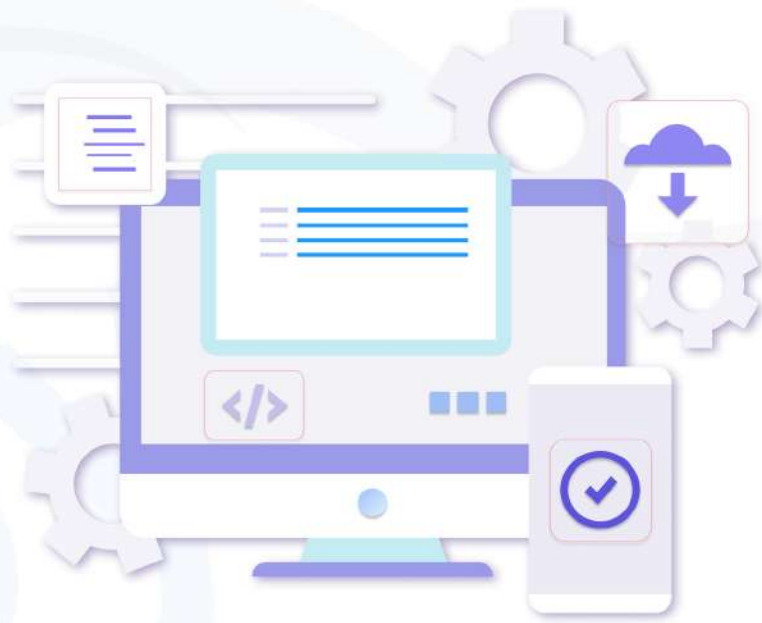# Full Stack & AIML

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Step into the future of Full Stack & AIML

Python generates code that is succinct and legible. While machine learning and artificial intelligence are based on complicated algorithms and flexible workflows, Python's simplicity enables developers to create dependable solutions. Developers may focus entirely on the machine learning task at hand, rather than on the language's technical subtleties. Additionally, Python appeals to a large number of developers due to its ease of learning. Python code is human-readable, which simplifies the process of developing machine learning models.

Scope of Full Stack & AIML

According to a Gartner analysis, Artificial Intelligence (AI) is expected to provide about 2.3 million new jobs by 2020. And, according to a survey from Indeed, job openings in the field of artificial intelligence have more than quadrupled in the previous three years. According to similar research from Indeed, the most in-demand artificial intelligence job titles include machine learning engineers, software engineers, and data scientists.

While the industry's rivalry has yet to heat up in the coming months, the present talent pool in the IT business has already set its sights on Artificial Intelligence as a profitable source of revenue and a gratifying career path. Despite the hype that AI would eliminate redundant work functions through automation and smart gadgets, we are still far from the point where robots will take over our daily lives. Therefore, if you are an AI aspirant seeking work in the business, we would like to remind you that chances abound.

Uniqueness:

We bring you a Python Machine Learning course that introduces the fundamentals of machine learning through the use of a simple and well-known programming language. You'll discover the difference between Supervised and Unsupervised Learning, the relationship between Statistical Modeling and Machine Learning, and a comparison of the two. Consider real-world instances of machine learning and how it influences society in unexpected ways!

"Guaranteed job opportunities and 1400+ hrs of on-site learning with Subject Matter Experts".

Artificial Intelligence is a rapidly growing field that is embraced by every IT professional. Artificial intelligence has simplified several tasks and is frequently utilised by both IT professionals and clients. As a result, it becomes critical to have a working understanding of Artificial Intelligence and how to progress in this sector.

This intermediate-level course will begin by introducing you to the history of neural networks. You will then comprehend the difference between biological and artificial neurons. Following that, you will be introduced to the perceptron and its operation. Once you understand how a neural network works, its architecture becomes more understandable. You will learn about the many forms of activation functions and a quick overview of the softmax, forward propagation, and loss functions. Along with these theoretical notions, you'll get a hands-on demonstration of the Keras framework. With the assistance of the accompanying demo, it will be simpler to comprehend backpropagation and gradient descent. Additionally,

you will get an understanding of Tensorflow through a demonstration using the MNIST data set. Take advantage of this course built exclusively for AI enthusiasts and earn your much-earned certification upon completion.

