

**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](https://docs.google.com/document/d/1NfmEDyxrJ7Tz7Wq4lAJHx1fQ4bPpM5v07dPTM4pjOsM/edit?usp=sharing)
  + [Training of AI Designer](https://docs.google.com/document/d/1GkGijGY1jLPrmm-MSRYoCj3FTJwWB_RxIqapRMF6Eg0/edit?usp=sharing)
  + 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](https://docs.google.com/document/d/1NfmEDyxrJ7Tz7Wq4lAJHx1fQ4bPpM5v07dPTM4pjOsM/edit?usp=sharing)
  + [Training of AI Designer](https://docs.google.com/document/d/1GkGijGY1jLPrmm-MSRYoCj3FTJwWB_RxIqapRMF6Eg0/edit?usp=sharing)
  + Designers: Join Pitch Day & Team Match (within 24 fill out AI products interested in on [Team Match.xls](https://docs.google.com/spreadsheets/d/1WFSjvQTxtTfs0Hyocgj_0QNirXswTFMf8hsgZTRJn5E/edit?usp=sharing) 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](https://forms.gle/VE2DCuHywse7KCW29). *(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**](https://docs.google.com/document/d/1NfmEDyxrJ7Tz7Wq4lAJHx1fQ4bPpM5v07dPTM4pjOsM/edit?usp=sharing) ***(Click link)***
* [**Training for Designers**](https://docs.google.com/document/d/1GkGijGY1jLPrmm-MSRYoCj3FTJwWB_RxIqapRMF6Eg0/edit?usp=sharing) ***(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](https://jalammar.github.io/illustrated-transformer/)
      * Andrej Karpathy's Neural Networks Zero to Hero
        + [Neural Networks: Zero to Hero - YouTube](https://www.youtube.com/playlist?list=PLAqhIrjkxbuWI23v9cThsA9GvCAUhRvKZ)
      * HuggingFace Course
        + [Introduction - Hugging Face NLP Course](https://huggingface.co/learn/nlp-course/chapter1/1)

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

[Generative AI for Beginners | Microsoft Learn](https://learn.microsoft.com/en-us/shows/generative-ai-for-beginners/)

* + - **Day 1-2: LLM Fundamental**s
      * 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](https://python.langchain.com/docs/tutorials/)
      * OpenAI Cookbook
        + [GitHub - openai/openai-cookbook: Examples and guides for using the OpenAI API](https://github.com/openai/openai-cookbook)
      * Vector Database Fundamentals
        + [What is a Vector Database & How Does it Work? Use Cases + Examples | Pinecone](https://www.pinecone.io/learn/vector-database/)

**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](https://github.com/DataTalksClub/mlops-zoomcamp)
      * FastAPI Documentation
        + [FastAPI](https://fastapi.tiangolo.com/)
      * Docker for ML
        + [Docker For Data Scientists](https://www.youtube.com/watch?v=0qG_0CPQhpg)

**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](https://drive.google.com/file/d/1f5yphH5_CupGSuFe8dTPAWUXksyxI8Ah/view?usp=drive_link)

[What Is Agile Methodology? | Introduction to Agile Methodology in Six Minutes | Simplilearn](https://www.youtube.com/watch?v=8eVXTyIZ1Hs)

[What Is Agile Scrum Framework? | Scrum Framework Explained | Agile Methodology | Simplilearn](https://www.youtube.com/watch?v=B7VucspZA68)

[Master the Daily Scrum: Everything You Need to Know for Agile Success! 🚀 | Scrum Basics Simplified](https://www.youtube.com/watch?v=xcC0LmkzG9g)

* + - **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](https://docs.google.com/document/d/1v3INP0deWEEO82HVbhf4hRGYISXcKA9Q/edit)]

**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