AI for Python Application Development

COURSE OVERVIEW

In this 4-day course, students learn how to utilize popular AI API toolkits to jumpstart, create, and fix Python projects. Projects include chatbots, web apps, transforming datasets, building visualizations, code reviews, packaging projects, and writing documentation.

By the end of this course, students should have a clear understanding of how to control the APIs behind three of the leading AI tool sets, add AI APIs to their Python development workflows, use AI to identify and improve overall security, as well as fix broken code.

Direct access to the AI Platform is not required. All traffic to and from AI Platforms is provided through the training provider.

All students will receive a certificate upon completion of this course.

WHO WILL BENEFIT FROM THIS COURSE?
- Python Developers
- Administrators and Operators
- Data Engineers and Scientists
- Web Developers
- Management

PREREQUISITES

Previous exposure to Python is helpful but not required

COURSE OBJECTIVES
- How to use IBM Watson, Google Bard, and ChatGPT
- Generating Python solutions with AI
- Using AI to improve existing Python scripting
- Explain AI terminology such as neural networks, machine learning workflows, Large Language Models (LLMs), GPT, chaining, Natural Language Processing (NLPs), prompts, tokens, and more

COURSE OUTLINE

Day 01

Popular AI Tools for Python Programmers
- AI Terminology
- Overview of ChatGPT
- Overview of Google Bard

- Overview of IBM Watson
- Exploring Google Bard API
- Planning a prompt
- Generating our first Python script
- Testing the result
- Closing the gap on Documentation, Wikis, README.md, requirements.txt
- AI and pip projects
- Fixing broken code

Day 02

AI and Python Web Frameworks

- Generating a ChatGPT API Key
- Exploring ChatGPT API
- Selecting a model
- Natural Language Processing (NLPs) & Large Language Models (LLMs)
- Planning a project
- Generating a project with ChatGPT
- Generating a web application with ChatGPT (Flask)
- Adding new features to an existing web application (Django)
- Building scripts that crawl the web with AI (Selenium)
- SQL Databases and AI (SQLite)

Day 03

Building a Python Chatbot with AI

- Planning a customer service Chatbot
- Finding training data for the Chatbot
- Generating a WordPress Webpage
- Deploying our Chatbot
- Making improvements
- Logging and Metrics
- Collaboration considerations when using AI
- Deploying a chatbot to social media channels; Facebook Messenger, WhatsApp, Slack, Amazon Alexa

Day 04

AI and Python Visualizations and Data Sciences

- ChatGPT and Jupyter Notebook
- Transforming datasets with AI (Pandas)
- Google Bard and Visualization (MatPlotLib)
- Cleaning datasets with AI
- Explore IBM Watson's Natural Language Processing capabilities
- Sourcing training data
- Watson Assistant
- OpenSource LLMs
- Generating images and a better UI with AI
- Limitations of AI & necessary improvements

Labs:

- SCM Option #1 - Getting Started with GitHub
- SCM Option #2 - Getting Started with GitLab
- Intro to Google Bard
- Generating a Python script from scratch
- Generating a Python API SDK Client with AI
- Testing code generated by AI
- Fixing broken and incomplete Python projects with AI
- Intro to ChatGPT
- Generating a web application with ChatGPT (Flask)
- Adding new features to an existing web application (Django)
- Building scripts that crawl the web with AI (Selenium)
- SQL Databases and AI (SQLite)
- ChatGPT and Jupyter Notebook
- Transforming datasets with AI (Pandas)
- Google Bard and Visualization (MatPlotLib)
- Intro to IBM Watson
- AI Chatbot Planning and Development
- AI Chatbot Deployment and Operation
- Improving Python Pipelines and Workflows with AI
- Containerizing your Python App with AI
- Business Case Use #1 - Closing Open Tickets with AI
- Business Case Use #2 - Using AI to fix Python Security Holes
- Exploring OpenSource LLMs

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