Individual Project Approach

# Week 1: Team Formation Documentation

## Individual Project Approach

### Project Structure

I'm working individually on this COVID-19 chest X-ray Vision Transformer project. This allows me to:

1. \*\*Deep Learning Focus\*\*: Concentrate on understanding transformer architecture
2. \*\*Medical AI Learning\*\*: Focus on healthcare applications of AI
3. \*\*Complete Control\*\*: Make all technical decisions independently
4. \*\*Full Credit\*\*: Take responsibility for all implementation work

### Repository Analysis Approach

**Step 1: Code Review**

* Analyzed all Python files in Internet\_Source\_Code directory
* Understood the Vision Transformer implementation
* Reviewed data processing and splitting methods

**Step 2: Dataset Understanding**

* Examined the processed data splits
* Understood patient-level separation methodology
* Analyzed class distributions and balancing

**Step 3: Technical Planning**

* Identified key components: model, data, training, evaluation
* Planned implementation approach using existing code
* Determined requirements and dependencies

### Individual Responsibilities

\*\*Research & Analysis\*\*:

* Study Vision Transformer architecture for medical imaging
* Analyze COVID-19 chest X-ray classification approaches
* Review related work and baseline comparisons

\*\*Technical Implementation\*\*:

* Set up development environment
* Process and prepare dataset
* Implement and train Vision Transformer model
* Evaluate performance and generate results

\*\*Documentation\*\*:

* Document all findings and implementation details
* Create comprehensive analysis of results
* Prepare final project presentation

### Learning Objectives

Working individually allows me to:

1. \*\*Master Vision Transformers\*\*: Deep understanding of attention mechanisms
2. \*\*Medical AI Ethics\*\*: Learn about patient privacy and data handling
3. \*\*End-to-End ML\*\*: Complete machine learning pipeline experience
4. \*\*Research Skills\*\*: Independent problem-solving and analysis
5. \*\*Technical Writing\*\*: Clear documentation and presentation

### Project Timeline

\*\*Week 1\*\*: Repository analysis and planning (current) \*\*Week 2-3\*\*: Environment setup and model implementation \*\*Week 4-5\*\*: Training and evaluation \*\*Week 6\*\*: Results analysis and documentation \*\*Week 7\*\*: Final presentation preparation

### Communication Plan

Since this is individual work:

* Regular self-assessment and progress tracking
* Office hours with instructor for guidance
* Peer discussion during class sessions
* Clear documentation for reproducibility

This individual approach ensures I gain comprehensive experience with both Vision Transformers and medical AI applications.