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Every Life, Every Moment, Every Day. A New Discovery...

PYTHON TECHNOLOGIES COURSES

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Every Life, Every Moment, Every Day. A New Discovery...

JYTHON COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Jython?

Jython is the Java Virtual Machine implementation of the Python programming language. Jython was developed to run on the Java platform. A Jython software program can import and use any classes that are in Java. Just as Java, Jython source codes compiles to java byte-code. One of the main benefits of Jython is that a user interface that is designed in Python can make use of GUI elements of AWT, Swing or SWT Package.

The Jython project was started as JPython and later, the name was changed to Jython. It follows closely the standard Python implementation which is known as CPython as developed by Guido Van Rossum who is the developer of Python. Jython was developed in 1997 by Jim Hugunin. Jython 2.0 was later released in 1999. Since then, the Jython 2.x release series corresponds to the equivalent CPython releases. Jython 2.7.0 was released in May 2015, and it corresponds to CPython 2.7. The development of Jython 3.x is currently under progress.

Features of Jython

There are many features of Jython and some of them are:

1. The Jython Registry: Jython runs with a local Jython registry file which is used to provide a platform-independent equivalent to the Windows registry file. It joins this together with environment variable and command-line information at startup.

2. Embedding: With Jython, Java classes can be embedded into Python scripts, and the Python scripts are invoked and inspected from the Java code.

3. Collection and Array support: Jython presents you with many ways to smoothly integrate Java arrays and collections with Python data structures.

4. Compiling to Java class files: The compile all modules that is present in Jython Jython produce Java byte code in Java class files from Python code. It contrarily corresponds to the CPython module of the same name. (Earlier versions make use of a tool that is known as Jythonc which was discarded fully in Jython 2.5).

5. Database interaction: The ZXJDBC module provides you with a Pythonesque interface on top of the Java Database Connectivity API (JDBC).

Benefits of Jython

There are lots of features of Jython and some of them are:
1. Reusability of Java features: The usability of Java classes and interfaces in your python code with Jython is one of the best deals that are available. Also, other features that make Java stand aside from the crowd, such as automatic garbage collection and multithreading, enhance the feature set of Jython even more.

2. Java bytecode compilation: One of the biggest strengths of Java that astonished the programming community when it was first introduced was the concept of the development of bytecode in the form of a *.class file, a sweet piece of undecipherable text is generated for every class and interface that is present inside your Java file. Apart from lending a hand in making the language to be portable across various platforms, it also improves the performance of the applications as well.

3. Easy frame creation: Jython simplifies the process of creating frames.

4. High-Level Language Accessibility: Jython gives you a very nice combination of High-Level Language features and the most popular scripting language. It is also great if you need to implement a quick Graphical User Interface, or if you just need a small piece of code or a method to initiate a query to a database.

Difference between Python and Jython

The listed are the differences between Python and Jython

1. The reference implementation of Python, called CPython, is written in C language. While Jython, is completely written in Java and is a Java Virtual Machine implementation.
2. Standard Python is available on multiple platforms. Jython is available for any platform with a Java Virtual Machine installed on it.
3. Standard Python code compiles to a .pyc file, while the Jython program compiles to a .class file.
4. Python extensions can be written in C language. Extensions for Jython are written in Java.
5. Jython is truly multi-threaded in nature. While Python makes use of the Global Interpreter Lock (GIL) mechanism for the process.
6. Both implementations have different garbage collection mechanisms.

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MACHINE LEARNING COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Machine Learning?

Machine Learning is the scientific study of the different statistical models and algorithms that computer systems make use of to carry out a specific function without using very concise and clear instructions.

Machine Learning or ML is regarded as a branch of artificial intelligence. Machine learning algorithms are used to develop a mathematical model that is based on sample data, referred to as "training data", in order to obtain predictions or decisions without being precisely coded to carry out the task. Various algorithms of Machine Learning are utilized in a wide range of software applications, such as computer vision and email filtering, in which it is very hard or not possible to build a regular algorithm for efficiently executing the task.

