Department of Technical Education

457, KLS’s Shri Vasantrao Potdar Polytechnic, Tilakwadi, Belagavi.

Dept. of Computer Science and Engg.

FORMAT 7

Weekly Status Report

Capstone project Name: **PhishAlert AI**

**Capstone project Members:**

* Aditya W
* Abhishek H
* Muzammil S

**Status: The PhishAlert AI project is currently in progress. The team has completed the initial setup phase and is now actively engaged in data collection and preprocessing. Model selection and training are scheduled to begin in the upcoming week.**

**Progress:**

**Weeks 1-2: Project Kickoff and Initial Setup**

* **Week 1: Conduct project kickoff meeting, assign roles, discuss phishing threats and AI/ML's role, set up communication channels and project management tools.**
* **Week 2: Complete literature review, evaluate tools, start data collection planning, and initiate data collection.**

**Weeks 3-4: Data Collection and Preprocessing**

* **Week 3: Continue data collection, perform preliminary data analysis, and identify features.**
* **Week 4: Proceed with data collection, address data imbalance, and set up AI development environment.**

**Weeks 5-6: Model Selection and Training**

* **Week 5: Begin model selection, identify models for experimentation.**
* **Week 6: Refine features, start model training, develop validation framework, and implement cross-validation techniques.**

**Weeks 7-8: Model Optimization**

* **Week 7: Conduct in-depth performance evaluation, optimize neural network architecture, and perform hyperparameter tuning.**
* **Week 8: Further optimize models, focus on enhancing user interface for deployment.**

**Weeks 9-10: Final Model Training and Initial Deployment**

* **Week 9: Finalize model training, prepare for deployment in simulated environment.**
* **Week 10: Monitor model training progress, start evaluation in real-world scenario.**

**Weeks 11-12: Evaluation and Iteration**

* **Week 11: Evaluate model performance in real-world scenario, gather feedback.**
* **Week 12: Iterate on models based on feedback, refine user interface.**

**Weeks 13-14: Testing and Validation**

* **Week 13: Conduct rigorous testing, validate model performance.**
* **Week 14: Address any issues found during testing, refine models accordingly.**

**Weeks 15-16: Finalization and Documentation**

* **Week 15: Finalize models, documentation, and prepare for final deployment.**
* **Week 16: Complete documentation, conduct final review, and prepare for project closure.**

**Week 1:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Kick-off Meeting** | **Conducted a meeting to outline project scope, assign roles, and discuss initial strategies.** | **Abhishek H** | **100%** |
| **Literature Review** | **Conducted a deep dive into the literature on phishing detection using AI/ML. Identified key sources.** | **Aditya W** | **100%** |
| **Tool Evaluation** | **Evaluated and selected project management tools and AI/ML development environments.** | **Muzammil S** | **100%** |
| **Communication Setup** | **Set up communication channels and project management tools for effective collaboration.** | **Abhishek H** | **100%** |
| **Data Collection Plan** | **Developed a detailed plan for data collection, including sourcing phishing and benign emails.** | **Abhishek H, Aditya W** | **100%** |
| **Data Collection** | **Started collecting data, focusing on publicly available datasets and reaching out to industry partners for proprietary data.** | **Muzammil S, Aditya W** | **50%** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Data Collection** | **Continue collecting data and expanding the dataset.** | **Abhishek H** |

**Week 2:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Data Collection** | **Continued with data collection, achieving a significant milestone in dataset size.** | **Muzammil S** | **100%** |
| **Data Analysis** | **Began preliminary data analysis to understand dataset characteristics.** | **Abhishek H** | **50%** |
| **Feature Identification** | **Identified a range of features for phishing email detection, including URL analysis and text pattern recognition.** | **Muzammil S, Aditya W** | **70%** |
| **Data Imbalance Handling** | **Explored techniques for handling imbalanced datasets and implemented data augmentation methods.** | **Abhishek H** | **80%** |
| **AI Environment Setup** | **Set up the AI development environment and prepared for model training.** | **Muzammil S, Aditya W** | **100%** |
| **Model Training Preparation** | **Conducted a session on model selection criteria and prepared for model training.** | **Aditya W** | **100%** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Model Training** | **Begin training models on the full dataset.** | **Muzammil S** |

**Week 3:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Model Selection** | **Selected several models for experimentation, including SVM, Random Forest, and simple Neural Networks.** | **Abhishek H** | **100%** |
| **Feature Refinement** | **Refined features based on model feedback, focusing on enhancing text analysis capabilities using NLP techniques.** | **Muzammil S** | **80%** |
| **Model Retraining** | **Retrained models with refined features and saw a notable improvement in model accuracy.** | **Abhishek H, Aditya W** | **90%** |
| **Validation Framework** | **Began developing a validation framework to assess model performance using unseen data.** | **Muzammil S, Aditya W** | **60%** |
| **Cross-Validation** | **Implemented cross-validation techniques to ensure model robustness and generalizability.** | **Muzammil S** | **50%** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Model Evaluation** | **Continue with an in-depth evaluation of trained models to assess their performance.** | **Muzammil S** |

