**APPLICATION RESEARCH OF TEXT CLASSIFICATION BASED ON RANDOM FOREST ALGORITHM**

*Mini Project report submitted in partial fulfillment of the requirement for the award*

*of the Degree of*

**Bachelor of Technology**

In

**Computer Science and Engineering**

By

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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

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**DECLARATION BY THE CANDIDATES**

We**, Mr. MOHAMMED ASHRAF, Mr. MASADAPU RAVI, Mr. MEHEBUB RAHAMAN, Ms. KADARI AKHILA** bearing Roll No: **18TU1A0512**, **18TU1A0513, 16TU1A0549, 18TU1A0509**  hereby certify that the mini project report entitled **“APPLICATION RESEARCH OF TEXT CLASSIFICATION BASED ON RANDOM FOREST ALGORITHM ”,** carried out under the guidance of Mr. **MD. ANWAR ALI** is submitted in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in ***Computer Science and Engineering*** This is a record of bonafide work carried out by me and the results embodied in this project have not been reproduced/ copied from any source. The results embodied in this project report have not been submitted to any other university or institute for the award of any other degree or diploma.

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**CERTIFICATE BY THE SUPERVISOR**

This is to certify that the Mini Project report entitled **“APPLICATION RESEARCH OF TEXT CLASSIFICATION BASED ON RANDOM FOREST ALGORITHM”,** being submitted by **Mr. MOHAMMED ASHRAF, Mr. MASADAPU RAVI, Mr. MEHEBUB RAHAMAN, Ms. KADARI AKHILA** having Roll No: **18TU1A0512, 18TU1A0513, 16TU1A0549, 18TU1A0509** in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in ***Computer Science and Engineering***is a record of bonafide work carried out by them. The results embodied in this project report have not been submitted to any other university or institute for the award of any other degree .

**Internal Guide Head of Department**

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**CERTIFICATE BY THE HEAD OF THE DEPARTMENT**

This is to certify that the Mini Project report entitled **“APPLICATION RESEARCH OF TEXT CLASSIFICATION BASED ON RANDOM FOREST ALGORITHM”,** being submitted by **Mr. MOHAMMED ASHRAF, Mr. MASADAPU RAVI, Mr. MEHEBUB RAHAMAN, Ms. KADARI AKHILA** having Roll No: **18TU1A0512, 18TU1A0513, 16TU1A0549, 18TU1A0509** in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in ***Computer Science and Engineering,*** is a record of bonafide work carried out by them.

**Dr. HUSSAIN SHARIF**

Associate Professor & Head of the Department,

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# 

# CERTIFICATE

This is to certify that the final year B.Tech in **COMPUTER SCIENCE AND ENGINEERING**, students of **ELLENKI COLLEGE OF ENGINEERING & TECHNOLOGY**, PATELGUDA,HYDERABAD. Affiliated to Jawaharlal Nehru Technological University, Hyderabad (JNTUH), has successfully completed their mini project work titled “**APPLICATION RESEARCH AND TEXT CLASSIFICATION BASED ON RANDOM FOREST ALGORITHM**” as part of their course curriculum.

**STUDENT NAME** **ROLL NO**

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They have done their mini project during the A.Y 2021-2022, under the supervision of **Mr.CH.BUCHIREDDY**, Project Coordinator, Ellenki Research & Development Cell, Hyderabad.

They had completed the assigned project well within the time frame. They are sincere, hardworking and their conduct during the project is commendable.

## For Ellenki Research & Development

Project Coordinator Director

**ACKNOWLEDGEMENT**

We wish to express our hearty thanks to very large number of people who made it possible for us to complete the project successfully.

We endow our sincere thanks to our **Chairman Mr. E. SADASIVA REDDY GARU** for his cooperation.

We want to express my heartful thanks to our **Director Mr. M. SAMBASIVA REDDY GARU** for providing sufficient equipment’s.

We endow our sincere thanks to our **Principal Dr. P. JOHN PAUL** and management for this cooperation.

We express our profound gratitude to **Dr. HUSSAIN SHARIF,** Head of the Department of**Computer science & Engineering** by offering this project gave the rare privilege of working him. I thank him for his valuable suggestions and his utmost patience.

We would also thank to my internal guide **Mr. MD. ANWAR ALI Assistant professor** for his valuable suggestions and supporting during this project.

We also grateful to the faculty members of the department of computer science & engineering for providing as a good academic atmosphere. I take this opportunity to thank our classmates for making this B. Tech course a memorable work.

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**1. INTRODUCTION AND OBJECTIVES:**

With the rapid development of science and technology, since the 1990s, more and more data information has been generated, 80% of which is stored in text. Therefore, people can't use the traditional manual filtering for huge amounts of text information. Text processing based on natural language processing emerges as the times require. In recent years, there is more and more research on text classification, mainly focusing on Naive Bayes, K-means clustering, SVM and other algorithms. Random forest algorithm is widely used in all walks of life due to its advantages of fast training speed, easy parallel computing in the era of big data, strong anti-interference ability and excellent anti over fitting ability, and has achieved the effect of traditional methods.

For the study of text classification, many predecessors have done a lot of excellent work. For example, Zhou Qingping proposed an improved KNN algorithm based on clustering; Yang, improved the feature selection function by connecting the accurate coefficients of several feature selection functions to form a new feature selection function, and finally used SVM to classify; Zhang Xiang proposed an improved algorithm based on bagging's Chinese text classifier. Based on the increase of text information and the

development of text processing technology, the application of text classification is more and more. For example, public opinion monitoring, emotional analysis, commodity classification, news classification, etc.

Many advantages of random forest algorithm (RFA) make experts and scholars carry out many improved application research on RFA. In 1995, tin Kam ho first proposed the concept of random forest. Later, Leo boeiman proposed that RFA is a classification and prediction model. M p Perrone, l n coope and others proposed that in the classification stage, RF class labels are synthesized from the classification results of all decision trees, and are the most commonly used methods in voting and probability average. In terms of application, EI atta proposed a method to predict the activity of cannabinoid receptor (CB2) agonist using RF in bioinformatics; in ecology, eruan et al. Studied air prediction using RFA; in genetics, retroria used RFA in gene recognition. Moreover, RFA has achieved good results in biochip, information extraction and other fields.

**2.LITERATURE SURVEY:**

**1)Text Classification And Classifiers: A Survey.**

**Authors**: **Parul Kalra, Deepti Mehrotra**

As most information (over 80%) is stored as text, text mining is believed to have a high commercial potential value. knowledge may be discovered from many sources of information; yet, unstructured texts remain the largest readily available source of knowledge .Text classification which classifies the documents according to predefined categories .In this paper we are tried to give the introduction of text classification, process of text classification as well as the overview of the classifiers and tried to compare the some existing classifier on basis of few criteria like time complexity, principal and performance.

