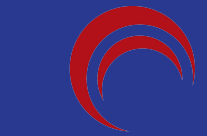
Python for Data Science
Python 用于数据科学

Course Outline课程大纲



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What We Do 我们做什么

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Mans International offers comprehensive Artificial Intelligence and Data Science training with real world practical projects and use cases. Mans International 提供最全面的人工智能和数据科学培 训，并结合实际项目和案例教学。

Professionals 专业人士

We equip you with hands on experience and job competency with job opportunities. 我们让您具备实际操作经验和职业技能，并推荐工作机会。

Enterprises 企业

We are a one-stop centre to solve all your problems in hiring appropriate candidates, improve job competency for your current employees, and solve your project challenges in the AI and Data Science field. 我们是一站式中心，可以解决您在聘用合适人 选，提高现有员工的工作能力，解决您在 AI和数据科学领域的项目挑战。

Why Python for Data Science
为什么学Python用于数据科学

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Python's popularity has increased incredibly in recent years. The main reason python is becoming popular is due to increasing influence of machine learning and AI in wide variety of applications. Python is the primary language used in machine learning and AI. Python近年来的受欢迎程度令人难以置信。Python越来越流行的主要原因是机器学习和人工智能在各种应用中的影响力越来越大。Python是机器学习和AI中使用的主要语言。

Python is an interpreted language that is intuitive and simpler to learn. With minimal or no coding experience, students can grasp its intuitive and flexible syntax. With some previous knowledge of coding, its a breeze to get a handle on Python. Python是一种直观且易于学习的解释型语言。只需极少或没有编码经验，学生就能掌握其直观灵活的语法。有了一些以前的编码知识，可以轻松掌握Python。

Course Objective 课程目标

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The Python for Data Science course is designed to build a solid foundation of Python programming. The course introduces learners to major Python applications particularly in machine learning with use cases, hands on exercises and assignments.

Python用于数据科学课程旨在对Python编程打下坚实的基础。本课程向学生介绍主要的python应用程序，特别是在机器学习中，包括实际案例，实操练习和作业。

Who Should Take This Course 学习对象

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- Developers aspiring to be a data scientist or machine learning engineer 开发人员有志成为数据科学家或机器学习工程师
- Business analysts who want to understand data science techniques 想了解数据科学技术的商业分析师
- Undergraduates looking to build a career in data science and machine learning 大学毕业生希望建立一个数据科学和机器学习的职业生涯
- Experienced professionals who have computer science and mathematics knowledge would like to harness machine learning in their fields to get more insights 有经验的专业人士, 有计算机科学和数学知识，想要在他们的领域利用机器学习来获得更多的见解

Learning Outcome 学习成果

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- Be familiar with the entire procedure of conducting a data analysis project 熟悉进行数据分析项目的整个过程
- Confidently perform exploratory data analysis using Python's Scipy/Numpy libraries as well visualization tools 自信地使用Python的Scipy / Numpy库以及可视化工具执行探索性数据分析
- Prepare data for complex statistical analysis by working with SQL databases, complex joins/merging using Python's Pandas library 通过使用SQL数据库，使用Python的Pandas库进行复杂的连接/合并，为复杂的统计分析准备数据
- Build statistical inference models with regression, bayesian methods as well as clustering techniques 建立回归统计推断模型，贝叶斯方法以及聚类技术
- Data visualization and presentations with Python's matplotlib, Bokeh, Plotly libraries 使用Python的matplotlib，Bokeh，Plotly库进行数据可视化和演示
- Gain enough statistical foundations to move on to more advanced courses such as Machine Learning 获得足够的统计基础，继续学习更高级的课程，如机器学习

Course Outline 课程大纲I

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Module 1: Brief historical background on Python and the key characteristics of the language 简要介绍Python的历史背景并讨论该语言的关键特征

Module 2: Environment setup (The course primarily uses jupyter notebook environment to teach python.) 环境设置 (该课程主要使用jupyter笔记本环境来教python)

Module 3: Basics of python syntax and semantics including data types, statement and control flow, popular Python libraries including pandas, numpy and matplotlib, reading and writing data, and basics of plotting etc. Python语法和语义基本知识，包括数据类型，语句和控制流，常用 Python库包括pandas，numpy和matplotlib等，读写数据以及 绘图基础等

Module 4: Python applications - get hands on experience with analytics application including regression, neural nets and basics of deep learning. Python应用程序- 掌握分析 应用程序的经验，包括回归，神经网络和深度学 习的基础知识。

Module 5: Introduction to major packages such as Tensorflow and Keras 介绍Tensorflow和Keras等主要软件包

Module 6: Use cases 用例讲解

Module 7: Hands on exercises and assignments 实操练习和任务

Teachers Team 师资力量

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- Machine Learning and Data Science Professors from top North American universities 北美知名高校机器学 习和数据科学教授 团队
- IBM Research Scientist IBM 研究科学家
- Patent inventors 专利发明人
- Big Data Scientists from top tech companies i.e. Bell, Intel 来自顶尖科技公司例如 贝尔，Intel的大数据科学家
- Machine Learning and Data Science PhDs from top North American universities 北美知名高校机器学 习和数据科学博士生 团队
- Available teaching languages: English, Chinese, French, and Arabic 可选的教学语言：英语，中文，法语和阿拉伯语