Tawakkalna App Reviews

get sentiment from reviews

توكلنا

Tawakkalna

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BACKGROUND

01

ABOUT COMPANY

Tawakkalna is application to serve citizens and residents by knowing official documents and performing some government services

توكلنا
Tawakkalna

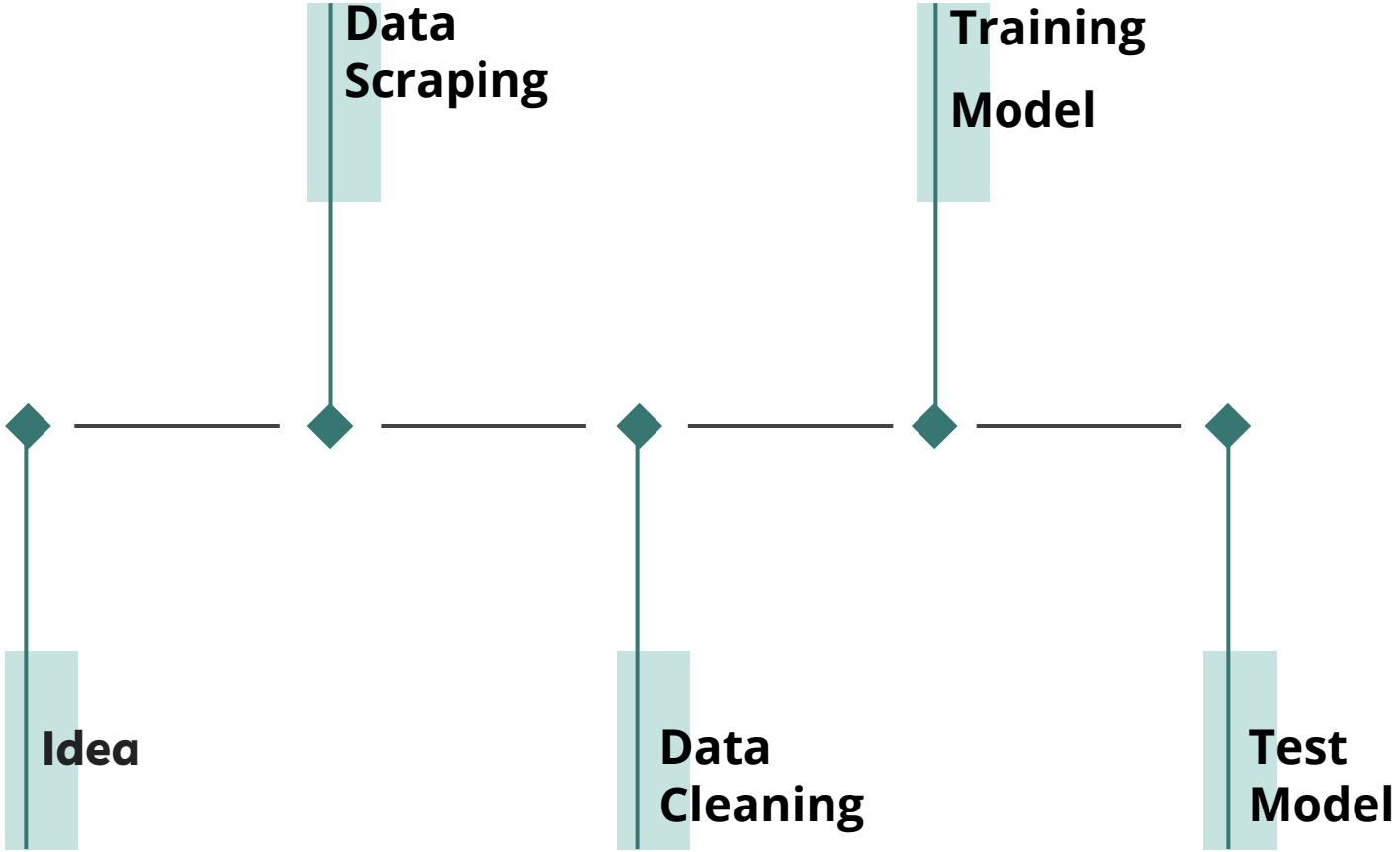
PROBLEM STATEMENT

The target of this project is to know the sentiment from reviews on the Tawakkalna application

