Nerdy Case 5: 48-Hour AI Product Sprint

The Challenge: Choose ONE of these urgent Nerdy problems and build a complete solution using AI-first development in 48 hours:

Option A: AI Study Companion Build a persistent AI companion that lives between tutoring sessions, remembers previous lessons, assigns adaptive practice, answers questions conversationally, and drives students back to human tutors when needed. Must integrate with existing session recordings and generate measurable learning improvements.

- Retention Enhancement Requirements:
    - When student completes goal → must suggest related subjects (address 52% "goal achieved" churn)
    - SAT complete → surface college essays, study skills, AP prep
    - Chemistry → suggest physics, STEM subjects
    - Nudge students who have <3 sessions by Day 7 to book next session
    - Show multi-goal progress tracking (not just single subject)

Option B: Tutor Quality Scoring System Create an automated system that evaluates tutor performance across every session, identifies coaching opportunities, predicts which tutors will churn, and recommends interventions. The system must process 3,000 daily sessions and provide actionable insights within 1 hour of session completion.

- Retention Enhancement Requirements:
    - Detect patterns leading to poor first session experiences (24% of churners fail here)
    - Flag tutors with high rescheduling rates (98.2% of reschedules are tutor-initiated)
    - Identify tutors at risk of no-shows (16% of tutor replacements due to no-shows)

Option C: Intelligent Operations Dashboard Build a real-time command center that monitors marketplace health, predicts supply/demand imbalances, automatically adjusts tutor recruiting campaigns, and alerts operators to anomalies. Must handle 50+ data streams and provide explainable AI recommendations.

- Retention Enhancement Requirements:
    - Customer health score dashboard showing:
    - First session success rates by tutor/subject
    - Session velocity trends by cohort

    - IB call spike alerts (≥2 calls in 14 days = churn risk)
    - Churn prediction by customer segment
    - Instant tutor supply vs. demand predictions
    - Early warning alerts for at-risk customers

Sprint Requirements:

- First 24 hours: Use only AI coding assistants (no manual coding)
- Hour 24-36: Refine and debug with mixed approach
- Hour 36-48: Production hardening and documentation
- Must include working demo, not just designs
- Solution must integrate with existing Rails/React platform

Deliverables:

- Working prototype deployed to cloud (AWS or Vercel)
- Documentation of AI tools used and prompting strategies
- 5-minute demo video showing actual functionality
- Cost analysis for production deployment
- 90-day roadmap for full implementation

Success Metrics:

- Does it solve a real business problem?
- Could this ship to production within 2 weeks?
- Does it leverage AI in sophisticated ways?
- Clear path to ROI within 90 days?