Data Science and AI Engineer – Roadmap 2025

Python – Topics

1) Basic data types and operators
2) Loops & if-else
3) Data Structures
4) Functions
5) File Handling
6) OOPS
7) Multi-threading/ Multi-processing

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Mathematics – Topics

1) Scalar & vectors
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2) Matrix
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3) Linear transformations
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4) Eigen vectors & Eigen values
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5) Equation of line & plane
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6) Slopes & derivatives
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7) Chain rule of derivatives
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Statistics - Topics

1) Mean, Median, Mode
2) Percentiles & Quartiles
3) Range, Variance & Standard deviation
4) Normalization & Standardisation
5) Covariance 6 Correlation
6) Hypothesis testing
7) P value & hypothesis testing z test
8) chi square test
9) ANNOVA

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Probability – Topics

1) Additive & Multiplicative Rule
2) PDF, PMF, CDF
3) Normal Distribution
4) T-Distribution
5) Binomial Distribution
6) Bernoulli Distribution
7) Uniform Distribution
8) Poisson Distribution
9) Central Limit theorem

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Data Science Packages – Topics

1) Numpy
2) Pandas
3) Matplotlib

4) Seaborn
5) Scikit Learn

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Feature Selection and Feature Extraction

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Machine Learning – Topics

1) Supervised Learning Algorithms
2) Un supervised Learning Algorithms

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NLP Techniques – Topics

1) Text Preprocessing
2) Text Representation
3) Text Understanding

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Deep Learning Framework

1) Tensorflow

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   (Or)

2) Pytorch

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Deep Learning – Topics

1) ANN
2) CNN

3) RNN
4) LSTM & GRU
5) Bidirectional RNN
6) Encoder – Decoder
7) Attention Mechanism

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Transformers – Deep Learning

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Generative AI – Framework

1) Langchain

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