Assume that you are interested in learning more about Artificial Intelligence, as it is a large area brimming with fascinating concepts. Consider the highly regarded Artificial Intelligence Courses offered by us. Enroll in the best programme that matches your interests and earn course completion certification.

Curriculum

Front End (Web Designing)

Module 1 HTML (Hypertext Markup Language)

1. HTML Basic

- What is Markup Language
- Basic Structure of HTML
- Meta Tags
- External Link Tags

2. HTML Elements

- Basics, Elements, Attributes
- Paragraphs and Formatting
- HTML Skeleton, Links
- Creating an HTML Document
- Basic Content Structure
- Headings
- Horizontal Rules
- Line Breaks

3. Images

- Optimizing web graphic JPEG GIF & PNG
- Getting images from Photoshop
- Embedding Images in a Web Page
- Using Graphics as Links
- Using Background Images
- Setting image properties via HTML

4. Hyperlinks

- Href, Name, Title, Target

5. Lists

- Creating Unordered & Ordered Lists
- Creating Nesting Lists
- Creating Defination Lists

6. Div & Tables

- Creating of Div Tag
- Creating and Modifying Tables
- Formatting Tables
- Table Headers and Captions

7. Form

- Name, Action, Method
- Text, Hidden, Password
- Radio Button, Checkbox
- Select, Textarea
- Submit, Reset, Button

8. HTML5

HTML5 Structural Elements
- Section, Article, Aside
- Header, Hgroup
- Footer, Nav

HTML5 Content Elements
- Figure, Figcaption, Video
- Audio, Embed, Canvas

HTML5 New Application Focused Element
- Meter, Details, Summary
- Progress, Time

HTML5 Input Types
- Color, date, datetime
- email, month, number
- range, search, tel
- time, url, week

HTML5 FormAttributes
- autocomplete
- novalidate
- form/formaction
- autofocus

- autofocus
- multiple
- pattern(regexp)
- placeholder
- required

Module 2 CSS (Cascading Style Sheet)

1. Understanding CSS

- Versions of CSS
- Types of CSS Rules
- CSS and Markup Languages

2. CSS Basics

- Adding Styles to an HTML Tag
- Adding Styles to a Web Page and Web Site
- Redefining an HTML Tag
- Defining Classes to Create Your Own Tags
- Defining IDs to Identify an Object
- Defining Styles with the Same Rules
- Adding Comments to CSS
- Style Sheet Strategies

3. Font Properties:

- Understanding Typography on the Web
- Setting the Font Size
- Making Text Italic and Setting Bold, Bolder, Boldest
- Creating Small Caps
- Setting Multiple Font Values

4. Text Properties

- Adjusting Text Spacing
- Setting Text Case
- Aligning Text Horizontally and Vertically
- Indenting Paragraphs
- Setting Text and Foreground Color
- Decorating Text
- Setting Text Direction
- Setting Page Breaks for Printing

5. Color and Background Properties

- Choosing Color Palettes
- Setting Text and Foreground Color
- Setting a Background Color
- Setting a Background Image
- Setting Multiple Background Values

6. Box Properties

- Setting an Element's Margins
- Setting an Element's Border
- Setting an Element's Outline
- Setting an Element's Padding
- Setting Width and Height of an nt

7. CSS Border

- Border, width, color, style

8. Positioning

- Static, relative, absolute, Fixed
- z-index

9. Floating

- None, left, right
- Initial,inherits

10. Pseudo – elements and CSS classes

11. CSS List

- list-style
- list-style-image
- list-style-position
- list-style-type

12. CSS3

- Borders
- CSS3 Backgrounds
- CSS3 Gradients
- CSS3 Shadows
- CSS3 Text Effects
- CSS3 Fonts
- CSS3 2D/3D Transforms
- CSS3 Transitions
- CSS3 Animations
- CSS3 Multiple Columns

Module 3 JavaScript (Client side Scripting Language)

