Applied AI Solution Development with Python Training Course

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Sharm El-Sheikh

4100 € (Per Person)

Ref: #AI8474_263753

Course Introduction / Overview:

This training course is designed to provide programmers and developers with the practical skills needed to design, develop, and deploy artificial intelligence solutions using Python. As AI continues to be a driving force in technology, the ability to build intelligent systems is a critical skill. This program goes beyond a theoretical overview and offers a hands-on, code-first approach to building AI applications. Drawing on foundational concepts from academics like Dr. Brett Lantz and his book "Machine Learning with R," the course explores key topics such as data manipulation with pandas, machine learning with scikit-learn, and deep learning with TensorFlow or PyTorch. Participants will learn to use Python to create a variety of AI solutions, from predictive models and recommender systems to natural language processing applications. BIG BEN Training Center has developed this curriculum to be highly practical and project-based. It includes case studies and hands-on coding exercises that allow participants to apply their knowledge to real-world problems. This course is a vital resource for any developer looking to expand their skill set and enter the field of artificial intelligence with confidence.

Target Audience / This training course is suitable for:

- Software developers and engineers.
- Python programmers.
- Data analysts and data scientists.
- IT professionals.
- Computer science students and graduates.
- R&D and innovation specialists.
- Technical project managers.

Target Sectors and Industries:

- Technology and software development.
- Financial services.
- E-commerce and retail.
- Healthcare and biotechnology.
- Manufacturing and industrial.
- Media and entertainment.
- Government and public sector.

Target Organizations Departments:

- Software engineering.
- Data science and analytics.
- Research and development.
- Product development.
- Information technology.
- Business intelligence.
- Operations.

Course Offerings:

By the end of this course, the participants will have able to:

- Write clean, efficient Python code for AI and machine learning tasks.
- Use popular libraries like NumPy, pandas, and Matplotlib for data manipulation and visualization.
- Develop and train machine learning models for classification and regression problems.
- Implement deep learning models for image and text-based applications.
- Build and deploy AI solutions from scratch to production environments.
- Understand the data lifecycle for AI development.
- Troubleshoot and optimize the performance of AI models.

Course Methodology:

The training course at BIG BEN Training Center uses a practical, code-focused methodology that is perfect for programmers. We believe that the best way to learn AI development is by doing it. The program is built around a series of hands-on coding exercises and projects. Participants will write code every day, working with real datasets to solve real-world problems such as predicting customer churn or building a simple recommendation engine. The course is structured with a "learning by doing" approach, where concepts are explained and then immediately applied in a programming environment. We use collaborative learning through pair programming and code reviews, fostering a supportive environment where participants can learn from each other and get real-time feedback. The training also includes live demonstrations of best practices for model deployment and maintenance. This methodology ensures that participants leave with a clear portfolio of work and the confidence to start building their own AI solutions immediately.

Course Agenda (Course Units):

Unit One: Python Fundamentals for Data Science

- Advanced Python for data science.
- Introduction to data structures in pandas.
- Data cleaning and preprocessing.
- Data visualization with Matplotlib and Seaborn.
- Introduction to machine learning.
- Scikit-learn basics for model training.
- Preparing a dataset for a practical project.

Unit Two: Machine Learning for Predictive Modeling

- Supervised and unsupervised learning.
- Regression models for prediction.
- Classification algorithms and evaluation metrics.
- Feature engineering and selection.
- Model validation and cross-validation.
- Hyperparameter tuning.
- Practical project on predictive modeling.

Unit Three: Deep Learning and Neural Networks

- Introduction to deep learning and neural networks.
- Building a neural network with TensorFlow or PyTorch.
- Training and optimizing a deep learning model.
- Convolutional Neural Networks (CNNs) for image data.
- Recurrent Neural Networks (RNNs) for sequential data.
- Transfer learning.
- Practical project on deep learning.

Unit Four: Natural Language Processing (NLP)

- Fundamentals of natural language processing.
- Text preprocessing and vectorization.
- Sentiment analysis.
- Building a text classification model.
- Named entity recognition.
- Word embeddings and language models.
- Practical project on NLP.

Unit Five: Model Deployment and MLOps

- Building a production-ready AI application.
- Model serialization and API development.
- Version control for models and data.
- Introduction to MLOps principles.
- Containerization with Docker.
- Monitoring and maintenance of AI systems.
- Final capstone project presentation.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

How can a developer ensure the ethical use of the data and algorithms they use when building AI solutions, especially in contexts where bias might affect real-world outcomes?

What unique qualities does this course offer compared to other courses?

This training course is specifically designed for programmers who want to quickly and effectively transition into the field of AI development. While many AI courses are highly theoretical and mathematical, this program is hands-on and code-focused, giving participants the practical skills, they need to build real-world AI applications. The curriculum is structured around a series of practical projects, allowing participants to build a tangible portfolio of work that demonstrates their skills to potential employers. The course also uniquely addresses the entire AI development lifecycle, from data preprocessing and model training to deployment and maintenance, which is crucial for building production-ready systems. This complete, project-based approach is what sets BIG BEN Training Center apart and makes this program an indispensable resource for any developer looking to expand their career into the rapidly growing field of artificial intelligence.