**Month 1: Python Core + CSS Basics + Maths Basics**

**Week 1–2**

* **Python Topics:**
  + Variables, data types
  + Input/Output
  + Operators
  + Conditionals (if/else)
  + Loops (for, while)
  + Basic functions
* **Python Practice Problems:**
  + Print patterns (stars, numbers)
  + Sum of first N numbers
  + Factorial, prime check
  + Simple calculator
* **Web (CSS) Focus:**
  + Selectors, box model, colors, fonts
* **Web Mini Project:**
  + **Personal Static Portfolio Page**
* **Maths Topics:**
  + **Arithmetic review:** Addition, subtraction, multiplication, division, percentages
  + **Number properties:** Prime numbers, factors, multiples

**Week 3–4**

* **Python Topics:**
  + Lists, tuples, sets, dictionaries
  + Functions with arguments & return values
  + File handling basics
* **Python Practice Problems:**
  + List manipulation, dictionary frequency counts, file I/O
* **Web Focus (CSS):**
  + Flexbox, Grid layouts
* **Web Mini Project:**
  + **Responsive Portfolio Page**
* **Maths Topics:**
  + **Algebra basics:** Solving simple equations, linear expressions
  + **Fractions, decimals, ratios**

**Month 2: Python OOP + JS Basics + Maths: Algebra & Geometry**

**Week 5–6**

* **Python Topics:** Strings, error handling, OOP basics
* **Python Practice Problems:** String manipulations, basic OOP problems
* **Web (JS) Focus:** Variables, loops, conditionals, functions
* **Web Mini Project:**
  + **Interactive Portfolio Elements**
* **Maths Topics:**
  + **Algebra:** Quadratic equations, factorization
  + **Geometry:** Lines, angles, basic area and perimeter formulas

**Week 7–8**

* **Python Topics:** Advanced OOP (inheritance, polymorphism), modules & libraries (math, random, datetime)
* **Python Practice Problems:** Class inheritance, random number game
* **Web Focus (JS):** DOM manipulation, event handling
* **Web Mini Project:**
  + **Interactive Form with Validation**
* **Maths Topics:**
  + **Geometry:** Triangles, Pythagoras theorem, circles
  + **Coordinate geometry basics**

**Month 3: Python Problem-Solving + Web Expansion + Maths: Pre-Calculus**

**Week 9–10**

* **Python Topics:** Recap, simple algorithms: factorial, Fibonacci, sorting
* **Python Practice Problems:** Fibonacci, factorial, bubble sort, selection sort
* **Web Focus:** Advanced CSS + JS integration
* **Web Mini Project:**
  + **Portfolio with Interactive Gallery**
* **Maths Topics:**
  + **Functions:** Linear, quadratic functions, basic graph plotting
  + **Sequences & series:** Arithmetic sequences

**Week 11–12**

* **Python Topics:** Advanced file handling, recursion basics
* **Python Practice Problems:** Recursive factorial, Fibonacci, sum of list
* **Web Focus:** Responsive design (Flexbox/Grid)
* **Web Mini Project:**
  + **Interactive Quiz Web Page**
* **Maths Topics:**
  + **Pre-calculus basics:** Concept of slope, intercept
  + **Introduction to matrices** (basic addition/subtraction)

**Month 4: Python Libraries + AI/ML Prep + Maths: Linear Algebra & Statistics**

**Week 13–14**

* **Python Libraries:** NumPy basics (arrays, operations)
* **Maths Topics:** Linear algebra (vectors, matrices, operations)
* **Python Practice Problems:** NumPy array operations, matrix addition/multiplication
* **Python Mini Project:**
  + **Basic Data Calculator**

**Week 15–16**

* **Python Libraries:** Pandas basics (DataFrames, CSV)
* **Maths Topics:** Statistics basics: mean, median, mode, standard deviation
* **Python Practice Problems:** Analyze small CSV datasets: count, sum, filter
* **Python Mini Project:**
  + **Data Analysis Mini Project**

**Month 5: AI/ML Fundamentals + Maths: Probability & Stats**

**Week 17–18**

* **Python Libraries:** Matplotlib/Seaborn for visualization
* **AI/ML Topics:** Scikit-learn basics, train/test split
* **Python Practice Problems:** Visualize dataset trends
* **Python Mini Project:**
  + **Linear Regression Project** (predict house prices)
* **Maths Topics:**
  + **Probability basics:** Simple probability, independent/dependent events
  + **Correlation basics**

**Week 19–20**

* **AI/ML Topics:** Supervised ML: Linear/Logistic Regression, evaluation metrics
* **Python Practice Problems:** Regression & classification on datasets
* **Python Mini Project:**
  + **ML Classifier Project** (Iris dataset)
* **Maths Topics:**
  + **Advanced stats basics:** Variance, standard deviation, z-scores

**Month 6: AI/ML Intermediate + Web Integration + Maths: Matrices & More Stats**

**Week 21–22**

* **AI/ML Topics:** K-Means clustering, Decision Trees, Random Forest
* **Python Practice Problems:** Cluster small datasets, Decision Tree classification
* **Python Mini Project:**
  + **Mini ML Pipeline Project**
* **Maths Topics:**
  + Matrix multiplication, determinant basics
  + Probability distributions introduction

**Week 23–24**

* **Web Integration:** Flask/Streamlit basics to display ML results
* **Python Mini Project:**
  + **ML-Powered Web Project** (classifier on a web page)
* **Maths Topics:**
  + Reinforce applied linear algebra & stats for ML projects

**Month 7 (Optional / Stretch)**

* **Python Libraries:** TensorFlow / PyTorch basics (optional)
* **Web Project:** Portfolio refinement + deployed ML projects
* **Python Mini Project:**
  + **AI + Web Integrated Project**
* **Maths Topics:**
  + Optional: Calculus basics for ML (derivatives, gradients)