1. Introduction of JavaScript

- What is JavaScript?
- JavaScript and Markup
- Languages JavaScript Syntax

2. JavaScript Output

- window.alert
- document.write
- console.log
- innerHTML

3. Statements and Comments

4. Variables

5. JavaScript Arrays

- Array Syntax
- How to use
- Array values

6. JavaScript Objects

- Object Syntax
- How to use Object values

7. Data types

- Number
- String
- Boolean
- object
- undefined
- null
- function

8. Operators

- Arithmetic Operators
- Assignment Operators
- String Operators
- Comparison Operators
- Logical Operators
- Typeof Operator

9. Functions

- What is function?
- Why use function?
- function Syntax
- Types of function
- Userdefined functions
- Predefined functions
- function invocation

10. Conditional Statements and Loops

Conditional Statements
- if statement
- if else statement
- if elseif else statement
- Switch case

Looping Statements
- while loop
- do-while loop
- for loop
- Continue
- break

11. JavaScript Dates

12. HTML Events

Window Events
- On load
- On unload

Form Events
- on blur
- on change
- on focus
- on input
- on select
- on submit
- on reset
- on search

Keyboard Events
- on key down
- on key press
- on key up

Mouse Events
- on click
- on dbl click
- on mouse over
- on mouse out
- on mouse down
- on mouse up

13. JavaScript Validation

Module 4 Advanced JavaScript

1. JavaScript Basics
- Refreshing Basic JavaScript Concepts
- Defining Functions
- Arrays & Objects in JS
- Date & Math Object
- String Methods
- Set timeout & Set Interval Function

2. The DOM Objects
- Introduction to DOM object
- DOM Methods
- Access & Modify HTML through DOM
- Event Listeners

3. Advance JavaScript Overview
- Functions in depth
- JS Prototype
- This Keyword in JS

4. Getting Into Advance JS
- OOJS concept
- Classes & Instances
- Exception Handling in JS
- Constructors & Inheritance

JQuery

1. JavaScript Basics
1. Introduction
2. jQuery Syntax
3. jQuery Selectors
4. jQuery Events

5. jQuery Effects
- jQuery Hide/Show
- jQuery Fade
- jQuery Slide
- jQuery Animate
- jQuery Stop
- jQuery Callback
- jQuery Chaining
- jQuery delay

6. jQuery HTML / CSS

- jQuery Get
- jQuery Set
- jQuery Add
- jQuery Remove
- jQuery CSS Classes
- jQuery CSS

7. jQuery Misc

- jQuery noConflict()

8. jQuery Events

9. jQuery Form

- jQuery serialize()
- jQuery serializeArray()

Module 5 Ajax (Asynchronous JavaScript + XML)

1. AJAX with JavaScript

- Why AJAX & How it works
- Syntax (XMLHTTPRequest Object)
- Sending Requests to server
- Processing Response
- AJAX Events
- Example with PHP Server

2 jQuery AJAX

- jQuery load
- jQuery Get/Post
- jQuery Ajax method

Module 6 Bootstrap

1. Bootstrap Introduction

- What is Bootstrap?
- What is Responsive Web design ?
- Bootstrap 3 vs Bootstrap 4
- Why use Bootstrap?
- How to download and add Bootstrap in page

2. How to Create a Layout in Bootstrap

- Grid Classes

3. Basic Tags in Bootstrap

- Typography
- Contextual colors and backgrounds

4. Table in Bootstrap

- Bootstrap Basic Table class
- Striped Rows
- Bordered Table
- Hover Rows
- Dark Table
- Borderless Table
- Contextual Classes
- Small Table
- Responsive Tables

5. Images in Bootstrap

- Rounded corners
- Circle
- Thumbnail
- Aligning Images
- Centered Image
- Responsive Images

6. Alerts in Bootstrap

- Alert class
- Alert links
- Closing Alerts
- Animated alerts

7. Navigation bar in Bootstrap

- Basic Navbar
- Vertical Navbar
- Centered Navbar
- Colored Navbar
- Brand / Logo
- Collapsing the Navigation Bar
- Navbar with Dropdown
- Navbar forms, buttons and text
- Fixed Navigation Bar
- Bottom Fixed Navigation Bar
- Sticky Navbar

