APPLICATION DISPLAY MODULE

R GUI APPLICATION: STOCK PRICE PREDICTION (LQ45) USING THE GEOMETRIC BROWNIAN MOTION (GBM) METHOD WITH MONTE CARLO SIMULATION

Develop By

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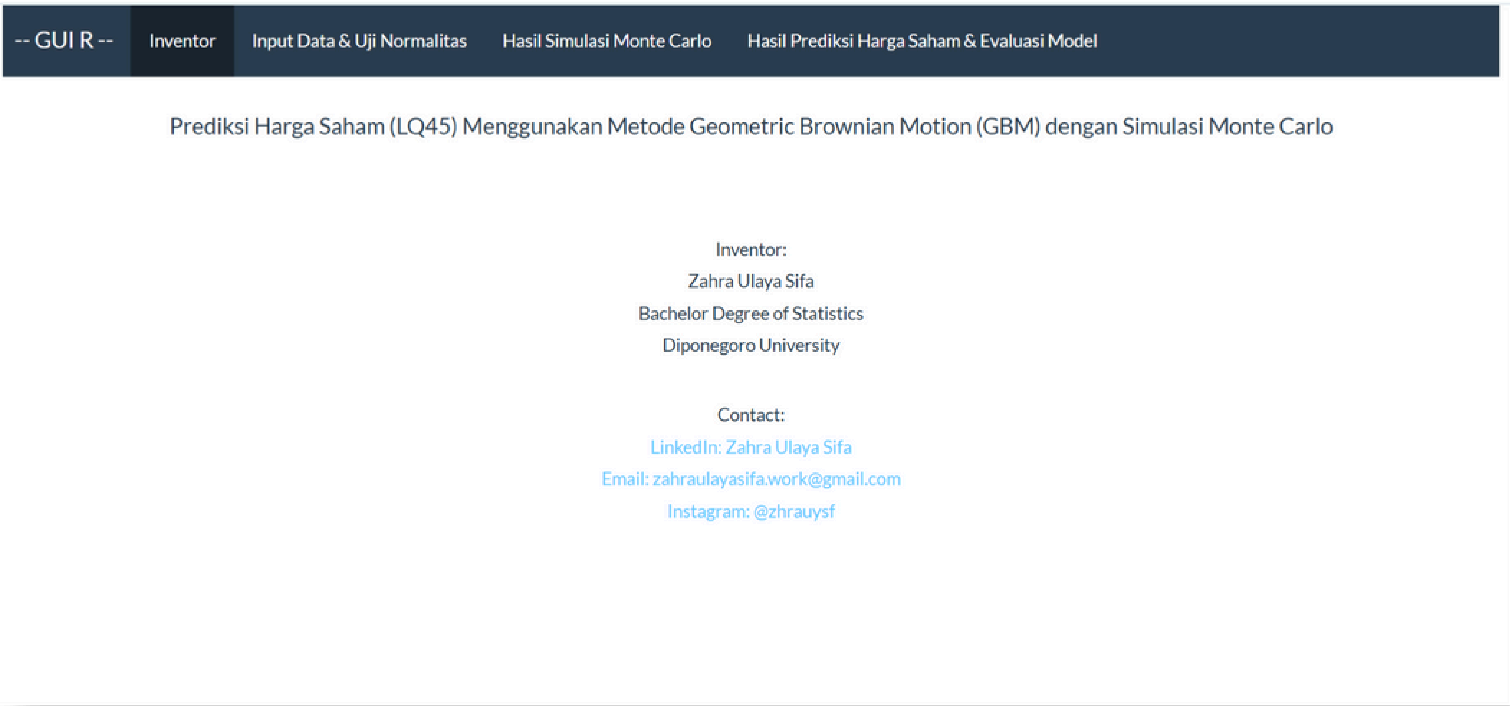
-- GUI R --
Inventor
Input Data & Uji Normalitas
Hasil Simulasi Monte Carlo
Hasil Prediksi Harga Saham & Evaluasi Model
Prediksi Harga Saham (LQ45) Menggunakan Metode Geometric Brownian Motion (GBM) dengan Simulasi Monte Carlo