**2) A Weighted Random Survival Forest:**

**Authors**: **Mikhail V. Costa, Mikhail A.Ryabinin**

A weighted random survival forest is presented in the paper. It can be regarded as a modification of the [random forest](https://www.sciencedirect.com/topics/computer-science/random-decision-forest) improving its performance. The main idea underlying the proposed model is to replace the standard procedure of averaging used for estimation of the random survival forest hazard function by weighted averaging where the weights are assigned to every tree and can be viewed as training parameters which are computed in an optimal way by solving a standard quadratic [optimization problem](https://www.sciencedirect.com/topics/computer-science/optimisation-problem) maximizing Harrell’s C-index. Numerical examples with real data illustrate the outperformance of the proposed model in comparison with the original random survival forest.

**3) Context-Based methods for text Categorisation:**

**Authors**: **Zhang, Xinwei Abhan, Yaocia,W. J. Teahan**

We propose several context-based methods for text categorization. One method, a small modification to the PPM compression-based model which is known to significantly degrade compression performance, counter-intuitively has the opposite effect on categorization performance. Another method, called C-measure, simply counts the presence of higher order character contexts, and outperforms all other approaches investigated.

**4) Random Decision Forests:**

**Authors: Timor Kadir,Fergus Gleeson**

Decision trees are attractive classifiers due to their high execution speed. But trees derived with traditional methods often cannot be grown to arbitrary complexity for possible loss of generalization accuracy on unseen data. The limitation on complexity usually means suboptimal accuracy on training data. Following the principles of stochastic modeling, we propose a method to construct tree-based classifiers whose capacity can be arbitrarily expanded for increases in accuracy for both training and unseen data. The essence of the method is to build multiple trees in randomly selected subspaces of the feature space. Trees in, different subspaces generalize their classification in complementary ways, and their combined classification can be monotonically improved. The validity of the method is demonstrated through experiments on the recognition of handwritten digits

**5) Predicting Biological Activity of 2,4,6-trisubstituted 1,3,5-triazines Using Random Forest:**

**Authors: Jiajia Liu, Yudong Ye, Chenlong Shen, Yuming Wang, Robert Erdélyi**

This paper presents an approach to predict the activity of analogues of 2,4,6-trisubstituted 1,3,5-triazines as cannabinoid receptor (CB2) agonists using random forest technique. We compute twenty molecular descriptors for a data set of 58 analogues for the component, and depending on values of these descriptors we train random forest to find a relation between biological activity and molecular structure of analogues. The results obtained by random forest were compared with the decision tree and support vector machine classifiers and the random forest has 100% overall predicting accuracy and for decision tree and support vector machines were 93% and 67% respectively.

## 3. SYSTEM ANALYSIS:

**Existing System:**

In The Existing system used Naive Bayes.In Naive Bayes, texts are classified based on posterior probabilities generated based on the presence of different classes of words in texts. This assumption makes the computations resources needed for a naïve bayes classifier far more efficient than non-naïve bayes approaches which are exponential in complexity. Moreover, it is found that Naive Bayes is the Less accurate model for text classification.

**Disadvantages of Existing System:**

* The main limitation of Naive Bayes is the assumption of independent predictor features. Naive Bayes implicitly assumes that all the attributes are mutually independent. In real life, it’s almost impossible that we get a set of predictors that are completely independent or one another.
* less quality text classification by using naive bayes.
* we haven’t implemented tf-idf concept for classification
* **Algorithm**:Naive bayes.

**Proposed System:**

The proposed method is based on the Random forest and is proposed to.perform text classification. In the traditional random forest algorithm, the number and quality of feature selection are prominent. But for books and other large capacity text classification, the more the number and quality of text features (classification decision tree attribute), the better the classification effect will be. Therefore, this paper proposes a tr-k method which combines TF-IDF, textrank and K-means to improve the effect of text classification. The full name of the TF-IDF method is term frequency inverse document frequency.

**Advantages of Proposed System:**

Random forests overcome several problems with decision trees, including:

* Reduction in overfitting: by averaging several trees, there is a significantly lower risk of overfitting.
* Less variance: By using multiple trees, you reduce the chance of stumbling across a classifier that doesn’t perform well because of the relationship between the train and test data.
* tr-k method which combines TF-IDF, textrank and K-means to improve the effect of text classification.
* RFA has achieved good results in biochip, information extraction and other fields.

**4. SOFTWARE AND HARDWARE REQUIREMENTS SPECIFICATIONS :**

The project involved analyzing the design of few applications so as to make the application more users friendly. To do so, it was really important to keep the navigations from one screen to the other well ordered and at the same time reducing the amount of typing the user needs to do. In order to make the application more accessible, the browser version had to be chosen so that it is compatible with most of the Browsers.

**Requirements Specifications:**

**Functional Requirements:**

* Graphical User interface with the User.

**Software Requirements:**

For developing the application the following are the Software Requirements:

1. Python
2. Djano

**Hardware Requirements:**

For developing the application the following are the Hardware Requirements:

* Processor: Pentium IV or higher
* RAM: 256 MB
* Space on Hard Disk: minimum 512MB

**Operating System Supported:**

1. Windows 7
2. Windows XP
3. Windows 8

**Technology Description:**

1. Python
2. **SYSTEM DESIGN:**

**System Architecture:**

**System Specification:**

**Hardware Requirements:**

* **System :** Pentium IV 2.4 GHz.
* **Hard Disk :** 40 GB.
* **Floppy Drive :** 1.44 Mb.
* **Monitor** : 14’ Colour Monitor.
* **Mouse :** Optical Mouse.
* **Ram :** 512 Mb.

**Software Requirements:**

* **Operating system :** Windows 7 Ultimate.
* **Coding Language :** Python.
* **Front-End :** Python.
* **Designing :** Html,css,javascript.
* **Data Base :** MySQL.

