# Language Detection

by

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NEW HORIZON INSTITUTE OF TECHNOLOGY

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# CERTIFICATE

This is to certify that the Mini Project entitled "**Language Detection"** is a Bonafede work of **"Vishal Singh" (**11722015 **), "Arun Borale" (**11722001**) and "Hritik Madke" (**11722010 **)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of "Bachelor of Engineering" in "Computer Engineering".

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NEW HORIZON INSTITUTE OF TECHNOLOGY
AND MANAGEMENT

# Project Report Approval for B.E.

This project report entitled “**Language Detection**” by ***Vishal Singh,*** **Arun Borale** ***and hritik madke*** is approved for the ***Mini Project in Computer Engineering***, ***2021-22***.

Examiner Name Signature

1. ____________________ ____________________

2. ____________________ ____________________

Date:

Place:

# Abstract

Language identification is the task of automatically detecting the language(s) present in a document based on the content of the document. In this work, we address the problem of detecting documents that contain text from more than one language (multilingual documents). We introduce a method that is able to detect that a document is multilingual, identify the languages present, and estimate their relative proportions. We demonstrate the effectiveness of our method over synthetic data, as well as real-world multilingual document collected from the web.

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# Chapter 1

# Introduction

## 1.1 Objective

Take Output From user perform preprocess method and analyze perform machine learning algorithm to detect that given language is given in which language.

## 1.2 Scope

User can easily detect the disease he/she is facing, just by  Giving by different input to the system . thus this system can provide you with the answer that the given input is in which langauge.

# Chapter 2

# Present Investigation

## 2.1 Problem Definition

Language identification is the process of determining which language given content is in. The basic goal of the language identification (LI) system is to accurately identify the language

## 2.2 Feasibility Analysis

This system is completely design in python and dataset are imported from CSV files. Hence user has to install python and a prerequisite application to use the system. Even updating of dataset can be done easily as they are stored in CSV files.

# Chapter 3

# Implementation Details

## 3.1 Implementation plan

- We collected datasets from various resources.
- We have Two column Text and language.
- There are 2000 Text row  in our datasets.
- First we apply datapreprocessing on data like stemming,removing punctuation ,removing stopwords.
- After Preprocessing we split our Dataset And then we will apply Feature Engineering.
- We will fit Our data in machine learning model and train it .
- Finally after training we will use pipeline method to detect given input is in which language.

