1. DMD-LSTM TRAINING

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ERROR METRICS** | **WINDOW SIZE** | | | |
| **5** | **10** | **15** | **20** |
| **MSE** | 0.000037 | 0.787877 | 0.006917 | 0.057851 |
| **RMSE** | 0.006106 | 0.887624 | 0.083166 | 0.240522 |
| **MAE** | 0.004175 | 0.755407 | 0.067645 | 0.202746 |
| **MAPE** | 0.000001 | 0.000194 | 0.000017 | 0.000053 |

1. BASELINE LSTM TRAINING

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ERROR METRICS** | **WINDOW SIZE** | | | |
| **5** | **10** | **15** | **20** |
| **MSE** | 2912.840703 | 191.935882 | 1118.183283 | 706.136814 |
| **RMSE** | 53.970739 | 13.854093 | 33.439248 | 26.573235 |
| **MAE** | 35.301888 | 9.480864 | 22.099720 | 18.285352 |
| **MAPE** | 0.009618 | 0.002527 | 0.006024 | 0.005004 |

1. DMD-LSTM EVALUATION (Different Window Sizes)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ERROR METRICS** | **WINDOW SIZE** | | | |
| **5** | **10** | **15** | **20** |
| **MSE** | 31669.60270 | 75216.39203 | 120814.02154 | 162395.82288 |
| **RMSE** | 177.95955 | 274.25607 | 347.58311 | 402.98365 |
| **MAE** | 128.60952 | 189.90279 | 239.87496 | 280.75467 |
| **MAPE** | 0.01911 | 0.02842 | 0.03606 | 0.04236 |

1. BASELINE LSTM EVALUATION (Different Window Sizes)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ERROR METRICS** | **WINDOW SIZE** | | | |
| **5** | **10** | **15** | **20** |
| **MSE** | 33503.81428 | 75141.48323 | 124298.02785 | 162011.71304 |
| **RMSE** | 183.04047 | 274.11947 | 352.55925 | 402.50679 |
| **MAE** | 129.00946 | 189.72945 | 242.56767 | 280.05673 |
| **MAPE** | 0.01916 | 0.02841 | 0.03644 | 0.042309 |

1. DMD-LSTM VALIDATION (Window Size = 5)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **STOCKS** | **MSE** | **RMSE** | **MAE** | **MAPE** |
| **PSEI** | 31669.602701 | 177.959554 | 128.609522 | 0.019111 |
| **AC** | 334.596086 | 18.291968 | 12.152423 | 0.033886 |
| **ALI** | 0.888378 | 0.942538 | 0.612138 | 0.036234 |
| **AP** | 0.869306 | 0.932366 | 0.659025 | 0.025030 |
| **BDO** | 9.437371 | 3.072030 | 1.917598 | 0.027811 |
| **BLOOM** | 6.424741 | 2.534707 | 0.707406 | 0.068108 |
| **FGEN** | 0.697390 | 0.835099 | 0.589689 | 0.032449 |
| **GLO** | 3485.954319 | 59.041971 | 36.287456 | 0.031104 |
| **ICT** | 8.046283 | 2.836597 | 1.446341 | 0.037207 |
| **JGS** | 2.768997 | 1.664030 | 0.909225 | 0.039754 |
| **LTG** | 0.579147 | 0.761017 | 0.456835 | 0.057332 |
| **MEG** | 0.018316 | 0.135336 | 0.089568 | 0.044411 |
| **MER** | 57.848920 | 7.605848 | 4.772926 | 0.037546 |
| **MPI** | 0.045508 | 0.213325 | 0.142975 | 0.033738 |
| **PGOLD** | 2.051151 | 1.432184 | 1.053508 | 0.028002 |
| **RLC** | 0.474353 | 0.688733 | 0.446334 | 0.039573 |
| **RRHI** | 6.239762 | 2.497952 | 1.873154 | 0.026765 |
| **SMC** | 9.741641 | 3.121160 | 1.633596 | 0.022560 |
| **TEL** | 4258.850672 | 65.259870 | 44.221286 | 0.029942 |
| **URC** | 12.778722 | 3.574734 | 2.020836 | 0.037336 |