Machine Learning is related closely to computational statistics, which entirely focuses on constructing predictions by using computers. The study of mathematical optimization presents several methods, theory and application areas to the field of machine learning. In its various applications across business problems, carrying out machine learning is also referred to as carrying out predictive analytics.

The Computational Analysis of Machine Learning algorithms and their performance is a branch of the theoretical computer science field that is known as Computational Learning Theory. Because the training sets for the algorithms are finite and the future is not certain, the learning theory does not always produce guaranteed results of the performance of algorithms. Instead, probabilistic limitations on performance are quite common.

Types of Machine Learning

1. Supervised Learning: This is also called inductive learning. Supervised learning is the machine learning task of learning a function that maps an input to an output based on example input-output pairs. Training data includes the desired outputs.

2. Unsupervised Learning: This is a type of machine learning algorithm used to draw inferences from datasets consisting of input data without labeled responses. Training data does not include the desired outputs. An example is clustering. It is hard to tell what is good learning and what is not.

3. Semi-supervised Learning: This is an approach to machine learning that combines a small amount of labeled data with a large amount of unlabeled data during training. Training data includes a few desired outputs.

4. Reinforcement Learning: This is an area of machine learning concerned with how software agents ought to take actions in an environment in order to maximize some notion of cumulative reward. Reinforcement learning is one of three basic machine learning paradigms, alongside supervised learning and unsupervised learning. Rewards from a sequence of actions. AI types like it, it is the most ambitious type of learning.

Applications of Machine Learning

Some of the applications you can build with machine learning algorithm include:

1. Web Search: This is ranking of web pages based on what you are most likely to click on.
2. Computational Biology: This is rational design drugs in the computer-based on past experiments.
3. E-Commerce: This is used to predict transactions to determine it's authenticity and prevent fraud.
4. Space Exploration: This refers to space probes and radio astronomy.
5. Robotics: Handling uncertainty in new environments.
6. Information Extraction: Extracting data across databases on the web
7. Finance: Used to decide where to invest money, decide who to send what credit card offers to. Evaluation of risk on credit offers.
8. Social Networks: Using machine learning to extract value from data on relationships and preferences.
9. Debugging: Used in computer science problems like debugging. Labor-intensive process, including suggestions for the possible location of the bug.

Features of Machine Learning

Some of the features of Machine Learning are:

1. Machine Learning presents us with the ability to carry out automated data visualization.
2. Machine Learning ensures that automation is done at its best.
3. Machin Learning brings about better customer engagement like never before.
4. Machine Learning presents you with the ability to take efficiency to the next level when combined together with IoT
5. Machine Learning produces accurate data analysis.

Benefits of Machine Learning

There are lots of benefits of Machine Learning and some of them are:

1. Simplifies Product Marketing and Assists in Accurate Sales Forecasts: Machine Learning helps you to predict valuable outcomes that will help to promote your business better and make accurate sales forecasts. ML offers a large benefit to both the sales and marketing sectors.

2. Facilitates Accurate Medical Predictions and Diagnoses: In the healthcare industry, Machine Learning helps you to easily identify patients that are of high-risks, make almost perfect diagnoses, recommend the best possible medicines for their illness, and predict readmissions.

3. Simplifies Time-Intensive Documentation in Data Entry: Duplication of data and inaccuracy of Data are the major issues that are being faced by organizations that want to automate their data entry process. This situation can be greatly improved by the use of predictive modeling and machine learning algorithms. With this, machines and systems can carry out time-consuming data entry tasks, therefore, leaving your skilled resources free to completely focus on other duties that are value-adding.

4. Improves Precision of Financial Rules and Models: Machine Learning also has a very noticeable impact on the area of finance. Some of the commonly seen machine learning advantages in the finance sector include algorithmic trading, portfolio management, loan underwriting and most importantly, the detection of frauds. This helps in further improving the precision of financial models and rules.