**System Study:**

**Feasibility Study**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

**Three key considerations involved in the feasibility analysis are,**

* **Economical Feasibility**
* **Technical Feasibility**
* **Social Feasibility**

**Economical Feasibility**

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

### Technical Feasibility

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

**Social Feasibility**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

**Sample Test Cases:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.no** | **Test Case** | **Excepted Result** | **Result** | **Remarks(IF Fails)** |
| 1. | User Register | If User registration successfully. | Pass | If already user email exist then it fails. |
| 2. | User Login | If User name and password is correct then it will getting valid page. | Pass | Un Register Users will not logged in. |
| 3. | uploader register | If uploader registration successfully. | Pass | If an already uploader email exists then it fails. |
| 4. | Uploader Login | If Uploader r name and password is correct then it will getting valid page | Pass | Un Register Uploaders will not be logged in. |
| 5. | vendor upload product | once vendor login will upload the music products | Pass | vendor cannot upload the music products |
| 6. | user text processing | users can perform text processing by searching music products and giving reviews to music products.. | Pass | .user can’t perform text processing. |
| 7. | Admin login | Admin can login with his login credential. If success he get his home page | Pass | Invalid login details will not allowed her |
| 8. | Admin can activate the register users | Admin can activate the register user id | Pass | If the user did not find it then it won’t login. |
| 9. | Admin can activate the register uploader | Admin can activate the register uploader id | Pass | If the uploader did not find it then it won’t login. |
| 10. | perform rf algorithm | random forest algorithm will implement on text classification | Pass | we can’t perform rf algorithm |

1. **IMPLEMENTATION:**

**Modules:**

* User
* uploader
* Admin
* Machine Learning

**User**

The User can register the first. While registering he required a valid user email and mobile for further communications. Once the user registers, then the admin can activate the customer. Once the admin activates the customer then the customer can login into our system. user will search for music product then he will get list of

music products.he will purchase products and will give the review and ratings to product.whenever user click on classification link he will get sentimental analysis of music products.

**uploader**:

The User can register the first. While registering he required a valid user email and mobile for further communications. Once the user registers, then the admin can activate the customer. Once the admin activates the customer then the customer can login into our system. uploader will upload different type of music products.

**Admin**

Admin can login with his credentials. Once he login he can activate the users. The activated user only login in our applications.. Once he login he can activate the vendor. The activated vendor only login in our applications.after that admin will

perform random forest classification and will get the accuaracy and precision reports.

**Machine learning**

Machine learning refers to the computer’s acquisition of a kind of ability to make predictive judgments and make the best decisions by analyzing and learning a large number of existing data. The representation algorithms include deep learning, artificial neural network, decision tree, enhancement algorithm and so on. The key way for computers to acquire artificial intelligence is machine learning. Nowadays, machine learning plays an important role in various fields of artificial intelligence. Whether in aspects of internet search, biometric identification, auto driving, Mars robot, or in American presidential election, military decision assistants and so on, basically, as long as there is a need for data analysis, machine learning can be used to play a role.

**Sample Code:**

**urls.py**

from django.conf.urls import url

from django.contrib import admin

from django.urls import path

from fstapp.views import \*

from admn import views as admn

from user import views as user

urlpatterns = [

url(r'^admin/', admin.site.urls),

# url(r'^$', index, name="index"),

url(r'^index/',user.index, name="index"),

path('userlogin/', user.userlogin, name='userlogin'),

path('userpage/', user.userpage, name='userpage'),

path('userregister/', user.userregister, name='userregister'),

path('userlogincheck/', user.userlogincheck, name='userlogincheck'),

url(r'^adminlogin/',admn.adminlogin, name="adminlogin"),

url(r'^adminloginaction/', admn.adminloginaction,name="adminloginaction"),

url(r'^userdetails/', admn.userdetails, name="userdetails"),

path('activateuser/', admn.activateuser, name='activateuser'),

url(r'^logout/', admn.logout,name="logout"),

url(r'^rf/', admn.rf,name="rf"),

**]**

**views.py:**

from django.shortcuts import render

from pyexpat.errors import messages

from user.models import \*

from user.forms import \*

def adminlogin(request):

return render(request,"admin/adminlogin.html")

def logout(request):

return render(request,'index.html')

def activateuser(request):

if request.method == 'GET':

uname = request.GET.get('pid')

print(uname)

status = 'Activated'

print("pid=", uname, "status=", status)

usermodel.objects.filter(id=uname).update(status=status)

qs = usermodel.objects.all()

return render(request, "admin/userdetails.html", {"qs": qs})

def userdetails(request):

qs = usermodel.objects.all()

return render(request, 'admin/userdetails.html', {"qs":qs})

def adminloginaction(request):

if request.method == "POST":

#if request.method == "POST":

usid = request.POST.get('username')

pswd = request.POST.get('password')

if usid == 'admin' and pswd == 'admin':

return render(request,'admin/adminhome.html')

else:

messages.success(request, 'Invalid user id and password')

#messages.success(request, 'Invalid user id and password')

return render(request,'adminlogin.html')

def rf(request):

import pandas as pd

import re

import numpy as np

import matplotlib.pyplot as plt

from nltk.corpus import stopwords

from nltk.stem import PorterStemmer

from sklearn.feature\_extraction.text import TfidfVectorizer

from sklearn.pipeline import Pipeline

from sklearn.metrics import classification\_report, confusion\_matrix

from sklearn.model\_selection import train\_test\_split

from sklearn.feature\_selection import SelectKBest, chi2

from sqlite3 import Error

from sklearn.ensemble import RandomForestClassifier

import sqlite3

import pickle

import nltk

nltk.download('stopwords')

import matplotlib.pyplot as plt

# % matplotlib

# inline

try:

conn = sqlite3.connect("training\_V2.db")

except Error as e:

print(e)

# reading the data from the table that contains the labels

df = pd.read\_sql\_query('SELECT \* FROM filtered',conn)

print("data",df)

df.drop(['id'], 1, inplace=True)

df.head()

df.groupby('class').text.count().plot.bar(ylim=0)

plt.show()

nltk.download('stopwords')

stemmer = PorterStemmer()

words = stopwords.words("english")

df['cleaned'] = df['text'].apply(

lambda x: " ".join([stemmer.stem(i) for i in re.sub("[^a-zA-Z]", " ", x).split() if i not in words]).lower())

df.head()

vectorizer = TfidfVectorizer(min\_df=3, stop\_words="english", sublinear\_tf=True, norm='l2', ngram\_range=(1, 2))

final\_features = vectorizer.fit\_transform(df['cleaned']).toarray()

final\_features.shape

X = df['cleaned']

Y = df['class']

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, Y, test\_size=0.25)

# instead of doing these steps one at a time, we can use a pipeline to complete then all at once

pipeline = Pipeline([('vect', vectorizer),

('chi', SelectKBest(chi2, k=1200)),

('clf', RandomForestClassifier())])

# fitting our model and save it in a pickle for later use

model = pipeline.fit(X\_train, y\_train)

with open('RandomForest.pickle', 'wb') as f:

pickle.dump(model, f)

ytest = np.array(y\_test)

