



SPYPRO SECURITY SOLUTIONS Pvt. Ltd.,

C Y B E R S E C U R I T Y

5-Days Workshop on Machine Learning with python

Are you interested in unlocking the power of Machine Learning (ML) in FIVE days workshop and its applications in various domains? Join our interactive 5-days workshop on ML, where you'll gain a solid foundation in this rapidly growing field and learn to build and deploy ML models.

Topics to be covered in Machine Learning with python

1. Session 1: Introduction to Machine Learning

- What is Machine Learning?
- Types of Machine Learning (Supervised, Unsupervised, Reinforcement Learning)
- Applications of Machine Learning

2. Session 2: Supervised Learning

- Basics of Supervised Learning
- Regression vs. Classification problems
- Popular Supervised Learning algorithms (Linear Regression, Logistic Regression, Decision Trees, Random Forests)

3. Session 3: Unsupervised Learning

- Basics of Unsupervised Learning
 - Clustering algorithms (K-means, Hierarchical Clustering)
 - Dimensionality Reduction (Principal Component Analysis)
- Advanced Machine Learning Techniques

4 .Session 4: Feature Engineering

- Importance of Feature Engineering
- Techniques for Feature Selection
- Feature Extraction (PCA, LDA, t-SNE)

5. Session 5: Neural Networks and Deep Learning

- **Introduction to Neural Networks**
- **Building blocks of Neural Networks (Neurons, Activation Functions)**
- **Deep Learning architectures (Convolutional Neural Networks, Recurrent Neural Networks)**

6. Session 6: Model Evaluation and Hyperparameter Tuning

- **Evaluation metrics (Accuracy, Precision, Recall, F1 Score, ROC curve)**
- **Cross-validation techniques**
- **Hyperparameter tuning techniques (Grid Search, Random Search)**

Real-world Applications and Project Work

7. Session 1: Natural Language Processing (NLP)

- **Introduction to NLP**
- **Text preprocessing techniques**
- **NLP tasks (Text Classification, Sentiment Analysis)**

8. Session 2: Reinforcement Learning

- **Introduction to Reinforcement Learning**
- **Markov Decision Processes (MDPs)**
- **Q-Learning and Policy Gradient methods**

9. Session 3: Project Work

- **Hands-on project implementation using a Machine Learning framework (e.g., TensorFlow, scikit-learn)**
- **Dataset selection, preprocessing, model training, and evaluation**
- **Tips for deploying and maintaining ML models**

Duration: The duration of this workshop will be three consecutive days, with 6 hour session each day in a total of 30 hours properly divided into theory and hands on practicals sessions.

Certification Policy:

- Certificate of Merit for all the workshop participants from SmartBridge.
- At the end of this workshop, a small competition will be organized among the participating students and winners will be awarded with a '**Certificate of Excellence**'.
- Certificate of Coordination for the coordinators of the campus workshops
- Internship and placement also provide for selected student..

Eligibility: It's a basic level workshop so there are no prerequisites. Anyone interested, can join this workshop.

Pre-Requisites:

- Seminar hall/classroom having sitting capacity of 200 students for conducting hands on session for all the participants.
- Good Quality public address system ideally one/two cordless mikes will be required.
- Projector/ Screen along with black/white board for teaching and presentation purposes.
- One small stereo jack cord to connect in laptop for its sound system.
- Laptop/Computer per two students is necessary.
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Fee: Rs. 600/- (inclusive of all Taxes) per participant.

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