0.13236677882113765,0.13221706472713188,0.06066009164259066
```

Figure B.23: Raw Model Scores for Baseline 15

model_baseline20.csv X

```
,MSE,RMSE,MAE,MAPE
NEG,0.026776145694400132,0.16363418253653522,0.1200530791025837,351366074670.9161
JGS,0.023218979019200704,0.15237775106360082,0.11203671688465545,37079236101.84903
BDO,0.010908683929902947,0.10444464529071343,0.08434523255132731,0.021781428827316717
FGEN,0.01328404000198452,0.1152564098086719,0.09013206705640547,0.032225858232777696
ICT,0.023345216418908073,0.15279141474215124,0.1113250141499374,329061136398.89325
ALI,0.015286408733345764,0.12363821712296633,0.09754795116104639,0.04187354853357004
SMC,0.010628930207385257,0.10309670318388099,0.07783085131763114,0.018916425305997443
TEL,0.009939364863936338,0.0996963633435861,0.0788610299993594,0.01109755333457707
GLO,0.012562185108249477,0.1120811541172265,0.08280467054196113,0.012332156586357538
BLOOM,0.008783425054231923,0.29636843715604944,0.16887164674288263,3169069166729.4937
RLC,0.020691999516582075,0.14384713941049393,0.10718897405956002,0.1199250772426462
MER,0.01812308145308288,0.13462199468542604,0.09868743232128989,0.023716153012441354
AC,0.01394238486958509,0.11807787629181468,0.089344392564019,0.01585107064231005
PGOLD,0.010904295680437671,0.10442363564077661,0.0817661727419002,0.022751911781967227
LTG,0.00067359183535965,0.28403096985251386,0.13829894362117306,1705928819526.0623
HPI,0.014631546535808101,0.12096092979060677,0.0922015670902739,0.06615668537253527
AP,0.01002913628735902,0.10014557547569947,0.08141626445268184,0.029241478007478686
RRHI,0.008797360758064962,0.09379424693479319,0.07504927916672673,0.01764922385349229
URC,0.01970034871975187,0.14035793073336422,0.10510373384399553,0.04846541830892664
PSEI,0.004074235411641981,0.06382973767486422,0.06342811204197056,0.0290093785646223835
```

Figure B.24: Raw Model Scores for Baseline 20

model_s5.csv X

```
,MSE,RMSE,MAE,MAPE
NEG,0.004309424873421442,0.06564620989380454,0.04421975007142992,139304189558.7179
JGS,0.003308890006950838,0.05752295200136062,0.039920870940521255,200992323983.5872
BDO,0.0015994420966082207,0.039993025599574496,0.027988833139579814,0.007247630327583592
FGEN,0.002240528999740447,0.04733422651465266,0.03265112428473698,0.011974381470464668
ICT,0.0033466528508440136,0.05785026232303544,0.03731193820350593,300581835474.86523
ALI,0.0025544953299240854,0.050542015491312625,0.03645126031585048,0.01596931133193516
SMC,0.00137030869797771,0.0370176088329832,0.023174377850353648,0.005691306162396273
TEL,0.0017757163226041189,0.0421392491936451,0.030019849241503773,0.004239817355480039
GLO,0.002111310296700873,0.04594899668872948,0.03149099407019305,0.004676968507849213
BLOOM,0.018825601880785605,0.13720642069810585,0.06900741213238494,1052898138850.6415
RLC,0.0033839823305168376,0.058172006416461496,0.03977738120052245,0.06922003880110895
MER,0.0032586824275804447,0.057084870391202996,0.037700469138267696,0.009169601650480272
AC,0.0023584838369610636,0.04856422383772918,0.0341376208936506,0.006109170178242572
PGOLD,0.0014934950745029397,0.038645763991709874,0.028179754460478487,0.007879349189599448
LTG,0.015669529634599597,0.1251779918140549,0.05857964135132494,3583334717407.9917
HPI,0.00273483507602531,0.052295650641571614,0.033903050342583584,0.024971153007954654
AP,0.0012930670339860782,0.03595924128768679,0.02515073464898651,0.009217250854869657
RRHI,0.0013093195909130609,0.036184521427166355,0.026990284358758658,0.00638869156609276
URC,0.002966671813785288,0.05446716271098843,0.037421547517402926,0.017977619586139627
PSEI,1.7547831110700054e-05,0.004189013142817775,0.003282715775307006,0.001507895828047589
```

Figure B.25: Raw Model Scores for DMD-LSTM 5

```

model_sf0.csv X
, MSE, RMSE, MAE, MAPE
NEG, 0.009865752600343098, 0.09932649495649737, 0.06737299027636771, 435734064705.6676
JGS, 0.007845334501853743, 0.08857389289092889, 0.06135788509350167, 103893946584.96439
BDQ, 0.00327995409232174, 0.05727088346028669, 0.0413452891693641, 0.010743648101452627
FGEN, 0.004617395242386965, 0.06795141825147556, 0.048889136842270545, 0.017866975592035
ICT, 0.007884621330006128, 0.08879539025200649, 0.057237276691394216, 320809756127.44025
ALI, 0.005390492967401505, 0.07341997662354234, 0.05328993535240997, 0.023548819706954743
SMC, 0.003187718406540048, 0.05645988316087847, 0.03586861396100476, 0.00880857357236526
TEL, 0.0036866145213750832, 0.060717497654095426, 0.04474277319282044, 0.006319036216914404
GLO, 0.004552884186453377, 0.06747506344164025, 0.047282846382667394, 0.0070468257691598275
BLOOM, 0.04206409341784911, 0.20509532763534402, 0.10301736984181184, 2396590596797.983
RLC, 0.007585752882284707, 0.0870962277155831, 0.059771887078320866, 0.09172759091241212
MER, 0.006828068233221027, 0.08263212591493109, 0.055823760181086673, 0.013659473951391473
AC, 0.004871742887048709, 0.06979593746808412, 0.04979303078429352, 0.008922829587183788
PGOLD, 0.003183147916330252, 0.056419393087220035, 0.04133830254008775, 0.011574060171746585
LTG, 0.037464440033346064, 0.19355733009458997, 0.08800307126114834, 3804223137493.905
NPI, 0.005520841190178309, 0.07430236328797564, 0.0492521638149232, 0.03649038768402956
AP, 0.0026026827963171323, 0.05101649533550038, 0.0367471692891345, 0.013583309298257755
RRHI, 0.00277849936982922, 0.05270531222735449, 0.03922510794653118, 0.009295106895914377
URC, 0.006898006661078345, 0.08305423927216686, 0.057343117943704225, 0.02816949652429363
PSEI, 4.085433653393971e-05, 0.00639173971105987, 0.004984381407170562, 0.002288420978937786

```

Figure B.26: Raw Model Scores for DMD-LSTM 10

```

model_sf5.csv X
, MSE, RMSE, MAE, MAPE
NEG, 0.015632947601103515, 0.1250317863629226, 0.08599908102247829, 282985182400.4937
JGS, 0.012964389929998767, 0.11386127493576895, 0.07835242363030513, 109315071771.05272
BDQ, 0.004860908219981323, 0.06972021385495976, 0.05080170327959182, 0.013273483429938518
FGEN, 0.0069629478504800255, 0.08344427991468334, 0.06153289935423559, 0.022449511828279718
ICT, 0.013007479593210832, 0.1140503379793801, 0.07292148376731492, 396061318234.26843
ALI, 0.00810466519619875, 0.09002591402590007, 0.066367103228538, 0.029520448994738713
SMC, 0.005101124231403319, 0.07142215504591919, 0.04582754439638881, 0.011229808466157778
TEL, 0.005439188193806359, 0.07375085215647585, 0.05519736046986012, 0.007819104873858874
GLO, 0.007018476178400337, 0.08377634617480245, 0.05858766515961793, 0.008779822537746144
BLOOM, 0.06054300374145961, 0.24605487953190364, 0.1309550411508476, 5900492566389.731
RLC, 0.011676685314347363, 0.10805871234818303, 0.07540320907116821, 0.119454760913273935
MER, 0.010688164462570354, 0.10338357926948726, 0.07023073059770062, 0.01728297609360001
AC, 0.007595390918192069, 0.0871515399645472, 0.06145688930225037, 0.011039297095713095
PGOLD, 0.004859201309319683, 0.06970797163395076, 0.0512276244385843, 0.014339564237239416
LTG, 0.05808674831062965, 0.24101192566059806, 0.10807781590206503, 2316692766061.9355
NPI, 0.008080401796946723, 0.0898910551553753, 0.06020282472442268, 0.04473013446882734
AP, 0.0038632369071855297, 0.06215494274139049, 0.04434230453119878, 0.016505958531928256
RRHI, 0.004132716283832857, 0.06428620601523205, 0.04803456414328379, 0.011401074357359176
URC, 0.010867588278427435, 0.10424772553119534, 0.07207244516575859, 0.036246928116491314
PSEI, 3.912591469048572e-05, 0.006255071117939885, 0.004142081727067567, 0.0019046016464762977

```

Figure B.27: Raw Model Scores for DMD-LSTM 15


```

model_s20.csv X
, RMSE, RMSE, MAE, MAPE
NEG, 0.022323896742406167, 0.14941183601845662, 0.10290009425682627, 266729753264.34708
JGS, 0.018713341878839475, 0.13679671735403404, 0.09445716160359285, 33462393302.143425
BDO, 0.006756430654995097, 0.08219751002916753, 0.060170842223956744, 0.015760545579428267
FGEN, 0.009597141213378582, 0.09796499994068587, 0.07234479676026784, 0.026376477197220943
ICT, 0.01852442554536271, 0.13610446555996136, 0.0884036204475373, 501915336431.2399
ALI, 0.011079138682075038, 0.10525748753449816, 0.07817609171626877, 0.034775151593376956
SMC, 0.007048757669965641, 0.08395687982509617, 0.0546836838155754, 0.013374177511788293
TEL, 0.007329064462734207, 0.08560995539500185, 0.06517997383340782, 0.009244621847414265
GLO, 0.009758692882070095, 0.09878609660306502, 0.06921019624724692, 0.010395214033356167
BLOOM, 0.08238165998516955, 0.28702205487587457, 0.157761605528068, 3419715539589.91
RLC, 0.01615196335933326, 0.1270903747706067, 0.08988687939937239, 0.12828506623288913
HER, 0.01468617694758008, 0.12118653781497382, 0.08247620417598935, 0.020392816829558198
AC, 0.010767353439365156, 0.10376585873670181, 0.07244617014525238, 0.013014703427266284
PGOLD, 0.006606336237122399, 0.08127937153498666, 0.06071069833794954, 0.016982336902546864
LTG, 0.07756279210367704, 0.2785009732544521, 0.12605638618291093, 1762772789831.8323
MPI, 0.010612065609680215, 0.1030148805254863, 0.06982793923155896, 0.05185919561554108
AP, 0.0052532780558852705, 0.07247950093568023, 0.05175236778740295, 0.019295214734668182
RRHI, 0.0054869934800239875, 0.07407424302700627, 0.0564675805420636, 0.013389493057254155
URC, 0.015310641590353787, 0.12373617737086348, 0.086835222276058, 0.04379474785289333
PSEI, 7.322582229059844e-05, 0.00855720879087325, 0.006455499639920296, 0.0029648261136105067

```

Figure B.28: Raw Model Scores for DMD-LSTM 20

B.3 Model Testing Raw Test Results for DMD-LSTM

The graphs below show the performance of the different DMD-LSTM models trained in the conduct of this special problem based on the test data split of PSEI.

