**Mudah Belajar Otodidak Data Science**

**(Praktek Menggunakan Python3)**

**Edisi 2 Tahun 2023**

**Disusun Oleh:**

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**Materi Praktikum Data Science**

1. Pengantar Bahasa Python
2. Visualisasi Data Menggunakan Matplotlib dan Seaborn
3. Visualisasi Data Menggunakan Framework Streamlit
4. Teknik-Teknik Praproses Data – Data Tabular, Time Series, dan Spasial
5. Algoritma Klasifikasi Data Bagian 1
6. Algoritma Klastering Data Bagian 2
7. Ujian Tengah Semester (UTS)
8. Algoritma Klastering Data Bagian 1
9. Algoritma Klastering Data Bagian 2
10. Algoritma Regresi Linier
11. Algoritma Neural Network: SBi-LSTM dan SBi-GRU
12. Algoritma Neural Network: SBi-LSTM-XGBoost dan SBi-GRU-XGBoostost
13. Presentasi Projek
14. Ujian Akhir Semester (UAS)

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| **Pertemuan 11 – Stacked-Bidirectional on Neural Network** |

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| **Tujuan pembelajaran**   * Mahasiswa mampu memahami konsep timeseries. * Mahasiswa mampu memahami konsep Stacked-Bidirectional pada Neural Network. * Mahasiswa mampu menerapkan atau membuat model prediksi timeseries menggunakan metode Stacked-Bidirectional pada Neural Network. |

**Studi kasus: Prediksi bitcoin menggunakan metode SBi-LSTM-RNN dan SBi-GRU-RNN.**

**C01\_visualization.py**

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| # Declaration library  import matplotlib.pyplot as plt  from matplotlib.dates import DateFormatter  # ----------------------------------------------------------------------------------------    # function of lineplot  def timeseries\_matplotlib(df, nm\_labels):      # create lineplot    fig, ax = plt.subplots(figsize = (8,4))    for x in range(len(nm\_labels)):      ax.plot(df.iloc[:, 0:1], df.iloc[:, x+1:x+2], label=nm\_labels[x], linewidth=2.5)      # set label-labels    ax.set\_title("", fontsize=12)    ax.set\_xlabel("", fontsize=10)    ax.set\_ylabel("", fontsize=10)    ax.legend(loc="best")    ax.grid(True)      # show lineplot    plt.show()  # ----------------------------------------------------------------------------------------    # func timeseries plot  def lineplot\_matplotlib1(x1, y1, label1, title):      # create lineplot    fig, ax = plt.subplots(figsize = (8,4))    ax.plot(x1, y1, color="tab:blue", label=label1, linewidth=2.5)      # set label-labels    ax.set\_title(title, fontsize=12)    ax.set\_xlabel("", fontsize=10)    ax.set\_ylabel("", fontsize=10)    ax.legend(loc="best")    ax.grid(True)      # show lineplot    plt.show()  # ----------------------------------------------------------------------------------------    # func timeseries plot  def lineplot\_matplotlib2(x1, y1, label1, x2, y2, label2, title):      # create lineplot    fig, ax = plt.subplots(figsize = (8,4))    ax.plot(x1, y1, color="tab:blue", label=label1, linewidth=2.5)    ax.plot(x2, y2, color="tab:red", label=label2, linewidth=2.5)      # set label-labels    ax.set\_title(title, fontsize=12)    ax.set\_xlabel("", fontsize=10)    ax.set\_ylabel("", fontsize=10)    ax.legend(loc="best")    ax.grid(True)      # show lineplot    plt.show()  # ----------------------------------------------------------------------------------------    # func timeseries plot  def lineplot\_matplotlib3(x1, y1, label1, x2, y2, label2, title):      # create lineplot    fig, ax = plt.subplots(figsize = (8,4))    ax.plot(x1, y1, color="tab:blue", label=label1, linewidth=2.5)    ax.plot(x2, y2, color="tab:red", label=label2, linewidth=2.5)      # set label-labels    ax.xaxis.set\_major\_formatter(DateFormatter("%Y"))    ax.set\_title(title, fontsize=12)    ax.set\_xlabel("", fontsize=10)    ax.set\_ylabel("", fontsize=10)    ax.legend(loc="best")    ax.grid(True)      # show lineplot    plt.show()  # ---------------------------------------------------------------------------------------- |

**C02\_model\_predictions.py**

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