Last two months, I appeared in multiple ML interviews. From this experience I have curated a 4-week ultra study plan for serious candidates who want to crack data science interviews.

[Week 1]: Foundations (Stats + Probability + Linear Algebra)
a. Statistics & Probability:
- P-values, confidence intervals, CLT
- Bayes' Theorem & conditional probability
- Common distributions: normal, binomial, Poisson
- Hypothesis testing & statistical significance

b. Linear Algebra (must-know):
- Vectors, matrices, dot products, cosine similarity
- Matrix multiplication & properties
- Eigenvalues/eigenvectors
- Applications in PCA & neural networks

[Week 2]: Core ML + Evaluation Metrics
- Linear & Logistic Regression (intuition + math)
- Decision Trees, SVM, KNN, Naive Bayes
- Ensemble methods: Random Forest, XGBoost
- Overfitting, bias-variance tradeoff
- Evaluation: accuracy, precision, recall, F1, ROC, AUC

[Week 3]: Coding + SQL + Projects
- Python: list comps, NumPy tricks, pandas one-liners
- SQL: joins, subqueries, window functions (must to have for Data analysis role)
- Feature engineering & preprocessing
- Prepare your past projects - make sure you can explain every point

[Week 4]: Deep Learning + System Design + Mock Interviews
- Neural Nets, CNNs, RNNs, LSTM
- Transformer architecture, BERT/GPT intuition (must have for NLP heavy roles)
- Pre-training, Fine-tuning, LoRA, QLoRA, PEFT
- ML system design: A/B testing, recommendation systems, Object detection
- Mock interviews with peers or platforms

Throughout this 4 weeks, practice DSA. Pick any DSA sheet (Striver / GFG / LC-150) and solve at least 5 problems a day (30*5 = 150).

Bonus Tips:
- Create flashcards of tricky concepts
- Keep a journal of things you learn each day
- Talk out loud - practicing explanations matters!
- Revise on every alternate day, for DSA every 3 days

If want to learn in-depth machine learning concepts with mathematical intuition, check out my ML articles. Link in comment.