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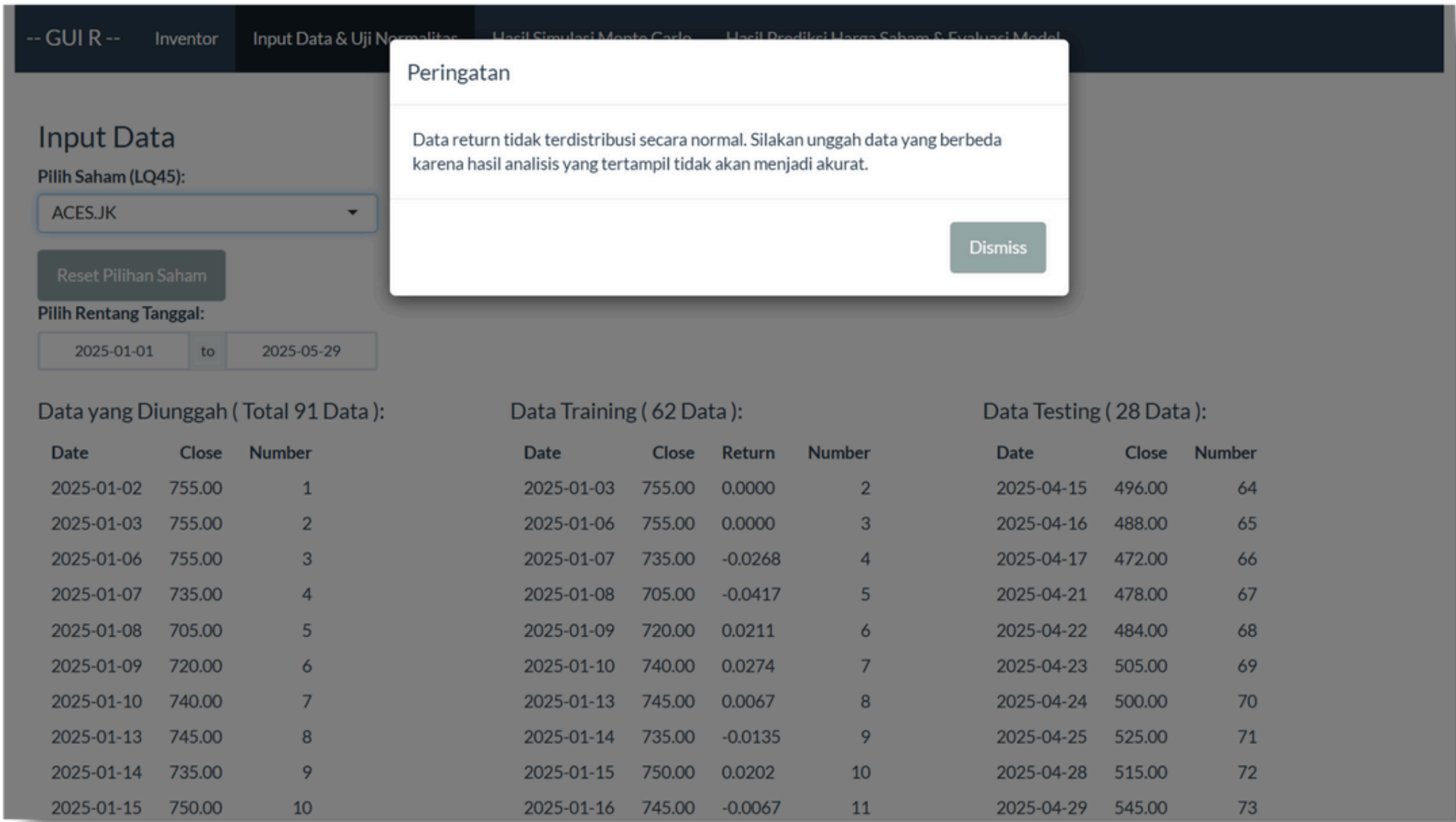
-- GUI R --
Inventor
Input Data & Uji Normalitas
Peringatan
Data return tidak terdistribusi secara normal. Silakan unggah data yang berbeda karena hasil analisis yang tertampil tidak akan menjadi akurat.
Dismiss
Input Data
Pilih Saham (LQ45):
ACES.JK
Reset Pilihan Saham
Pilih Rentang Tanggal:
2025-01-01 to 2025-05-29
Data yang Diunggah (Total 91 Data):

