Become a Python Developer

(Website: www.aiquest.org, Cell: +8801704265972)

বিশেষ দ্রষ্টব্য: এই লাইভ কোর্সটি থেকে আপনি পাইথনের **শূন্য থেকে এডভান্স** একদম সলিড নলেজ পাবেন, যা ব্যবহার করে আপনি Software Engineer, Data Analyst, Data Scientist, Machine Learning Engineer, AI Engineer, Prompt Engineer and DevOps Engineer হিসেবে নিজের ক্যারিয়ার তৈরি করতে পারবেন!   [WATCH COURSE PLAN]

Course Instructor:
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বিশেষ নোট: কোর্স শেষে, ইন্সট্রাক্টর এর গাইডলাইন ফলো করে ১.৫ মাসে তিনটি প্রজেক্ট করতে হবে! প্রজেক্ট কমপ্লিট করতে কোর্স ইন্সট্রাক্টর আপনাকে সুপারভাইজ করবেন! কুইজ স্কোর, অ্যাসাইনমেন্ট এর উপর ভিত্তি করে কোর্স কমপ্লিটের সার্টিফিকেট পাবেন এবং তিনটি প্রজেক্ট এর উপর ভিত্তি করে আপনাকে ইন্টার্নশিপ সার্টিফিকেট প্রদান করা হবে!

Module 1: Introduction to Python (Duration: 1.5 hours)
- Introduction to the course and its objectives
- Overview of Python as a programming language
- Setting up the development environment (IDE, Python installation)
- Your first Python program
- Basic data types and variables
- Class Condition: Submit a simple "Hello, World!" program.

Module 2: Control Structures (Duration: 3 hours)
- Conditional statements (if, elif and else)
- Loops (for and while)
- Control flow and decision making
- Problem-Solving Session: Practice problems related to control structures.
- Q&A Session: Clarify doubts related to control structures.
- Assignments **
- Quiz Test (MCQ)

Module 3: Data Structures (Duration: 5 hours)
- Lists
- List Methods
- List comprehensions
- List manipulation
- Tuples
- Tuple Methods
- Generators
- Sets and Set Methods
- Frozen Set
- Dictionaries and Dict Methods
- String manipulation and formatting
- Problem-Solving Session: Work on exercises involving various data structures.
- Q&A Session: Discuss challenges faced while working with data structures.
- Assignments **
- Quiz Test (MCQ)

Module 4: Functions and Modules (Duration: 4 hours)
- Defining and calling functions
- Function parameters and return values
- Parameters
- Different kinds of arguments
- Scope and lifetime of variables
- Introduction to modules and libraries
- Problem-Solving Session: Solve coding challenges emphasizing function usage.
- Q&A Session: Address queries about functions and modules.
- Assignments **
- Quiz Test (MCQ)

Module 5: Introduction to Algorithm and Data Structures (4 Hours)
- Time Complexity
- Space Complexity
- Sorting algorithms
- Linked list
- Stack
- Queue
- Problem-Solving Session: Solve coding challenges using stack, queue, and linked list.
- Q&A Session: Address queries about stack, queue, and linked list.
- Assignments **
- Quiz Test (MCQ)

Module 6: Object-Oriented Programming (Duration: 5 hours)
- Concepts of classes and objects
- Inheritance and polymorphism
- Encapsulation and abstraction
- Introduction to exceptions
- Different kinds of exception handling
- Class Condition: Develop a simple object-oriented program like a basic banking system.
- Problem-Solving Session: Practice OOP-related problems.
- Q&A Session: Clarify doubts about OOP concepts and exception handling.
- Assignments **
- Quiz Test (MCQ)

Module 7: File Handling and Libraries (Duration: 5 hours)
- Reading and writing files
- Working with CSV and JSON data
- Introduction to popular libraries (NumPy, Pandas, Matplotlib, Seaborn)
- Integration of external libraries in projects

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- Assignment: Analyze a dataset using Pandas and present findings.
- Problem-Solving Session: Tackle challenges related to file processing and libraries.
- Q&A Session: Discuss issues faced during file handling and library usage.
- Assignments **
- Quiz Test (MCQ)

Module 8: Git, GitHub (Duration: 3 hours)
- Version Control
- Git Basics
- Git Commands
- Understanding GitHub (Overview, GitHub Repositories, Making and managing pull requests)
- Collaborative Development with GitHub (Forking and Cloning, collaboration, and CI/CD)
- Q&A Session on GitHub

Module 8: Debugging and Unit Testing (Duration: 4 hours)
- Introduction to Debugging Techniques (Bug and Errors, Debugging Tools, and Exercises)
- Introduction to Unit testing
- Python Testing Framework
- Writing and Running Tests
- Mocking and Patching
- Unit Testing Exercises
- Q&A Session on Debugging and Unit Testing
- Assignments **
- Quiz Test (MCQ)

Module 9: Web Scraping with Python (Duration: 10 hours)
- Introduction to web scraping
- Regular expression (RegEx)
- **Beautifulsoup** (for collecting data from XML and HTML files)
- Learning **Selenium** (to interact with javascript based contents)
- **Scrapy** (for a complete solution for crawling, parsing, and storing data.)
- Web scraping **projects**
- Q&A Session on Web scraping
- Assignments **
- Quiz Test (MCQ)

Module 10: Flask - Web Framework (Duration: 8 hours)
- Introduction to Flask Framework
- Flask Routing and Views
- Flask Forms
- Database Integration

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- User Authentication
- **Portfolio Website** (from design to deployment)
- **ML Web Application Deployment** (flask integration to deployment)
- Q&A Session on the flask
- Assignments **
- Quiz Test (MCQ)

Module 11: Final Project and Review (Duration: 4 hours)
- Brainstorm and propose final project ideas
- Form teams and select projects
- Implementation of the final project with problem-solving elements
- Presentation of final projects to the class
- Peer review and feedback
- Q&A and Problem-Solving Session: Assist teams with final project challenges.

***Bonus Module: Problem-Solving Guidance-Leetcode (Duration: 5 hours)
- Introduction to **Leetcode**
- Problem Solving Strategies
- Additional **DSA for problem-solving**
- **Dynamic Programming, Greedy algorithms and backtracking**
- Blind 75 discussions

Q&A and Problem-Solving Sessions (Throughout the Course):
- Open Q&A and problem-solving sessions.
- Doubts, review previous concepts, and solve coding challenges.
- Internship Guidelines.
- What's Next?

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