PM Accelerator

# Bootcamp Journey

Use this document as a high-level overview of your journey.

This document will reference both these aspects:

- **Technical Skills Development**
  - Core ML/AI Concepts
  - Gen AI & Data Engineering
  - MLOps & Deployment
- **Project-Based Learning**
  - Agile Scrum Methodology
  - Team Collaborations
  - Real-world Applications

### Project Timeline

Here is a high-level time line of your 11-week journey.

#### Week 1 - 11 Agenda for AI PM Bootcamp

- **Week 1:** Learning and Onboarding Study all the AI knowledge:
  - Training for AI Engineers
  - Training of AI Designer

    - Engineers: Working on Job Tracker or PM FAQ Chatbot
        - Make sure to join **Office hours** to discuss your thoughts and issues with these projects.

- **Week 2:** Learning and Onboarding Study all the AI knowledge:
    - Training for AI Engineers
    - Training of AI Designer
    - Designers:  Join Pitch Day & Team Match (within 24 fill out AI products interested in on Team Match.xls for Cohort 5) - Please wait for the **Cohort5** tab to be created by Dr. Nancy in spreadsheet before enter Name in “Interested” column
        - Discuss User Interview process
    - Engineers: Working on Job Tracker or PM FAQ Chatbot
        - Make sure to join **Office hours** to discuss your thoughts and issues with these projects.

- **Week 3:** Continue development
    - Designer building High-Fidelity Designs
        - User Interviews
    - Engineers: Working on Job Tracker or Discord PM FAQ Chatbot
        - Make sure to join **Office hours** to discuss your thoughts and issues with these projects.

- **Week 4:** Prepare and Join Pitch Day & Ranking

    - Designers & PM present to Engineers
    - Engineers join Zoom Pitch Day and fill out Google Ranking form. *(Lead Engineers get Ranking choice priority)*

- **Week 5:** Cross-functional team collaboration. Agile feature development
- **Week 6:** Cross-functional team collaboration. Agile feature development
- **Week 7** Cross-functional team collaboration. Agile feature development
- **Week 8:** Cross-functional team collaboration. Agile feature development
- **Week 9:** Cross-functional team collaboration. Agile feature development
- **Week 10:** Testing and Demo ready
- **Week 11:** Demo!

**Training Documents:**

- **Training for Engineers** ***(Click link)***
- **Training for Designers** ***(Click link)***

**Technical Skills Development (Weeks 1-2)**

- Core ML/AI Concepts (3 Days)
    - **Day 1 : ML Fundamentals**
        - Neural Networks architecture (2 hours)
            - Forward/backward propagation
            - Activation functions
            - Loss functions
        - Transformers architecture (2 hours)
            - Attention mechanisms

        - Self-attention
        - Multi-head attention
    - **Day 2: Deep Learning**
        - Transfer Learning (2 hours)
            - Pre-trained models
            - Fine-tuning strategies
        - Model Evaluation (2 hours)
            - Metrics
            - Validation strategies
            - Common pitfalls
    - **Day 3: Hands-on Practice**
        - PyTorch basics (2 hours)
        - Model training workshop (2 hours)
    - **Resources:**
        - Transformers Illustrated
            - The Illustrated Transformer – Jay Alammar
        - Andrej Karpathy's Neural Networks Zero to Hero
            - Neural Networks: Zero to Hero - YouTube
        - HuggingFace Course
            - Introduction - Hugging Face NLP Course

**Gen AI & Data Engineering** (4 Days)

Generative AI for Beginners | Microsoft Learn

- **Day 1-2: LLM Fundamentals**
    - LLM architectures
    - Prompt engineering
    - Context length and limitations
    - RAG (Retrieval Augmented Generation)
    - Vector databases

- **Day 3: Data Engineering**
  - Data preprocessing
  - Text chunking strategies
  - Embedding models
  - Vector similarity search
  - Data quality and validation
- **Day 4: Integration**
  - API integration (OpenAI, Anthropic)
  - Streaming responses
  - Error handling
  - Cost optimization
- **Practical Exercises:**
  - Build a simple chatbot
  - Implement RAG system
  - Create custom training dataset
- **Resources:**
  - LangChain Documentation
    - Tutorials | 🦜🔗 LangChain
  - OpenAI Cookbook
    - GitHub - openai/openai-cookbook: Examples and guides for using the OpenAI API
  - Vector Database Fundamentals
    - What is a Vector Database & How Does it Work? Use Cases + Examples | Pinecone