# confusion matrix and classification report(precision, recall, F1-score)

print(classification\_report(ytest, model.predict(X\_test)))

print(confusion\_matrix(ytest, model.predict(X\_test)))

**models.py:**

from django.db import models

class usermodel(models.Model):

name = models.CharField(max\_length=50)

email = models.EmailField()

passwd = models.CharField(max\_length=40)

cwpasswd = models.CharField(max\_length=40)

mobileno = models.CharField(max\_length=50, default="", editable=True)

status = models.CharField(max\_length=40, default="", editable=True)

def \_\_str\_\_(self):

return self.email

class Meta:

db\_table='userregister'

**forms.py:**

from django.core import validators

from django import forms

from user.models import \*

class userForm(forms.ModelForm):

name = forms.CharField(widget=forms.TextInput(), required=True, max\_length=100,)

passwd = forms.CharField(widget=forms.PasswordInput(), required=True, max\_length=100)

cwpasswd = forms.CharField(widget=forms.PasswordInput(), required=True, max\_length=100)

email = forms.CharField(widget=forms.TextInput(),required=True)

mobileno= forms.CharField(widget=forms.TextInput(), required=True, max\_length=10,validators=[validators.MaxLengthValidator(10),validators.MinLengthValidator(10)])

status = forms.CharField(widget=forms.HiddenInput(), initial='waiting', max\_length=100)

def \_\_str\_\_(self):

return self.email

class Meta:

model=usermodel

fields=['name','passwd','cwpasswd','email','mobileno','status']

**adminbase.html:**

{% load static %}

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<meta name="viewport" content="width=device-width, initial-scale=1">

<!-- The above 3 meta tags \*must\* come first in the head; any other head content must come \*after\* these tags -->

<title>Kevin : Home</title>

<!-- Favicon -->

<link rel="shortcut icon" type="image/icon" href="{% static 'images/favicon.ico' %}"/>

<!-- Font Awesome -->

<link href="https://maxcdn.bootstrapcdn.com/font-awesome/4.6.3/css/font-awesome.min.css" rel="stylesheet">

<!-- Bootstrap -->

<link href="{% static 'css/bootstrap.min.css' %}" rel="stylesheet">

<!-- Slick slider -->

<link href="{% static 'css/slick.css' %}" rel="stylesheet">

<!-- Gallery Lightbox -->

<link href="{% static 'css/magnific-popup.css'%}" rel="stylesheet">

<!-- Theme color -->

<link id="switcher" href="{% static 'css/theme-color/default-theme.css' %}" rel="stylesheet">

<!-- Main Style -->

<link href="{% static 'style.css' %}" rel="stylesheet">

<!-- Fonts -->

<!-- Open Sans for body font -->

<link href="https://fonts.googleapis.com/css?family=Open+Sans:300,400,400i,600,700,800" rel="stylesheet">

<!-- Poppins for Title -->

<link href="https://fonts.googleapis.com/css?family=Poppins" rel="stylesheet">

<!-- HTML5 shim and Respond.js for IE8 support of HTML5 elements and media queries -->

<!-- WARNING: Respond.js doesn't work if you view the page via file:// -->

<!--[if lt IE 9]>

<script src="https://oss.maxcdn.com/html5shiv/3.7.2/html5shiv.min.js"></script>

<script src="https://oss.maxcdn.com/respond/1.4.2/respond.min.js"></script>

<![endif]-->

</head>

<body>

<!-- Start Header -->

<header id="mu-header" class="" role="banner">

<div class="container">

<nav class="navbar navbar-default mu-navbar">

<div class="container-fluid">

<!-- Brand and toggle get grouped for better mobile display -->

<div class="navbar-header">

<button type="button" class="navbar-toggle collapsed" data-toggle="collapse" data-target="#bs-example-navbar-collapse-1" aria-expanded="false">

<span class="sr-only">Toggle navigation</span>

<span class="icon-bar"></span>

<span class="icon-bar"></span>

<span class="icon-bar"></span>

</button>

<!-- Text Logo -->

<!-- <a class="navbar-brand" href="#">Kevin</a>-->

<!-- Image Logo -->

<!-- <a class="navbar-brand" href="#"><img src="assets/images/logo.png"></a> -->

</div>

<!-- Collect the nav links, forms, and other content for toggling -->

<div class="collapse navbar-collapse" id="bs-example-navbar-collapse-1">

<ul class="nav navbar-nav mu-menu navbar-right">

<li><a href="{% url 'index' %}">Home</a></li>

<li><a href="{% url 'userlogin' %}">User</a></li>

<li><a href="{% url 'adminlogin' %}">Admin</a></li>

<!-- <li><a href="#mu-portfolio">PORTFOLIO</a></li>

<li><a href="#mu-testimonials">TESTIMONIALS</a></li>

<li><a href="#mu-contact">CONTACT</a></li>-->

</ul>

</div><!-- /.navbar-collapse -->

</div><!-- /.container-fluid -->

</nav>

</div>

</header>

<!-- End Header -->

<!-- Start Featured Slider -->

<section id="mu-featured-slider">

<div class="container">

<div class="row">

<div class="col-md-12">

<div class="mu-featured-area">

<h1>Application Research of Text classification based on random forest algorithm</h1><br><br><br><br><br><br>

{% block contents %}

{% endblock %}

<!-- Start text slide -->

<!-- <div class="mu-featured-slider-wrapper">

<div class="mu-featured-slider" id="typed-strings">

<p>I am <span>UI/UX Designer</span></p>

<p>I am <span>Web Developer</span></p>

<p>I am <span>Photographer</span></p>

</div>

<span id="typed"></span>

</div>-->

<!-- Start text slide -->

<!-- <div class="mu-featured-content">

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Facere ipsa necessitatibus voluptate. Dolores sed neque, accusantium iusto inventore harum quibusdam, aspernatur, ullam vero ea eos ipsam tenetur dolore qui voluptatibus!</p>

<a href="#mu-portfolio" class="mu-primary-btn view-my-work-btn">VIEW MY WORK</a>

</div>-->

</div>

</div>

</div>

</div>

</section>

<!-- Start Featured Slider -->

<!-- Start main content -->

<!--<main role="main">

<section id="mu-about">

<div class="container">

<div class="row">

<div class="col-md-12">

<div class="mu-about-area">

<div class="mu-about-header">

<h2 class="mu-heading-title">ABOUT ME</h2>

<span class="mu-header-dot"></span>

<p>My name is Kevin Pitter. I am professional <strong>Web Designer</strong> and <strong>Web Developer</strong>. Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever</p>

