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# Deep Learning API with Django

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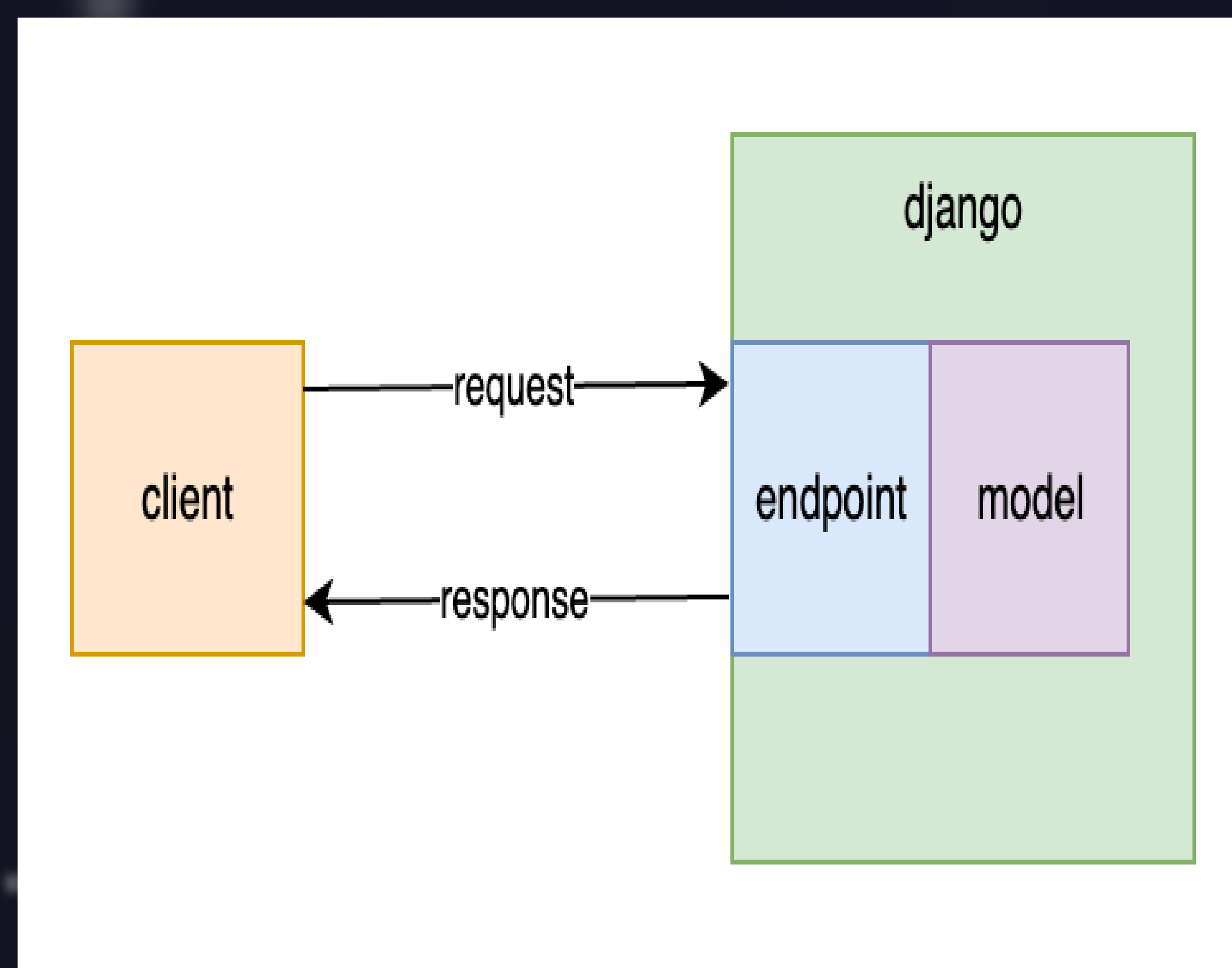
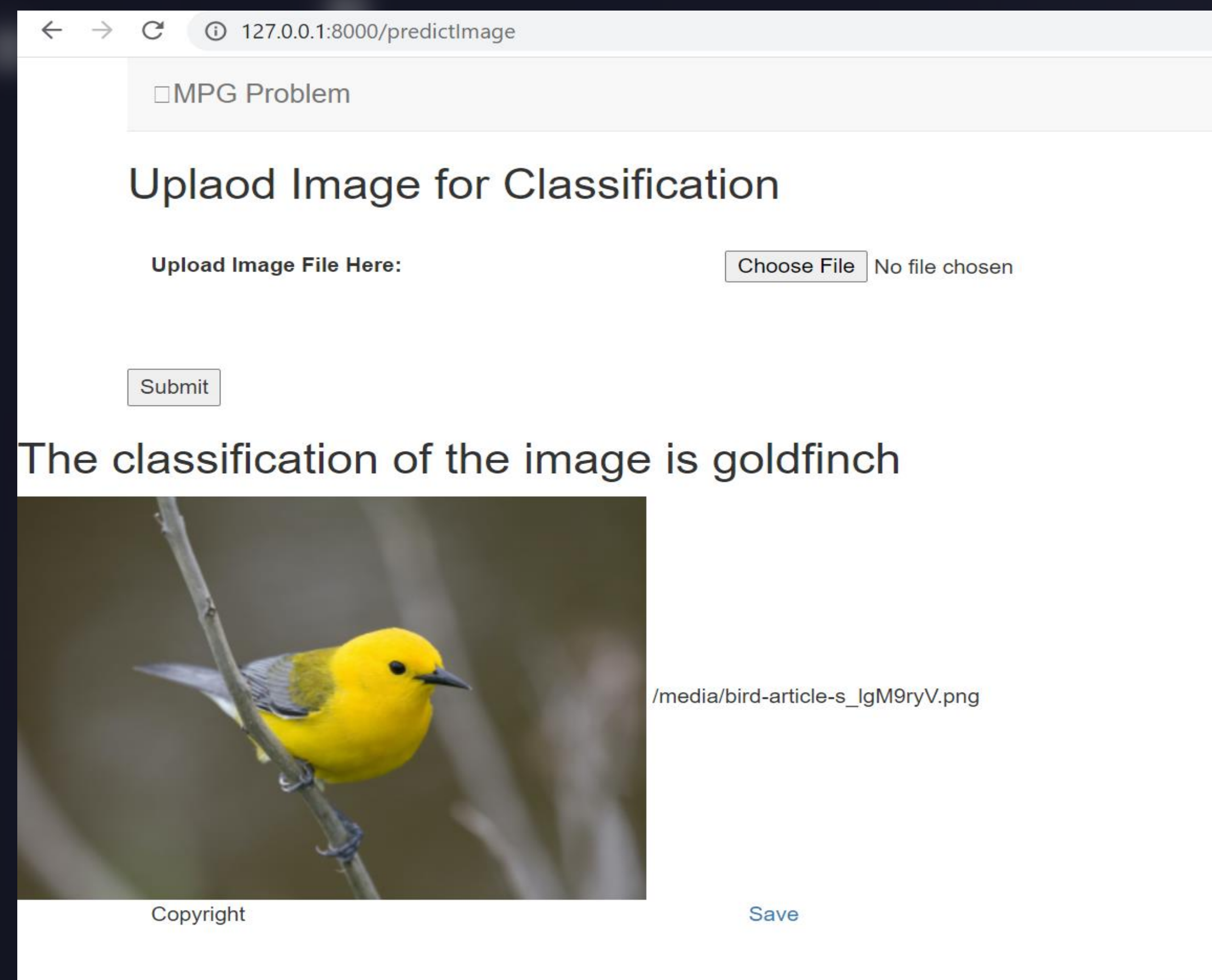
## Abstract