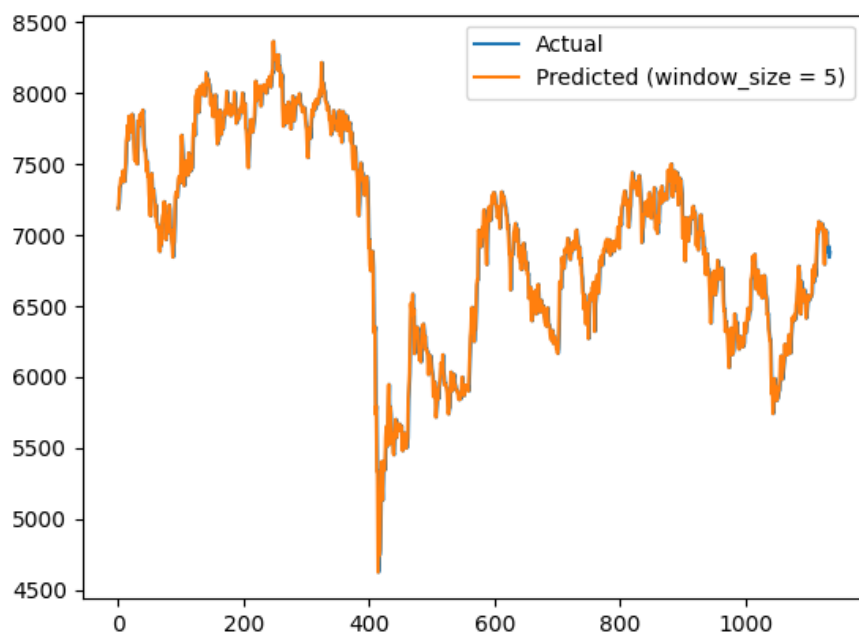


Figure B.29: Actual vs Predicted Closing Prices for DMD-LSTM 5 (Using Train Data from PSEI)

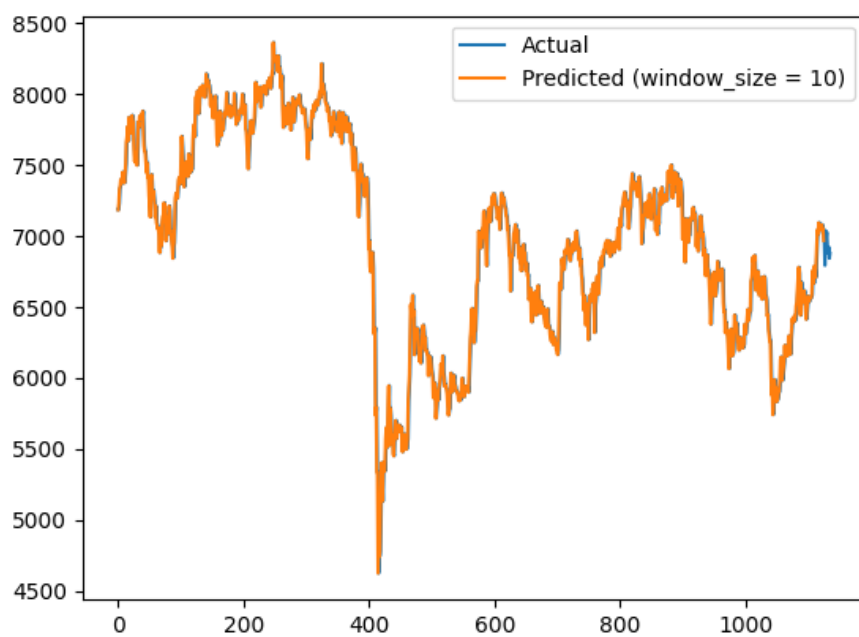


Figure B.30: Actual vs Predicted Closing Prices for DMD-LSTM 10 (Using Train Data from PSEI)

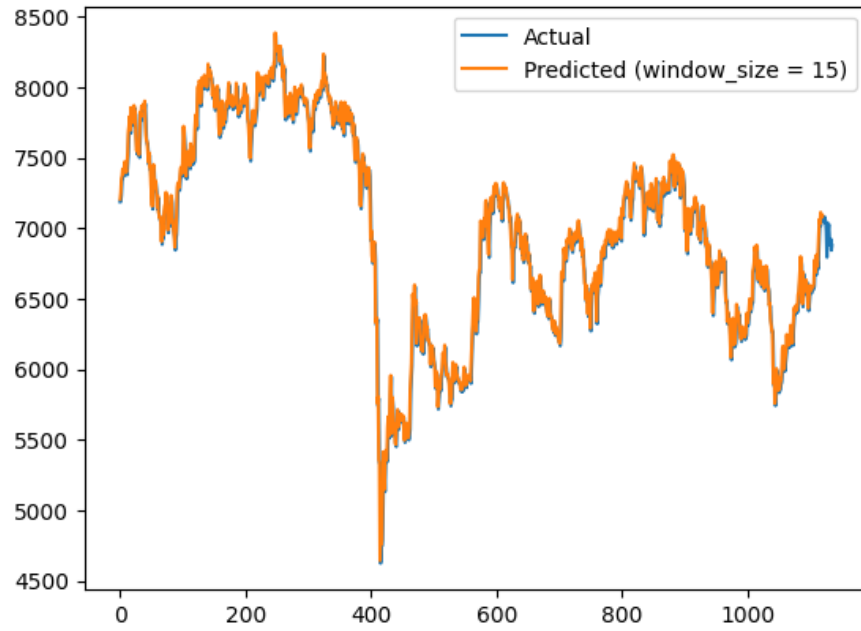


Figure B.31: Actual vs Predicted Closing Prices for DMD-LSTM 15 (Using Train Data from PSEI)

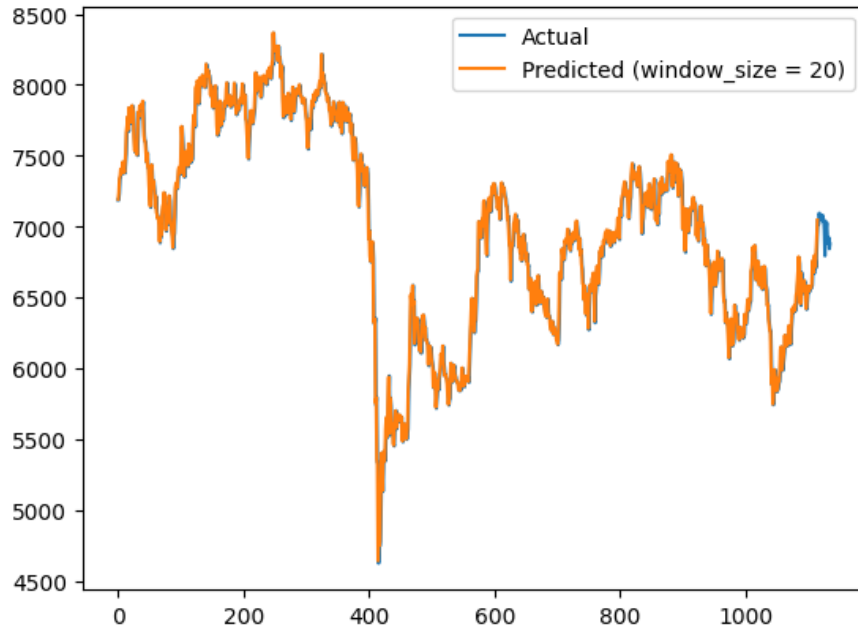


Figure B.32: Actual vs Predicted Closing Prices for DMD-LSTM 20 (Using Train Data from PSEI)

B.4 Daily Return Distribution of the Different Stocks

Figures below show the daily return distribution of each stock, which was used to calculate each stock's risk profile.

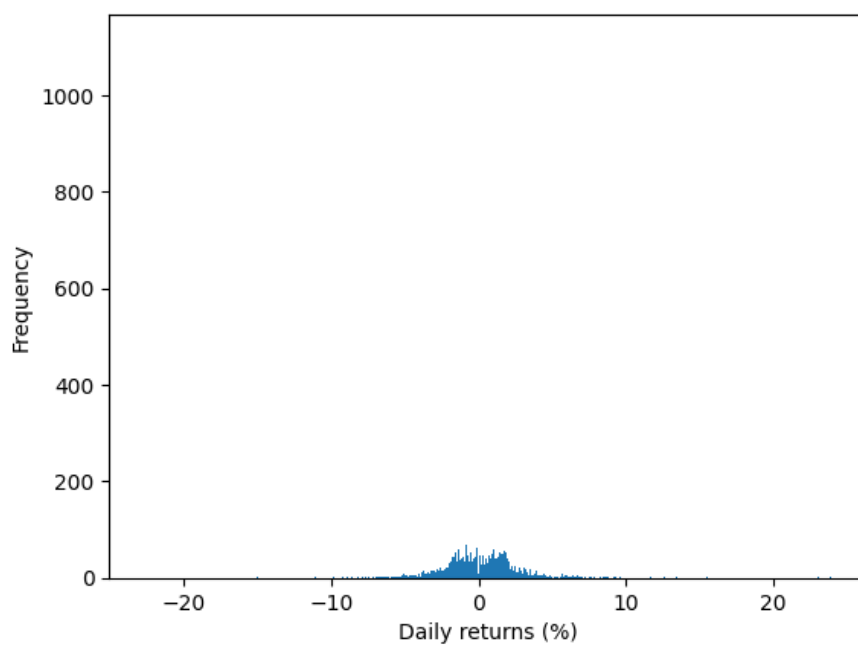


Figure B.33: Daily Return Distribution of AC

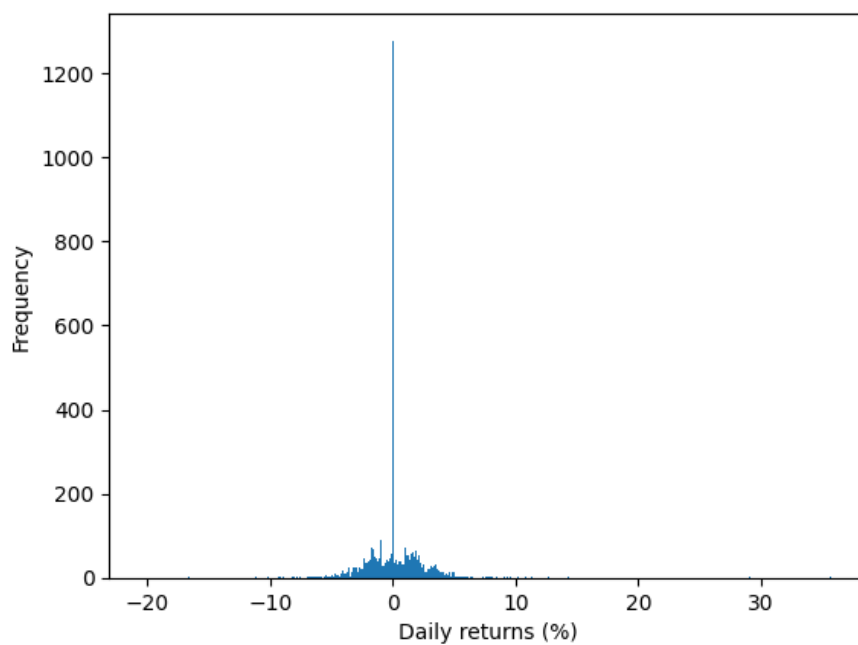


Figure B.34: Opening, High, Low, and Closing Prices for ALI

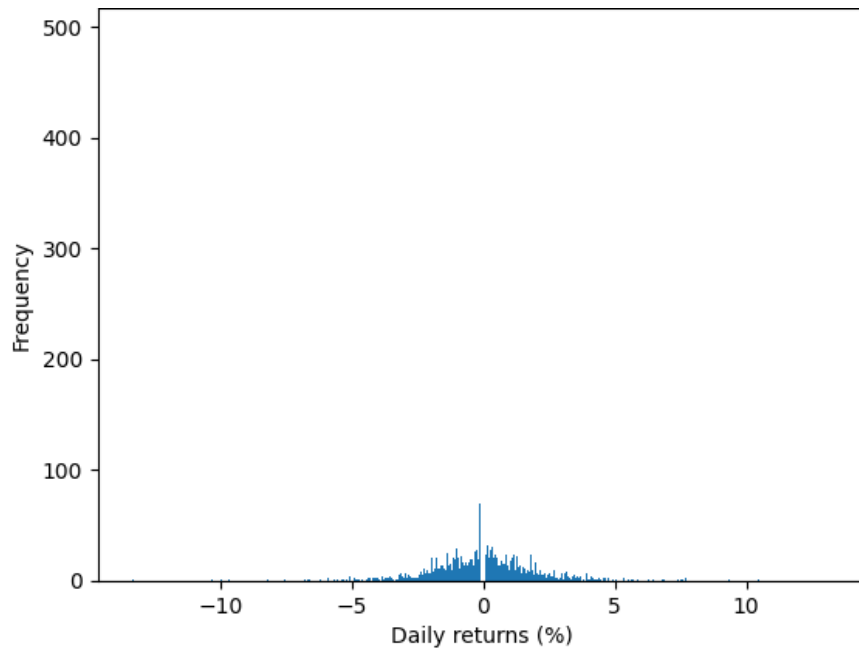


Figure B.35: Opening, High, Low, and Closing Prices for AP

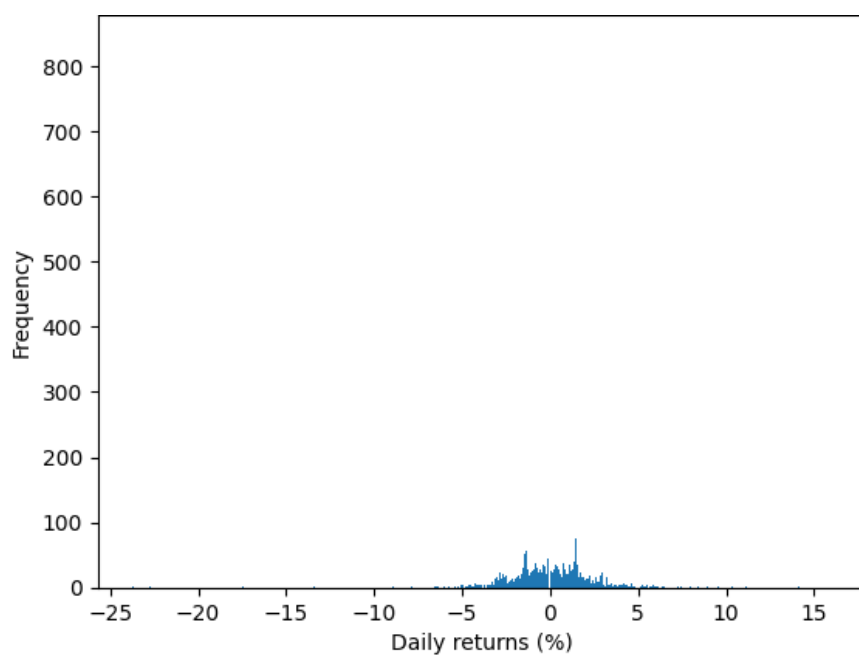


Figure B.36: Opening, High, Low, and Closing Prices for BDO

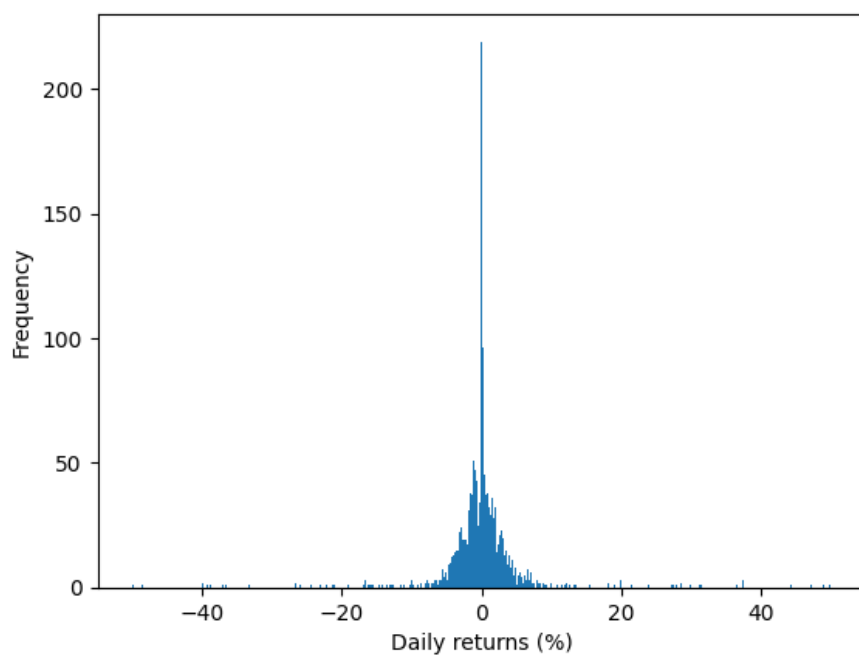


Figure B.37: Opening, High, Low, and Closing Prices for BLOOM

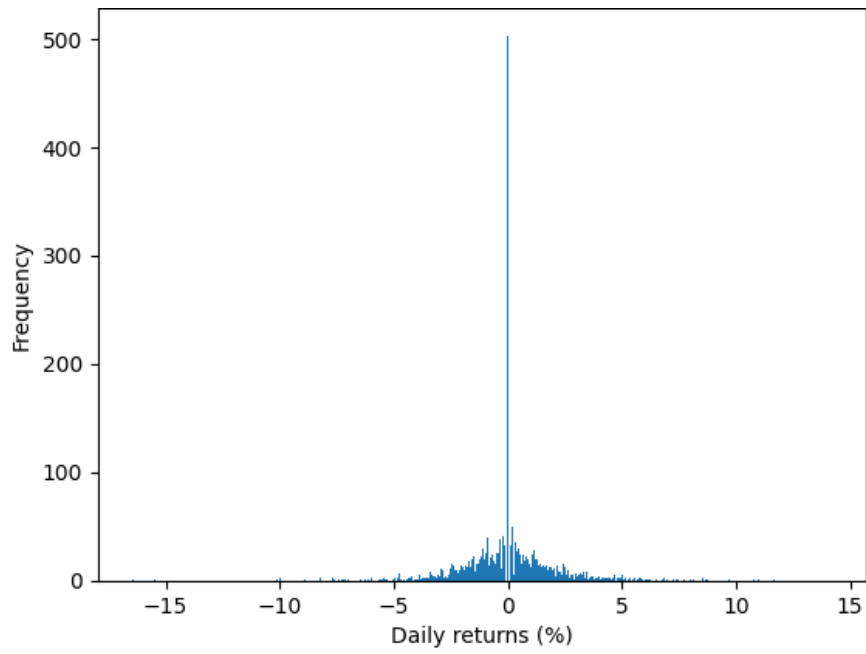


Figure B.38: Opening, High, Low, and Closing Prices for FGEN

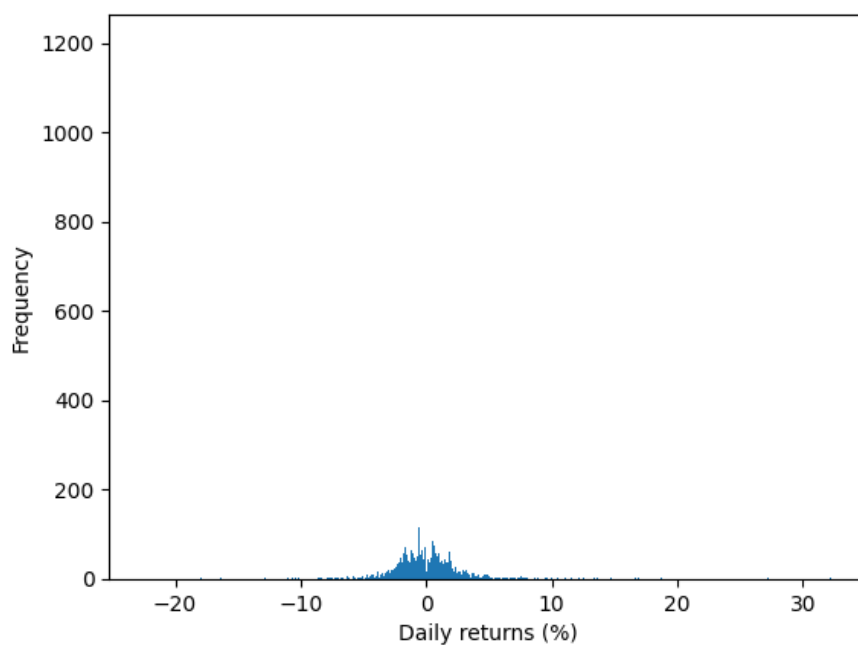


Figure B.39: Opening, High, Low, and Closing Prices for GLO

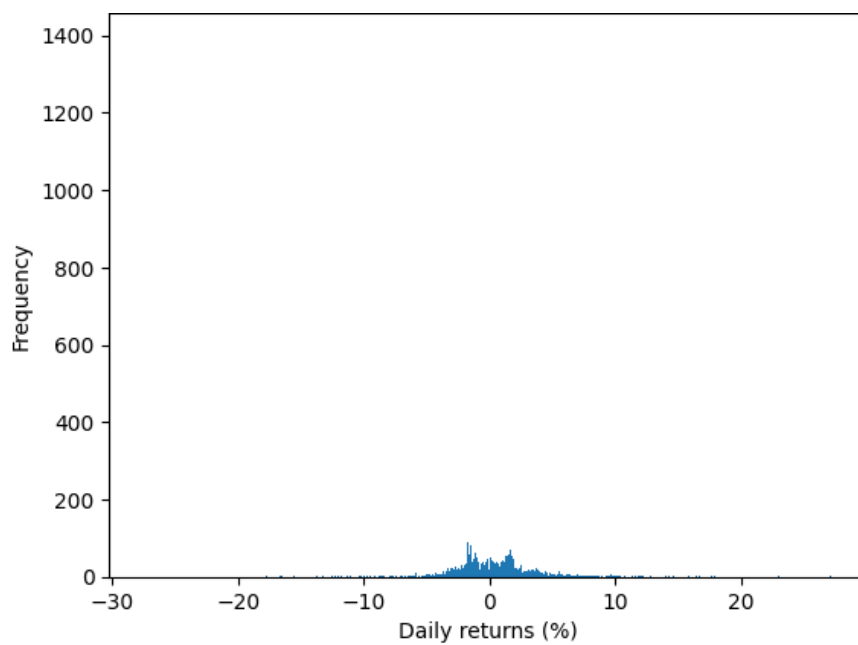


Figure B.40: Opening, High, Low, and Closing Prices for ICT

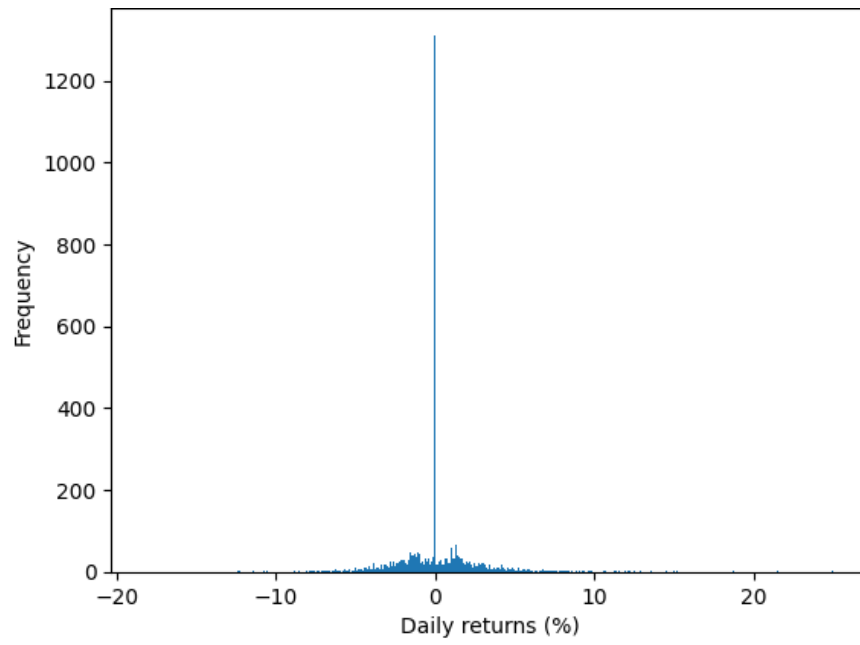


Figure B.41: Daily Return Distribution of JGS

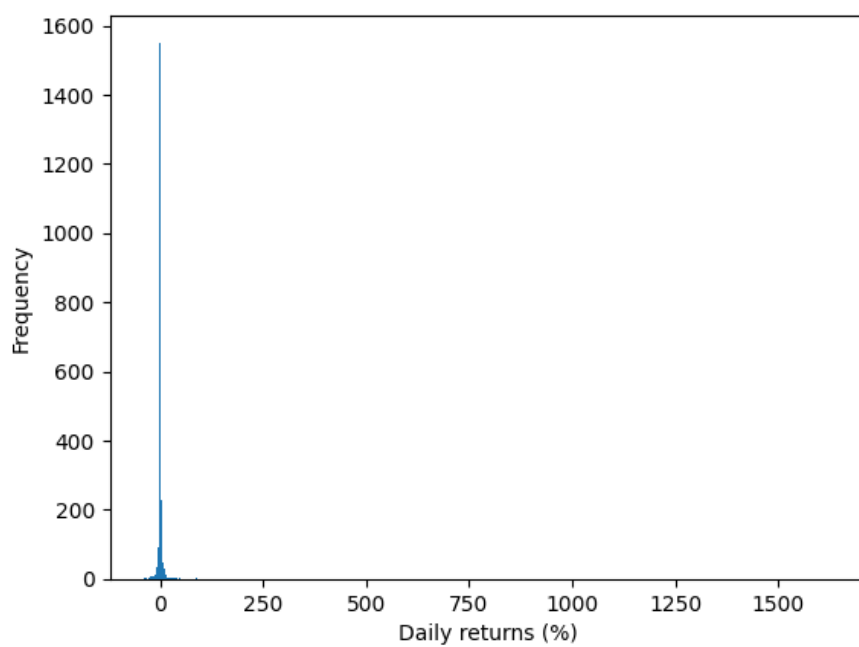


Figure B.42: Daily Return Distribution of LTG

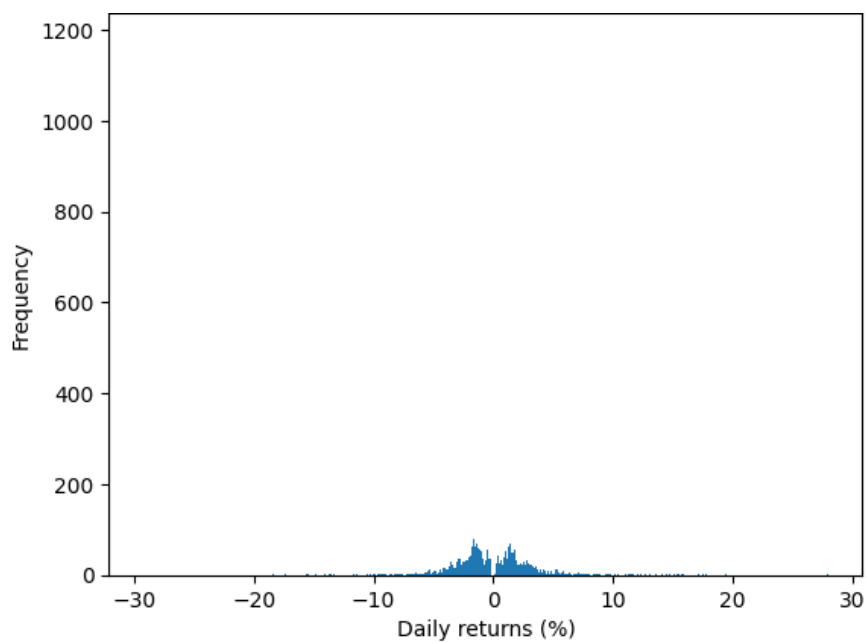


Figure B.43: Daily Return Distribution of MEG

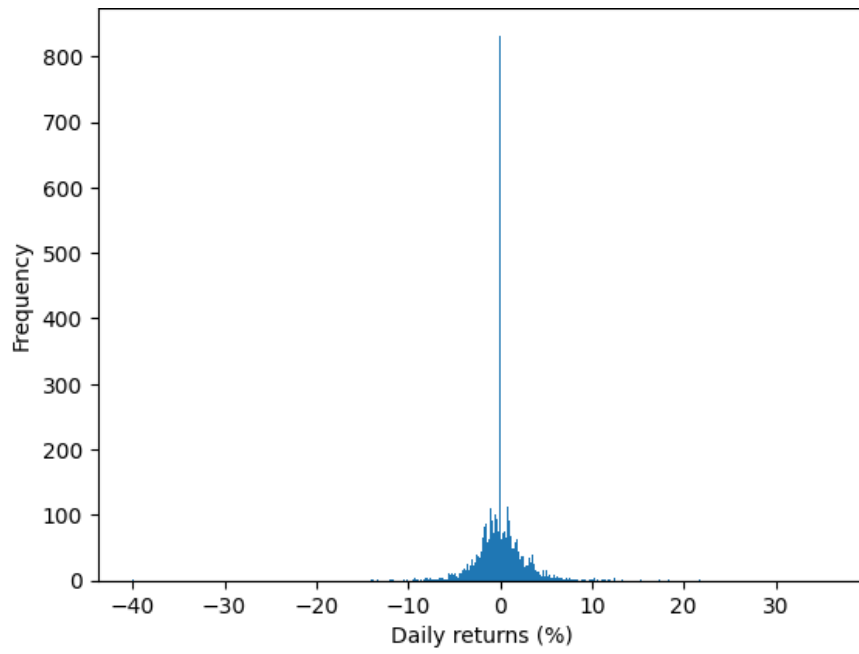


Figure B.44: Daily Return Distribution of MER

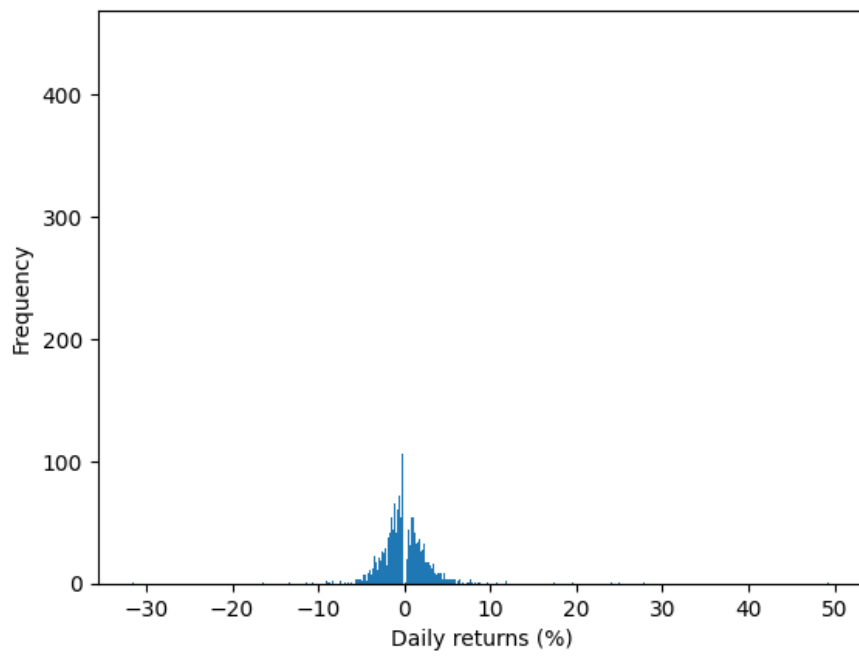


Figure B.45: Daily Return Distribution of MPI

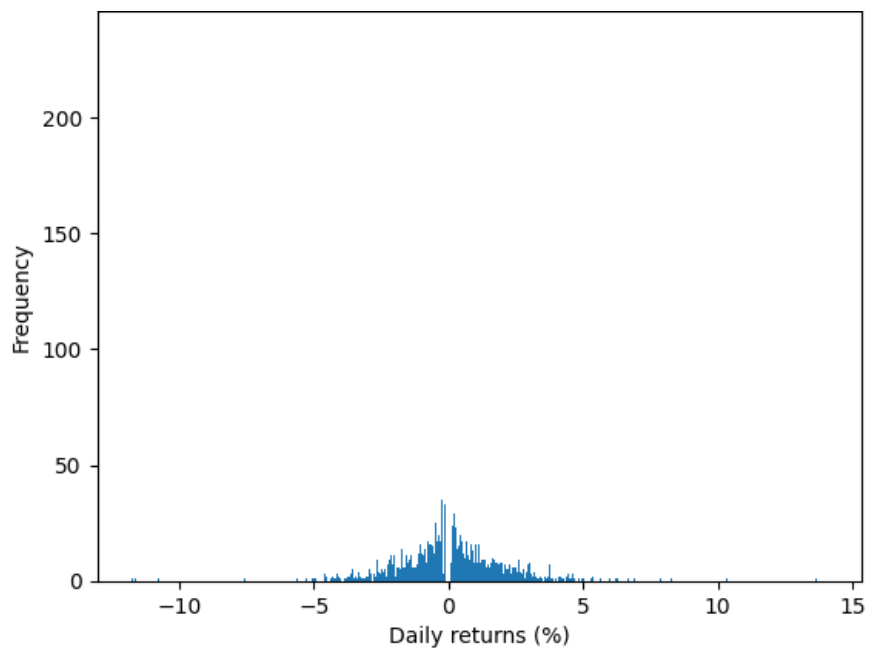


Figure B.46: Daily Return Distribution of PGOLD

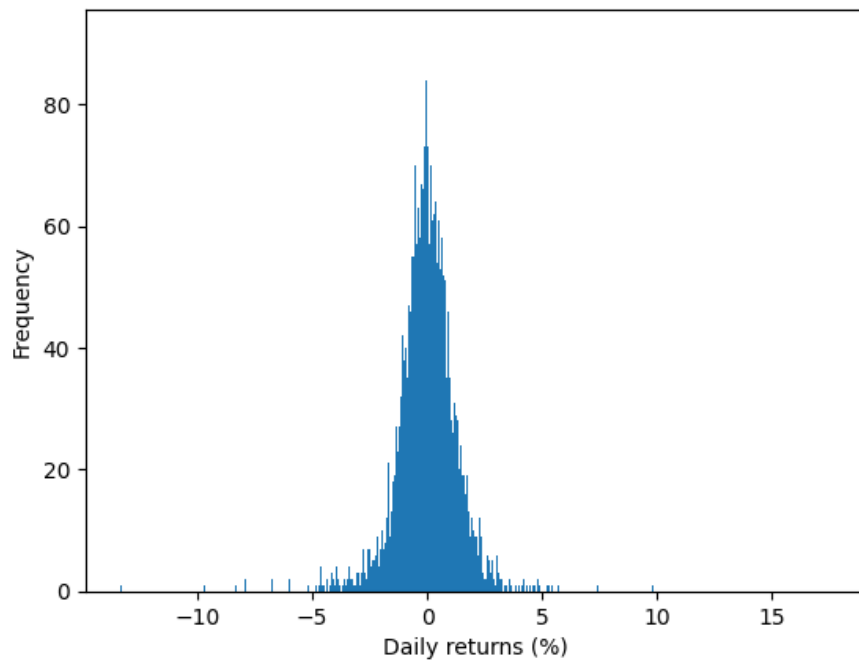


Figure B.47: Daily Return Distribution of PSEI

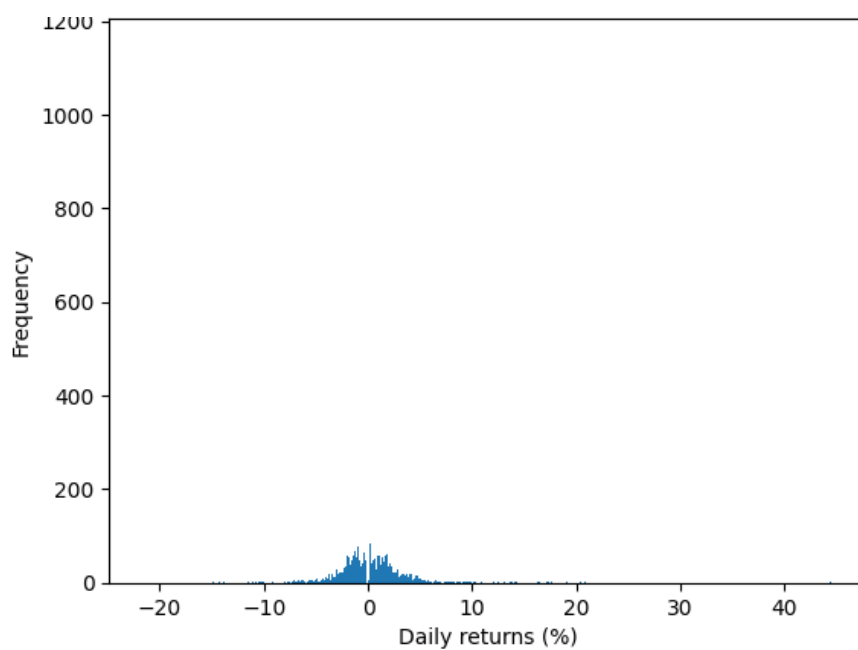


Figure B.48: Daily Return Distribution of RLC

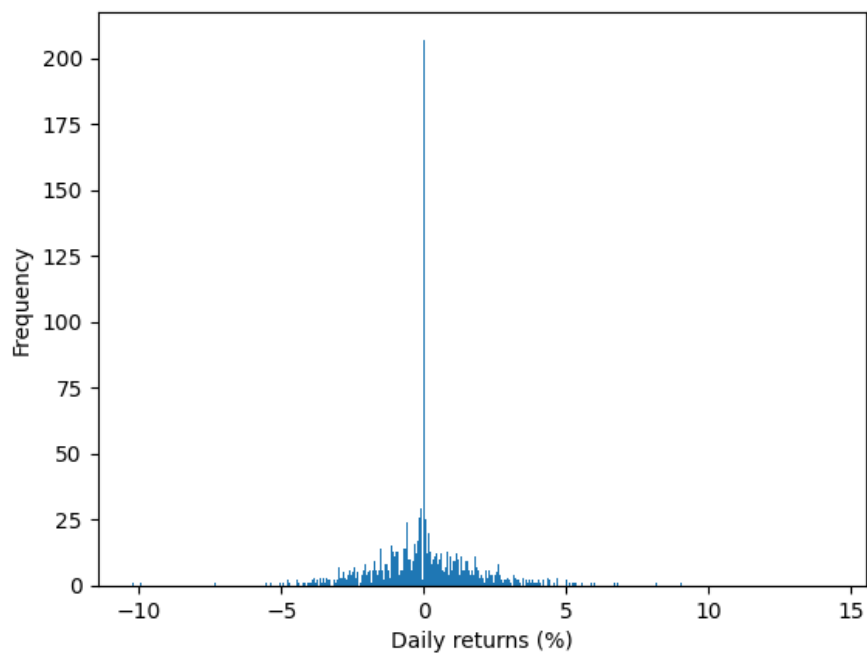


Figure B.49: Daily Return Distribution of RRHI

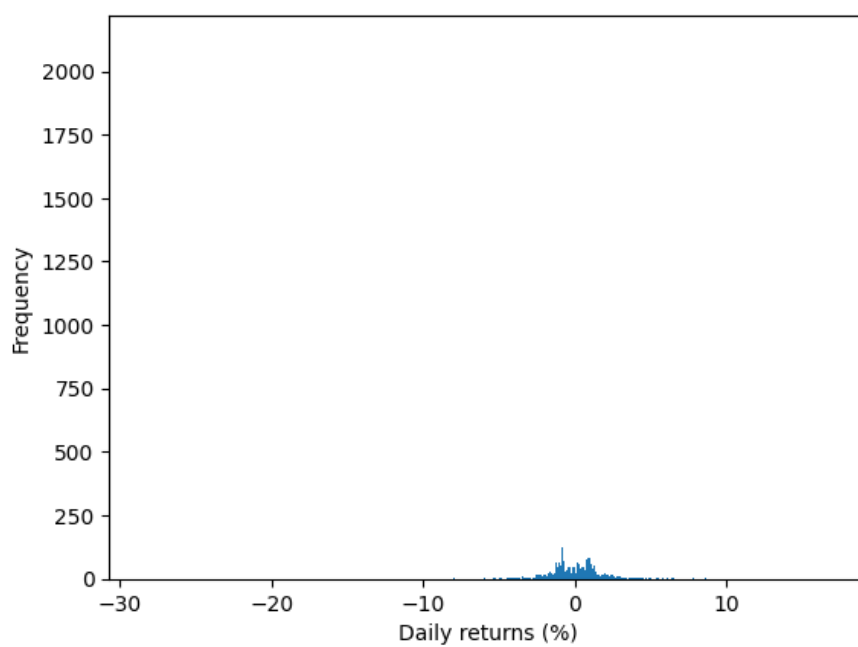


Figure B.50: Daily Return Distribution of SMC

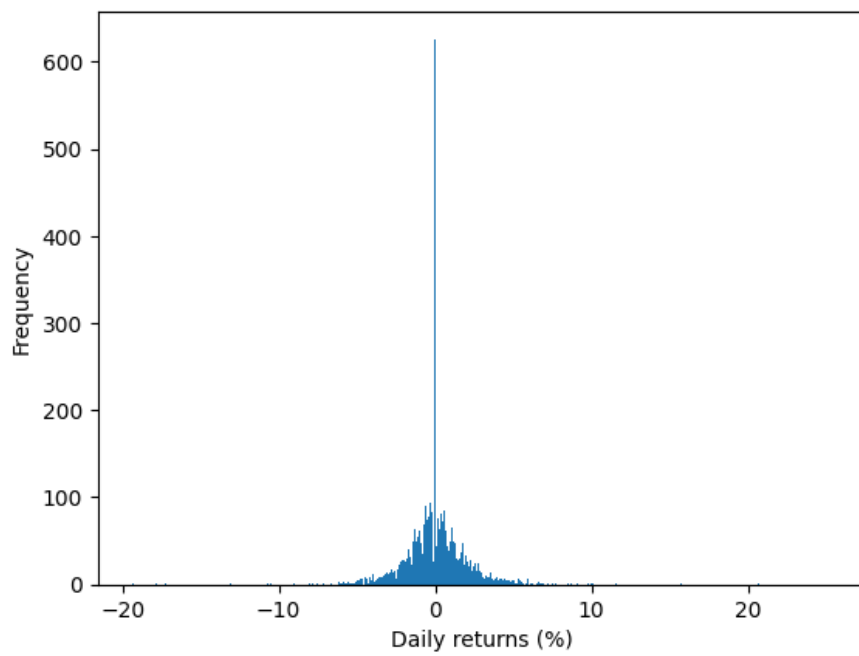


Figure B.51: Daily Return Distribution of TEL

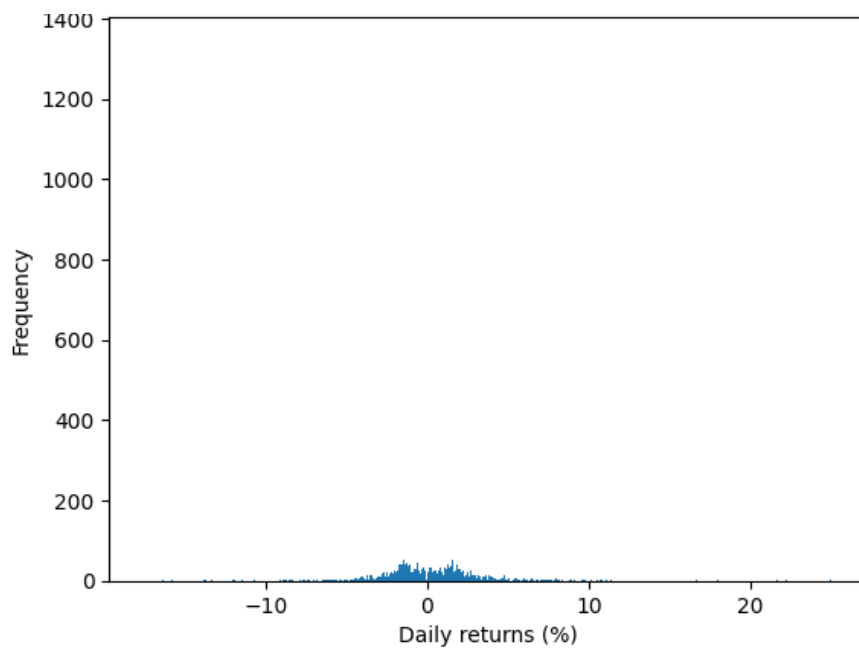


Figure B.52: Daily Return Distribution of URC

stock	value_at_risk%	volatility%	drawdown%	start_date	end_date
MEG	-5.365715	3.949969	57.248140	2000-01-03	2023-02-10
JGS	-4.762357	3.361099	43.184044	2000-01-03	2023-02-10
BDO	-3.302488	2.364049	39.670648	2000-01-03	2023-02-10
FGEN	-3.819079	2.559254	30.604259	2000-01-03	2023-02-10
ICT	-4.827050	3.520840	54.645013	2000-01-03	2023-02-10
ALI	-4.390485	3.070487	56.026166	2000-01-03	2023-02-10
SMC	-3.403674	2.385956	45.298783	2000-01-03	2023-02-10
TEL	-3.693763	2.460023	44.659116	2000-01-03	2023-02-10
GLO	-4.120044	3.092601	54.758065	2000-01-03	2023-02-10
3LOOM	-5.984996	7.061554	100.000000	2000-01-03	2023-02-10
RLC	-4.529364	3.416989	65.982906	2000-01-03	2023-02-10
MER	-4.498595	3.254736	76.000028	2000-01-03	2023-02-10
AC	-4.290654	2.796171	46.688827	2000-01-03	2023-02-10
PGOLD	-3.114919	2.134819	25.799794	2000-01-03	2023-02-10
LTG	-6.153221	31.223317	1667.806911	2000-01-03	2023-02-10
MPI	-4.055836	3.499676	81.132519	2000-01-03	2023-02-10
AP	-3.197641	2.187289	26.540881	2000-01-03	2023-02-10
RRHI	-3.032063	2.053932	24.509668	2000-01-03	2023-02-10
URC	-4.532392	3.199716	42.542617	2000-01-03	2023-02-10
PSEI	-1.887800	1.318818	30.903657	2000-01-03	2023-02-10

Figure B.53: Raw Risk Profile Scores

B.5 Raw alamSYS Test Data

This section is divided into three sections: raw system logs, PSEI trading baseline data, and raw real-world alamSYS application.

B.5.1 Raw System Logs

stats.txt								
1	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
2	d878d6975a9c	alamDB	0.23%	159MiB / 7.68GiB	2.02%	9.55kB / 9.65kB	55.5PB / 680kB	3
3	00b3dc1eb4ce	alamAPI	0.17%	45.7MiB / 7.68GiB	0.58%	9.07kB / 5.64kB	28.2PB / 0B	3
4	47dba53c6237	alamPREPROCESSOR	0.01%	356.7MiB / 7.68GiB	4.53%	3.1kB / 2.65kB	283PB / 12.3kB	15
5	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
6	d878d6975a9c	alamDB	0.20%	159MiB / 7.68GiB	2.02%	9.55kB / 9.65kB	55.5PB / 680kB	3
7	00b3dc1eb4ce	alamAPI	0.15%	45.7MiB / 7.68GiB	0.58%	9.07kB / 5.64kB	28.2PB / 0B	3
8	47dba53c6237	alamPREPROCESSOR	0.01%	356.7MiB / 7.68GiB	4.53%	3.1kB / 2.65kB	283PB / 12.3kB	15
9	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
10	d878d6975a9c	alamDB	0.19%	159MiB / 7.68GiB	2.02%	9.55kB / 9.65kB	55.5PB / 680kB	3
11	00b3dc1eb4ce	alamAPI	0.17%	45.7MiB / 7.68GiB	0.58%	9.07kB / 5.64kB	28.2PB / 0B	3
12	47dba53c6237	alamPREPROCESSOR	0.01%	356.7MiB / 7.68GiB	4.53%	3.1kB / 2.65kB	283PB / 12.3kB	15
13	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
14	d878d6975a9c	alamDB	0.21%	159MiB / 7.68GiB	2.02%	9.55kB / 9.65kB	55.5PB / 680kB	3
15	00b3dc1eb4ce	alamAPI	0.16%	45.7MiB / 7.68GiB	0.58%	9.07kB / 5.64kB	28.2PB / 0B	3
16	47dba53c6237	alamPREPROCESSOR	0.00%	356.7MiB / 7.68GiB	4.53%	3.1kB / 2.65kB	283PB / 12.3kB	15
