

# User Guide

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## Animal Classification Software: User Guide

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### 1. Introduction

This guide provides step-by-step instructions for using the Animal Classification Software. The software allows users to classify images of animals into one of 15 categories using a deep learning model. The interface is designed to be intuitive and user-friendly.

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### 2. System Requirements

- Operating System:** Windows, macOS, or Linux.
  - Python Version:** 3.7 or higher.
  - Libraries:** TensorFlow, Pillow, TkinterDnD, NumPy.
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### 3. Installation

#### 3.1 Install Python

Download and install Python from the official website: <https://www.python.org/>

#### 3.2 Install Required Libraries

Open a terminal or command prompt and run the following commands:

```
pip install tensorflow pillow tkinterdnd2 numpy
```

#### 3.3 Download the Software

1. Download the Python script (`classify.py`) and the trained model file (`animal_classification_model.h5`).
  2. Place both files in the same directory.
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### 4. Using the Software

#### 4.1 Launch the Application

1. Open a terminal or command prompt.
2. Navigate to the directory containing the script.
3. Run the script:

```
python classify.py
```

## 4.2 Interface Overview

- Drag-and-Drop Area:** Drag and drop an image file here.
- Image Display:** The uploaded image will be displayed here.
- Prediction Result:** The predicted animal and confidence score will be shown here.
- Clear Button:** Click to reset the interface for the next prediction.

## 4.3 Steps for Classification

1. Drag and drop an image file (PNG, JPG, JPEG, BMP, or GIF) into the window.
  2. The software will display the image and predict the animal.
  3. If the model is uncertain, it will display: "Sorry, I am unable to detect that."
  4. Click the "Clear" button to reset the interface and perform another prediction.
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## 5. Troubleshooting

- Invalid File Type:** Ensure the file is an image (PNG, JPG, JPEG, BMP, or GIF).
  - Model Not Found:** Ensure `animal_classification_model.h5` is in the same directory as the script.
  - Library Errors:** Reinstall the required libraries using `pip`.
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## 6. Frequently Asked Questions (FAQ)

1. **Can I add more animal classes?**
    - Yes, you can retrain the model with additional classes.
  2. **What if the software misclassifies an image?**
    - Ensure the image is clear and the animal is visible. Misclassifications may occur with low-quality or ambiguous images.
  3. **Can I use this software on my phone?**
    - Currently, the software is designed for desktop use only.
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## 7. Conclusion

The Animal Classification Software is a powerful tool for identifying animals in images. Its user-friendly interface and high accuracy make it suitable for a wide range of applications.

