

Course Description

In today's world, data analytics has become an essential tool for internal auditors as well as external auditors and risk managers to identify risks, frauds, errors, non-compliances and provide insights into organizational performance. With the increasing amount of data generated by organizations, traditional auditing methods including Computer Assisted Audit Techniques are insufficient to provide comprehensive insights. That's where the latest artificial intelligence (AI) technologies come into play. It's essential for accountants and audit professionals to stay up-to-date with the latest technologies to provide value to their organizations.

This course provides a unique opportunity to learn and apply cutting-edge AI technologies for data analytics in audit. The course will provide a hands-on learning experience where participants will use machine learning algorithms in Python over real-time data from an organization to leverage AI for data analytics in their audit processes.

During the course, participants will learn the basics of Python programming as well as the concepts and techniques of machine learning along with its application in accounting and auditing procedures. They will apply these techniques to real-world data and gain practical experience in developing AI-based solutions for accounting and audit analytics.

By the end of course, participants will have a good understanding of the benefits and limitations of using AI for data analytics in audit and the skills to implement AI-based solutions in their own audit processes.

Course Outline

1. Introduction to Artificial Intelligence (AI) and Data Analytics for Audit
 - Understanding the importance of data analytics in internal and external audit
 - Overview of AI and its applications in various industries
 - Benefits and limitations of using AI for data analytics in internal and external audit
2. Basic Python Programming for Data Analytics
 - Introduction to Python programming language
 - Basics of data structures and data manipulation in Python
 - Data cleaning and preparation for analysis using Python libraries
3. Machine Learning for Audit
 - Overview of machine learning concepts and techniques
 - Understanding supervised and unsupervised learning algorithms in the context of business procedures
 - Model selection and evaluation relevant to the accounting and audit objectives
 - Implementation of machine learning algorithms for risk assessment, accounting analytics and performance of audit procedures using Python libraries
4. Data Visualization using Python
 - Overview of data visualization libraries in python like Matplotlib and Seaborn
 - Developing and customizing visualizations for data analytics using python libraries
 - Interpreting visualizations to get insights and select further procedures
5. Best Practices and Ethical Considerations
 - Discussion on the best practices for implementing AI-based solutions in Audit
 - Ethical considerations for using AI in audit, including data privacy and security, bias and fairness, and transparency
6. Conclusion and Next Steps
 - Review of course highlights and key takeaways
 - Guidance on how to continue learning and exploring AI for data analytics in audit

Course Learning Objectives

Course objective is to equip participants with the knowledge and skills to leverage AI for data analytics in audit, enabling them to identify risks, frauds, errors, non-compliances, and provide insights into organizational performance more effectively and efficiently. They will also have a clear understanding of the benefits and limitations of using AI for data analytics in audit and be able to implement AI-based solutions in the accounting processes.

By the end of this training course, participants will:

1. Understand the basic concepts of Artificial Intelligence (AI) and its applications in data analytics for audit
2. Learn the fundamentals of Python programming for data analytics
3. Understand the differences between supervised and unsupervised learning algorithms, and be able to apply them for accounting and audit data analytics using Python libraries such as scikit-learn
4. Gain an understanding of the concepts and techniques of deep learning, and be able to implement deep learning algorithms for accounting and audit data analytics using Python libraries such as TensorFlow
5. Understanding data visualization techniques using python libraries
6. Apply AI-based solutions to real-world accounting and audit data, and gain practical experience in developing data analytics solutions using machine learning and deep learning techniques
7. Understand best practices and ethical considerations for implementing AI-based solutions in audit, including data privacy and security, bias and fairness, and transparency.

Weekly Course Plan

Week 1: Introduction to Artificial Intelligence and Data Analytics

- Introduction to Artificial Intelligence (AI) and its applications in data analytics for accounting function, internal audit, external audit and risk management
- Overview of Python programming for data analytics
- Hands-on: Setting up the development environment

Week 2: Python Programming for Data Analytics

- Data types and structures in Python (e.g., lists, tuples, dictionaries)
- Reading and writing data files in Python
- Introduction to Numpy and Pandas libraries for data manipulation
- Hands-on: Data manipulation with Numpy and Pandas

Week 3: Supervised Learning Algorithms

- Understanding supervised learning algorithms (e.g., regression, classification)
- Introduction to Scikit-learn library for supervised learning
- Developing and evaluating supervised learning models for accounting and audit data analytics
- Hands-on: Implementing supervised learning algorithms for accounting and audit data analytics using Scikit-learn

Week 4: Unsupervised Learning Algorithms

- Understanding unsupervised learning algorithms (e.g., clustering, dimensionality reduction)
- Developing and evaluating unsupervised learning models for accounting and audit data analytics
- Hands-on: Implementing unsupervised learning algorithms for accounting and audit data analytics using Scikit-learn

Week 5: Data Visualization Techniques

- Introduction to data visualization techniques in Python
- Overview of Matplotlib and Seaborn libraries for data visualization

- Developing and customizing visualizations for data analytics
- Hands-on: Creating visualizations for data analytics using Matplotlib and Seaborn

Week 6: Project Presentations

- Ethical considerations in implementation of AI
- Real life project execution by the participants

Who should Attend

This course is designed for students and professionals who want to learn and apply the latest artificial intelligence (AI) technologies for data analytics in their work. It is ideal for internal auditors, external auditors, financial analysts, risk management professionals, compliance officers, and anyone including who wants to gain hands-on experience in using AI for data analytics.

Participants should have a basic understanding of accounting and audit concepts and techniques, as well as some experience in basic data evaluation. However, no prior experience in using Python or AI is required as the course will cover the fundamentals of both.

Trainers Profile

Faizan Irshad is a highly accomplished professional with over 17 years of experience in financial reporting, audit, fraud investigations, and risk management. He is a Fellow Chartered Accountant (FCA) with experience working in banking and other sectors.



Having an MS degree in Business Analytics, Faizan has blended his domain knowledge and experience with Artificial Intelligence technologies i.e. Machine Learning, Deep Learning and Big Data to provide innovative solutions to complex business problems. Faizan also holds “UiPath” specialization in Robotic Process Automation.

As the trainer for this course, Faizan brings a wealth of practical experience, technical expertise, and a passion for helping audit professionals gain hands-on experience in using cutting-edge AI technologies for data analytics.

Abdul Rauf is a Fellow Member of the Institute of Chartered Accountants of Pakistan. Currently, he is working as CEO of Bizware Private Limited. He is managing a portfolio of entrepreneurial projects and providing corporate consulting primarily in the area of strategy and GRC (Governance, Risk, and Control).



Previously, he worked as a faculty member at the Business School of Lahore University of Management Sciences (LUMS) for five years. He has taught courses on Accounting, Finance and Information System. He has also designed academic and executive courses in these areas and developed study material for these courses.

He started his career with A. F. Ferguson & Co. (a member firm of PwC Pakistan), where he served for almost six years as a trainee and then at a managerial position. At PwC, he worked in the Assurance and Advisory Services and led projects for both the public and private sectors. He also worked to implement internal controls and strengthen the internal audit department in a leading bank in the country.