Why Study Machine Learning?

1. Increase Efficiency: Studying machine learning makes you know how to automate stuff such as file automation using python scripts, etc.

2. Understand your customers: If you want to maintain a competitive edge over other businesses, you need to know what your customers need. Using ML can give you insights into what your customers need.

3. Detect Fraud: Machine learning can now help strengthen businesses' fraud detection systems.

4. Use ML For Product Recommendation: Machine Learning picks up on the features of the items you previously searched, viewed, or bought, and even recommend products viewed and purchased by others.

5. Job Opportunities and Career Advancement

6. Increase Your Earning Potential

Machine Learning Course Outline

Machine Learning - Introduction
Machine Learning - Today's AI
Machine Learning - Traditional AI
Machine Learning - Categories
Machine Learning - Supervised
Machine Learning - Scikit-learn Algorithm
Machine Learning - Unsupervised
Machine Learning - Artificial Neural Networks
Machine Learning - Deep Learning
Machine Learning - Skills
Machine Learning - Implementing
Machine Learning - Conclusion
Machine Learning - Video Lectures
Machine Learning - Exams And Certification

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PYTHON PROGRAMMING COURSE

DURATION: 2 WEEKS
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CERTIFICATE OF COMPLETION

What is Python?

Python Programming Language is a high level, object-oriented and multi-purpose programming language that comes with an integrated dynamic semantics which is basically for software and apps development. Python was created by Guido van Rossum and first released in the year 1991.

Python Programming is extremely attractive in the field of Rapid Application Development because it is dynamically typed and has dynamic binding options.

Python is also popular because it is relatively simple and easy to learn since it is made up of a unique syntax that enforces readability. Software Developers can read and understand Python codes much easier than they can with other Programming Languages. The major effect of this is that it brings down the cost of developing and maintaining programs because it allows development teams to work together without really noticing the language and experience difference between them.

One of the most interesting features of the Python Programming language is that both its standard library and the interpreter are available free of charge, in both binary and source form. There is no special difference either, as Python and all the necessary tools are available on all the major platforms available. Therefore, it is a nice and interesting option for developers who don't want to worry about paying a high price for developing software.

Python is a general-purpose programming language, which is another way for us to say that Python can be used for almost everything. Most importantly, Python is an interpreted language, which is to say, that the written code is not actually translated to machine level during runtime. Even though, most Programming Languages do this conversion before the program can even be run. This type of Programing language is also referred to as a "scripting language" because it was initially meant to be used for different smaller tasks.

Features Of Python Programming

Python comes with a lot of features out of the box, some of them are listed below:

1. Python is Easy to Learn and Use: Python is very easy to learn and use. It is a developer-friendly and high-level object-oriented programming language.

2. Expressive Language: Python language is more expressive which is to say that it is more understandable and readable.

3. Interpreted Language: Python is an interpreted language. For example, the interpreter executes the code one line at a time. This feature makes debugging python code easy and therefore suitable for beginners.

4. Cross-platform Language: Python can run the same way on different platforms such as Windows, Linux, Unix, and Macintosh, etc. We can, therefore, say that Python is a portable language.

5. Free and Open Source: Python language is freely distributed at its official web address. The source code is also available for everyone to see and contribute to its development. Therefore it is an open-source language.

6. Object-Oriented Language: Python supports an object-oriented language paradigm that brings the concepts of classes and objects to come into existence.

7. Large Standard Library: Python has a very large and broad standard and third-party libraries and it provides a rich set of modules and functions for rapid application development.