17	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
18	d878d6975a9c	alamDB	0.26%	159MiB / 7.68GiB	2.02%	9.75kB / 9.94kB	55.5PB / 680kB	3
19	00b3dc1eb4ce	alamAPI	0.23%	45.7MiB / 7.68GiB	0.58%	9.36kB / 5.83kB	28.2PB / 0B	3
20	47dba53c6237	alamPREPROCESSOR	0.01%	356.7MiB / 7.68GiB	4.53%	3.1kB / 2.65kB	283PB / 12.3kB	15
21	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
22	d878d6975a9c	alamDB	0.22%	159MiB / 7.68GiB	2.02%	9.75kB / 9.94kB	55.5PB / 696kB	3
23	00b3dc1eb4ce	alamAPI	0.17%	45.7MiB / 7.68GiB	0.58%	9.36kB / 5.83kB	28.2PB / 0B	3
24	47dba53c6237	alamPREPROCESSOR	0.01%	356.7MiB / 7.68GiB	4.53%	3.1kB / 2.65kB	283PB / 12.3kB	15
25	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
26	d878d6975a9c	alamDB	0.16%	159MiB / 7.68GiB	2.02%	9.75kB / 9.94kB	55.5PB / 696kB	3
27	00b3dc1eb4ce	alamAPI	0.19%	45.7MiB / 7.68GiB	0.58%	9.36kB / 5.83kB	28.2PB / 0B	3
28	47dba53c6237	alamPREPROCESSOR	0.01%	356.7MiB / 7.68GiB	4.53%	3.1kB / 2.65kB	283PB / 12.3kB	15
29	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
30	d878d6975a9c	alamDB	0.21%	159MiB / 7.68GiB	2.02%	9.75kB / 9.94kB	55.5PB / 696kB	3
31	00b3dc1eb4ce	alamAPI	0.16%	45.7MiB / 7.68GiB	0.58%	9.36kB / 5.83kB	28.2PB / 0B	3
32	47dba53c6237	alamPREPROCESSOR	0.01%	356.7MiB / 7.68GiB	4.53%	3.1kB / 2.65kB	283PB / 12.3kB	15
33	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
34	d878d6975a9c	alamDB	0.24%	159MiB / 7.68GiB	2.02%	9.75kB / 9.94kB	55.5PB / 696kB	3
35	00b3dc1eb4ce	alamAPI	0.17%	45.7MiB / 7.68GiB	0.58%	9.36kB / 5.83kB	28.2PB / 0B	3
36	47dba53c6237	alamPREPROCESSOR	0.01%	356.7MiB / 7.68GiB	4.53%	3.1kB / 2.65kB	283PB / 12.3kB	15
37	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
38	d878d6975a9c	alamDB	0.25%	159MiB / 7.68GiB	2.02%	9.90kB / 10.2kB	55.5PB / 696kB	3
39	00b3dc1eb4ce	alamAPI	0.21%	45.7MiB / 7.68GiB	0.58%	9.65kB / 6.03kB	28.2PB / 0B	3
40	47dba53c6237	alamPREPROCESSOR	0.01%	356.7MiB / 7.68GiB	4.53%	3.1kB / 2.65kB	283PB / 12.3kB	15
41	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
42	d878d6975a9c	alamDB	0.22%	159MiB / 7.68GiB	2.02%	9.94kB / 10.2kB	55.5PB / 713kB	3
43	00b3dc1eb4ce	alamAPI	0.16%	45.7MiB / 7.68GiB	0.58%	9.65kB / 6.03kB	28.2PB / 0B	3
44	47dba53c6237	alamPREPROCESSOR	0.01%	356.7MiB / 7.68GiB	4.53%	3.1kB / 2.65kB	283PB / 12.3kB	15
45	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
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7077	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
7078	d878d6975a9c	alamDB	0.17%	179.5MiB / 7.68GiB	2.28%	80.5kB / 114kB	55.5PB / 6.55PB	29
7079	00b3dc1eb4ce	alamAPI	0.16%	45.73MiB / 7.68GiB	0.58%	113kB / 76.4kB	28.2PB / 0B	3
7080	47dba53c6237	alamPREPROCESSOR	0.01%	359MiB / 7.68GiB	4.56%	3.38kB / 2.65kB	283PB / 12.3kB	15
7081	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
7082	d878d6975a9c	alamDB	0.20%	179.5MiB / 7.68GiB	2.28%	80.5kB / 114kB	55.5PB / 6.55PB	29
7083	00b3dc1eb4ce	alamAPI	0.16%	45.73MiB / 7.68GiB	0.58%	113kB / 76.4kB	28.2PB / 0B	3
7084	47dba53c6237	alamPREPROCESSOR	0.01%	359MiB / 7.68GiB	4.56%	3.38kB / 2.65kB	283PB / 12.3kB	15
7085	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
7086	d878d6975a9c	alamDB	0.22%	179.5MiB / 7.68GiB	2.28%	80.5kB / 114kB	55.5PB / 6.55PB	29
7087	00b3dc1eb4ce	alamAPI	0.14%	45.73MiB / 7.68GiB	0.58%	113kB / 76.4kB	28.2PB / 0B	3
7088	47dba53c6237	alamPREPROCESSOR	0.01%	359MiB / 7.68GiB	4.56%	3.38kB / 2.65kB	283PB / 12.3kB	15
7089	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
7090	d878d6975a9c	alamDB	0.23%	179.5MiB / 7.68GiB	2.28%	80.5kB / 114kB	55.5PB / 6.55PB	29
7091	00b3dc1eb4ce	alamAPI	0.18%	45.73MiB / 7.68GiB	0.58%	113kB / 76.4kB	28.2PB / 0B	3
7092	47dba53c6237	alamPREPROCESSOR	0.01%	359MiB / 7.68GiB	4.56%	3.38kB / 2.65kB	283PB / 12.3kB	15
7093	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
7094	d878d6975a9c	alamDB	0.24%	179.5MiB / 7.68GiB	2.28%	80.7kB / 114kB	55.5PB / 6.57PB	29
7095	00b3dc1eb4ce	alamAPI	0.23%	45.73MiB / 7.68GiB	0.58%	114kB / 76.6kB	28.2PB / 0B	3
7096	47dba53c6237	alamPREPROCESSOR	0.01%	359MiB / 7.68GiB	4.56%	3.38kB / 2.65kB	283PB / 12.3kB	15
7097	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
7098	d878d6975a9c	alamDB	0.18%	179.5MiB / 7.68GiB	2.28%	80.7kB / 114kB	55.5PB / 6.57PB	29
7099	00b3dc1eb4ce	alamAPI	0.15%	45.73MiB / 7.68GiB	0.58%	114kB / 76.6kB	28.2PB / 0B	3
7100	47dba53c6237	alamPREPROCESSOR	0.01%	359MiB / 7.68GiB	4.56%	3.38kB / 2.65kB	283PB / 12.3kB	15
7101	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
7102	d878d6975a9c	alamDB	0.23%	179.5MiB / 7.68GiB	2.28%	80.7kB / 114kB	55.5PB / 6.57PB	29
7103	00b3dc1eb4ce	alamAPI	0.15%	45.73MiB / 7.68GiB	0.58%	114kB / 76.6kB	28.2PB / 0B	3
7104	47dba53c6237	alamPREPROCESSOR	0.01%	359MiB / 7.68GiB	4.56%	3.38kB / 2.65kB	283PB / 12.3kB	15

Figure B.54: Raw Logs of Idle System Statistics

1	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
2	e6af858e1766	alamPREPROCESSOR2	0.01%	294.6MiB / 7.684GiB	3.74%	3.45kB / 2.65kB	0B / 0B	8
3	f73c98947a50	alamAPI2	2.36%	44.24MiB / 7.684GiB	0.56%	60.1kB / 39.2kB	0B / 0B	3
4	daf25cdfc1f2	alamDB2	0.32%	122.4MiB / 7.684GiB	1.55%	42.5kB / 57.8kB	0B / 0B	29
5	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
6	e6af858e1766	alamPREPROCESSOR2	0.01%	294.6MiB / 7.684GiB	3.74%	3.45kB / 2.65kB	0B / 0B	8