1. DMD-LSTM SUCCESSIVE PREDICTIONS

|  |  |  |
| --- | --- | --- |
| **SUCCESSIVE DAYS PREDICTED** | **ACTUAL DATA AND PREDICTED DATA RATIO** | **MAPE VALUE** |
| 1 | 100% | 0.00973 |
| 2 | 80% | 0.13403 |
| 3 | 60% | 0.15782 |
| 4 | 40% | 0.15646 |
| 5 | 20% | 0.13910 |
| 6 | 0% | 0.12494 |
| 7 | -20% | 0.11283 |
| 8 | -40% | 0.10014 |
| 9 | -60% | 0.08914 |
| 10 | -100% | 0.08976 |

1. OPTIMAL ALMA PARAMETERS VALIDATION RESULTS

|  |  |
| --- | --- |
| **STOCK** | **COMPOUNDED**  **EXPECTED RETURN** |
| **PSEI** | 113966.8500 |
| **AC** | 20893.1914 |
| **ALI** | 1072.1418 |
| **AP** | 690.7100 |
| **BDO** | 2541.9970 |
| **BLOOM** | 495.4600 |
| **FGEN** | 581.0804 |
| **GLO** | 60538.0035 |
| **ICT** | 2815.6103 |
| **JGS** | 1569.8650 |
| **LTG** | 397.2854 |
| **MEG** | 149.2233 |
| **MER** | 8586.0306 |
| **MPI** | 146.0200 |
| **PGOLD** | 721.2700 |
| **RLC** | 649.4767 |
| **RRHI** | 1050.7000 |
| **SMC** | 2557.0770 |
| **TEL** | 72070.5000 |
| **URC** | 3207.5394 |

1. IDLE SYSTEM USAGE STATISTICS

|  |  |  |  |
| --- | --- | --- | --- |
|  | **alamAPI** | **alamDB** | **alamPREPROCESSOR** |
| **CPU Utilization (%)** | 0.168125 | 0.254313 | 0.009769 |
| **Memory Utilization (MiB)** | 45.718311 | 166.775377 | 312.798300 |

1. INTERNAL LOAD USAGE STATISTICS

|  |  |  |  |
| --- | --- | --- | --- |
|  | **INTERNAL COMPONENT/MODULE** | | |
| **DATA COLLECTOR** | **DATA PROCESSOR** | **alamSYS PREPROCESSOR**  *(Data Collector & Data Processor)* |
| **FAILURE RATE (%)** | 0 | 0 | 0 |
| **SUCCESS RATE (%)** | 100 | 100 | 100 |
| **AVERAGE RUNTIME (s)** | 41.72398 | 8.38061 | 48.30466 |
| **AVERAGE CPU (%) UTILIZATION** | 11.40659 | 92.71117 | 20.03138 |
| **AVERAGE MEMORY UTILIZATION (MiB)** | 3.64200 | 57.09545 | 794.29436 |
| **AVERAGE NETWORK UTILIZATION (MB)** | 232.73640 | 154 | 77.27655 |

*\* Out of 100 total runs*

1. DEPLOYMENT LOAD TEST RESULTS (BUY)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Number of Requests** | | |
|  | **10** | **100** | **1000** |
| SUCCESS RATE (%) | 100 | 100 | 100 |
| AVERAGE PROCESSING TIME  (Seconds) | 11.905222 | 139.618550 | 1159.773569 |

1. DEPLOYMENT LOAD TEST RESULTS (SELL)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Number of Requests** | | |
|  | **10** | **100** | **1000** |
| SUCCESS RATE (%) | 100 | 100 | 100 |
| AVERAGE PROCESSING TIME  (Seconds) | 13.384126 | 130.119867 | 1642.995011 |

Note: Average Processing Time to Process a Request is 1.3381812583333332

1. REAL WORLD APPLICATION RESULTS

|  |  |  |
| --- | --- | --- |
|  | **Realized Profit (PHP)** | **Realized Gain (%)** |
| **alamSYS** | 7,839.75 | 1.51 |
| **PSEI** | -22,788.90 | -13.810 |