8. GUI Programming Support: Graphical user interface software can be developed using Python.

9. Integrated: Python can be easily integrated into other languages such as C, C++, JAVA, Javascript, etc.

Benefits Of The Python Programming Language

There are lots of benefits of the python programming language some of them are:

1. Python has a huge category of Third-Party Modules.
2. Python has an extensive Support Libraries.
3. Python has a large Open Source and Community Development.
4. The learning curve of python is easy and it has Support Available.
5. Python has user-friendly Data Structures.
6. Productivity and Speed.
7. It provides supports very functional and properly structured programming technique as well as OOP.
8. Python can be used mostly as a scripting language or can also be compiled to byte-code for building very large applications.
9. It offers quite a very high-level dynamic data types and also provides supports dynamic type checking.
10. It offers support for automatic garbage collection.
11. It can be easily combined with Java, COM, C++, COBRA, ActiveX, and C

Career Opportunities in Python Programming

An increasing number of companies are bringing up the need for Python professionals. If you are in the look for career opportunities that are available in this field, they are large, and some of them are listed below.

1. You get a lot of job opportunities if you study Python.
2. You can become a Python Specialist in any organization.
3. After taking this certification course of the Python module, you can become a Software Developer, Backend Engineer or Machine Learning Engineer.
4. You can become a Software Engineer or a Python Engineering certified trainer.
5. You can become a Senior Python Engineer commanding high pay.

Python Course Outline

Python - Introduction/Overview
Python - Environment Setup
Python - Basic Syntax
Python - Variable Types
Python - Basic Operators
Python - Decision Making
Python - Loops
Python - Numbers
Python - Strings
Python - Lists
Python - Tuples
Python - Dictionary
Python - Date & Time
Python - Functions
Python - Modules
Python - Files I/O
Python - Exceptions
Python - Classes/Objects
Python - Reg Expressions
Python - CGI Programming
Python - Database Access
Python - Networking
Python - Sending Email
Python - Multithreading
Python - XML Processing
Python - GUI Programming
Python - Further Extensions
Python - Video Lectures
Python - Exams And Certification

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PYTHON 3 COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Python 3?

Python is a multi-purpose interactive, interpreted, object-oriented, and high-level software programming language. It was developed by Guido van Rossum from 1985- 1990. Similar to Perl, the source codes of Python programs are also made available under the GNU General Public License (GPL). The Python Language was named after a TV Show called ëMonty Pythonís Flying Circusí and not after the Python snake.

Python 3.0 was published in 2008. Although this version was initially designed to be backward-incompatible, later on, many of its very significant features became backported to be compatible with version 2.7. Python is developed to be highly readable. It makes use of English keywords regularly whereas other languages make use of punctuation, and it has fewer syntactical constructs than other languages.

Knowledge of Python3 is a MUST for students and working IT professionals who wants to become a great Software Engineer especially when they are working in the Web Development Domain. Most of the software development companies are adopting Python because of its fewer programming codes and more versatile features.

Features and Characteristics of Python3

There are many features and characteristics of python 3 and some of them are:

1. Python3 offers support for both functional and structured programming methods as well as support for all the concepts of OOP.
2. Python 3 can also be used as a scripting language. It can also be compiled into byte-code for developing large scale software applications.
3. Python3 offers high-level dynamic data types and it also supports dynamic type checking.
4. Python3 makes use of an automatic garbage collection.
5. Python3 can be easily integrated with other programming languages such as C, C++, Java, ActiveX, and CORBA.
6. Python3 has a bulk of third party libraries that are very portable and cross-platform.
7. Python3 has support for an interactive mode that lets developers test and debug their program on its interactive prompts before adding it to their program file.
8. Portable: Python programs can run on a broad range of hardware and platforms and it has the same UI on all platforms.

Why Study Python3

When it comes to Software development, what actually motivates you to learn one programming language instead of the other? Choosing a specific Computer programming language to learn determines the success of your business, so it is completely useful and worth to measure up all the pros and cons of each option. So, here is a few reasons why you should study Python3

1. Python + Big Data: One of the major advantages of learning Python3 for big data projects is the added efficiency of using one single software programming language across different software applications. Python can be used over functions, by making a data professional to be skilled at handling any query that is data-related. As an architect of Big Data, it is very important that you are broad and versed. The platforms that are designed should be able to work with several platforms like Storm, Hadoop, NoSQL, and Map Reduce. Big Data architects cannot work in solitude or in isolation.

