🚀 WEEK 2: Data Visualization & Machine Learning (ML Basics)

Theme: Turn raw data into visual insights and predictive models.
Focus: Matplotlib, Seaborn, Scikit-learn, ML theory & practice.
Goal: Complete 1 full ML project (e.g., **Titanic**, **Student Score Prediction**, or **Iris classification**).

🔥 Daily Schedule (3 hrs 30 mins/day)

Time	Task	Description
30 mins	📚 **ML Theory Learning**	Learn the core ML ideas: regression, classification, supervised learning, train-test split, overfitting. Use YouTube or free courses.
90 mins	🧠 **Code ML + Visualization**	Use Seaborn, Matplotlib, and Scikit-learn on real datasets. Focus on applying concepts.
30 mins	🌎 **Review Others' Projects**	Read a GitHub or Kaggle project daily. Focus on their visualizations, modeling logic, and presentation.
30 mins	📝 **Notebook Polish + GitHub Push**	Write clean code + markdown + push to GitHub. Optional: write a blog-style summary.

🗓️ Day-by-Day Plan

Day 1 – Data Visualization Mastery (Seaborn & Matplotlib)

- Learn: Types of plots (scatter, box, bar, heatmap, pairplot)
- Practice on real dataset (e.g., Iris or Titanic)

Day 2 – Supervised ML Basics (Regression)

- Learn: Linear regression, loss function, train-test split
- Practice: Predict student scores, house prices, etc.

Day 3 – Model Evaluation & Feature Understanding

- Learn: R^2, MAE, MSE, feature importance
- Practice: Try different regression datasets

- Bonus: Add bar plots of feature importance

Day 4 – Classification Models

- Learn: Logistic Regression, Decision Tree, KNN basics
- Practice: Predict Titanic survival or Iris species

Day 5 – Confusion Matrix, Accuracy, Precision, Recall

- Learn: Classification metrics
- Practice: Evaluate models visually (heatmaps of confusion matrix)

Day 6 – ML Project Day

- Complete 1 full ML project with:
    - Data cleaning
    - EDA + visualizations
    - Model training
    - Model evaluation
    - Markdown storytelling
- Suggested: **Titanic**, **Diabetes**, or **Heart Disease**

Day 7 – Review + Polish Day

- Review your Week 2 work
- Improve code formatting, plots, and markdown
- Push final notebook to GitHub
- Optional: write a blog summary

 Tools to Use

Purpose	Tools
Visualization	Seaborn, Matplotlib, Plotly
ML Modeling	Scikit-learn

Purpose	Tools
Datasets	Titanic (Kaggle), Iris (Sklearn), Diabetes (UCI), CSVs
Practice Platforms	Kaggle, GitHub, Colab
Learning	YouTube (StatQuest, Krish Naik), freeCodeCamp ML videos