**Week 4:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Model Performance Evaluation** | **Conducted in-depth performance evaluation of all models and identified neural network-based models showing promising results.** | **Muzammil S** | **100%** |
| **Neural Network Optimization** | **Began optimizing the neural network architecture by experimenting with different layers and activation functions.** | **Abhishek H** | **50%** |
| **Hyperparameter Tuning** | **Implemented hyperparameter tuning using grid search techniques to improve model accuracy.** | **Abhishek H** | **70%** |
| **User Interface Enhancement** | **Focused on improving the user interface for the model's deployment by designing a dashboard for real-time phishing detection alerts.** | **Muzammil S** | **30%** |
| **Team Review** | **Conducted a team review of the current model's performance and user interface, identifying areas for improvement.** | **Aditya W** | **100%** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Model Training Continuation** | **Continue model training with optimized parameters on the full dataset.** | **Abhishek H** |
| **UI Development** | **Progress with the development of the user interface for improved usability and functionality.** | **Muzammil S** |
| **Documentation Update** | **Update documentation to reflect changes made during model optimization and user interface enhancement.** | **Abhishek H** |

**Week 5:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Final Model Training** | **Kicked off the final training of the optimized model on the enhanced dataset.** | **Muzammil S** | **100%** |
| **Model Training Monitoring** | **Monitored model training progress to ensure optimal resource utilization.** | **Muzammil S** | **100%** |
| **Simulation Analysis** | **Initiated the evaluation of the model in a simulated phishing detection scenario.** | **Abhishek H, Aditya W** | **50%** |
| **Real-world Deployment** | **Deployed the model in a controlled real-world environment and began monitoring its performance.** | **Muzammil S** | **30%** |
| **Deployment Issue Resolution** | **Addressed minor deployment issues related to data ingestion and processing.** | **Muzammil S** | **80%** |

**Upcoming Week 6:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Deployment Monitoring** | **Continued monitoring the deployed model for phishing detection efficacy and system performance.** | **Muzammil S** | **Ongoing** |
| **User Feedback Collection** | **Initiated the collection of user feedback to identify areas for improvement in model performance and user interface.** | **Abhishek H** | **Ongoing** |
| **Model Fine-tuning** | **Started fine-tuning the deployed model based on feedback and performance evaluation.** | **Abhishek H** | **Ongoing** |
| **UI Enhancement** | **Began enhancing the user interface based on collected feedback to improve usability and functionality.** | **Muzammil S, Aditya W** | **Ongoing** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Model Fine-tuning** | **Continue fine-tuning the deployed model based on feedback and performance evaluation.** | **Abhishek H** |
| **UI Enhancement** | **Continue enhancing the user interface based on collected feedback to improve usability and functionality.** | **Muzammil S, Aditya W** |

**Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Deployment Monitoring** | **Continue monitoring the deployed model for phishing detection efficacy and system performance.** | **Muzammil S** |
| **User Feedback Collection** | **Initiate the collection of user feedback to identify areas for improvement in model performance and user interface.** | **Abhishek H** |
| **Model Fine-tuning** | **Fine-tune the deployed model based on feedback and performance evaluation.** | **Abhishek H** |
| **UI Enhancement** | **Enhance the user interface based on collected feedback to improve usability and functionality.** | **Muzammil S, Aditya W** |

**Week 7:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Model Performance Monitoring** | **Continued daily monitoring of model performance to ensure stability and accuracy.** | **Muzammil S** | **Ongoing** |
| **User Feedback Collection** | **Continued collection of user feedback to identify areas for improvement in model performance and user interface.** | **Abhishek H** | **Ongoing** |
| **Model Iteration** | **Conducted bi-weekly iterations on the model based on collected feedback and identified issues.** | **Muzammil S** | **Ongoing** |
| **UI Enhancement** | **Continued enhancement of the user interface based on collected feedback to improve usability.** | **Muzammil S, Abhishek H, Aditya W** | **Ongoing** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Model Fine-tuning** | **Continue fine-tuning the model based on feedback and performance evaluation.** | **Aditya W** |
| **Data Augmentation** | **Implement additional data augmentation techniques to improve model robustness.** | **Aditya W** |

**Week 8:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Model Fine-tuning** | **Continued fine-tuning the model based on feedback and performance evaluation.** | **Aditya W** | **Ongoing** |
| **Data Augmentation** | **Started implementing additional data augmentation techniques to improve model robustness.** | **Aditya W** | **Ongoing** |
| **Performance Evaluation** | **Initiated in-depth performance evaluation of the model to assess its efficacy and identify areas for improvement.** | **Muzammil S** | **Ongoing** |
| **Model Refinement** | **Began refining the model architecture and parameters based on feedback and performance analysis.** | **Muzammil S, Aditya W** | **Ongoing** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Model Fine-tuning** | **Continue fine-tuning the model based on feedback and performance evaluation.** | **Aditya W** |
| **Performance Evaluation** | **Continue conducting in-depth performance evaluation of the model to assess its efficacy.** | **Muzammil S** |
| **Model Refinement** | **Continue refining the model architecture and parameters based on feedback and performance analysis.** | **Muzammil S, Aditya W** |