7	f73c98947a50	alamAPI2	27.35%	45.62MiB / 7.684GiB	0.58%	286kB / 273kB	0B / 0B	12
8	daf25cdfc1f2	alamDB2	1.54%	122.4MiB / 7.684GiB	1.56%	64.8kB / 187kB	0B / 0B	36
9	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
10	e6af858e1766	alamPREPROCESSOR2	0.01%	294.6MiB / 7.684GiB	3.74%	3.45kB / 2.65kB	0B / 0B	8
11	f73c98947a50	alamAPI2	31.85%	45.65MiB / 7.684GiB	0.58%	531kB / 526kB	0B / 0B	12
12	daf25cdfc1f2	alamDB2	1.61%	122.4MiB / 7.684GiB	1.56%	85.1kB / 329kB	0B / 0B	36
13	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
14	e6af858e1766	alamPREPROCESSOR2	0.01%	294.6MiB / 7.684GiB	3.74%	3.45kB / 2.65kB	0B / 0B	8
15	f73c98947a50	alamAPI2	30.66%	45.96MiB / 7.684GiB	0.58%	800kB / 808kB	0B / 0B	12
16	daf25cdfc1f2	alamDB2	1.61%	122.4MiB / 7.684GiB	1.56%	108kB / 491kB	0B / 0B	36
17	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
18	e6af858e1766	alamPREPROCESSOR2	0.01%	294.6MiB / 7.684GiB	3.74%	3.45kB / 2.65kB	0B / 0B	8
19	f73c98947a50	alamAPI2	24.59%	45.96MiB / 7.684GiB	0.58%	1MB / 1.02MB	0B / 0B	12
20	daf25cdfc1f2	alamDB2	1.32%	122.4MiB / 7.684GiB	1.56%	125kB / 610kB	0B / 0B	36
21	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
22	e6af858e1766	alamPREPROCESSOR2	0.01%	294.6MiB / 7.684GiB	3.74%	3.45kB / 2.65kB	0B / 0B	8
23	f73c98947a50	alamAPI2	28.89%	45.96MiB / 7.684GiB	0.58%	1.23MB / 1.25MB	0B / 0B	12
24	daf25cdfc1f2	alamDB2	1.51%	122.4MiB / 7.684GiB	1.56%	145kB / 744kB	0B / 0B	36
25	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
26	e6af858e1766	alamPREPROCESSOR2	0.01%	294.6MiB / 7.684GiB	3.74%	3.45kB / 2.65kB	0B / 0B	8
27	f73c98947a50	alamAPI2	29.01%	45.98MiB / 7.684GiB	0.58%	1.5MB / 1.54MB	0B / 0B	11
28	daf25cdfc1f2	alamDB2	1.72%	122.4MiB / 7.684GiB	1.56%	169kB / 914kB	0B / 0B	36
29	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
30	e6af858e1766	alamPREPROCESSOR2	0.02%	294.6MiB / 7.684GiB	3.74%	3.45kB / 2.65kB	0B / 0B	8
31	f73c98947a50	alamAPI2	23.69%	45.93MiB / 7.684GiB	0.58%	1.68MB / 1.73MB	0B / 0B	11
32	daf25cdfc1f2	alamDB2	1.23%	122.4MiB / 7.684GiB	1.56%	184kB / 1.02MB	0B / 0B	36
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6908	daf25cdfc1f2	alamDB2	0.36%	145.6MiB / 7.684GiB	1.85%	21.2MB / 178MB	0B / 0B	41
6909	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
6910	e6af858e1766	alamPREPROCESSOR2	0.01%	296.6MiB / 7.684GiB	3.77%	3.59kB / 2.65kB	0B / 0B	8
6911	f73c98947a50	alamAPI2	0.20%	45.76MiB / 7.684GiB	0.58%	273MB / 293MB	0B / 0B	4
6912	daf25cdfc1f2	alamDB2	0.71%	145.6MiB / 7.684GiB	1.85%	21.2MB / 178MB	0B / 0B	41
6913	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
6914	e6af858e1766	alamPREPROCESSOR2	0.01%	296.6MiB / 7.684GiB	3.77%	3.59kB / 2.65kB	0B / 0B	8
6915	f73c98947a50	alamAPI2	0.18%	45.76MiB / 7.684GiB	0.58%	273MB / 293MB	0B / 0B	4
6916	daf25cdfc1f2	alamDB2	0.19%	145.6MiB / 7.684GiB	1.85%	21.2MB / 178MB	0B / 0B	41
6917	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
6918	e6af858e1766	alamPREPROCESSOR2	0.01%	296.6MiB / 7.684GiB	3.77%	3.59kB / 2.65kB	0B / 0B	8
6919	f73c98947a50	alamAPI2	0.24%	45.76MiB / 7.684GiB	0.58%	273MB / 293MB	0B / 0B	4
6920	daf25cdfc1f2	alamDB2	0.49%	145.6MiB / 7.684GiB	1.85%	21.2MB / 178MB	0B / 0B	41
6921	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
6922	e6af858e1766	alamPREPROCESSOR2	0.02%	296.6MiB / 7.684GiB	3.77%	3.59kB / 2.65kB	0B / 0B	8
6923	f73c98947a50	alamAPI2	0.28%	45.76MiB / 7.684GiB	0.58%	273MB / 293MB	0B / 0B	4
6924	daf25cdfc1f2	alamDB2	0.31%	145.6MiB / 7.684GiB	1.85%	21.2MB / 178MB	0B / 0B	41
6925	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
6926	e6af858e1766	alamPREPROCESSOR2	0.01%	296.6MiB / 7.684GiB	3.77%	3.59kB / 2.65kB	0B / 0B	8
6927	f73c98947a50	alamAPI2	0.25%	45.76MiB / 7.684GiB	0.58%	273MB / 293MB	0B / 0B	4
6928	daf25cdfc1f2	alamDB2	0.28%	145.6MiB / 7.684GiB	1.85%	21.2MB / 178MB	0B / 0B	41
6929	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
6930	e6af858e1766	alamPREPROCESSOR2	0.01%	296.6MiB / 7.684GiB	3.77%	3.59kB / 2.65kB	0B / 0B	8
6931	f73c98947a50	alamAPI2	0.18%	45.76MiB / 7.684GiB	0.58%	273MB / 293MB	0B / 0B	4
6932	daf25cdfc1f2	alamDB2	0.46%	145.6MiB / 7.684GiB	1.85%	21.2MB / 178MB	0B / 0B	41

Figure B.55: Raw Logs of Deployment System Statistics

1	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
2	f10bc4b28a7e	alamDB	0.21%	160.1MiB / 7.684GiB	2.04%	20.4kB / 25kB	54.4MB / 1.99MB	29
3	650af2d6431c	alamPREPROCESSOR	1.63%	611.4MiB / 7.684GiB	7.77%	96.5kB / 7.02kB	352MB / 49.2kB	33
4	8302c7cfe70	alamAPI	0.21%	45.71MiB / 7.684GiB	0.58%	25kB / 16.1kB	28.5MB / 0B	3
5	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
6	f10bc4b28a7e	alamDB	0.26%	160.1MiB / 7.684GiB	2.04%	20.4kB / 25kB	54.4MB / 1.99MB	29
7	650af2d6431c	alamPREPROCESSOR	0.16%	611.4MiB / 7.684GiB	7.77%	124kB / 8.39kB	352MB / 49.2kB	33
8	8302c7cfe70	alamAPI	0.26%	45.71MiB / 7.684GiB	0.58%	25kB / 16.1kB	28.5MB / 0B	3
9	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
10	f10bc4b28a7e	alamDB	0.28%	160.1MiB / 7.684GiB	2.04%	20.4kB / 25kB	54.4MB / 1.99MB	29
11	650af2d6431c	alamPREPROCESSOR	0.75%	611.4MiB / 7.684GiB	7.77%	201kB / 11.7kB	352MB / 385kB	33
12	8302c7cfe70	alamAPI	0.19%	45.71MiB / 7.684GiB	0.58%	25kB / 16.1kB	28.5MB / 0B	3
13	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
14	f10bc4b28a7e	alamDB	0.41%	160.1MiB / 7.684GiB	2.04%	20.4kB / 25kB	54.4MB / 1.99MB	29
