**Group 26: Project Plan**

**Project: Discriminating between Real and Fake Images of Galaxies**

**Project Team:**

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**Project Goals:**

* **Developing a neural network model capable of discriminating between real and fake images of galaxies.**
* **Building a processing pipeline to prepare the images in the dataset.**
* **To train the chosen model to determine whether a supplied image is real or fake.**
* **Submitting the saved model along with a short report describing the methodology used.**

**Group Project Plan:**

**We have discussed and segregated the workload across the team members as follows:**

**- Data Preparation Team:**

*Prepare the images dataset for model training and testing, including:*

Data loading and formatting, Data augmentation, Train-validation split, Preprocessing

**Members:** *Siva and Mohamed**Favas*

**- Model Development Team:**

*Develop the neural network model, including:*

Model selection and architecture, Hyperparameter tuning, Training the model, Saving the trained model,

**Members*:*** *Srinivas and Swathi*

**- Model Evaluation Team:**

Evaluate the trained model and report its performance, including:

Model accuracy, precision, recall, and F1 score, Confusion matrix, plotting loss and accuracy curves, Visualizing correctly and incorrectly identified images

**Members:** *Srinivas and Swathi*

**- Project Management Team:**

Manage the project and ensure it stays on track, including:

Setting timelines and milestones, coordinating communication among group members, Overseeing the quality of the work, Maintaining a shared repository (e.g., GitHub) for code and report

**Members:** *Siva and Mohamed Favas*

Each of our team members will be responsible for their assigned tasks, and regular updates will be provided to the rest of the group to ensure everyone stays on the same page. Our team will meet regularly to discuss progress, address any challenges, and make necessary plan adjustments.

Formative submissions will be made to receive feedback from the tutor, and any suggestions for improvement will be incorporated into the final submission.

Finally, each member will submit a statement of their own contributions to ensure that the workload has been fairly distributed, and the team's evaluation of teamwork will be included in the submission.

**Project Timeline:**

**Week 1:**

* **Submit preferences for group members before the 10th of March.**
* **Discussing and finalizing project goals with the group.**
* **Assign tasks to each group member.**
* **Familiarize yourself with the dataset and the tools to be used.**
* **Start exploring and experimenting with different neural network architectures.**

**Week 2:**

* **Continue exploring and experimenting with different neural network architectures.**
* **Build the processing pipeline to prepare the images in the dataset.**
* **Start training the chosen model.**

**Week 3:**

* **Continue training the chosen model.**
* **Discuss and prepare the first formative submission, which is a detailed work plan for your group.**

**Week 4:**

* **Submit the first formative submission by the end of the week.**
* **Incorporate the feedback received from the first formative submission.**
* **Continue training and optimizing the chosen model.**

**Week 5:**

* **Prepare for the upcoming formative submission, which is an informal code review.**
* **Continue training and optimizing the chosen model.**

**Week 6:**

* **Submit the second formative submission by the end of the week.**
* **Incorporate the feedback received from the second formative submission.**
* **Finalize the chosen neural network architecture and the processing pipeline.**
* **Train the final model and perform hyperparameter tuning.**

**Week 7:**

* **Evaluate the performance of the final model on the testing set.**
* **Prepare the final report and submission.**
* **Assign individual workloads for report writing and code documentation.**

**Week 8:**

* **Continue working on the final report and submission.**
* **Review and finalize the work of each group member.**
* **Submit the final report and saved model by the end of the week.**

**Week 9:**

* **Revise and improve the final report and submission based on feedback.**
* **Prepare for the presentation of the project.**

**Week 10:**

* **Practice the presentation of the project.**
* **Submit the individual statements of contributions to the project.**

**Week 11:**

* **Present the project to the tutor and peers.**
* **Participate in the evaluation of teamwork.**

**Deliverables:**

* **A detailed work plan for the group (formative submission).**
* **An informal code review of an early version of the code and model (formative submission).**
* **A saved neural network model implemented in the TensorFlow Python package and loaded back into a TensorFlow/Python instance.**
* **A short report describing the methodology used and including plots of loss functions and metrics and Individual statements of contributions to the project.**
* **A presentation of the project to the tutor and peers.**