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AI USING PYTHON TRAINING

Why To Enroll In Our AI using Python Training Course?

We Focus on Innovative ideas, High-quality Training, Smart Classes, 100% job assistance, and Opening the doors of opportunities. Our AI using Python Trainees are working across the nation. We at NTI India, No#1 AI using Python Course with 100% Placement. Certified Trainers with Over 10,000 Students Trained in **AI using Python Course**

What Our Students Will Get During AI using Python Training Course?

Get dedicated student support, career services, industry expert mentors, and real-world projects. Career Counselling. Timely Doubt Resolution. 50% Salary Hike, Career Counselling Case Studies + Tools + Certificate.

Why learn AI using Python?

It's continued to be a great option for data scientists who use it for building Machine learning applications or using them and other scientific computations. **AI Using Python Training** cuts development time in half with its simple to read syntax and easy compilation feature with easy to learn concepts. Debugging any type of program is a breeze in this language with its built-in debugger. It runs on every famous type of platforms like Windows, Linux/Unix, and Mac OS and has been ported to Java and .NET virtual machines. Python is free to use language, even for commercial products, because of its OSI-approved open source license, so anyone can use it for free. It has been opted as the most preferred Language for AI and the increasing search trends on Python every day also indicates that it is the "Next Big Thing" and a must for aspirants in the AI field.

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Job Opportunities after Python Training:

The demand for this language is increasing at a rapid rate in the market. Organizations have been searching for skilled candidates to develop web applications. With **AI Using Python Training** India, a candidate can easily gain some programming skills. The carrier scope in this field is very large. A candidate can be hired as a Python Developer or a Data Analyst or more. Python plays an important role in your resume. Some other job profiles by learning this are Research Analyst, Software Engineer, Software Developer, and so on. Training is a very important part to be a successful developer or researcher. The good part is that **NTI IT Certification is provided on completing the training successfully. It opens a lot of opportunities for aspiring candidates.**

Introduction To Python

• Why Python
• Application areas of python
• Python implementations
• Cpython
• Jython
• Ironpython
• Pypy
• Python versions
• Installing python
• Python interpreter architecture
• Python byte code compiler
• Python virtual machine(pvm)

Writing and Executing First Python Program

• Using interactive mode
• Using script modeGeneral text editor and command window
    -    Idle editor and idle shell
• Understanding print() function
• How to compile python program explicitly

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Python Language Fundamentals

• Character set
• Keywords
• Comments
• Variables
• Literals
• Operators
• Reading input from console
• Parsing string to int, float

Python Conditional Statements

• If statement
• If else statement
• If elif statement
• If elif else statement
• Nested if statement

Looping Statements

• While loop
• For loop
• Nested loops
• Pass, break and continue keywords

Standard Data Types

• Int, float, complex, bool, nonetype
• Str, list, tuple, range
• Dict, set, frozenset

String Handling

• What is string
• String representations

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- Unicode string
- String functions, methods
- String indexing and slicing
- String formatting

Python List

- Creating and accessing lists
- Indexing and slicing lists
- List methods
- Nested lists
- List comprehension

Python Tuple

- Creating tuple
- Accessing tuple
- Immutability of tuple

Python Set

- How to create a set
- Iteration over sets
- Python set methods
- Python frozenset

Python Dictionary

- Creating a dictionary
- Dictionary methods
- Accessing values from dictionary
- Updating dictionary
- Iterating dictionary
- Dictionary comprehension

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Python Functions

• Defining a function
• Calling a function
• Types of functions
• Function arguments
• Positional arguments, keyword arguments • Default arguments, non-default arguments • Arbitrary arguments, keyword arbitrary arguments • Function return statement
• Nested function
• Function as argument
• Function as return statement
• Decorator function
• Closure
• Map(), filter(), reduce(), any() functions • Anonymous or lambda function

Modules & Packages

• Why modules
• Script v/s module
• Importing module
• Standard v/s third party modules
• Why packages
• Understanding pip utility

File I/O

• Introduction to file handling
• File modes
• Functions and methods related to file handling • Understanding with block

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Object Oriented Programming

• Procedural v/s object oriented programming
•OOP principles
• Defining a class & object creation
• Object attributes
• Inheritance
• Encapsulation
• Polymorphism

Exception Handling

• Difference between syntax errors and exceptions •
Keywords used in exception handling
• try, except, finally, raise, assert
• Types of except blocks

Regular Expressions(Regex)

• Need of regular expressions
• Re module
• Functions /methods related to regex
• Meta characters & special sequences