15	650af2d6431c	alamPREPROCESSOR	2.86%	611.5MiB / 7.684GiB	7.77%	266kB / 14.3kB	352MB / 385kB	33
16	8302c7cfe70	alamAPI	0.19%	45.71MiB / 7.684GiB	0.58%	25kB / 16.1kB	28.5MB / 0B	3
17	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
18	f10bc4b28a7e	alamDB	0.69%	160.2MiB / 7.684GiB	2.04%	20.6kB / 25.3kB	54.4MB / 2.01MB	29
19	650af2d6431c	alamPREPROCESSOR	0.01%	611.5MiB / 7.684GiB	7.77%	313kB / 15.4kB	352MB / 385kB	33
20	8302c7cfe70	alamAPI	0.22%	45.71MiB / 7.684GiB	0.58%	25.3kB / 16.3kB	28.5MB / 0B	3
21	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
22	f10bc4b28a7e	alamDB	0.18%	160.2MiB / 7.684GiB	2.04%	20.6kB / 25.3kB	54.4MB / 2.01MB	29
23	650af2d6431c	alamPREPROCESSOR	0.47%	611.5MiB / 7.684GiB	7.77%	355kB / 17.8kB	352MB / 385kB	33
24	8302c7cfe70	alamAPI	0.19%	45.71MiB / 7.684GiB	0.58%	25.3kB / 16.3kB	28.5MB / 0B	3
25	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
26	f10bc4b28a7e	alamDB	0.36%	160.1MiB / 7.684GiB	2.04%	20.6kB / 25.3kB	54.4MB / 2.01MB	29
27	650af2d6431c	alamPREPROCESSOR	1.13%	611.5MiB / 7.684GiB	7.77%	442kB / 21.5kB	352MB / 385kB	33
28	8302c7cfe70	alamAPI	0.28%	45.71MiB / 7.684GiB	0.58%	25.3kB / 16.3kB	28.5MB / 0B	3
29	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
30	f10bc4b28a7e	alamDB	0.30%	160.1MiB / 7.684GiB	2.03%	20.6kB / 25.3kB	54.4MB / 2.01MB	29
31	650af2d6431c	alamPREPROCESSOR	0.91%	611.6MiB / 7.684GiB	7.77%	534kB / 25.3kB	352MB / 385kB	33
32	8302c7cfe70	alamAPI	0.19%	45.71MiB / 7.684GiB	0.58%	25.3kB / 16.3kB	28.5MB / 0B	3
33	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
34	f10bc4b28a7e	alamDB	0.26%	160.1MiB / 7.684GiB	2.03%	20.6kB / 25.3kB	54.4MB / 2.01MB	29

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9456	8302c7cfe70	alamAPI	0.18%	45.72MiB / 7.684GiB	0.58%	165kB / 111kB	28.5MB / 0B	3
9457	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
9458	f10bc4b28a7e	alamDB	0.20%	192MiB / 7.684GiB	2.44%	1.13MB / 507kB	54.5MB / 24.9MB	29
9459	650af2d6431c	alamPREPROCESSOR	1.56%	1.017GiB / 7.684GiB	13.24%	154MB / 7.51MB	354MB / 527MB	33
9460	8302c7cfe70	alamAPI	0.20%	45.72MiB / 7.684GiB	0.58%	165kB / 111kB	28.5MB / 0B	3
9461	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
9462	f10bc4b28a7e	alamDB	0.31%	192MiB / 7.684GiB	2.44%	1.13MB / 507kB	54.5MB / 24.9MB	29
9463	650af2d6431c	alamPREPROCESSOR	2.17%	1.017GiB / 7.684GiB	13.24%	154MB / 7.51MB	354MB / 527MB	33
9464	8302c7cfe70	alamAPI	0.21%	45.72MiB / 7.684GiB	0.58%	165kB / 111kB	28.5MB / 0B	3
9465	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
9466	f10bc4b28a7e	alamDB	0.27%	192MiB / 7.684GiB	2.44%	1.13MB / 508kB	54.5MB / 24.9MB	29
9467	650af2d6431c	alamPREPROCESSOR	0.40%	1.017GiB / 7.684GiB	13.24%	154MB / 7.52MB	354MB / 527MB	33
9468	8302c7cfe70	alamAPI	0.26%	45.73MiB / 7.684GiB	0.58%	165kB / 111kB	28.5MB / 0B	3
9469	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
9470	f10bc4b28a7e	alamDB	0.14%	192MiB / 7.684GiB	2.44%	1.13MB / 508kB	54.5MB / 24.9MB	29
9471	650af2d6431c	alamPREPROCESSOR	98.62%	1.041GiB / 7.684GiB	13.54%	154MB / 7.52MB	354MB / 528MB	51
9472	8302c7cfe70	alamAPI	0.10%	45.72MiB / 7.684GiB	0.58%	165kB / 111kB	28.5MB / 0B	3
9473	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
9474	f10bc4b28a7e	alamDB	0.15%	192MiB / 7.684GiB	2.44%	1.13MB / 508kB	54.5MB / 24.9MB	29
9475	650af2d6431c	alamPREPROCESSOR	98.60%	1.054GiB / 7.684GiB	13.71%	154MB / 7.52MB	354MB / 528MB	51
9476	8302c7cfe70	alamAPI	0.10%	45.72MiB / 7.684GiB	0.58%	165kB / 111kB	28.5MB / 0B	3
9477	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
9478	f10bc4b28a7e	alamDB	0.19%	192MiB / 7.684GiB	2.44%	1.13MB / 508kB	54.5MB / 24.9MB	29
9479	650af2d6431c	alamPREPROCESSOR	98.17%	1.065GiB / 7.684GiB	13.86%	154MB / 7.52MB	354MB / 528MB	51
9480	8302c7cfe70	alamAPI	0.14%	45.72MiB / 7.684GiB	0.58%	165kB / 111kB	28.5MB / 0B	3

Figure B.56: Raw Logs of Data Collector Module (DCM) System Statistics

1	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
2	f10bc4b28a7e	alamDB	0.15%	192MiB / 7.684GiB	2.44%	1.23MB / 623kB	54.5MB / 33.2MB	29
3	650af2d6431c	alamPREPROCESSOR	98.18%	1.055GiB / 7.684GiB	13.73%	154MB / 7.54MB	354MB / 528MB	51
4	8302c7cefe70	alamAPI	0.10%	45.91MiB / 7.684GiB	0.58%	275kB / 192kB	28.5MB / 0B	3
5	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
6	f10bc4b28a7e	alamDB	0.14%	192MiB / 7.684GiB	2.44%	1.23MB / 623kB	54.5MB / 33.2MB	29
7	650af2d6431c	alamPREPROCESSOR	97.02%	1.063GiB / 7.684GiB	13.84%	154MB / 7.54MB	354MB / 528MB	51
8	8302c7cefe70	alamAPI	0.10%	45.91MiB / 7.684GiB	0.58%	275kB / 192kB	28.5MB / 0B	3
9	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
10	f10bc4b28a7e	alamDB	0.16%	192MiB / 7.684GiB	2.44%	1.23MB / 624kB	54.5MB / 33.2MB	29
11	650af2d6431c	alamPREPROCESSOR	98.16%	1.075GiB / 7.684GiB	14.00%	154MB / 7.54MB	354MB / 528MB	59
12	8302c7cefe70	alamAPI	0.14%	45.91MiB / 7.684GiB	0.58%	275kB / 192kB	28.5MB / 0B	3
13	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
14	f10bc4b28a7e	alamDB	0.21%	192MiB / 7.684GiB	2.44%	1.24MB / 627kB	54.5MB / 33.2MB	29
15	650af2d6431c	alamPREPROCESSOR	168.69%	930.9MiB / 7.684GiB	11.83%	154MB / 7.55MB	354MB / 528MB	26
16	8302c7cefe70	alamAPI	0.12%	45.91MiB / 7.684GiB	0.58%	275kB / 192kB	28.5MB / 0B	3
17	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
18	f10bc4b28a7e	alamDB	0.16%	192MiB / 7.684GiB	2.44%	1.24MB / 627kB	54.5MB / 33.2MB	29