2. Job Opportunities: As the hiring for well-versed software developers and Big Data Professionals increases, so is the demand for Python developers. Businesses and Organizations are looking for a large talent pool of developers that can understand Python which is the "simplest' of all languages in order to handle their software projects and challenges. Python developers can work in a vast number of areas from small startups to large organizations like google

3. Coding Difference: Python is very easy for anyone to learn and use, yet it is very powerful enough to handle even the most challenging problems in practically any field or domain. It blends very well with already existing IT infrastructure and is completely independent of the platform that it is used in. With the arrival of so many modern computer programming languages, Python-based solutions are legendary in the areas of performance.

4. Python is free and always will be: Python and its complete set of supporting modules, tools, and libraries are absolutely free. Popular Integrated Development Environments such as Pydev, PTVS, together with Éclipse and Spyder Python are made freely available for download by anyone.

5. Suitable for building minimum viable products (MVPs) and prototypes: The Python language is very easy to read and perfect to work with many tech startup founders for prototyping and developing software applications proofs-of-concept.

6.User-friendly Data Structures: Python has an in-built dictionary data structures that can be used to construct extremely fast runtime data structures. Python also presents developers with the opportunity of using dynamic high-level data typing that reduces the length of support code that is required to run the program.

7.Presence of Third Party Modules: PyPI which is the Python package index is made up of third-party software modules that make Python proficient in the interaction of other languages as well as other platforms.

Benefits of learning Python3

There are many benefits of learning Python3 and some of them are:

1. Python is Interpreted: Python source codes are processed at runtime by the python interpreter. with the interpreter, do not need to compile your program before running it. This is similar to languages like PHP and PERL.

2. Python is Interactive: You can basically just sit at a Python prompt and directly interact with the interpreter to write your software programs.

3. Python is Object-Oriented: Python offers support for Object-Oriented programming styles or techniques of programming that encloses codes within objects.

4. Python is a Beginner's Language: Python is a great language for anyone who wants to start out programming and it offers support for the development of a broad range of software applications from easy text processing to internet browsers and games.

5. Easy-to-learn: Python syntax has very few keywords, a simpler code structure, and a clearly defined syntax. This allows the learner to pick up the language very fast.

6. Easy-to-read: Python code is more clearly defined and highly structured, even a developer with no understanding of Python can understand its syntax.

7. Easy-to-maintain: Python's source code is fairly easy-to-understand and maintain.

Python3 Course Outline

Python 3 - Introduction
Python 3 - Overview
Python 3 - Environment Setup
Python 3 - Basic Syntax
Python 3 - Variable Types
Python 3 - Basic Operators
Python 3 - Decision Making
Python 3 - Loops
Python 3 - Numbers
Python 3 - Strings
Python 3 - Lists
Python 3 - Tuples
Python 3 - Dictionary
Python 3 - Date & Time
Python 3 - Functions
Python 3 - Modules
Python 3 - Files I/O
Python 3 - Exceptions
Python 3 - Classes/Objects
Python 3 - Reg Expressions
Python 3 - CGI Programming
Python 3 - Database Access
Python 3 - Networking
Python 3 - Sending Email
Python 3 - Multithreading
Python 3 - XML Processing
Python 3 - GUI Programming
Python 3 - Further Extensions
Python3 - Exams And Certification

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PYTHON HACKING COURSE

DURATION: 2 WEEKS
FORMAT: WEB/PDF PLUS VIDEO LECTURERS

CERTIFICATE OF COMPLETION

What is Python Hacking?

Python Hacking is the use of Python programming language to effectively and extensively carry out ethical hacking.

Python is a widely used general-purpose, high-level programing language. Python is a very simple language yet powerful scripting language, it is open-source and object-oriented with great libraries used for both hacking and for writing very useful normal programs.