</div>

<div class="mu-about-content">

<div class="row">

<div class="col-md-6">

<div class="mu-about-content-left">

<img class="mu-profile-img" src="assets/images/profile.jpg" alt="Profile Image">

</div>

</div>

<div class="col-md-6">

<div class="mu-about-content-right">

<div class="mu-skill-progress-bar">

<h3>Skills</h3>

<span>Html5</span>

<div class="mu-pro-bar mu-html5-bar">

</div>

<span>css</span>

<div class="mu-pro-bar mu-css-bar">

</div>

<span>Photoshop</span>

<div class="mu-pro-bar mu-photoshop-bar">

</div>

<span>Wordpress</span>

<div class="mu-pro-bar mu-wordpress-bar">

</div>

<span>jQuery</span>

<div class="mu-pro-bar mu-jquery-bar">

</div>

</div>

<div class="mu-social-media">

<h3>Social</h3>

<a href="#"><i class="fa fa-facebook"></i></a>

<a href="#"><i class="fa fa-twitter"></i></a>

<a href="#"><i class="fa fa-linkedin"></i></a>

<a href="#"><i class="fa fa-google-plus"></i></a>

</div>

<a href="#" class="mu-resume-btn">Download My Resume</a>

</div>

</div>

</div>

</div>

</div>

</div>

</div>

</div>

</section>

<section id="mu-service">

<div class="container">

<div class="row">

<div class="col-md-12">

<div class="mu-service-area">

<div class="mu-service-header">

<h2 class="mu-heading-title">MY SERVICES</h2>

<span class="mu-header-dot"></span>

<p>Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever</p>

</div>

<div class="mu-service-content">

<div class="row">

<div class="col-md-4 col-sm-6">

<div class="mu-service-content-single">

<span class="mu-service-icon-box">

<i class="fa fa-leaf"></i>

</span>

<h4>UI/UX Design</h4>

<p>Lorem ipsum dolor sit amet, consect adipis elit minim veniam ettis inkeras.</p>

</div>

</div>

<div class="col-md-4 col-sm-6">

<div class="mu-service-content-single">

<span class="mu-service-icon-box">

<i class="fa fa-desktop"></i>

</span>

<h4>Web Development</h4>

<p>Lorem ipsum dolor sit amet, consect adipis elit minim veniam ettis inkeras.</p>

</div>

</div>

<div class="col-md-4 col-sm-6">

<div class="mu-service-content-single">

<span class="mu-service-icon-box">

<i class="fa fa-briefcase"></i>

</span>

<h4>Branding</h4>

<p>Lorem ipsum dolor sit amet, consect adipis elit minim veniam ettis inkeras.</p>

</div>

</div>

<div class="col-md-4 col-sm-6">

<div class="mu-service-content-single">

<span class="mu-service-icon-box">

<i class="fa fa-camera"></i>

</span>

<h4>Photography</h4>

<p>Lorem ipsum dolor sit amet, consect adipis elit minim veniam ettis inkeras.</p>

</div>

</div>

<div class="col-md-4 col-sm-6">

<div class="mu-service-content-single">

<span class="mu-service-icon-box">

<i class="fa fa-android"></i>

</span>

<h4>Apps Development</h4>

<p>Lorem ipsum dolor sit amet, consect adipis elit minim veniam ettis inkeras.</p>

</div>

</div>

<div class="col-md-4 col-sm-6">

<div class="mu-service-content-single">

<span class="mu-service-icon-box">

<i class="fa fa-line-chart"></i>

</span>

<h4>Digital Marketing</h4>

<p>Lorem ipsum dolor sit amet, consect adipis elit minim veniam ettis inkeras.</p>

</div>

</div>

</div>

</div>

</div>

</div>

</div>

</div>

</section>

<section id="mu-portfolio">

<div class="container">

<div class="row">

<div class="col-md-12">

<div class="mu-portfolio-area">

<div class="mu-portfolio-header">

<h2 class="mu-heading-title">MY PORTFOLIO</h2>

<span class="mu-header-dot"></span>

</div>

<div class="mu-portfolio-filter-area">

<ul class="mu-simplefilter">

<li class="active" data-filter="all">All</li>

<li data-filter="1">Web App</li>

<li data-filter="2">UI/UX</li>

<li data-filter="3">Graphics Design</li>

<li data-filter="4">Mobile App</li>

<li data-filter="5">Branding</li>

<li data-filter="6">Marketing</li>

</ul>

</div>

<div class="mu-portfolio-content">

<div class="filtr-container">

<div class="col-xs-6 col-sm-4 col-md-4 filtr-item" data-category="1">

<div class="mu-item-thumbonail">

<img class="img-responsive" src="assets/images/portfolio/img-1.jpeg" alt="image">

</div>

<div class="mu-filter-item-content">

<h4 class="mu-filter-item-title">WEB DEVELOPMENT</h4>

<a class="mu-filter-link" href="#"><i class="fa fa-link"></i></a>

<a class="mu-filter-imglink" href="assets/images/portfolio/img-1.jpeg" title="Web Development"><i class="fa fa-search"></i></a>

</div>

</div>

<div class="col-xs-6 col-sm-4 col-md-4 filtr-item" data-category="2">

<div class="mu-item-thumbonail">

<img class="img-responsive" src="assets/images/portfolio/img-2.jpeg" alt="image">

</div>

<div class="mu-filter-item-content">

<h4 class="mu-filter-item-title">UI/UX DESIGN</h4>

<a class="mu-filter-link" href="#"><i class="fa fa-link"></i></a>

<a class="mu-filter-imglink" href="assets/images/portfolio/img-2.jpeg" title="UI/UX DESIGN"><i class="fa fa-search"></i></a>

</div>

</div>

<div class="col-xs-6 col-sm-4 col-md-4 filtr-item" data-category="3">

<div class="mu-item-thumbonail">

<img class="img-responsive" src="assets/images/portfolio/img-3.jpeg" alt="image">

</div>

<div class="mu-filter-item-content">

<h4 class="mu-filter-item-title">GRAPHICS DESIGN</h4>

<a class="mu-filter-link" href="#"><i class="fa fa-link"></i></a>

<a class="mu-filter-imglink" href="assets/images/portfolio/img-3.jpeg" title="GRAPHICS DESIGN"><i class="fa fa-search"></i></a>

</div>

</div>

<div class="col-xs-6 col-sm-4 col-md-4 filtr-item" data-category="4">

<div class="mu-item-thumbonail">

<img class="img-responsive" src="assets/images/portfolio/img-4.jpeg" alt="image">

