SPAM DETECTION IN SOCIAL NETWORK

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Overview

- **Introduction**
- **Methodology Of Paper**
- **New Methodologies**
- **Results**
- **Conclusion**

01
INTRODUCTION

- This use of social media has often increase in the spread of unsolicited messages known as spam which is used for marketing, collecting personal information, or just to offend the people.
- Therefore, it is crucial to have a strong spam detection architecture that could prevent these types of messages
- Spam detection in noisy platform such as Twitter is still a problem due to short text and high variability in the language used in social media.
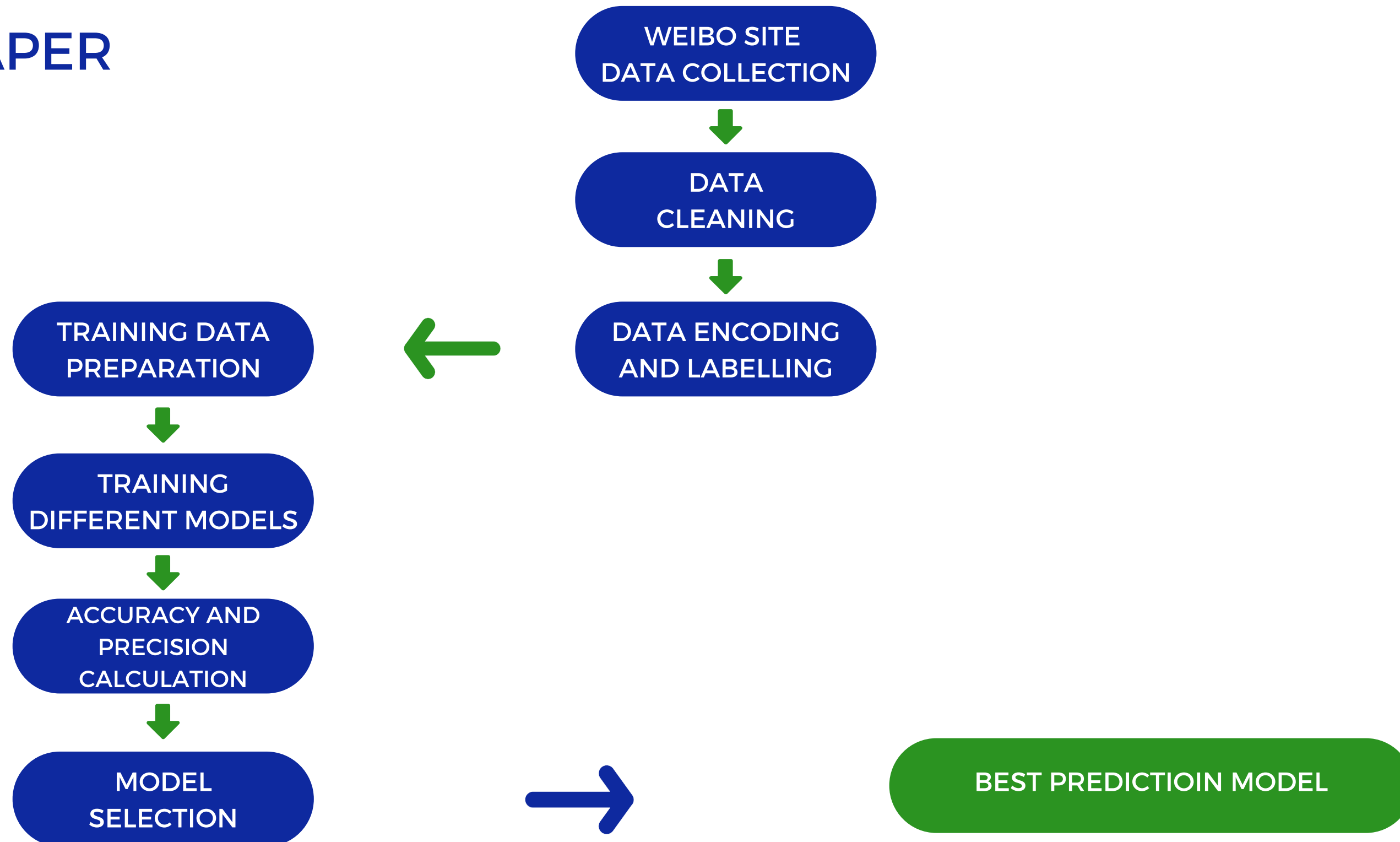
PROBLEM STATEMENT :

How to detect the spam user behaviour based on raw data (different features such as text and various attributes)?

