COURSE SYLLABUS

# Computer Science Course (Self-Paced with Mentoring)

Group classes in NYC and onsite training is available for this course.
For more information, email corporate@nobledesktop.com or visit:
https://www.nextgenbootcamp.com/certificates/computer-science-online

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## Course Outline

This package includes these courses

- Java Programming Course (Self-Paced with Mentoring) (50 Hours)
- Python Data Science & AI Machine Learning (Self-Paced with Mentoring) (45 Hours)

### Java Programming Course (Self-Paced with Mentoring)

This course teaches high school students the core principles of Java programming, laying a strong foundation for AP Computer Science or introductory college-level coursework. Through a project-based approach, students will gain practical coding experience and sharpen their problem-solving skills with hands-on challenges.

- Write and implement industry-standard algorithms using Java syntax and best practices
- Work with variables, data types, operators, and control flow to build logic-driven programs
- Build and manipulate arrays, strings, and dictionaries in structured Java applications
- Manage file input/output and format data using Java's stream-handling capabilities
- Apply object-oriented programming concepts, including inheritance, polymorphism, and encapsulation
- Use recursive functions to solve problems and break down complex tasks into manageable components

### Python Data Science & AI Machine Learning (Self-Paced with Mentoring)

In this self-paced online program, high school students will explore Python programming, data science, and machine learning. From coding to building visualizations and predictive models, this course provides a strong foundation in tech-driven problem-solving.

- Master Python fundamentals like data types, conditionals, loops, and functions.
- Clean and manipulate real-world data using Pandas and NumPy.
- Process files, utilize string methods, and handle structured data.
- Create custom charts, histograms, and plots with Matplotlib.
- Apply machine learning techniques such as linear regression, classification, and K-nearest neighbors.
- Complete a capstone project to showcase your ability to analyze and present data insights.