



KIDS & TEENS FREELANCING TRAINING INSTITUTE

NUMPY Course Outline

Module 1: What is NumPy?

- Simple definition: NumPy is a Python tool to work with numbers fast
 - It helps us handle large sets of data like a pro
 - Real-life example: Like a smart calculator that remembers everything
 - Activity: Show how NumPy handles a list of numbers vs. regular Python
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Module 2: Arrays – The Heart of NumPy

- What are NumPy arrays and how are they different from lists?
 - 1D, 2D, and 3D arrays explained in easy terms
 - Real-life example: Stacking LEGO blocks in rows and columns
 - Activity: Create paper models of arrays (rows and columns)
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Module 3: Playing with Numbers Easily

- Adding, subtracting, multiplying with arrays
 - Real-life example: Doing math homework faster with a smart tool
 - How NumPy saves time with fewer lines of code
 - Activity: Try adding two small arrays and see the result
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Module 4: Shape, Size, and Reshape

- Learn how to check and change the shape of arrays
- Why shape matters in data science and coding
- Real-life example: Folding a T-shirt different ways, same T-shirt!
- Activity: Reshape paper grids and explain how the data remains

Module 5: Slicing and Dicing Data

- How to take parts from arrays easily
- Indexing, slicing, and getting what you want from data
- Real-life example: Cutting a cake into slices
- Activity: Color code parts of a printed array to show slices

Module 6: Cool Math Functions in NumPy

- Mean, median, max, min, and more
- Real-life example: How a teacher finds average marks
- Why these tools are great for data projects and analysis
- Activity: Find the average of a small array using NumPy

Module 7: Real-World Uses of NumPy

- Used in AI, machine learning, and data science
- Real-life example: Weather apps using past data with NumPy
- Companies that rely on NumPy for calculations
- Activity: Create a pretend weather report using array data

Module 8: Growing with NumPy Skills

- Careers: Data Analyst, ML Engineer, Python Developer
- How NumPy is your first step into big data science
- Real-life example: NumPy helps train smart robots and apps
- Activity: Draw your dream app using NumPy inside it

Bonus Materials

- Array building worksheets
- NumPy flashcards and mini quiz
- Fun practice problems with real answers
- Python + NumPy challenge activity
- Certificate of Completion for NumPy

