Data Science with Artificial Intelligence

Description

Python programming language is powerful open source language. It is developed with AI & data science tool and which is used to simplify and easily access the data and store the data easily. By python programming language we can easily manipulate the data, also it can help in the analysis of data, we can create the wonderful visualization and helps to access the high-quality content. This AI, Data Science with python Internship provides you to learn data manipulation and cleaning of data using python.

Expectations and Goals

This Internship helps participants understand what data scientists do, the problems they solve, and the tools and techniques they use. Through in-class simulations, participants apply data science methods to real-world challenges in different industries and, ultimately, prepare for data scientist roles in the field.

- Live Sessions by the mentor.
- Opportunity to interact with trainer.
- After each session the recording of the session shall be provided.
- Doubt clearing sessions.
- 24/7 Support team to assist in software installation and other issues.
- Live Project implementation.
- Internship Certificate.
- Ardent Certificate contains logos of all the affiliations like Microsoft, Adobe, AutoDESK, EC-COUNCIL, MSME, NCVT, ISO 9001:2015.
- Softcopy of study materials shall be provided.

Prerequisites

This course is suitable for students, developers, data analysts, and statisticians with basic knowledge of Computer Science and python programming.

Course Schedule

Module	Topic
Module 1	Artificial Intelligence a) What is Artificial Intelligence? b) Philosophy of AI c) Goals of AI d) What Contributes to AI? e) Programming Without and With AI f) What is AI Technique? g) Applications of AI h) History of AI 2. INTELLIGENT SYSTEMS a) What is Intelligence? b) Types of Intelligence

	c) What is Intelligence Composed of? d) Difference between Human and Machine Intelligence 3. RESEARCH AREAS OF AI a) Real Life Applications of Research Areas b) Task Classification of AI c) Artificial Intelligence 4. AGENTS AND ENVIRONMENTS a) What are Agent and Environment? b) Agents Terminology c) Rationality d) What is Ideal Rational Agent? e) The Structure of Intelligent Agents f) The Nature of Environments g) Properties of Environment 5. POPULAR SEARCH ALGORITHMS a) Single Agent Pathfinding Problems b) Search Terminology c) Brute-Force Search Strategies d) Informed (Heuristic) Search Strategies e) Local Search Algorithms
Module 1	What is analytics & Data Science? Common Terms in Analytics Analytics vs. Data warehousing, OLAP, MIS Reporting Relevance in industry and need of the hour Types of problems and business objectives in various industries How leading companies are harnessing the power of analytics? Critical success drivers Overview of analytics tools & their popularity Analytics Methodology & problem solving framework List of steps in Analytics projects Identify the most appropriate solution design for the given problem statement Project plan for Analytics project & key milestones based on effort estimates Build Resource plan for analytics project Why Python for data science?
Module 2	Overview of Python- Starting with Python Introduction to installation of Python Introduction to Python Editors & IDE's(Canopy, pycharm, Jupyter, Rodeo, Ipython etc…) Understand Jupyter notebook & Customize Settings Concept of Packages/Libraries - Important packages(NumPy, SciPy, scikit-learn, Pandas, Matplotlib, etc) Installing & loading Packages & Name Spaces Data Types & Data objects/structures (strings, Tuples, Lists, Dictionaries) List and Dictionary Comprehensions Variable & Value Labels – Date & Time Values

	Basic Operations - Mathematical - string - date Reading and writing data Simple plotting Control flow & conditional statements Debugging & Code profiling How to create class and modules and how to call them?
Module 3	NumPy Basics: Arrays and Vectorized Computation The NumPy ndarray: A Multidimensional Array Object Creating ndarrays Data Types for ndarrays Arithmetic with NumPy Arrays Basic Indexing and Slicing Boolean Indexing Fancy Indexing Transposing Arrays and Swapping Axes Universal Functions: Fast Element-Wise Array Functions Array-Oriented Programming with Arrays Expressing Conditional Logic as Array Operations Mathematical and Statistical Methods Methods for Boolean Arrays Sorting Unique and Other Set Logic File Input and Output with Arrays Linear Algebra Pseudorandom Number Generation Example: Random Walks Simulating Many Random Walks at Once
Module 4	Getting Started with pandas Introduction to pandas Data Structures Series DataFrame Index Objects Essential Functionality Reindexing Dropping Entries from an Axix Indexing, Selection, and Filtering Integer Indexes Arithmetic and Data Alignment Function Application and Mapping Sorting and Ranking Axis Indexes with Duplicate Labels Summarizing and Computing Descriptive Statistics Correlation and Covariance Unique Values, Value Counts, and Membership

Module 5	Python for Data Visualization-Matplotlib Introduction to Matplotlib Matplotlib Exercises Overview Matplotlib Exercises – Solutions Python for Data Visualization-Seaborn Introduction to Seaborn Distribution Plots Categorical Plots Matrix Plots Regression Plots Grids Style and Color Seaborn Exercise Overview Seaborn Exercise Solutions
Module 6	Python for Data Visualization-Plotly and Cufflinks Introduction to Plotly and Cufflinks Plotly and Cufflinks Python for Data Visualization-Geographical Plotting Introduction to Geographical Plotting Choropleth Maps – Part 1 – USA Choropleth Maps – Part 2 – World
Module 7	Data Manipulation – Cleansing - Munging Cleansing Data with Python Data Manipulation steps(Sorting, filtering, duplicates, merging, appending, subsetting, derived variables, sampling, Data type conversions, renaming, formatting etc) Data manipulation tools(Operators, Functions, Packages, control structures, Loops, arrays etc) Python Built-in Functions (Text, numeric, date, utility functions) Python User Defined Functions Stripping out extraneous information Normalizing data Formatting data Important Python modules for data manipulation (Pandas, Numpy, re, math, string, datetime etc)
Module 8	Introduction to Machine Learning Link for ISLR Introduction to Machine Learning Machine Learning with Python Linear Regression Linear Regression Theory Model selection Updates for SciKit Learn Linear Regression Project Overview and Project Solution Logistic Regression Logistic Regression Project Overview and Project Solutions

Module 9	Project work and documentation