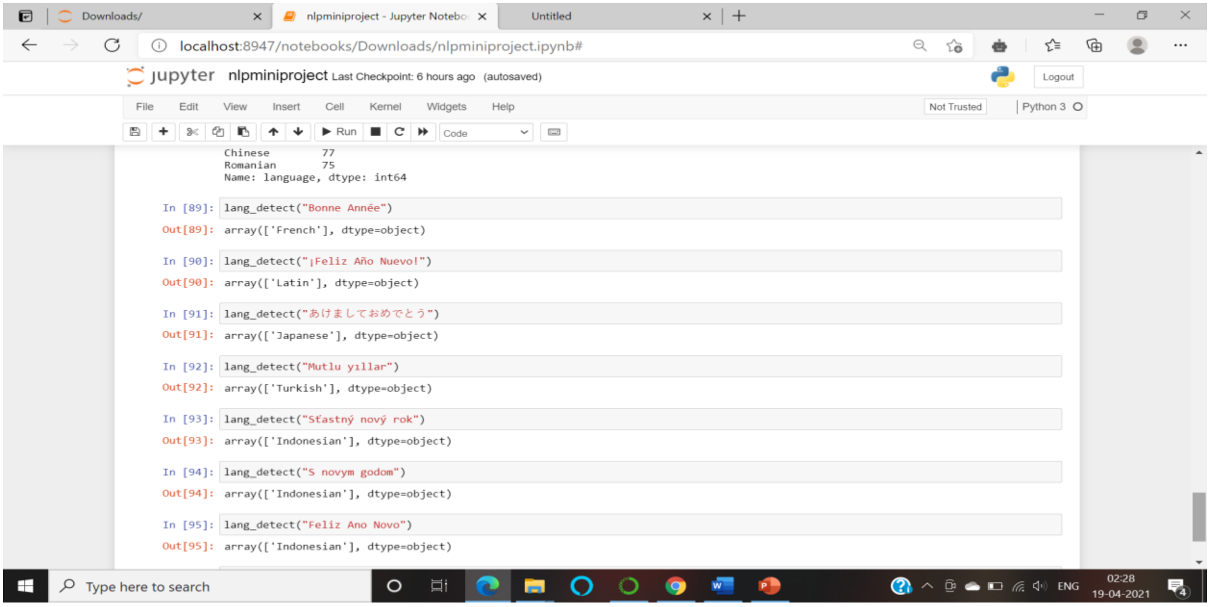
## 3.2 Code

```
#!/usr/bin/env python

# coding: utf-8

import string

import csv

import re

import codecs

import numpy as np

import pandas as pd

import seaborn as sns

import matplotlib.pyplot as plt

from sklearn import feature_extraction

from sklearn import linear_model
from sklearn.pipeline import Pipeline
from sklearn.model_selection import train_test_split
from sklearn import metrics
import nltk
#in[2]:
 lang=pd.read_csv("D:\PYTHON\dataset.csv")
# In[3]:
lang=lang[0:2000]
# In[4]:
lang
# In[5]:
lang.isnull().sum()

# In[70]:
for char in string.punctuation:
    print(char,end=" ")
translate_table=dict((ord(char),None) for char in string.punctuation)
# In[71]:
data_lang=[]
for i,line in lang.iterrows():
    line=line['Text']
    if len(line)!=0:
        line=re.sub(r"\d+", "",line)
        line=re.sub(r"[a-zA-Z]+","",line)
        line=line.translate(translate_table)
        data_lang.append(line)

languag=[]
for i,line in lang.iterrows():
    line=line['language']
    if len(line)!=0:
        languag.append(line)

# In[72]:
df=pd.DataFrame({"Text":data_lang,"language":languag} )

# In[73]:
df



# In[74]:
df.shape
# In[75]:
X,y=df['Text'],df['language']
y
# In[76]:
X_train,X_test,y_train,y_test=train_test_split(X,y,test_size=0.2,random_state=0)
# In[77]:
print(X_train.shape)
print(X_test.shape)
print(y_train.shape)
print(y_test.shape)
# In[78]:
vectorizer=feature_extraction.text.TfidfVectorizer(ngram_range=(1,3),analyzer='char')
# In[79]:
pipeline_clf=Pipeline([('vectorizer',vectorizer),('clf',linear_model.LogisticRegression())])
# In[80]:
pipeline_clf.fit(X_train,y_train)
# In[81]:
y_predicted=pipeline_clf.predict(X_test)
# In[82]:
```

```
acc=(metrics.accuracy_score(y_test,y_predicted))


# In[83]:
print(acc)
# In[84]:
import pickle
lrfile=open('Langmodel.pckl','wb')
pickle.dump(pipeline_clf,lrfile)
lrfile.close()
# In[85]:
def lang_detect(text):
    import pickle
    import numpy as np
    import string
    import re
    translate_table=dict((ord(char),None) for char in string.punctuation)

    global LanguagedetectionModel
    Languagedetectionfile=open('Langmodel.pckl','rb')
    LanguagedetectionModel=pickle.load(Languagedetectionfile)
    Languagedetectionfile.close()

    text=" ".join(text.split())
    text=text.lower()
    text=re.sub(r"\d+", "",text)
    text=text.translate( translate_table)
    pred=LanguagedetectionModel.predict([text])
    return pred

# In[86]:
  df['language'].value_counts()
```

```
# In[87]:

df.drop(df.loc[df['language']=='indonesian'].index,inplace=True)

# In[88]:

df['language'].value_counts()

# In[89]:

lang_detect("Bonne Année")

# In[90]:

lang_detect("¡Feliz Año Nuevo!")

# In[91]:

lang_detect("あけましておめでとう")

# In[92]:

lang_detect("Mutlu yıllar")

# In[93]:

lang_detect("Sťastný nový rok")

# In[94]:

lang_detect("S novym godom")

# In[95]:

lang_detect("Feliz Ano Novo")
```

## 3.3 Screen Shot


Downloads/
nlpminiproject - Jupyter Notebo
Untitled
localhost:8947/notebooks/Downloads/nlpminiproject.ipynb#
jupyter nlpminiproject Last Checkpoint: 6 hours ago (autosaved)
Logout
File
Edit
View
Insert
Cell
Kernel
Widgets
Help
Not Trusted
Python 3
Run
Code
Type here to search
ENG
02:28
19-04-2021

```
Chinese        77
Romanian       75
Name: language, dtype: int64

In [89]: lang_detect("Bonne Année")
Out[89]: array(['French'], dtype=object)

In [90]: lang_detect("¡Feliz Año Nuevo!")
Out[90]: array(['Latin'], dtype=object)

In [91]: lang_detect("あけましておめでとう")
Out[91]: array(['Japanese'], dtype=object)

In [92]: lang_detect("Mutlu yıllar")
Out[92]: array(['Turkish'], dtype=object)

In [93]: lang_detect("Sťastný nový rok")
Out[93]: array(['Indonesian'], dtype=object)

In [94]: lang_detect("S novym godom")
Out[94]: array(['Indonesian'], dtype=object)

In [95]: lang_detect("Feliz Ano Novo")
Out[95]: array(['Indonesian'], dtype=object)
```

# Chapter 4

# Conclusion and Future Scope

## 4.1 Conclusion

Thus we have successfully Implemented designing part And developed a machine model that can successfully predict a language of a given input successfully.

## 4.2 Future Scope

- Can also be implemented in speech recognition
- Speech to speech translation.

# Acknowledgement

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