**MLOps & Deployment** (3 Days)

- **Day 1: Development Practices**
  - Git workflow
  - Code review process

        - Documentation standards
        - Testing strategies
    - **Day 2: Deployment**
        - Docker containerization
        - CI/CD pipelines
        - Model serving
        - API development (FastAPI)
    - **Day 3: Monitoring**
        - Logging best practices
        - Performance monitoring
        - Cost tracking
        - Error handling
    - **Resources:**
        - MLOps Zoomcamp
            - GitHub - DataTalksClub/mlops-zoomcamp: Free MLOps course from DataTalks.Club
        - FastAPI Documentation
            - FastAPI
        - Docker for ML
            - Docker For Data Scientists

**Project-Based Learning (Weeks 3-11)**

- Agile Scrum Methodology (Week 3)

  Please set aside 1 hour for Agile (Week 1&2)

  Understanding Agile Scrum.pdf

  What Is Agile Methodology? | Introduction to Agile Methodology in Six Minutes | Simplilearn

What Is Agile Scrum Framework? | Scrum Framework Explained | Agile Methodology | Simplilearn

Master the Daily Scrum: Everything You Need to Know for Agile Success! 🚀 | Scrum Basics Simplified

- **Sprint Structure:** (*team consensus*)
  - 1-2 week sprints
  - Daily standups (15 mins)
  - Sprint planning (1 hour)
  - Sprint review (20 mins)
  - Retrospective (20 mins)
- **Documentation Requirements:** (*team consensus*)
  - Sprint backlog
  - User stories
  - Technical documentation
  - API documentation
  - Deployment guides
- **Tools:**
  - Any Project tracking tool (JIRA, Monday etc.)
  - Any choice of documentation tool
  - GitHub for code management

- Team Collaborations (Weeks 4-11)
  - **Team Structure:**
    - Roles:
      - Full Stack Engineer
        - Front end Engineer
        - Back end Engineer
      - Data Scientist
      - Data Engineer
      - UX Designer
      - Product Manager

        - **Weekly Schedule:** (*team consensus*)
            - Monday: Sprint planning/review
            - Daily: Standups
            - Wednesday: Technical discussion
            - Friday: Demo/documentation
    - Real-world Applications (Ongoing)
        - **Project Requirements:**
            - Business value proposition
            - Scalability considerations
            - Cost optimization
            - Security compliance
            - User experience
        - **Deliverables:** (*team consensus*)
            - Working prototype
            - Technical documentation
            - API documentation
            - Deployment pipeline
            - Monitoring dashboard
            - Final presentation

Onboarding Video Link By Anil Thomas: https://youtu.be/ZBEoZYmMCMc?

## Success Metrics:

1. Functional prototype
2. Clean, documented code
3. Comprehensive testing
4. Clear documentation
5. Effective presentation
6. Team collaboration

## Tools & Technologies

[ 05. Tools & Technologies.docx ]

**Mentor Kat Sao's Schedule & Recordings (Cohort 3)**

Week 1: Friday, January 31 @11am - Duration: 1hr
Session Theme: Introduction, What to expect, Timelines, Q&A
https://youtu.be/_v6hyhS_U0U

Week 2: Friday, February 7 @ 11am - Duration : 30 mins Session Theme: Q&A: General - (Session Canceled, No attendees)

Week 3: Friday, February 14 @ 11am - Duration 1hr Session Theme: Prepping for Team Matching & I'm on a team, now what?
https://youtu.be/d7bCIwlXZsY

Week 4: Friday, February 21 @ 10am - Duration 30 mins Session Theme: AI Product Lifecycle https://youtu.be/sc8g3RvwBBk

Week 5: Friday, February 28 @ 11am - Duration 30 mins Session Theme: Outcome Mindset & Delivering Value https://youtu.be/ADjjqyM1zP4

Week 6: Friday, March 7 @ 11am - Duration 30 mins Session Theme: Q&A: Retrospective, how's it going? (no recording) No Recording

Week 7: Friday, March 14 @ 11am - Duration 1hr Session Theme: Q&A and Retrospective - No recording

Week 10: Friday, April 4 @ 11am - Duration 1hr Final Session Theme: Demo Practice & Retrospective - CANCELED