METHODOLOGY

02

METHODOLOGY



Data Scraping

App Store

Google Play

Apple Store

Google Play Store

Scraping data reviews for the period from April 2020 to September 2021

Data Description

Apple Store

- **Columns = 7**
- **Rows =** title **3112** + reviews **3112** **= 6224**

Google Play Store

- **Columns = 10**
- **Rows = 37179**

After merging two dataset and dropping columns are not needed

- **Columns = 5**
- **Rows = 43403**

Data Cleaning

Drop Nulls

Spaces , emojis , numbers

01

Translate to English

There were many languages in the reviews other than English

02

03

Drop columns

There were many unhelpful columns

04

Merge

Merge Apple store dataset and Google store dataset

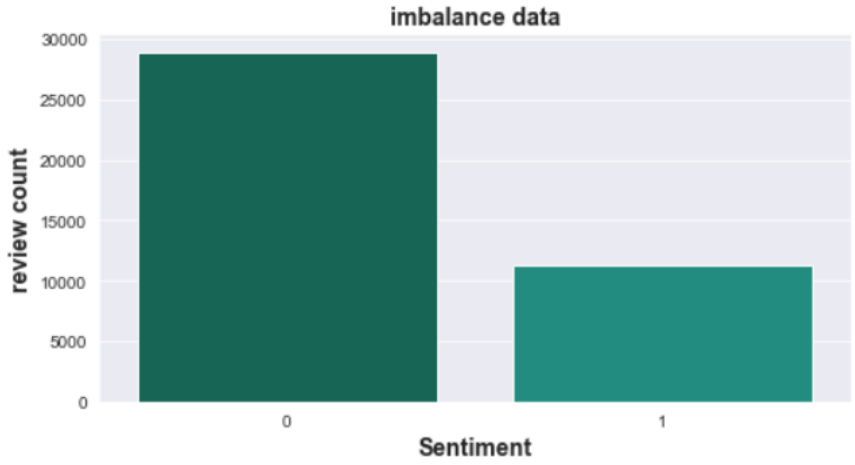
Feature Extraction

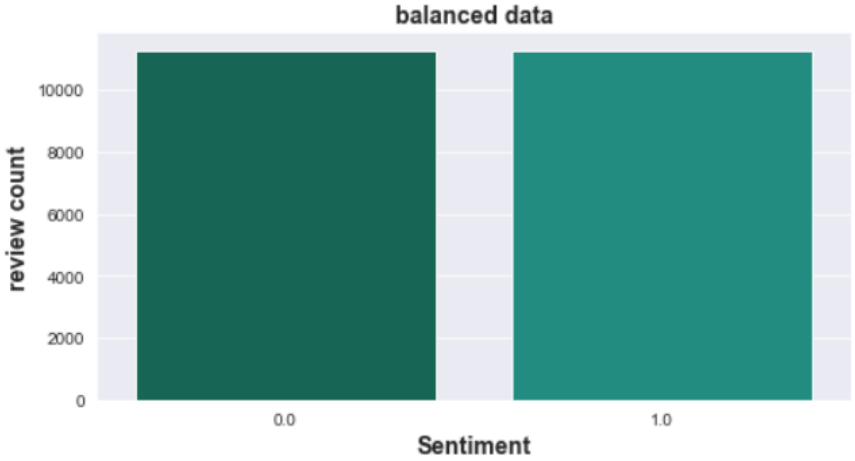
Get Sentiment From Rating

- Above 4 is a positive sentiment which I chose to be equal to 0
- Below 2 is a negative sentiment which I chose to be equal to 1

Imbalance Data

Good reviews are more than bad reviews





Extracting Features from Text

TF – IDF

5661 words

Weight?	Feature	Weight?	Feature
+3.551	worst	-3.214	wonderful
+3.189	bad	-3.659	thanks
+3.006	privacy	-3.763	useful
+2.918	update	-4.031	thank
+2.847	fix	-4.055	excellent
+2.825	updating	-4.800	great

