README

Packages and Libraries:

```
Read files:
import pandas as pd
import numpy as np
import io
from matplotlib import pyplot as plt

Data cleaning packages:
from imblearn.over_sampling import SMOTE
from sklearn.impute import KNNImputer
from sklearn.model_selection import train_test_split
from sklearn import preprocessing
from sklearn.preprocessing import LabelEncoder

Metrics evaluation packages:
from sklearn.model_selection import KFold
from sklearn.model_selection import cross_val_score
from sklearn import metrics
from sklearn.model_selection import GridSearchCV

Algorithm packages:
   1. XGboost
from xgboost import XGBClassifier
from xgboost import plot_importance
   2. Adaboost
from sklearn.ensemble import AdaBoostClassifier
   3. RandomForest
from sklearn.ensemble import RandomForestRegressor
   4. Naive Bayes
from sklearn.naive_bayes import GaussianNB
from sklearn.naive_bayes import ComplementNB
   5. SVM
from sklearn import svm
   6. Neural Network
!pip install scikeras
import tensorflow as tf
from keras.models import Sequential
from keras.layers import Dense
from keras.utils import to_categorical
```

```
from keras.optimizers import SGD
from scikeras.wrappers import KerasClassifier
   7. Logistic Regression
from sklearn.linear_model import LogisticRegression
```

I have already provided the .ipynb and .py file for the codes, you can run it.
I write it on colab so using colab should not have problem.
I am using text cells that will be easier to separate each part and scroll down.

XGboost may take a long time to tune the parameters, and it may have different results due to the forest.

Libraries without classifications:

```
import pandas as pd
import numpy as np
from sklearn.model_selection import KFold
from sklearn.model_selection import cross_val_score
from sklearn import metrics
from sklearn.tree import DecisionTreeClassifier
from sklearn import tree
from sklearn.model_selection import train_test_split
from sklearn.model_selection import GridSearchCV
from matplotlib import pyplot as plt
from sklearn.ensemble import AdaBoostClassifier
from sklearn.naive_bayes import GaussianNB
from sklearn.naive_bayes import ComplementNB
from sklearn import svm
from sklearn import preprocessing
from sklearn.preprocessing import LabelEncoder
from sklearn.impute import KNNImputer
from sklearn.linear_model import LogisticRegression
from sklearn.ensemble import RandomForestRegressor

!pip install scikeras

from xgboost import XGBClassifier
from xgboost import plot_importance

import tensorflow as tf
from keras.models import Sequential
from keras.layers import Dense
from keras.utils import to_categorical
from keras.optimizers import SGD
from scikeras.wrappers import KerasClassifier

from imblearn.over_sampling import SMOTE

from google.colab import files
uploaded = files.upload()

import io
data = pd.read_csv(io.BytesIO(uploaded["FINAL Animal Data 2022.csv"]))
```