</div>

<div class="mu-filter-item-content">

<h4 class="mu-filter-item-title">MOBILE APP</h4>

<a class="mu-filter-link" href="#"><i class="fa fa-link"></i></a>

<a class="mu-filter-imglink" href="assets/images/portfolio/img-4.jpeg" title="MOBILE APP"><i class="fa fa-search"></i></a>

</div>

</div>

<div class="col-xs-6 col-sm-4 col-md-4 filtr-item" data-category="5">

<div class="mu-item-thumbonail">

<img class="img-responsive" src="assets/images/portfolio/img-5.jpeg" alt="image">

</div>

<div class="mu-filter-item-content">

<h4 class="mu-filter-item-title">BRANDING</h4>

<a class="mu-filter-link" href="#"><i class="fa fa-link"></i></a>

<a class="mu-filter-imglink" href="assets/images/portfolio/img-5.jpeg" title="BRANDING"><i class="fa fa-search"></i></a>

</div>

</div>

<div class="col-xs-6 col-sm-4 col-md-4 filtr-item" data-category="6">

<div class="mu-item-thumbonail">

<img class="img-responsive" src="assets/images/portfolio/img-6.jpeg" alt="image">

</div>

<div class="mu-filter-item-content">

<h4 class="mu-filter-item-title">MARKETING</h4>

<a class="mu-filter-link" href="#"><i class="fa fa-link"></i></a>

<a class="mu-filter-imglink" href="assets/images/portfolio/img-6.jpeg" title="MARKETING"><i class="fa fa-search"></i></a>

</div>

</div>

<div class="col-xs-6 col-sm-4 col-md-4 filtr-item" data-category="1">

<div class="mu-item-thumbonail">

<img class="img-responsive" src="assets/images/portfolio/img-7.jpg" alt="image">

</div>

<div class="mu-filter-item-content">

<h4 class="mu-filter-item-title">WEB DEVELOPMENT</h4>

<a class="mu-filter-link" href="#"><i class="fa fa-link"></i></a>

<a class="mu-filter-imglink" href="assets/images/portfolio/img-7.jpg" title="WEB DEVELOPMENT"><i class="fa fa-search"></i></a>

</div>

</div>

<div class="col-xs-6 col-sm-4 col-md-4 filtr-item" data-category="4">

<div class="mu-item-thumbonail">

<img class="img-responsive" src="assets/images/portfolio/img-8.jpeg" alt="image">

</div>

<div class="mu-filter-item-content">

<h4 class="mu-filter-item-title">MOBILE APP</h4>

<a class="mu-filter-link" href="#"><i class="fa fa-link"></i></a>

<a class="mu-filter-imglink" href="assets/images/portfolio/img-8.jpeg" title="MOBILE APP"><i class="fa fa-search"></i></a>

</div>

</div>

<div class="col-xs-6 col-sm-4 col-md-4 filtr-item" data-category="3">

<div class="mu-item-thumbonail">

<img class="img-responsive" src="assets/images/portfolio/img-9.jpeg" alt="image">

</div>

<div class="mu-filter-item-content">

<h4 class="mu-filter-item-title">GRAPHICS DESIGN</h4>

<a class="mu-filter-link" href="#"><i class="fa fa-link"></i></a>

<a class="mu-filter-imglink" href="assets/images/portfolio/img-9.jpeg" title="GRAPHICS DESIGN"><i class="fa fa-search"></i></a>

</div>

</div>

</div>

</div>

</div>

</div>

</div>

</div>

</section>

<section id="mu-testimonials">

<div class="container">

<div class="row">

<div class="col-md-12">

<div class="mu-testimonials-area">

<div class="mu-testimonial-header">

<h2 class="mu-heading-title">Client Testimonials</h2>

<span class="mu-header-dot"></span>

</div>

<div class="mu-testimonials-block">

<ul class="mu-testimonial-slide">

<li>

<i class="fa fa-quote-right mu-quote-icon"></i>

<p>Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever.</p>

<h5 class="mu-ct-name"> - Jhon Doe</h5>

<span class="mu-ct-title">CEO, Apple Inc.</span>

</li>

<li>

<i class="fa fa-quote-right mu-quote-icon"></i>

<p>Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever.</p>

<h5 class="mu-ct-name"> - Alice Boga</h5>

<span class="mu-ct-title">Director, Google Inc.</span>

</li>

<li>

<i class="fa fa-quote-right mu-quote-icon"></i>

<p>Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever.</p>

<h5 class="mu-ct-name"> - Jhon Smith</h5>

<span class="mu-ct-title">Web Developer</span>

</li>

</ul>

</div>

</div>

</div>

</div>

</div>

</section>

<section id="mu-contact">

<div class="container">

<div class="row">

<div class="col-md-12">

<div class="mu-contact-area">

<div class="mu-contact-header">

<h2 class="mu-heading-title">CONTACT ME</h2>

<span class="mu-header-dot"></span>

<p>Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever</p>

</div>

<div class="mu-contact-content">

<div class="row">

<div class="col-md-12">

<div class="mu-contact-top">

<div class="row">

<div class="col-sm-4">

<div class="mu-contact-top-single">

<div class="mu-icon"><i class="fa fa-map-marker"></i></div>

<p>Dooley Branch Rd Millen, GA 30442, USA</p>

</div>

</div>

<div class="col-sm-4">

<div class="mu-contact-top-single">

<div class="mu-icon"><i class="fa fa-phone"></i></div>

<p>+90 987 678 9834</p>

<p>+90 567 098 785</p>

</div>

</div>

<div class="col-sm-4">

<div class="mu-contact-top-single">

<div class="mu-icon"><i class="fa fa-envelope"></i></div>

<p>contact@domain.com</p>

<p>support@domain.com</p>

</div>

</div>

</div>

</div>

</div>

<div class="col-md-12">

<div class="mu-contact-bottom">

<div id="form-messages"></div>

<form id="ajax-contact" method="post" action="mailer.php" class="mu-contact-form">

<div class="form-group">

<input type="text" class="form-control" placeholder="Name" id="name" name="name" required>

</div>

<div class="form-group">

<input type="email" class="form-control" placeholder="Enter Email" id="email" name="email" required>

</div>

<div class="form-group">

<textarea class="form-control" placeholder="Message" id="message" name="message" required></textarea>

</div>

<button type="submit" class="mu-send-msg-btn"><span>SUBMIT</span></button>

</form>

</div>

</div>

</div>

</div>

</div>

</div>

</div>

</div>

</section>

</main>-->

<footer id="mu-footer" role="contentinfo">

<div class="container">

<div class="mu-footer-area">

<p class="mu-copy-right">&copy; Copyright <a rel="nofollow" href="http://markups.io">Sagar Marri</a>. All right reserved.</p>