Ethical Hacking is a penetration testing carried out by legally breaking into computers and devices to test an organization system defenses, strengths, weaknesses and vulnerability.

Python is also used as a support language for software developers, for build control and management, testing, and in many other ways.

Python is high-level programing language. In the future and present, Python will continue to be used in ethical hacking, learning to hack with python is fun and you'll learn python programming in the best way, and the fact that there's an excellent demand for python developers in the market, you will also find python hacking an interesting career.

Everyone knows that passwords aren't stored as a clear text within the website's database. Now we are getting to see the way to hack a clear text password once you find a password that's in hashed(md5) format. So we take the input_hash(hashed password within the database) and check out to match it with md5 hash of each plain text password which is during a password file(pass_doc) and when the hashes are matched we simply display the plain text password which is within the password file(pass_doc). If the password isn't present within the input password file it'll say password isn't found, this happens as long as buffer overflow doesn't occur. this sort of attack are often considered as a dictionary attack.

Features Of Python Hacking

Python has gained its popularity mostly due to its super powerful yet easy to use libraries. Sure Python has awesome readability and it's really simple, yet powerful. Nothing really beats the very fact that your job as a developer is formed super simple with these libraries, such as AI has Pytorch and Tensorflow while Data Science has Pandas, Numpy, Matplotlib.

Similarly, Python is brilliant for ethical hacking for these subsequent reasons:

1. Python has awesome performances i.e Nifty python libraries like Pulsar, NAPALM, NetworkX etc it makes developing network tools a breeze.
2. Ethical hackers generally develop little scripts and python being a scripting language provides an amazing performance for little programs.
3. Python features a huge community, hence any doubt related programming is quickly solved by the community.
4. Learning Python also exposes your doors to many other career opportunities.

Benefits Of Python Hacking

1. Just like the developers, hackers are also happy with Python's beautiful benefits which makes it a popular tool for ethical hacking.

2. The advantages of Python Hacking include a simple to select up syntax, a breadth of online tutorials support, an in depth collection of libraries and other ready-made tools available in places like PyPI and GitHub.

3. Python Hacking helps to be able to implement a known attack methodology quickly.

4. Python is open-source and object-oriented and it has great libraries that can be used for both hacking and for writing very useful normal programs other than hacking programs.

5. Python is a powerful language and the introduction of Python into ethical hacking has effectively improve computer security.

Why Study Python Hacking

1. Gain essential Python hacking extensive skills.
2. Become a Python hacking professional.
3. Job opportunities and career advancement.
4. Enrich your CV and attract better jobs.
5. Increase your earning potential.

Python Hacking Course Outline

1. Python Hacking - Preparation for Hacking
1.1 Starting Python
1.2 Basic Grammar
1.3 Functions
1.4 Class and Object
1.5 Exception Handling
1.6 Module
1.7 File Handling
1.8 String Format
2. Python Hacking - Application Hacking
2.1 Basic Concept for a Windows Application
2.2 Message Hooking Utilizing ctypes
2.3 API hook utilizing pydbg module
2.4 Image File Hacking
3. Python Hacking - Web Hacking
3.1 Overview of Web Hacking
3.2 Configure Test Environment
3.3 SQL Injection
3.4 Password Cracking Attack
3.5 Web Shell Attack
4. Python Hacking - Network Hacking
4.1 Network Hacking Introduction
4.2 Configure a Test Environment
4.3 Vulnerability Analysis via Port Scanning
4.4 Stealing Credentials Using Packet Sniffing
4.5 Overview of a DoS Attack
4.6 DoS - Ping of Death
4.7 DoS - TCP SYN Flood
4.8 DoS - Slowloris Attack
5. Python Hacking - System Hacking
5.1 System Hacking Overview
5.2 Backdoor
5.3 Registry
5.4 Buffer Overflow
5.5 Stack-Based Buffer Overflow
5.6 SEH Based Buffer Overflow
6. Python Hacking - Conclusion
6.1 Hacking Tools
7. Python Hacking - Video Lectures
8. Python Hacking - Exams and Certification

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PYTHON DATA SCIENCE COURSE

DURATION: 2 WEEKS
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What is Python Data Science?