SOLUTION :

Development of a hybrid model which comprises of different machine learning models
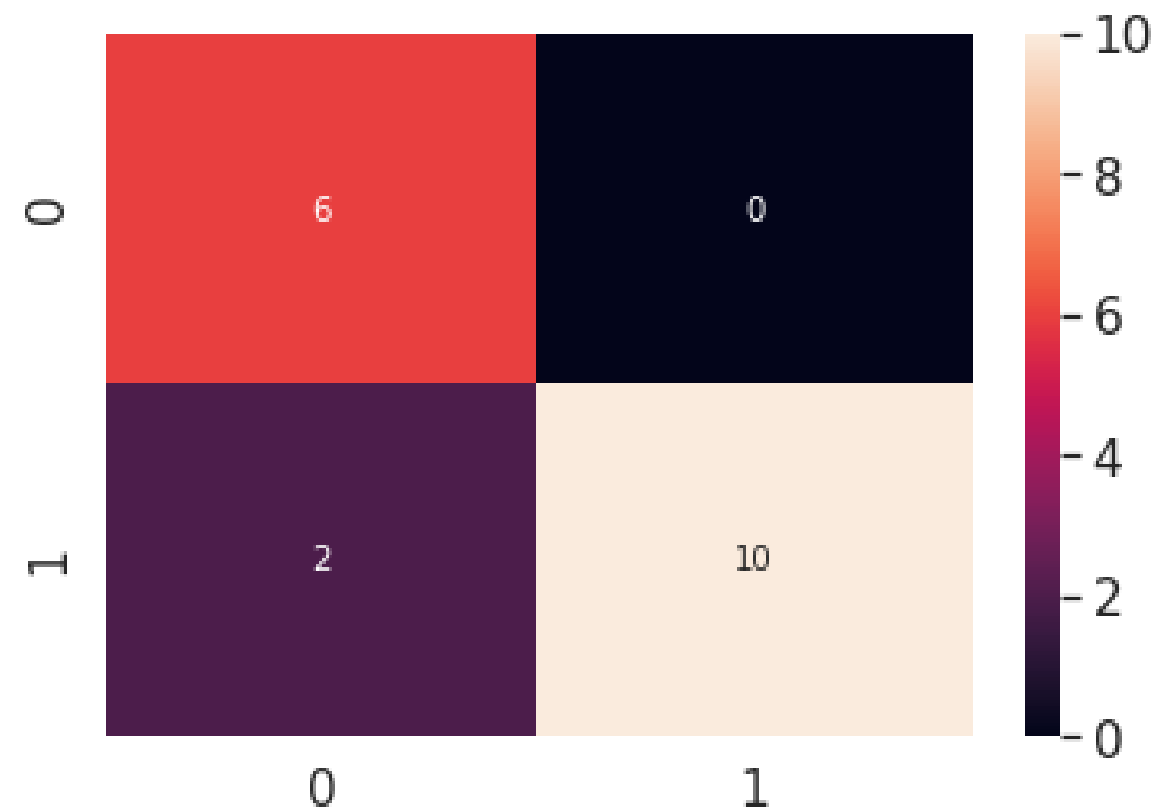
02