19	650af2d6431c	alamPREPROCESSOR	122.66%	1.058GiB / 7.684GiB	13.77%	154MB / 7.55MB	354MB / 528MB	51
20	8302c7cefe70	alamAPI	0.11%	45.91MiB / 7.684GiB	0.58%	275kB / 192kB	28.5MB / 0B	3
21	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
22	f10bc4b28a7e	alamDB	0.16%	192MiB / 7.684GiB	2.44%	1.24MB / 627kB	54.5MB / 33.2MB	29
23	650af2d6431c	alamPREPROCESSOR	98.37%	1.071GiB / 7.684GiB	13.94%	154MB / 7.55MB	354MB / 528MB	62
24	8302c7cefe70	alamAPI	0.10%	45.91MiB / 7.684GiB	0.58%	275kB / 192kB	28.5MB / 0B	3
25	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
26	f10bc4b28a7e	alamDB	0.14%	192MiB / 7.684GiB	2.44%	1.24MB / 627kB	54.5MB / 33.2MB	29
27	650af2d6431c	alamPREPROCESSOR	96.23%	1.083GiB / 7.684GiB	14.09%	154MB / 7.55MB	354MB / 528MB	59
28	8302c7cefe70	alamAPI	0.13%	45.91MiB / 7.684GiB	0.58%	275kB / 192kB	28.5MB / 0B	3
29	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
30	f10bc4b28a7e	alamDB	0.38%	192MiB / 7.684GiB	2.44%	1.25MB / 631kB	54.5MB / 33.3MB	29
31	650af2d6431c	alamPREPROCESSOR	162.19%	921.1MiB / 7.684GiB	11.71%	154MB / 7.56MB	354MB / 528MB	26
32	8302c7cefe70	alamAPI	0.21%	45.91MiB / 7.684GiB	0.58%	275kB / 192kB	28.5MB / 0B	3
• • •								
1632	8302c7cefe70	alamAPI	0.13%	45.7MiB / 7.684GiB	0.58%	299kB / 208kB	28.5MB / 0B	3
1633	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
1634	f10bc4b28a7e	alamDB	0.12%	189.7MiB / 7.684GiB	2.41%	2.25MB / 987kB	54.5MB / 38.1MB	29
1635	650af2d6431c	alamPREPROCESSOR	96.58%	1.3GiB / 7.684GiB	16.92%	154MB / 8.55MB	356MB / 530MB	51
1636	8302c7cefe70	alamAPI	0.10%	45.7MiB / 7.684GiB	0.58%	299kB / 208kB	28.5MB / 0B	3
1637	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
1638	f10bc4b28a7e	alamDB	0.16%	189.7MiB / 7.684GiB	2.41%	2.26MB / 990kB	54.5MB / 38.1MB	29
1639	650af2d6431c	alamPREPROCESSOR	177.58%	1.168GiB / 7.684GiB	15.20%	154MB / 8.56MB	356MB / 530MB	26
1640	8302c7cefe70	alamAPI	0.12%	45.7MiB / 7.684GiB	0.58%	299kB / 208kB	28.5MB / 0B	3
1641	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
1642	f10bc4b28a7e	alamDB	0.37%	189.7MiB / 7.684GiB	2.41%	2.26MB / 990kB	54.5MB / 38.1MB	29
1643	650af2d6431c	alamPREPROCESSOR	99.58%	1.284GiB / 7.684GiB	16.71%	154MB / 8.56MB	356MB / 530MB	51
1644	8302c7cefe70	alamAPI	0.15%	45.7MiB / 7.684GiB	0.58%	299kB / 208kB	28.5MB / 0B	3
1645	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
1646	f10bc4b28a7e	alamDB	0.17%	189.7MiB / 7.684GiB	2.41%	2.26MB / 990kB	54.5MB / 38.2MB	29
1647	650af2d6431c	alamPREPROCESSOR	99.86%	1.294GiB / 7.684GiB	16.84%	154MB / 8.56MB	356MB / 530MB	51
1648	8302c7cefe70	alamAPI	0.10%	45.7MiB / 7.684GiB	0.58%	299kB / 208kB	28.5MB / 0B	3
1649	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
1650	f10bc4b28a7e	alamDB	0.18%	189.5MiB / 7.684GiB	2.41%	2.26MB / 991kB	54.5MB / 38.3MB	29
1651	650af2d6431c	alamPREPROCESSOR	100.66%	1.301GiB / 7.684GiB	16.93%	154MB / 8.56MB	356MB / 530MB	51
1652	8302c7cefe70	alamAPI	0.15%	45.69MiB / 7.684GiB	0.58%	299kB / 208kB	28.5MB / 0B	3
1653	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
1654	f10bc4b28a7e	alamDB	0.46%	189.5MiB / 7.684GiB	2.41%	2.27MB / 994kB	54.5MB / 38.4MB	29
1655	650af2d6431c	alamPREPROCESSOR	40.26%	1.064GiB / 7.684GiB	13.85%	154MB / 8.57MB	356MB / 530MB	17
1656	8302c7cefe70	alamAPI	0.12%	45.68MiB / 7.684GiB	0.58%	299kB / 208kB	28.5MB / 0B	3

Figure B.57: Raw Logs of Data Processor Module (DPM) System Statistics

	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
1	f10bc4b28a7e	alamDB	0.22%	189.4MiB / 7.684GiB	2.41%	2.3MB / 1.03PB	54.5MB / 40.6MB	31
2	650af2d6431c	alamPREPROCESSOR	2.66%	1.303GiB / 7.684GiB	16.96%	156MB / 8.65PB	356MB / 536MB	53
3	8302c7cfe70	alamAPI	0.17%	45.67MiB / 7.684GiB	0.58%	322kB / 224kB	28.5MB / 0B	3
4	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
5	f10bc4b28a7e	alamDB	0.22%	189.4MiB / 7.684GiB	2.41%	2.3MB / 1.03PB	54.5MB / 40.6MB	31
6	650af2d6431c	alamPREPROCESSOR	3.44%	1.303GiB / 7.684GiB	16.96%	156MB / 8.65PB	356MB / 536MB	53
7	8302c7cfe70	alamAPI	0.18%	45.67MiB / 7.684GiB	0.58%	322kB / 224kB	28.5MB / 0B	3
8	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
9	f10bc4b28a7e	alamDB	0.30%	189.4MiB / 7.684GiB	2.41%	2.3MB / 1.03PB	54.5MB / 40.6MB	31
10	650af2d6431c	alamPREPROCESSOR	2.87%	1.303GiB / 7.684GiB	16.95%	156MB / 8.66PB	356MB / 537MB	53
11	8302c7cfe70	alamAPI	0.21%	45.67MiB / 7.684GiB	0.58%	322kB / 224kB	28.5MB / 0B	3
12	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
13	f10bc4b28a7e	alamDB	0.20%	189.4MiB / 7.684GiB	2.41%	2.3MB / 1.03PB	54.5MB / 40.6MB	31
14	650af2d6431c	alamPREPROCESSOR	1.33%	1.303GiB / 7.684GiB	16.95%	156MB / 8.66PB	356MB / 537MB	53
15	8302c7cfe70	alamAPI	0.18%	45.67MiB / 7.684GiB	0.58%	322kB / 224kB	28.5MB / 0B	3
16	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
17	f10bc4b28a7e	alamDB	0.30%	189.4MiB / 7.684GiB	2.41%	2.3MB / 1.03PB	54.5MB / 40.6MB	31
18	650af2d6431c	alamPREPROCESSOR	2.47%	1.302GiB / 7.684GiB	16.94%	156MB / 8.67PB	356MB / 537MB	53
19	8302c7cfe70	alamAPI	0.19%	45.67MiB / 7.684GiB	0.58%	322kB / 224kB	28.5MB / 0B	3
20	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
21	f10bc4b28a7e	alamDB	0.21%	189.4MiB / 7.684GiB	2.41%	2.3MB / 1.03PB	54.5MB / 40.6MB	31
22	650af2d6431c	alamPREPROCESSOR	1.58%	1.302GiB / 7.684GiB	16.94%	156MB / 8.67PB	356MB / 538MB	53
23	8302c7cfe70	alamAPI	0.13%	45.67MiB / 7.684GiB	0.58%	322kB / 224kB	28.5MB / 0B	3