Count Vectorizer

tokenize a collection of text documents

Training Model

Logistic Regression

F2 Train = 0.88725
F2 Validation = 0.83521
F2 Test = 0.84338

xgboost

F2 Train = 0.86755
F2 Validation = 0.85652
F2 Test = 0.86155

Random Forest Classifier

F2 Train = 0.91442
F2 Validation = 0.80355
F2 Test = 0.80804

K Neighbors Classifier

F2 Training: 0.84383
F2 validation : 0.80350
F2 Test : 0.80617

Decision Tree Classifier

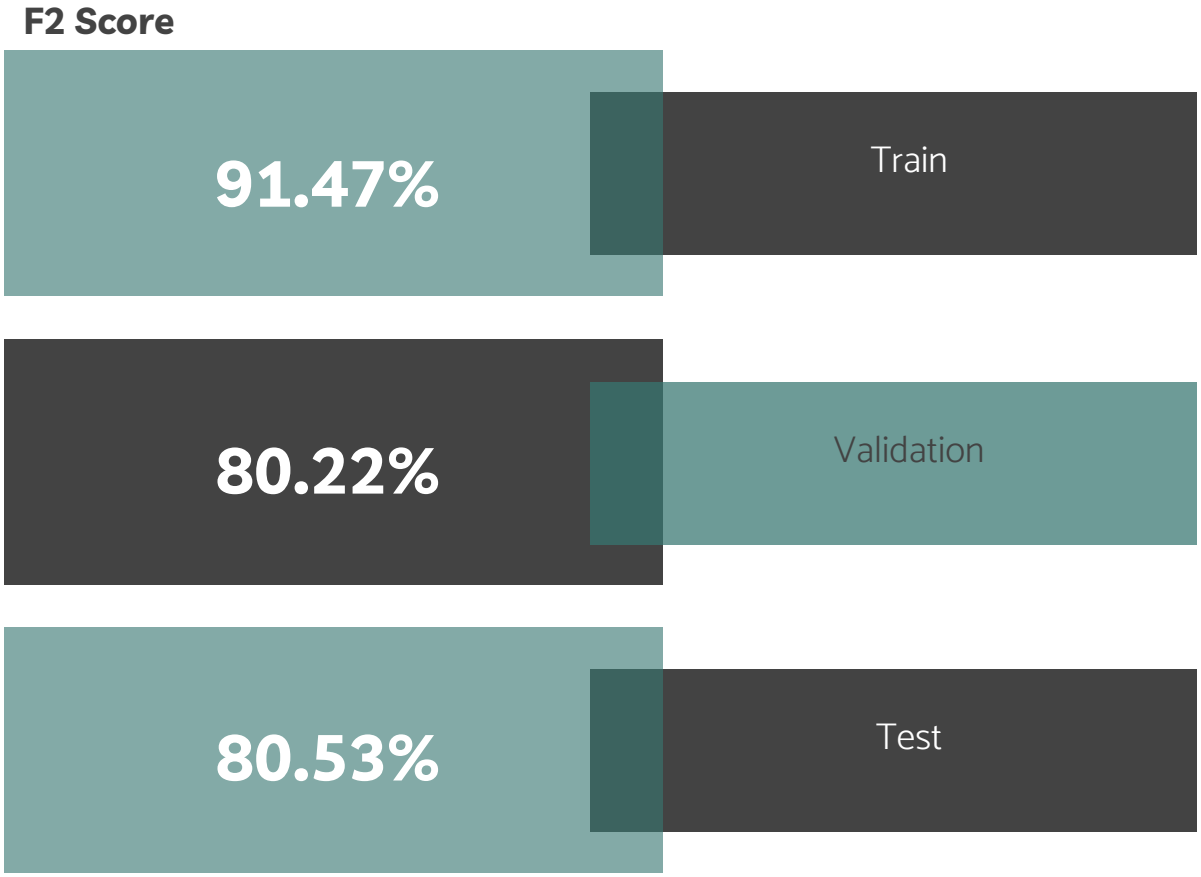
F2 Train = 0.89653
F2 Validation = 0.81989
F2 Test = 0.82750