GUI Programming

• Introduction to tkinter programming
• Tkinter widgets
• Tk, label, Entry, Textbox, Button
• Frame, messagebox, filedialogetc
• Layout managers
• Event handling
• Displaying image

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Multi-Threading Programming

• Multi-processing v/s Multi- threading
• Need of threads
• Creating child threads
• Functions /methods related to threads
• Thread synchronization and locking

● SQL

Introduction to Database

• Database Concepts
• What is Database Package?
• Understanding Data Storage
• Relational Database (RDBMS) Concept

SQL (Structured Query Language)

• SQL basics
• DML, DDL & DQL
• DDL: create, alter, drop
• SQL constraints:
• Not null, unique,
• Primary & foreign key, composite key • , default
• DML: insert, update, delete and merge •
– DQL : select
• Select distinct
• SQL where
• SQL operators
• SQL like
• SQL order by
• SQL aliases
• SQL views
• SQL joins
• Inner join

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- Left (outer) join
- Right (outer) join
- Full (outer) join
- Mysql functions
- String functions
- Char_length
- Concat
- Lower
- Reverse
- Upper
- Numeric functions
- Max, min, sum
- Avg, count, abs
- Date functions
- Curdate
- Curtime
- Now

Statistics, Probability & Analytics:

Introduction to Statistics

- Sample or population
- Measures of central tendency
- Arithmetic mean
- Harmonic mean
- Geometric mean
- Mode
- Quartile
- First quartile
- Second quartile(median)
- Third quartile
- Standard deviation

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Probability Distributions

• Introduction to probability
• Conditional probability
• Normal distribution
• Uniform distribution
• Exponential distribution
• Right & left skewed distribution
• Random distribution
• Central limit theorem

● Hypothesis Testing

• Normality test ●
• Mean test●
• T-test●
• Z-test ●
• ANOVA test●
• Chi square test●
• Correlation and covariance●

Numpy Package

• Difference between list and numpy array ● •
- Vector and matrix operations ●
• Array indexing and slicing ●

Pandas Package

Introduction to pandas

• Labeled and structured data●
• Series and dataframe objects●

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How to load datasets

• From excel●
• From csv●
• From html table ●

Accessing data from Data Frame

• at &iat●
• loc&iloc●
• head() & tail()●

Exploratory Data Analysis (EDA)

•describe()●

• groupby()●
• crosstab()●
• boolean slicing / query()●

Data Manipulation & Cleaning

• Map(), apply()
• Combining data frames
• Adding/removing rows & columns
• Sorting data
• Handling missing values
• Handling duplicacy
• Handling data error

Handling Date and Time

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Data Visualization using matplotlib and seaborn packages

• Scatter plot, lineplot, bar plot
• Histogram, pie chart,
• Jointplot, pairplot, heatmap
• Outlier detection using boxplot

Machine Learning:

Introduction To Machine Learning

• Traditional v/s Machine Learning Programming
• Real life examples based on ML
• Steps of ML Programming
• Data Preprocessing revised
• Terminology related to ML

Supervised Learning

• Classification
• Regression

Unsupervised Learning

• Clustering

KNN Classification

• Math behind KNN
• KNN implementation
• Understanding hyper parameters

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Performance metrics

• Math behind KNN
• KNN implementation
• Understanding hyper parameters

Regression

• Math behind regression
• Simple linear regression
• Multiple linear regression
• Polynomial regression
• Boston price prediction
• Cost or loss functions
• Mean absolute error
• Mean squared error
• Root mean squared error
• Least square error
• Regularization

Logistic Regression for classification

• Theory of logistic regression
• Binary and multiclass classification
• Implementing titanic dataset
• Implementing iris dataset
• Sigmoid and softmax functions

Support Vector Machines

• Theory of SVM
• SVM Implementation
• kernel, gamma, alpha

Decision Tree Classification

• Theory of decision tree
• Node splitting

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• Implementation with iris dataset
• Visualizing tree

Ensemble Learning

• Random forest
• Bagging and boosting
• Voting classifier

Model Selection Techniques

• Cross validation
• Grid and random search for hyper parameter tuning

Recommendation System

• Content based technique
• Collaborative filtering technique
• Evaluating similarity based on correlation •
Classification-based recommendations

Clustering

• K-means clustering
• Hierarchical clustering
• Elbow technique
• Silhouette coefficient
• Dendogram

Text Analysis

• Install nltk
• Tokenize words
• Tokenizing sentences
• Stop words customization
• Stemming and lemmatization
• Feature extraction

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- Sentiment analysis
- CountVectorizer
- TfidfVectorizer
- Naive bayes algorithms

Dimensionality Reduction

- Principal component analysis(PCA)