Python Data Science is the use of Python Programming Language with scientific algorithms and methods to process data.

What is Data Science?

Data Science is simply the use of scientific methods and algorithms to process data.

What is Python?

Python is an open-source, interpreted, high-level, and object-oriented programming language. It is one of the best language that is used by data scientists for various data science applications/projects. Python comes with a lot of great functionalities to handle mathematics, statistics, and scientific functions. It also offers awesome libraries that deals with data science applications.

One of the main reasons why Python is broadly used in the scientific and research communities is because of its ease of use and very simple syntax that makes it easy to adapt for people that do not have an engineering background. It is also more suited for quick prototyping.

According to engineers that are coming from academia and industry, deep learning frameworks are made available with Python APIs, together with the scientific packages that have made Python incredibly productive and versatile. There has been a lot of evolution in deep learning Python frameworks and it is rapidly upgrading.

In the areas of application development, ML scientists prefer Python as well. When it comes to areas of developing fraud detection algorithms and network security tools, developers usually prefer to use Java, while for applications like natural language processing (NLP) and sentiment analysis, developers usually go for Python, because it provides a large collection of libraries that help to solve the complex business problem very easy, build strong system and data application tools.

Features Of Python for Data Science

1. It uses the elegant syntax, hence the programs are easier to read.
2. It is a simple to access language, which makes it easy to achieve the program working.
3. The large standard library and community support.
4. The interactive mode of Python makes it simple to test codes.
5. In Python, it is also simple to extend the code by appending new modules that are implemented in other compiled languages like C++ or C.
6. Python is an expressive language that is possible to embed into applications to offer a programmable interface.
7. Allows the developer to run the code anywhere, including Windows, Mac OS X, UNIX, and Linux.
8. It is free software in a couple of categories. It does not cost anything to use or download Pythons or to add it to the application.

Data Science Libraries

Most commonly used libraries for data science:

1. **Numpy:** Numpy is a Python library that provides the mathematical functions to handle large dimension array.
2. **Pandas:** Pandas is one of the very popular Python libraries that is used for data manipulation and analysis.
3. **Matplotlib:** Matplolib is another very useful Python library that is used for Data Visualization.
4. **Scipy:** Scipy is another very popular Python library that is used for data science and for scientific computing purposes.
5. **Scikit –** learn: Sklearn is a Python library that is used for machine learning

Benefits of Python For Data Science

Some of the many benefits of Python Data Science include:

1. Open-source and free.
2. Easy to learn.
3. Fewer lines of code.
4. Portability.
5. Better productivity.
6. Demand and popularity.
7. Excellent online presence/ community.
8. Python has support for many packages that are usable with analytics projects.
9. It is faster than similar tools such as MATLAB or R.
10. Amazing memory management abilities.

Why Study Python Data Science

1. Increase Your Knowledge on Data Science.
2. Job Opportunities and Career Advancement.
3. Increase Your Earning Potential.
4. Become a Data Science Professional.
5. Be in Demand and Command High Pay.
6. Self-Employment Opportunities and Consultancy.