Date	Close	Number
2025-01-02	755.00	1
2025-01-03	755.00	2
2025-01-06	755.00	3
2025-01-07	735.00	4
2025-01-08	705.00	5
2025-01-09	720.00	6
2025-01-10	740.00	7
2025-01-13	745.00	8
2025-01-14	735.00	9
2025-01-15	750.00	10

Data Training (62 Data):

Date	Close	Return	Number
2025-01-03	755.00	0.0000	2
2025-01-06	755.00	0.0000	3
2025-01-07	735.00	-0.0268	4
2025-01-08	705.00	-0.0417	5
2025-01-09	720.00	0.0211	6
2025-01-10	740.00	0.0274	7
2025-01-13	745.00	0.0067	8
2025-01-14	735.00	-0.0135	9
2025-01-15	750.00	0.0202	10
2025-01-16	745.00	-0.0067	11

Data Testing (28 Data):

Date	Close	Number
2025-04-15	496.00	64
2025-04-16	488.00	65
2025-04-17	472.00	66
2025-04-21	478.00	67
2025-04-22	484.00	68
2025-04-23	505.00	69
2025-04-24	500.00	70
2025-04-25	525.00	71
2025-04-28	515.00	72
2025-04-29	545.00	73

2025-05-14	540.00	81
2025-05-15	525.00	82
2025-05-16	530.00	83
2025-05-19	525.00	84
2025-05-20	530.00	85
2025-05-21	530.00	86
2025-05-22	545.00	87
2025-05-23	535.00	88
2025-05-26	530.00	89
2025-05-27	530.00	90
2025-05-28	515.00	91

Uji Normalitas K-S Return Data Training

```
Uji Normalitas (Kolmogorov-Smirnov Test) pada Return Harian Data Training:
 ~ Hipotesis:
 H0: Data return mengikuti distribusi normal
 H1: Data return tidak mengikuti distribusi normal
 ~ Taraf Signifikansi: alpha = 0.05
 ~ Daerah Kritis: Tolak H0 jika p-value < alpha
 ~ Statistik Uji: D = 0.1229 dan p-value = 0.178
 ~ Kesimpulan: Gagal menolak H0, data return mengikuti distribusi normal karena nilai p-value = 0.178 >= alpha = 0.05
```

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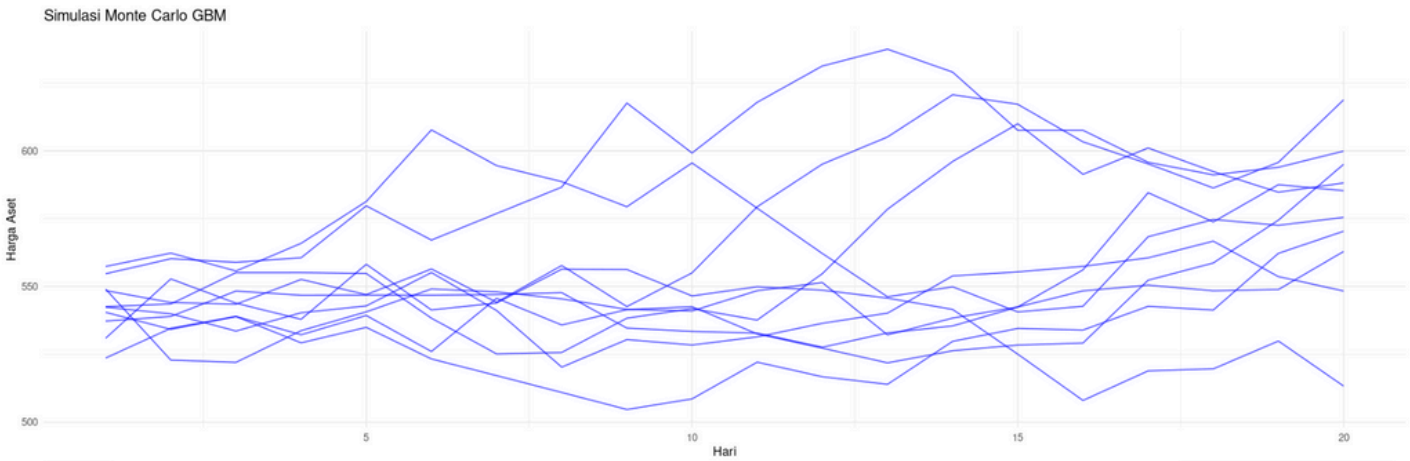
Hasil Simulasi Monte Carlo dengan GBM