METHODOLOGY OF PAPER

WEIBO SITE DATA COLLECTION

→

DATA CLEANING

→

DATA ENCODING AND LABELLING

←

TRAINING DATA PREPARATION

→

TRAINING DIFFERENT MODELS

→

ACCURACY AND PRECISION CALCULATION

→

MODEL SELECTION

→

BEST PREDICTIOIN MODEL

SVM CLASSIFIER GIVES BEST ACUURACY

With parameters:
C =128,
gamma = 0.01330 ,
 kernel='sigmoid'
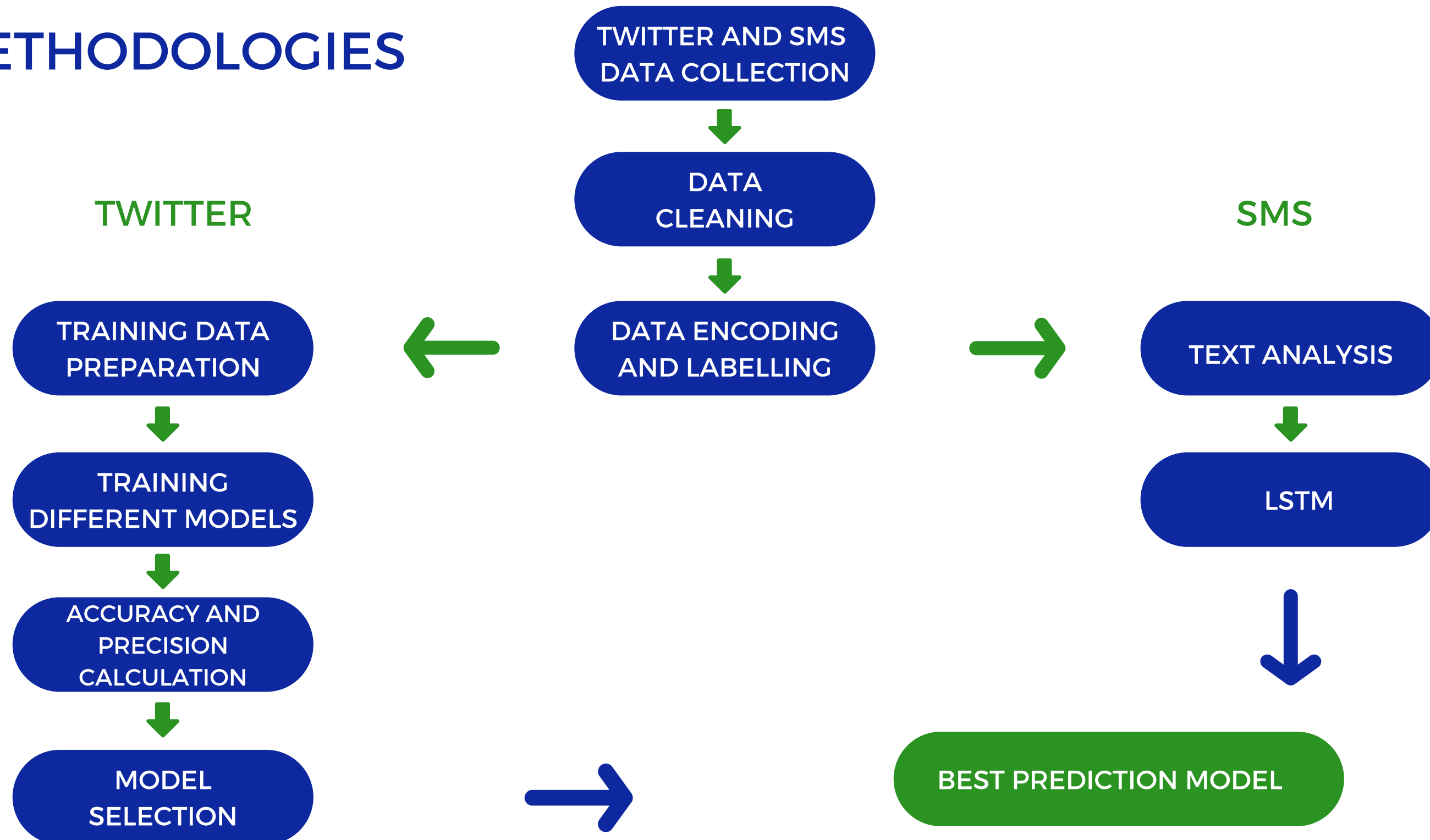
For label -1:
Precision = 0.7
Recall = 1,
 F_score=0.857

For label 1:
Precision = 1
Recall = 0.833333
 F_score=0.909091

HEAT MAP

ACCURACY : 88.89 %

03
NEW
METHODOLOGIES

TWITTER

SMS

TWITTER AND SMS
DATA COLLECTION

DATA
CLEANING

TRAINING DATA
PREPARATION

DATA ENCODING
AND LABELLING

TEXT ANALYSIS

TRAINING
DIFFERENT MODELS

LSTM

ACCURACY AND
PRECISION
CALCULATION

MODEL
SELECTION

BEST PREDICTION MODEL

RANDOM FOREST CLASSIFIER GIVES BEST ACURRACY

For label -1:

Precision = 0.995732

Recall = 1.000000
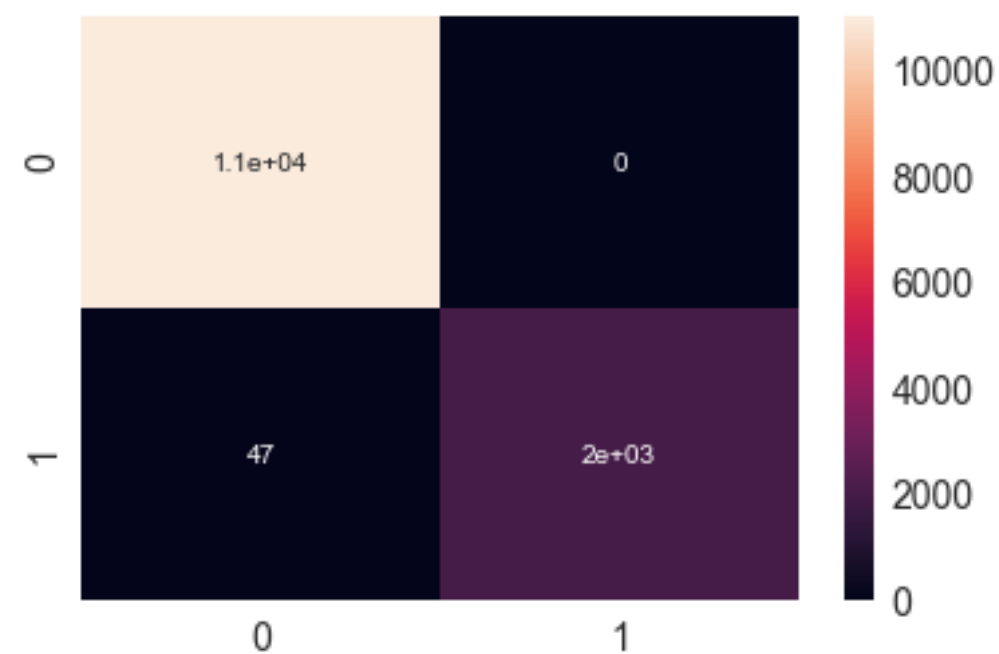
 F_score=0.997862

For label 1:

Precision = 1.000000

Recall = 0.976893

 F_score=0.988311

HEAT MAP

ACCURACY : 99.63%

NAIVE BAYES CLASSIFIER GIVES BEST ACURRACY

For label -1:

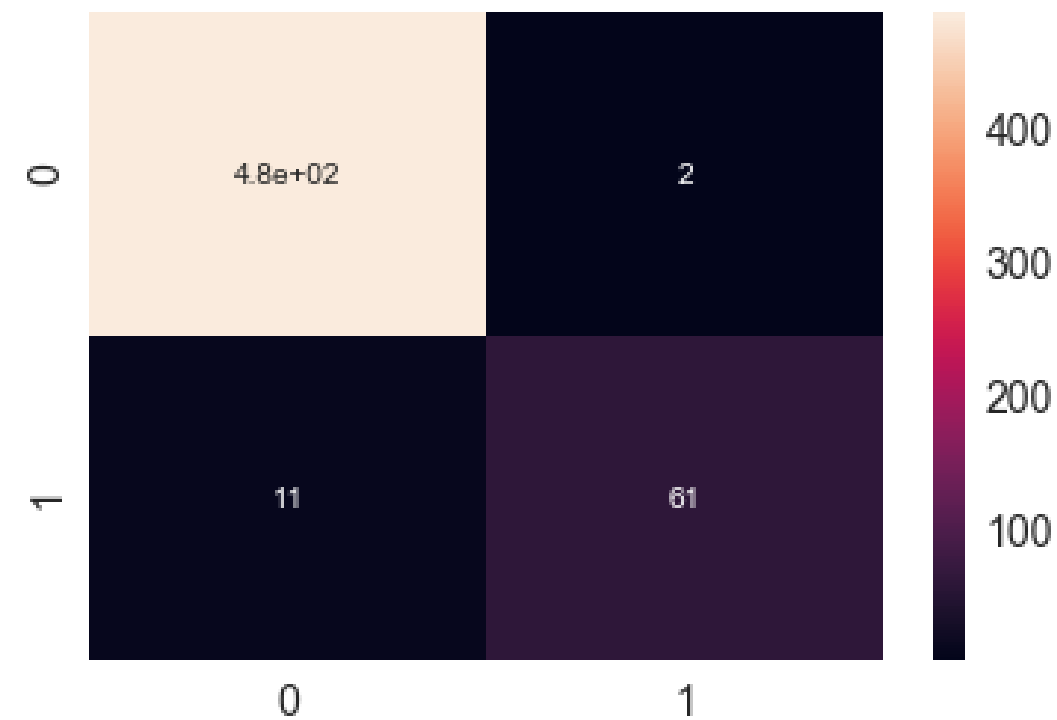Precision = 0.977778

Recall = 0.995885

 F_score=0.986748

For label 1:

Precision = 0.968254

Recall = 0.847222

 F_score=0.903704

HEAT MAP

ACCURACY : 97.67%

LSTM ACCURACY

Parameters:
,batch_size=128,
epochs=10,
 validation_split=0.2
callbacks= [EarlyStopping(monitor='val_loss',min_delta=0.0001)]

ACCURACY : 97.8%

LOSS : 10.9%

04 RESULTS

We found following facts:-
1. Random Forest Classifier gives best accuracy(99.63%) for twitter datset
2. LSTM gives best accuracy(97.8%) for sms spam dataset.

CONCLUSION

- Only using text can be a better idea for spam classification
- A hybrid model of both Random Forest Classsifier and LSTM can be used as well for classification

THANKS