**Project Manager Report for LungScanAI: AI-Powered Lung Health Diagnostics**

1. **Evenly Shared Workload by All Team Members**

The team displayed an excellent balance in distributing tasks. Each member was assigned distinct responsibilities that matched their strengths:

* **Abdul Qayyum**: Led data augmentation, DenseNet-201 implementation, Swin Transformer fine-tuning, and performance evaluation. Also took charge of web application development and deployment adjustments.
* **Ume Salma**: Focused on dataset sourcing, defining project objectives, and fine-tuning models such as CheXNet and Vision Transformer. Additionally, handled ensemble learning for improved predictions.
* **Muawaz Saleem**: Managed dataset preprocessing, EfficientNet-B7 implementation, and validation with 10-fold cross-validation. Conducted user testing for deployment feedback.

This clear delineation of roles ensured that no individual was overburdened and that all major project components were adequately addressed.

1. **Fluid Communication Among the Team Members and Demonstrated Good Teamwork**

* **In-person discussions during class**: Held focused meetings to address specific tasks like dataset augmentation, model implementation, and deployment challenges.
* **Abdul Qayyum and Ume Salma’s collaboration**: They had daily check-ins to ensure alignment on fine-tuning DenseNet-201 and CheXNet models, maintaining consistency and smooth integration into the web application.
* **Muawaz Saleem’s coordination**: Regularly shared feedback on dataset preprocessing and platform usability during user testing, ensuring improvements were made based on real user input.
* **Online meetings via Google Meet**: Arranged sessions to address urgent issues, such as dataset diversity or deployment feedback, allowing quick decision-making and timely adjustments.
* **Continuous updates**: Frequent communication ensured that everyone was aligned, tasks were addressed promptly, and the workflow remained seamless, contributing to the project’s success.

This consistent and structured communication was instrumental in overcoming challenges and ensuring the timely completion of the project.

**3. Ability to Adapt to Unexpected Issues and Challenges**

The team demonstrated flexibility in addressing challenges:

* **Challenge**: Limited diversity in datasets during the initial collection phase.
  + **Solution**: Augmented the dataset using SMOTE, synthetic image generation, and balancing techniques.
* **Challenge**: Fine-tuning pre-trained models for disease-specific detection.
  + **Solution**: Leveraged advanced optimization techniques like Adam and ensemble learning for better accuracy.
* **Challenge**: Deployment platform usability.
  + **Solution**: Iteratively tested the platform with user feedback and improved its functionality.

These adaptive measures highlight the team's problem-solving skills and commitment to quality.

**4. Reached Desired Milestones in a Timely Manner (According to WBS Form)**

The project followed its schedule as outlined in the **Work Breakdown Structure (WBS)**:

* **Phase 1 (Day 1-2)**: Successfully defined objectives, finalized datasets/tools, and assigned roles.
* **Phase 2 (Day 3-4)**: Completed dataset collection, augmentation, and splitting into training, validation, and test sets.
* **Phase 3 (Day 5-7)**: Implemented and fine-tuned models (CheXNet, DenseNet-201, ViT, Swin Transformer, EfficientNet-B7), achieving strong preliminary results.
* **Phase 4 (Day 7-8)**: Validated models with 10-fold cross-validation, applied ensemble learning, and ensured explainability features were integrated.
* **Phase 5 (Day 9-10)**: Deployed the web-based platform, conducted user testing, and incorporated feedback.

The adherence to milestones ensured that the project was delivered within the expected timeline.