8. Form in Bootstrap

- Full width Form
- Inline Form

9. Buttons in Bootstrap

- Button Styles
- Button Outlines
- Button Sizes
- Block Level Buttons
- Active/Disabled Buttons

10. Modal in Bootstrap

- How to create a Modal
- Add animation

11. Carousel in Bootstrap

- How to create a Carousel
- Add captions to slides

Module 7 Back End (Python)

Core Python programming

1. Introduction

- Why Python where to use it?
- Features of Python
- Domains where Python is used
- Python environment Setup
- Discuss about IDE's like IDLE, Pycharm
- How to work in an interactive shell.
- Identifiers, Keywords in Python
- Operators in Python
- Standard Project Set up

2. Control Statements

- Variables and Data Types
- Debugging Python Programs using debugger in Pycharm
- Taking User Input
- Decision or Conditional Statements
- Repeating or Looping Statements and Nested Statements
- break, continue and pass statements

3. Collections in Python

- List with indexing slicing and its behavior
- Tuples its accessing and functions
- Strings accessing and its methods
- Set with only unique data and manipulation
- Dictionary and its functionalities

4. User defined Functions

- How to create a Python function
- Return type functions
- **Function with Parameters / Arguments**
- o Required/Positional arguments
- o Keyword/Named Arguments
- o Default Arguments
- Variable -length arguments
- Anonymous/Lambda functions
- Map() ,filter() and reduce()
- Iterators and Decorators

5. Object Oriented Concepts

- What is a class, Structure of a class,
- Creating Object and Accessing the behavior ,attributes
- Constructors in Python
- Inheritance and its types
- Polymorphism-Overriding
- Abstraction Implementation Hiding
- Encapsulation data hiding

6. Exception Handling in Python

- What is an Exceptions
- How to handle exceptions
- using try....except...else
- Try-finally clause
- Python Standard Exceptions
- Create Custom exception/user defined
- exceptions raise keyword

7. Modules and Packages

- What is a module in Python
- How to access built in Libraries
- Built in Libraries Math/Random Modules
- Describe Packages and directories
- How to import various modules from import statements
- When to use packages and directories
- Date and time modules

8. Regular Expression

- What are Regular Expressions
- The match and search Function
- Search and Replace feature using RE
- Meta characters with each symbols
- Create a Set for valid regular expression

9. Multithreading

- What is Multi Tasking?
- What is a thread?
- Thread Life cycle
- Creation of Thread in Python
- Start a thread
- Using Threading Module

10. File Handling

- When to use files?
- Create files in Python
- Different file modes for reading, writing ,appending
- os modules for various functions
- Remove and rename a file
- Create directories and sub directories
- Current directory mode /remove directories
- Read an .xlsx files

11. Database Handling

- Python MySQL Database Access
- Create Database Connection
- DML and DDL Operations with Databases
- Performing Transactions
- Handling Database Errors
- Disconnecting Database

Module 8 Tkinter GUI Framework – For Desktop based Application

- Overview of Tkinter framework
- Tkinter Button,Canvas
- Entry,Label
- Message box
- CheckBox and Radio Button
- Widgets,grid menu buttons
- Create a basic calculator using the components
- Database connectivity with Tkinter using Mysql
- CRUD operations using Tkinter

1. Django Framework

- Basic of Django Framework & its uses
- MVC and MVT architecture
- Installation and setting up Django
- Syntax and URL mapping
- Rendering HTML pages
- Creating views
- Creating Controllers and pass parameters
- Django Templating Language
- Django Admin and its working with SQLite
- Deploying Django Project
- Django connecting with Databases
- Creating Models and Migrations
- CRUD operations with Model Forms
- CRUD operations with HTML forms
- Django Static Files Handling
- File Uploading
- Email Handling in Django
- Ajax in Django

2. Django with MySQL Database

- Introduction of DBMS and RDBMS
- Connection with Database
- DDL Operations (create ,alter , drop ,truncate/ empty)
- DML Operations (insert,update,delete)
- DQL Operations (select)