24	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
25	f10bc4b28a7e	alamDB	0.51%	189.4MiB / 7.684GiB	2.41%	2.3MB / 1.03PB	54.5MB / 40.6MB	31
26	650af2d6431c	alamPREPROCESSOR	1.88%	1.361B / 7.684GiB	16.92%	156MB / 8.67PB	356MB / 538MB	53
27	8302c7cfe70	alamAPI	0.26%	45.67MiB / 7.684GiB	0.58%	322kB / 224kB	28.5MB / 0B	3
28	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
29	f10bc4b28a7e	alamDB	0.45%	189.4MiB / 7.684GiB	2.41%	2.3MB / 1.03PB	54.5MB / 40.6MB	31
30	650af2d6431c	alamPREPROCESSOR	4.15%	1.361B / 7.684GiB	16.92%	157MB / 8.68PB	356MB / 538MB	53
31	8302c7cfe70	alamAPI	0.22%	45.67MiB / 7.684GiB	0.58%	322kB / 224kB	28.5MB / 0B	3
32	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
33								

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8139	650af2d6431c	alamPREPROCESSOR	2.46%	1.135GiB / 7.684GiB	14.77%	308MB / 15.2PB	359MB / 1.06GB	53
8140	8302c7cfe70	alamAPI	0.26%	45.51MiB / 7.684GiB	0.58%	442kB / 305kB	28.5MB / 0B	3
8141	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
8142	f10bc4b28a7e	alamDB	0.30%	186.9MiB / 7.684GiB	2.38%	2.49MB / 1.27PB	54.5MB / 49.7MB	31
8143	650af2d6431c	alamPREPROCESSOR	0.20%	1.135GiB / 7.684GiB	14.77%	308MB / 15.2PB	359MB / 1.06GB	53
8144	8302c7cfe70	alamAPI	0.27%	45.51MiB / 7.684GiB	0.58%	442kB / 305kB	28.5MB / 0B	3
8145	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
8146	f10bc4b28a7e	alamDB	0.55%	186.9MiB / 7.684GiB	2.38%	2.49MB / 1.27PB	54.5MB / 49.7MB	31
8147	650af2d6431c	alamPREPROCESSOR	0.50%	1.135GiB / 7.684GiB	14.77%	309MB / 15.2PB	359MB / 1.06GB	53
8148	8302c7cfe70	alamAPI	0.15%	45.51MiB / 7.684GiB	0.58%	442kB / 305kB	28.5MB / 0B	3
8149	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
8150	f10bc4b28a7e	alamDB	0.20%	186.9MiB / 7.684GiB	2.38%	2.49MB / 1.27PB	54.5MB / 49.7MB	31
8151	650af2d6431c	alamPREPROCESSOR	2.51%	1.135GiB / 7.684GiB	14.77%	309MB / 15.2PB	359MB / 1.06GB	53
8152	8302c7cfe70	alamAPI	0.19%	45.51MiB / 7.684GiB	0.58%	442kB / 305kB	28.5MB / 0B	3
8153	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
8154	f10bc4b28a7e	alamDB	0.32%	186.9MiB / 7.684GiB	2.38%	2.49MB / 1.27PB	54.5MB / 49.7MB	31
8155	650af2d6431c	alamPREPROCESSOR	2.70%	1.135GiB / 7.684GiB	14.77%	309MB / 15.2PB	359MB / 1.06GB	53
8156	8302c7cfe70	alamAPI	0.16%	45.51MiB / 7.684GiB	0.58%	442kB / 305kB	28.5MB / 0B	3
8157	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
8158	f10bc4b28a7e	alamDB	0.31%	186.9MiB / 7.684GiB	2.38%	2.49MB / 1.27PB	54.5MB / 49.7MB	31
8159	650af2d6431c	alamPREPROCESSOR	3.63%	1.135GiB / 7.684GiB	14.77%	309MB / 15.2PB	359MB / 1.06GB	53
8160	8302c7cfe70	alamAPI	0.23%	45.51MiB / 7.684GiB	0.58%	443kB / 305kB	28.5MB / 0B	3
8161	CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
8162	f10bc4b28a7e	alamDB	0.72%	187MiB / 7.684GiB	2.38%	2.49MB / 1.27PB	54.5MB / 49.7MB	31
8163	650af2d6431c	alamPREPROCESSOR	4.19%	1.135GiB / 7.684GiB	14.77%	309MB / 15.2PB	359MB / 1.06GB	53
8164	8302c7cfe70	alamAPI	0.21%	45.51MiB / 7.684GiB	0.58%	443kB / 305kB	28.5MB / 0B	3

Figure B.58: Raw Logs of alamPREPROCESSOR System Statistics

B.5.2 PSEI Trading Baseline Data

TRADE CALCULATOR

COMM RATE0.0025

MIN COMM20.0000

BUY

SELL

STOCKPSEI

STOCKPSEI

QUANTITY25

QUANTITY25

PRICE6,602.17

PRICE6,595.03

Buy Gross165,054.25

Buy Commission412.63

VAT49.51

SCCP16.5054

PSE Fee8.2527

-

Sell Gross164,875.75

Sell Commission412.18

VAT49.46

SCCP16.4875

PSE Fee8.2437

Sales Tax989.25

TOTAL CHARGES486.91

NET165,541.16

TOTAL CHARGES1,475.63

NET163,400.11

NET PROFIT-2,141.04

% GAIN-1.29%

PLACE BUY ORDER

PLACE SELL ORDER

Please note that the values presented above are only indicative. Exact and official values are presented in the Confirmation Advice.

Figure B.59: Day 1 PSEI Trading Raw Data

TRADE CALCULATOR

COMM RATE0.0025

MIN COMM20.0000

BUY

SELL

STOCKPSEI

STOCKPSEI

QUANTITY25

QUANTITY25

PRICE6,595.03

PRICE6,603.15

Buy Gross164,875.75

Buy Commission412.18

VAT49.46

SCCP16.4875

PSE Fee8.2437

-

Sell Gross165,078.75

Sell Commission412.69

VAT49.52

SCCP16.5078

PSE Fee8.2539

Sales Tax990.47

TOTAL CHARGES486.38

NET165,362.13

TOTAL CHARGES1,477.45

NET163,601.29

NET PROFIT-1,760.83

% GAIN-1.06%

PLACE BUY ORDER

PLACE SELL ORDER

Please note that the values presented above are only indicative. Exact and official values are presented in the Confirmation Advice.

Figure B.60: Day 2 PSEI Trading Raw Data

TRADE CALCULATOR

COMM RATE

0.0025

MIN COMM

20.0000

BUY

SELL

STOCK

PSEI

QUANTITY

25

PRICE

6,603.15

Buy Gross

165,078.75

Buy Commission

412.69

VAT

49.52

SCCP

16.5078

PSE Fee

8.2539

-

Sell Gross

165,774.25

Sell Commission

414.43

VAT

49.73

SCCP

16.5774

PSE Fee

8.2887

Sales Tax

994.64

TOTAL CHARGES

486.98

NET

165,565.73

TOTAL CHARGES

1,483.67

NET

164,290.57

NET PROFIT

-1,275.16

% GAIN

-0.77%

PLACE BUY ORDER

PLACE SELL ORDER

Please note that the values presented above are only indicative. Exact and official values are presented in the Confirmation Advice.

Figure B.61: Day 3 PSEI Trading Raw Data

TRADE CALCULATOR

COMM RATE

0.0025

MIN COMM

20.0000

BUY

SELL

STOCK

PSEI

QUANTITY

25

PRICE

6,630.97

Buy Gross

165,774.25

Buy Commission

414.43

VAT

49.73

SCCP

16.5774

PSE Fee

8.2887

-

Sell Gross

166,118.75