Deep Learning is a subset of Artificial Intelligence and Machine Learning is a type of technology that can think intelligently similar to humans. The concept involves a deep processing and analyzing of data which leads computers to make the best possible decision based on patterns and implications in data analysis. Deep learning takes this concept to the next level by creating a similar structure to neural networks in the human brain and applies this concept to its models. It involves creating artificial neural networks in which there are multiple layers consisting of nodes which each contain a small fraction of all the data input. Deep learning applications are very commonly written in Python that will be used for the current project. Other software that will be used for this project is Django, which is a back-end framework for Python, and is widely used for creating Application Programming Interfaces (API) and backend web applications. This research project will be creating an API with Django and use it to run any Deep Learning models. API provides users with an interface that serves as a middle ground between users and the backend. They offer versatile ways of interacting with web applications and make it extremely easy for users to interact with backend apps as well. The project will consist of coding an API that can accept Deep Learning models as input and will then run and output the model's results in a convenient and clear way to the user.

## Methods

There were a number of different resources that went into creating this project. First, in order to create the deep learning model, TensorFlow was required to create the artificial neural networks that would train and test the deep learning model. In addition to TensorFlow, Python and Django REST framework were also required in order to create the web application along with the API that would process the deep learning model. The REST API would have the ability to process requests and serve as the middle ground between the web application and the deep learning model. It is able to obtain data that is processed from the model and also display the results to the user in the web application window.

## Findings/Results



## Interpretation of Findings

The work conducted in this project was a continuation of the findings from a previous project in which artificial neural networks and deep learning models were researched. This project consisted of processing a deep learning model through an API, allowing it to function and display output within a web application. Following the project my findings proved to be successful, as Django's REST framework allowed me to create an API that efficiently displayed the results from a deep learning model which intelligently identifies the type and species of animal. This project confirmed that machine learning models can excel in different use case scenarios and may be used for a number of different applications

## Conclusions

This project marks the conclusion of a previous project. The goal was to take the lessons and principles learned from the previous and use them for further application in this project. The project was a success and also opens the door for an endless more applications for ML models.

## References

TensorFlow: <https://www.tensorflow.org/>  
Django: <https://www.djangoproject.com/>  
Stackify: <https://stackify.com/rest-api-tutorial/>  
REST API Guide: <https://www.datagraphi.com/blog/post/2019/12/19/rest-api-guide-productionizing-a-machine-learning-model-by-creating-a-rest-api-with-python-django-and-django-rest-framework>

## Acknowledgements

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