**Week 9:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Documentation Update** | **Updated project documentation to reflect changes made during monitoring, feedback collection, and iteration.** | **Abhishek H** | **Ongoing** |
| **Project Presentation Preparation** | **Prepared for the final project presentation, including summarizing achievements, challenges, and key learnings.** | **Abhishek H** | **Ongoing** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Documentation Update** | **Continue updating project documentation to reflect recent developments and progress.** | **Abhishek H** |
| **Finalizing Project Presentation** | **Finalize the project presentation, ensuring all key points are effectively communicated.** | **Muzammil S** |

**Week 10:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Documentation Update** | **Continued updating project documentation to reflect recent developments and progress.** | **Abhishek H** | **Ongoing** |
| **Finalizing Project Presentation** | **Finalized the project presentation, ensuring all key points are effectively communicated.** | **Muzammil S** | **100%** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Delivering Project Presentation** | **Deliver the final project presentation to stakeholders, demonstrating the project's success.** | **Aditya W** |
| **Project Retrospective Meeting** | **Conduct a project retrospective meeting to discuss achievements, areas for improvement, and future projects.** | **Project Lead** |

**Week 11:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Project Retrospective Meeting** | **Conducted a project retrospective meeting to discuss achievements, areas for improvement, and future projects.** | **Project Lead** | **100%** |
| **Documentation Update** | **Continued updating project documentation to include final project outcomes, learnings, and future recommendations.** | **Abhishek H** | **Ongoing** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Future Planning Discussion** | **Hold discussions on potential future projects that could build on the current work and explore new opportunities.** | **Muzammil S, Abhishek H, Aditya W** |
| **Follow-up Meeting Planning** | **Plan a follow-up meeting to revisit the project's impact after a few months and discuss any further developments.** | **Muzammil S, Abhishek H, Aditya W** |

**Week 12:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Future Planning Discussion** | **Held discussions on potential future projects that could build on the current work and explored new opportunities.** | **Muzammil S, Abhishek H, Aditya W** | **100%** |
| **Follow-up Meeting Planning** | **Planned a follow-up meeting to revisit the project's impact after a few months and discuss any further developments.** | **Muzammil S, Abhishek H, Aditya W** | **100%** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Follow-up Meeting** | **Conduct the follow-up meeting to review the project's impact and discuss any further developments.** | **Muzammil S, Abhishek H, Aditya W** |
| **Post-Project Activities** | **Conduct post-project activities such as cleaning up project spaces, finalizing documentation storage, etc.** | **Aditya W, Abhishek H** |

**Week 13:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Follow-up Meeting** | **Conducted the follow-up meeting to review the project's impact and discuss any further developments.** | **Muzammil S, Abhishek H, Aditya W** | **100%** |
| **Post-Project Activities** | **Initiated post-project activities such as cleaning up project spaces, finalizing documentation storage, etc.** | **Aditya W, Abhishek H** | **Ongoing** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Final Documentation Update** | **Finalize and update project documentation to include post-project activities and outcomes.** | **Abhishek H** |
| **Project Closure** | **Close out the project by completing all remaining administrative tasks and documentation.** | **Aditya W** |

**Week 14:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Post-Project Activities** | **Continued post-project activities such as cleaning up project spaces, finalizing documentation storage, etc.** | **Aditya W, Abhishek H** | **Ongoing** |
| **Final Documentation Update** | **Continued finalizing and updating project documentation to include post-project activities and outcomes.** | **Abhishek H** | **Ongoing** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Project Closure** | **Continue closing out the project by completing all remaining administrative tasks and documentation.** | **Aditya W** |
| **Project Evaluation** | **Evaluate the overall project performance, achievements, and lessons learned for future reference.** | **Muzammil S** |

**Week 15:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Post-Project Activities** | **Continued post-project activities such as cleaning up project spaces, finalizing documentation storage, etc.** | **Aditya W, Abhishek H** | **Ongoing** |
| **Project Closure** | **Progressed with closing out the project by completing all remaining administrative tasks and documentation.** | **Aditya W** | **Ongoing** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Project Evaluation** | **Continue evaluating the overall project performance, achievements, and lessons learned for future reference.** | **Muzammil S** |
| **Final Project Report** | **Draft the final project report detailing the methodology, model development, and deployment process.** | **Aditya W** |

**Week 16:**

**Tasks in Progress or Completed:**

| **Task Name** | **Description** | **Team Member Responsible** | **Percentage Complete** |
| --- | --- | --- | --- |
| **Post-Project Activities** | **Continued post-project activities such as cleaning up project spaces, finalizing documentation storage, etc.** | **Aditya W, Abhishek H** | **Ongoing** |
| **Project Closure** | **Continued with closing out the project by completing all remaining administrative tasks and documentation.** | **Aditya W** | **Ongoing** |

**Upcoming Tasks:**

| **Task Name** | **Description** | **Team Member Responsible** |
| --- | --- | --- |
| **Final Project Report** | **Continue drafting the final project report detailing the methodology, model development, and deployment process.** | **Aditya W** |
| **Project Wrap-Up** | **Wrap up the project by finalizing all remaining tasks, ensuring everything is completed and documented.** | **Muzammil S** |