- Executing queries.
- Handling Query Results
- Handling Query Errors
- Joins with multiple tables
- Order By and Group By

3. Django with SQLite Database

- Establishing connection with database
- Accessing the databases
- DDL Operations (create ,alter , drop ,truncate/empty)
- DML Operations (insert,update,delete)
- DQL Operations (select)
- Joins with multiple tables

4. Django REST API(Restful Services)

- What is REST?
- What is API?
- Difference between SOAP and REST API
- What is JSON?
- HTTP Status Codes?
- HTTP Methods for RESTful Services
- POST
- PUT
- GET
- DELETE

Module 9 Artificial Intelligence & Machine Learning

Foundations

Module 1

Introduction to Python

- Python Basics
- Python Functions and Packages
- Working with Data Structures, Arrays, Vectors & Data Frames
- Jupyter Notebook – Installation & Function
- Pandas, NumPy, Matplotlib, Seaborn

Self Paced Madule

EDA and Data Processing

- Data Types
- Dispersion & Skewness
- Uni & Multivariate Analysis
- Data Imputation
- Identifying and Normalizing Outliers

Module 2

Applied Statistics

- Descriptive Statistics
- Probability & Conditional Probability
- Hypothesis Testing
- Inferential Statistics Probability Distributions

Machine Learning

Module 1

Supervised learning

- Linear Regression
- Multiple Variable Linear Regression
- Logistic Regression
- Naive Bayes Classifiers
- k-NN Classification
- Support Vector Machines

Module 2

Ensemble Techniques

- Decision Trees
- Bagging
- Random Forests
- Boosting

Module 3

Unsupervised learning

- K-means Clustering
- Hierarchical Clustering
- Dimension Reduction-PCA

Module 4

Featurisation, Model Selection & Tuning

- K-means Clustering
- Hierarchical Clustering
- Dimension Reduction-PCA
- Model performance measures
- Regularising Linear models
- ML pipeline
- Bootstrap sampling
- Grid search CV
- Randomized search CV
- K fold cross-validation

Module 5

Recommendation Systems

- Introduction to Recommendation Systems
- Popularity based model
- Content based Recommendation System
- Collaborative Filtering (User similarity & Item similarity)
- Hybrid Models

ARTIFICIAL INTELLIGENCE

Module 1

Introduction to Neural Networks and Deep Learning

- Introduction to Perceptron &
- Neural Networks
- Activation and Loss functions
- Gradient Descent
- Batch Normalization
- TensorFlow & Keras for Neural Networks
- Hyper Parameter Tuning

Module 2

Computer Vision

- Introduction to Convolutional Neural Networks
- Introduction to Images
- Convolution, Pooling, Padding & its Mechanisms
- Forward Propagation & Backpropagation for CNNs
- CNN architectures like AlexNet, VGGNet, InceptionNet & ResNet
- Transfer Learning
- Object Detection
- YOLO, R-CNN, SSD
- Semantic Segmentation
- U-Net
- Face Recognition using Siamese Networks
- Instance Segmentation

Module 3

NLP (Natural Language Processing)

- Introduction to NLP
- Stop Words
- Tokenization
- Stemming and Lemmatization
- Bag of Words Model

- Word Vectorizer
- TF-IDF
- POS Tagging
- Named Entity Recognition
- Introduction to Sequential data
- RNNs and its Mechanisms
- Vanishing & Exploding gradients in RNNs
- LSTMs - Long short-term memory
- GRUs - Gated Recurrent Unit
- LSTMs Applications
- Time Series Analysis
- LSTMs with Attention Mechanism
- Neural Machine Translation
- Advanced Language Models:
- Transformers, BERT, XLNet

Self Paces Module

Introduction to Reinforcement Learning (RL)

- RL Framework
- Component of RL Framework
- Examples of RL Systems
- Types of RL Systems
- Q-learning

Self Paced Module

Introduction to GANs (Generative Adversarial Networks)

- Introduction to GANs
- Generative Networks
- Adversarial Networks
- How do GANs work?
- DCGANs - Deep Convolution GANs
- Applications of GANs

ADDITIONAL MODULE

- Power BI
- Cloud Computing
- Block Chain