Open CV

- Reading images
- Understanding gray scale image
- Resizing image
- Understanding haar classifiers
- Face, eyes classification
- How to use webcam in open cv
- Building image data set
- Capturing video
- Face classification in video
- Creating model for gender prediction

Deep Learning & Neural Networks:

Introduction To Artificial Neural Network

- What is artificial neural network (ANN)?
- How neural network works?
- Perceptron
- Multilayer perceptron
- Feedforward
- Back propagation

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Introduction To Deep Learning

• What is deep learning?
• Deep learning packages
• Deep learning applications
• Building deep learning environment
• Installing tensor flow locally
• Understanding google colab

Tensor Flow Basics

• What is tensorflow?
• Tensorflow 1.x v/s tensorflow 2.x
• Variables, constants
• Scalar, vector, matrix
• Operations using tensorflow
• Difference between tensorflow and numpy operations
• Computational graph

Optimizers

• What does optimizers do?
• Gradient descent (full batch and min batch)
• Stochastic gradient descent
• Learning rate , epoch

Activation Functions

• What does activation functions do?
• Sigmoid function,
• Hyperbolic tangent function (tanh)
• ReLU –rectified linear unit
• Softmax function
• Vanishing gradient problem

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Building Artificial Neural Network

• Using scikit implementation
• Using tensorflow
• Understanding mnist dataset
• Initializing weights and biases
• Gradient tape
• Defining loss/cost function
• Train the neural network
• Minimizing the loss by adjusting weights and biases

Modern Deep Learning Optimizers and Regularization

• SGD with momentum
• RMSprop
• AdaGrad
• Adam
• Dropout layers and regularization
• Batch normalization

Building Deep Neural Network Using Keras

• What is keras?
• Keras fundamental for deep learning
• Keras sequential model and functional api
• Solve a linear regression and classification problem with example •
Saving and loading a keras model

Convolutional Neural Networks (CNNs)

• Introduction to CNN
• CNN architecture
• Convolutional operations
• Pooling, stride and padding operations
• Data augmentation

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- Building,training and evaluating first CNN model
- Model performance optimization
- Auto encoders for CNN
- Transfer learning and object detection using pre-trained CNN models •
LeNet
- AlexNet
- VGG16
- ResNet50
- Yolo algorithm

Word Embedding

- What is word embedding?
- Word2vec embedding
- CBOW
- Skipgram
- Keras embedding layers
- Visualize word embedding
- Google word2vec embedding
- Glove embedding

Recurrent Neural Networks (RNNs)

- Introduction to RNN
- RNN architecture
- Implementing basic RNN in tensorflow
- Need for LSTM and GRU
- Deep RNN/LSTM/GRU
- Text classification using LSTM
- Prediction for time series problem
- Seq-2-seq modeling
- Encoder-decoder model

Generative Adversarial Networks (GANs)
- Introduction to GAN
- Generator
- Discriminator

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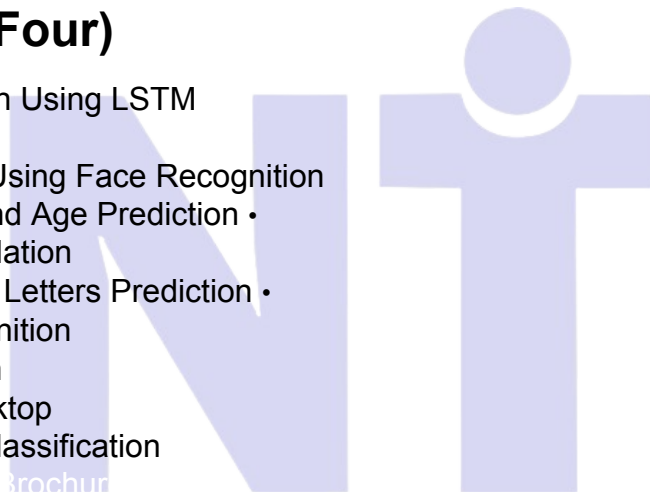**Address:** LIG - 2/21/422, Nehru Nagar, Rewa, Madhya Pradesh 486001

• Types of GAN
  • Implementing GAN using neural network

Speech Recognition APIs

• Text to speech
• Speech to text
• Automate task using voice
• Voice search on web

Projects(Any Four)

• Stock Price Prediction Using LSTM
• Object Detection
• Attendance System Using Face Recognition
 • Facial Expression and Age Prediction •
Neural Machine Translation
• Hand Written Digits& Letters Prediction •
- Number Plate Recognition
• Gender Classification
• My Assistant for Desktop
• Cat v/s Dog Image Classification

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