Python Data Science Course Outline

Python Data Science - Introduction
Python Data Science - Discovering the Match between Data Science and Python
Python Data Science - Introducing Python Capabilities
Python Data Science - Setting Up Python for Data Science
Python Data Science - Reviewing Basic Python
Python Data Science - Working with Real Data
Python Data Science - Conditioning Data
Python Data Science - Shaping the Data
Python Data Science - Putting What You Know in Action
Python Data Science - MatPlotLib
Python Data Science - Visualizing the Data
Python Data Science - Understanding the Tools
Python Data Science - Stretching Python Capabilities
Python Data Science - Exploring Data Analysis
Python Data Science - Reducing Dimensionality
Python Data Science - Clustering
Python Data Science - Detecting Outliers in Data
Python Data Science - Exploring Four Simple and Effective Algorithms
Python Data Science - Performing Cross-Validation, Selection and Optimization
Python Data Science - Increasing Complexity with Linear and Nonlinear Tricks
Python Data Science - Understanding the Power of the Many
Python Data Science - Essential Data Science Resource Collections
Python Data Science - Data Challenges You Should Take
Python Data Science - Video Lectures
Python Data Science - Exams and Certification

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PYSPARK COURSE

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What is PySpark?

PySpark is the collaboration of Apache Spark and Python.

Apache Spark is known as an open-source cluster-computing framework, built with speed, it's simple in usage and streaming analytics.

Python is a general purpose, high-level programming language.

PySpark is a Python API written in python to give support to Apache Spark. Apache Spark is written in Scala and may also be integrated with Python, Java, Scala, R, SQL languages.

Spark is essentially a computational engine, that works with huge sets of knowledge by processing them in parallel and batch systems.

PySpark is a great language for used for exploratory data analysis at scale, in building machine learning pipelines, and also creating ETLs

More about PySpark: It is a Python API for Spark that is released by the Apache Spark community that gives support to Python with Spark. Making use of PySpark, one can also easily integrate and work with RDDs in Python Programming language too. There are different features that make PySpark such an amazing framework when it comes to working with huge datasets. Either it is to perform computations on large datasets or to just analyze them, Data Engineers are now switching to this great tool.

Features Of PySpark

Some Key Features of PySpark

Real-time Computations: Just because of the in-memory processing in the PySpark framework, it shows low latency.

Polyglot: The PySpark framework is very compatible with different languages such as the Scala, Java, Python, and R, which makes Pyspark one of the most used and preferable frameworks for processing huge datasets.

Caching and Disk Persistence: This framework provides very powerful caching and great disk persistence.

Fast Processing: The PySpark framework is a very fast framework, way faster than other traditional frameworks for Big Data processing.

Pyspark works very well with RDDs: It is noted that Python programming language is dynamically typed, it helps when working with RDDs.

Extraction: Extracting features from “raw” data

Transformation: Scaling, converting, or modifying features

Selection: Selecting a subset from a larger set of features

Locality Sensitive Hashing (LSH): This class of algorithms combines aspects of feature transformation with other algorithms.

Benefits Of PySpark

1. Dynamic in Nature: Being dynamic in nature, it helps you to develop a parallel application, as Spark provides 80 high-level operators.

2. Fault Tolerance in Spark: Through Spark abstraction-RDD, PySpark provides fault tolerance. The programming language is specifically designed to handle the malfunction of any worker node in the cluster, ensuring that the loss of data is reduced to zero.

3. Real-Time Stream Processing: PySpark is renowned and much better than other languages when it comes to real-time stream processing.

Earlier the problem with Hadoop MapReduce was that it can manage data which is already present, but it cannot manage the real-time data. However, with PySpark Streaming, this problem is reduced significantly.

Why Study PySpark?

Let's look at the need for PySpark

1. PySpark gives more solutions to deal with big data better, especially if you have to switch between tools to perform different types of operations on big data.
2. PySpark is one of those amazing tools that help handle big data in Apache Spark.
3. Increase your earning potential with PySpark skills and certification.
4. Job opportunities and career advancement.
5. Enrich your CV and attract better position.

PySpark Course Outline

PySpark - Introduction
PySpark - Environment Setup
PySpark - SparkContext
PySpark - RDD
PySpark - Broadcast & Accumulator
PySpark - SparkConf
PySpark - SparkFiles
PySpark - StorageLevel
PySpark - MLlib
PySpark - Serializers
PySpark - Video Lectures
PySpark - Exams and Certification

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