Nilai set.seed: 123

Jumlah Simulasi: 10

Suku Bunga (r) 0.06

Langkah Prediksi (hari) 10



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Search:

Simulation	Day	Price

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Tabel Perbandingan Data Testing (Harga Aktual) vs Hasil Prediksi

Show 10 entries

Search:

	Tanggal	Harga_Aktual	Harga_Prediksi_Testing
1	2025-05-15	525	542.6699511778169
2	2025-05-16	530	543.3412261970152
3	2025-05-19	525	543.8710748595466
4	2025-05-20	530	545.4263344740787
5	2025-05-21	530	552.5483334131869
6	2025-05-22	545	551.1178125226135
7	2025-05-23	535	548.359249309345
8	2025-05-26	530	547.5109443922262
9	2025-05-27	530	548.6802730830997
10	2025-05-28	515	549.2013286478202

Showing 1 to 10 of 10 entries

Previous 1 Next

Evaluasi Model Prediksi

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Evaluasi Model Prediksi

```
Evaluasi Model Prediksi:
 Mean Squared Error (MSE): 363.3946
 Root Mean Squared Error (RMSE): 19.06291
 Symmetric Mean Absolute Percentage Error (SMAPE): 3.31 %
 Mean Absolute Percentage Error (MAPE): 3.37 %
```

Hasil Prediksi Sesuai Input Langkah

Show 10 entries

Search:

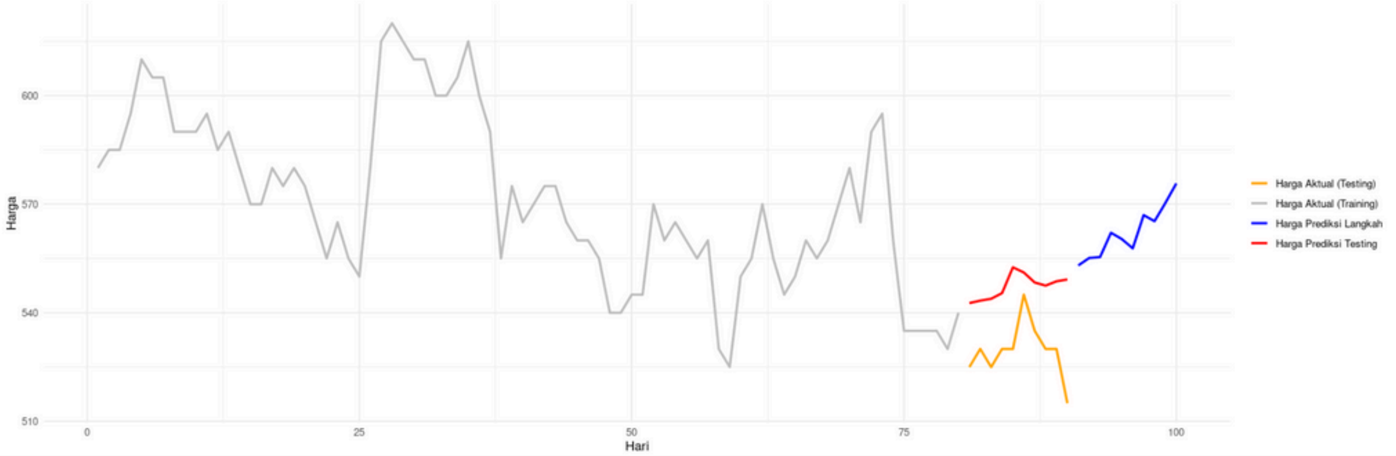
Langkah_Prediksi	Harga_Prediksi_Langkah
1	553.085957444979
2	555.1269180890265
3	555.3890744875517
4	562.09508636341
5	560.3489951198615
6	557.7904396876727
7	566.9776688780233

5	560.3489951198615
6	557.7904396876727
7	566.9776688780233
8	565.3001304681555
9	570.3544269608083
10	575.7513517151168

Showing 1 to 10 of 10 entries

Previous 1 Next

Grafik Perbandingan Harga Aktual vs Harga Prediksi



THANK YOU