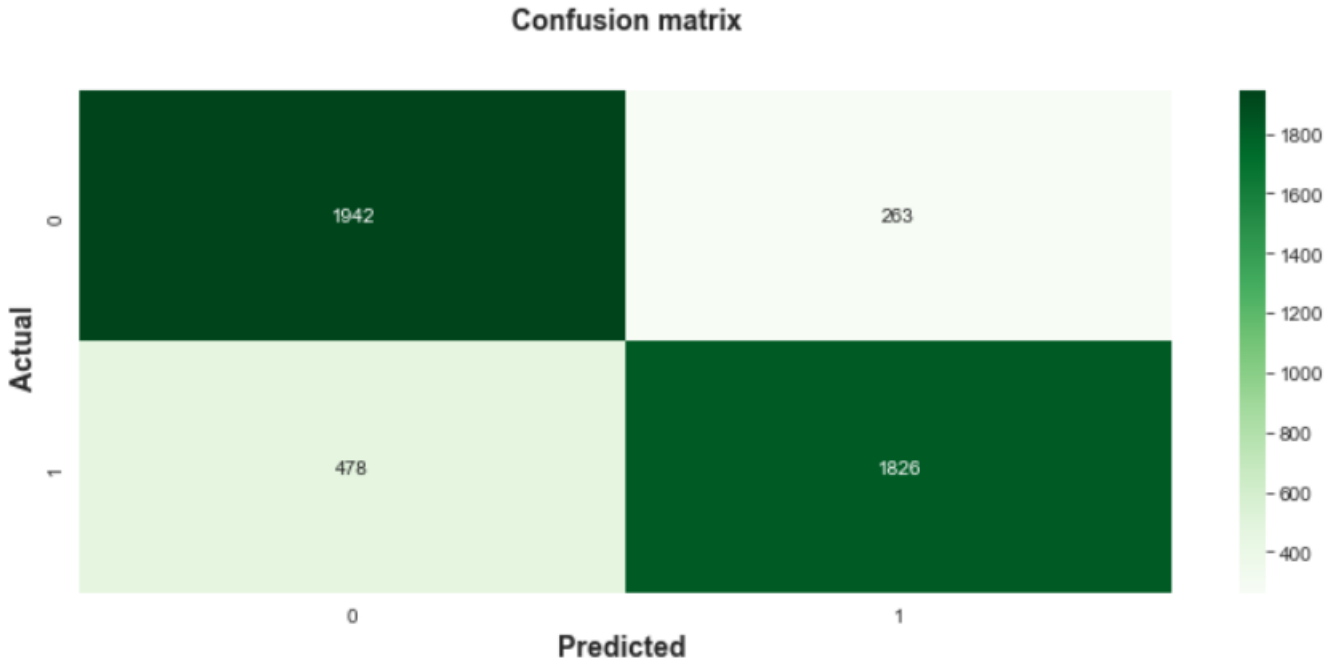
Training Model

Best model: Random Forest Classifier

	Accuracy	precision	recall	F2
Train	93.92%	97.55%	90.06%	91.47%
Validation	84.09%	87.95%	78.49%	80.22%
Test	83.43%	87.37%	78.99%	80.53%

Training Model





More attention to negative comments, which is number 1 in sentiment analysis

Recall Score, F2 Score

Test Model

Real Test of The Model

If the review is negative:

Input : this application needs update

Output : We are very sorry to know that you had a bad experience, we will work to fix the problem

If the review is positive:

Input : this good application

Output : Thank you for the review

CHALLENGES

03

CHALLENGES

Translate

Lots of reviews written in languages other than English and emojis

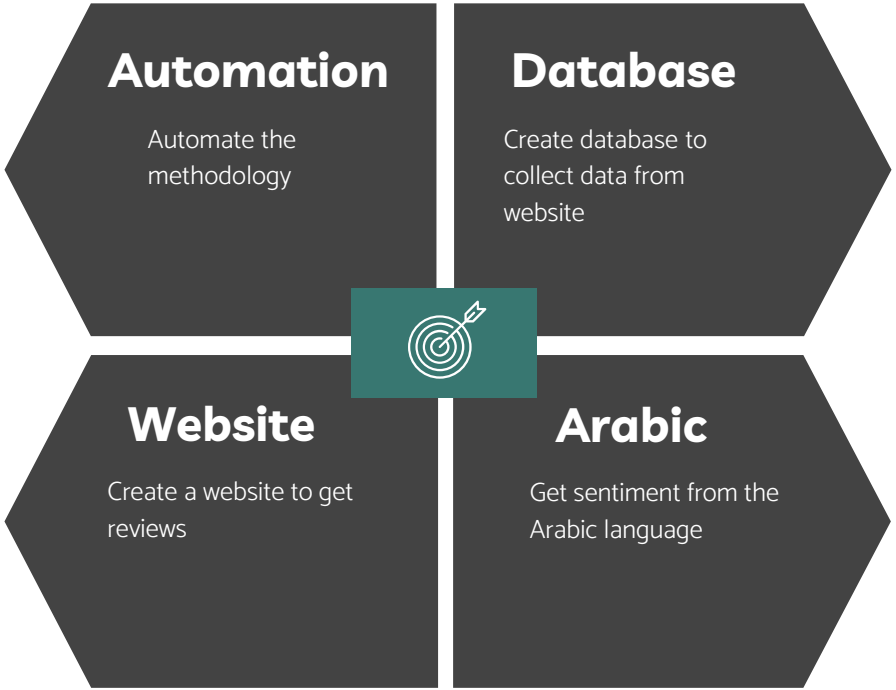
Use new method

TF – IDF method

CONCLUSION

04

FUTURE WORKS



THANKS

Does anyone have any questions?