Sell Commission

415.29

VAT

49.83

SCCP

16.6118

PSE Fee

8.3059

Sales Tax

996.71

TOTAL CHARGES

489.03

NET

166,263.28

TOTAL CHARGES

1,486.76

NET

164,631.98

NET PROFIT

-1,631.29

% GAIN

-0.98%

PLACE BUY ORDER

PLACE SELL ORDER

Please note that the values presented above are only indicative. Exact and official values are presented in the Confirmation Advice.

Figure B.62: Day 4 PSEI Trading Raw Data

TRADE CALCULATOR			
COMM RATE	0.0025	MIN COMM	20.0000
BUY		SELL	
STOCK	PSEI	STOCK	PSEI
QUANTITY	25	QUANTITY	25
PRICE	6,644.75	PRICE	6,499.68
Buy Gross	166,118.75	Sell Gross	162,492.00
Buy Commission	415.29	Sell Commission	406.23
VAT	49.83	VAT	48.74
SCCP	16.6118	SCCP	16.2492
PSE Fee	8.3059	PSE Fee	8.1246
-	-	Sales Tax	974.95
TOTAL CHARGES	490.05	TOTAL CHARGES	1,454.30
NET	166,608.80	NET	161,037.69
NET PROFIT	-5,571.10	% GAIN	-3.34%
PLACE BUY ORDER		PLACE SELL ORDER	

Please note that the values presented above are only indicative. Exact and official values are presented in the Confirmation Advice.

Figure B.63: Day 5 PSEI Trading Raw Data

TRADE CALCULATOR			
COMM RATE	0.0025	MIN COMM	20.0000
BUY		SELL	
STOCK	PSEI	STOCK	PSEI
QUANTITY	25	QUANTITY	25
PRICE	6,499.68	PRICE	6,529.99
Buy Gross	162,492.00	Sell Gross	163,249.75
Buy Commission	406.23	Sell Commission	408.12
VAT	48.74	VAT	48.97
SCCP	16.2492	SCCP	16.3249
PSE Fee	8.1246	PSE Fee	8.1624
-	-	Sales Tax	979.49
TOTAL CHARGES	479.35	TOTAL CHARGES	1,461.08
NET	162,971.35	NET	161,788.66
NET PROFIT	-1,182.68	% GAIN	-0.72%
PLACE BUY ORDER		PLACE SELL ORDER	

Please note that the values presented above are only indicative. Exact and official values are presented in the Confirmation Advice.

Figure B.64: Day 6 PSEI Trading Raw Data

TRADE CALCULATOR			
COMM RATE	0.0025	MIN COMM	20.0000
BUY		SELL	
STOCK	PSEI	STOCK	PSEI
QUANTITY	25	QUANTITY	25
PRICE	6,529.99	PRICE	6,472.04
Buy Gross	163,249.75	Sell Gross	161,801.00
Buy Commission	408.12	Sell Commission	404.50
VAT	48.97	VAT	48.54
SCCP	16.3249	SCCP	16.1801
PSE Fee	8.1624	PSE Fee	8.0900
-	-	Sales Tax	970.80
TOTAL CHARGES	481.58	TOTAL CHARGES	1,448.11
NET	163,731.33	NET	160,352.88
NET PROFIT	-3,378.45	% GAIN	-2.06%
PLACE BUY ORDER		PLACE SELL ORDER	

Please note that the values presented above are only indicative. Exact and official values are presented in the Confirmation Advice.

Figure B.65: Day 7 PSEI Trading Raw Data

TRADE CALCULATOR			
COMM RATE	0.0025	MIN COMM	20.0000
BUY		SELL	
STOCK	PSEI	STOCK	PSEI
QUANTITY	25	QUANTITY	25
PRICE	6,472.04	PRICE	6,488.51
Buy Gross	161,801.00	Sell Gross	162,212.75
Buy Commission	404.50	Sell Commission	405.53
VAT	48.54	VAT	48.66
SCCP	16.1801	SCCP	16.2212
PSE Fee	8.0900	PSE Fee	8.1106
-	-	Sales Tax	973.27
TOTAL CHARGES	477.31	TOTAL CHARGES	1,451.80
NET	162,278.31	NET	160,760.94
NET PROFIT	-1,517.36	% GAIN	-0.93%
PLACE BUY ORDER		PLACE SELL ORDER	

Please note that the values presented above are only indicative. Exact and official values are presented in the Confirmation Advice.

Figure B.66: Day 8 PSEI Trading Raw Data

TRADE CALCULATOR		TRADE CALCULATOR	
COMM RATE	0.0025	MIN COMM	20.0000
BUY		SELL	
STOCK	PSEI	STOCK	PSEI
QUANTITY	25	QUANTITY	25
PRICE	6,488.51	PRICE	6,479.63
Buy Gross	162,212.75	Sell Gross	161,990.75
Buy Commission	405.53	Sell Commission	404.97
VAT	48.66	VAT	48.59
SCCP	16.2212	SCCP	16.1990
PSE Fee	8.1106	PSE Fee	8.0995
-	-	Sales Tax	971.94
TOTAL CHARGES	478.52	TOTAL CHARGES	1,449.81
NET	162,691.27	NET	160,540.93
NET PROFIT	-2,150.34	% GAIN	-1.32%
PLACE BUY ORDER		PLACE SELL ORDER	

Please note that the values presented above are only indicative. Exact and official values are presented in the Confirmation Advice.

Figure B.67: Day 9 PSEI Trading Raw Data

TRADE CALCULATOR		TRADE CALCULATOR	
COMM RATE	0.0025	MIN COMM	20.0000
BUY		SELL	
STOCK	PSEI	STOCK	PSEI
QUANTITY	25	QUANTITY	25
PRICE	6,479.63	PRICE	6,469.42
Buy Gross	161,990.75	Sell Gross	161,735.50
Buy Commission	404.97	Sell Commission	404.33
VAT	48.59	VAT	48.52
SCCP	16.1990	SCCP	16.1735
PSE Fee	8.0995	PSE Fee	8.0867
-	-	Sales Tax	970.41
TOTAL CHARGES	477.87	TOTAL CHARGES	1,447.53
NET	162,468.62	NET	160,287.96
NET PROFIT	-2,180.65	% GAIN	-1.34%
PLACE BUY ORDER		PLACE SELL ORDER	

Please note that the values presented above are only indicative. Exact and official values are presented in the Confirmation Advice.

Figure B.68: Day 10 PSEI Trading Raw Data

B.5.3 Raw Real-world alamSYS Application

Appendix C

Project Management Documentation

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Appendix D

Glossary of Terms

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Appendix E

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Appendix F

Author's Contact Information

The author is open for collaborations and additional conversation in regards to the topics discussed in the development of this Special Problem. Where, the following contact information is given to make it easier for anyone to communicate with the author in the future.

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If you have any questions about this Special Problem or would like to collaborate on it, please feel free to contact the author using any of the above contact details. The author is eager to discuss ideas for more in-depth study and advancement in this area with interested parties.