</div>

</div>

</footer>

<!-- End footer -->

<!-- jQuery library -->

<script src="https://ajax.googleapis.com/ajax/libs/jquery/1.11.3/jquery.min.js"></script>

<!-- Include all compiled plugins (below), or include individual files as needed -->

<!-- Bootstrap -->

<script src="{% static 'js/bootstrap.min.js'%}"></script>

<!-- Slick slider -->

<script type="text/javascript" src="{% static 'js/slick.min.js' %}"></script>

<!-- Filterable Gallery js -->

<script type="text/javascript" src="{% static 'js/jquery.filterizr.min.js' %}"></script>

<!-- Gallery Lightbox -->

<script type="text/javascript" src="{% static 'js/jquery.magnific-popup.min.js' %}"></script>

<!-- Ajax contact form -->

<script type="text/javascript" src="{% static 'js/app.js' %}"></script>

<!-- Featured Slider -->

<script type="text/javascript" src="{% static 'js/typed.min.js' %}"></script>

<!-- On scroll JS -->

<script src="{% static 'js/jquery.appear.js' %}"></script>

<!-- Progress Bar -->

<script type="text/javascript" src="{% static 'js/jquery.lineProgressbar.js' %}"></script>

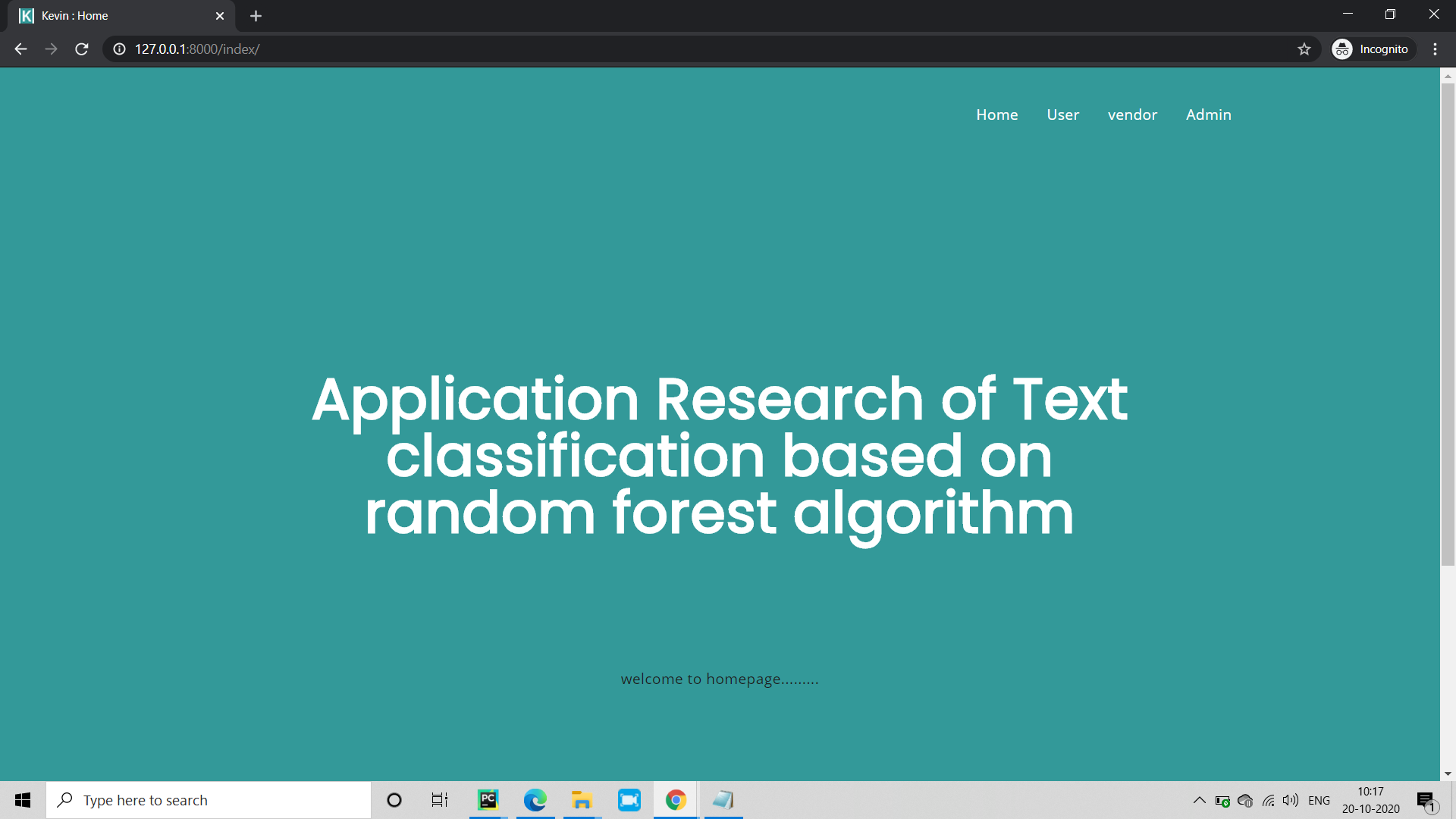
<!-- Custom js -->

<script type="text/javascript" src="{% static 'js/custom.js' %}"></script>

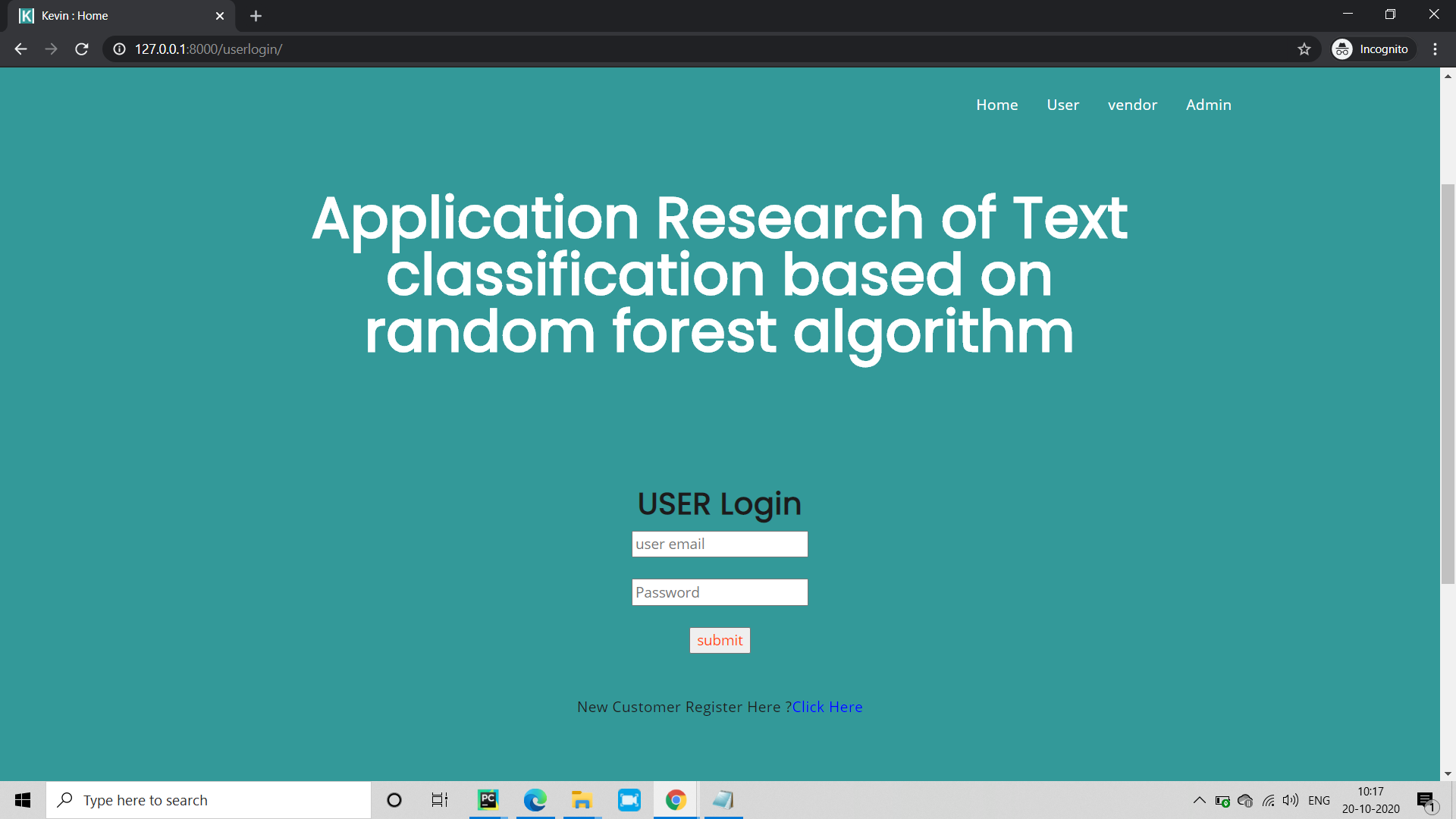
</body>

</html>

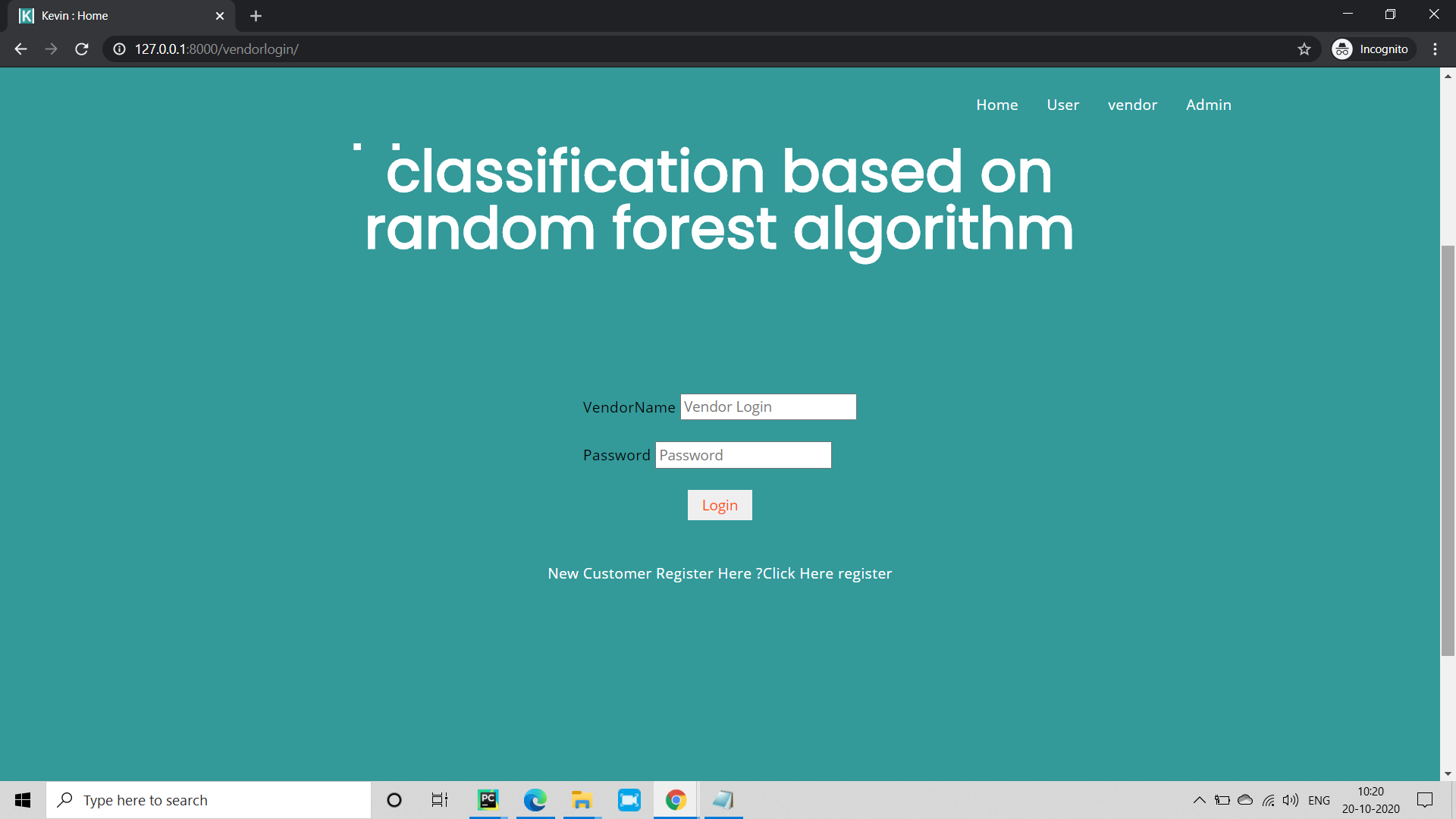
**Output Screens:**



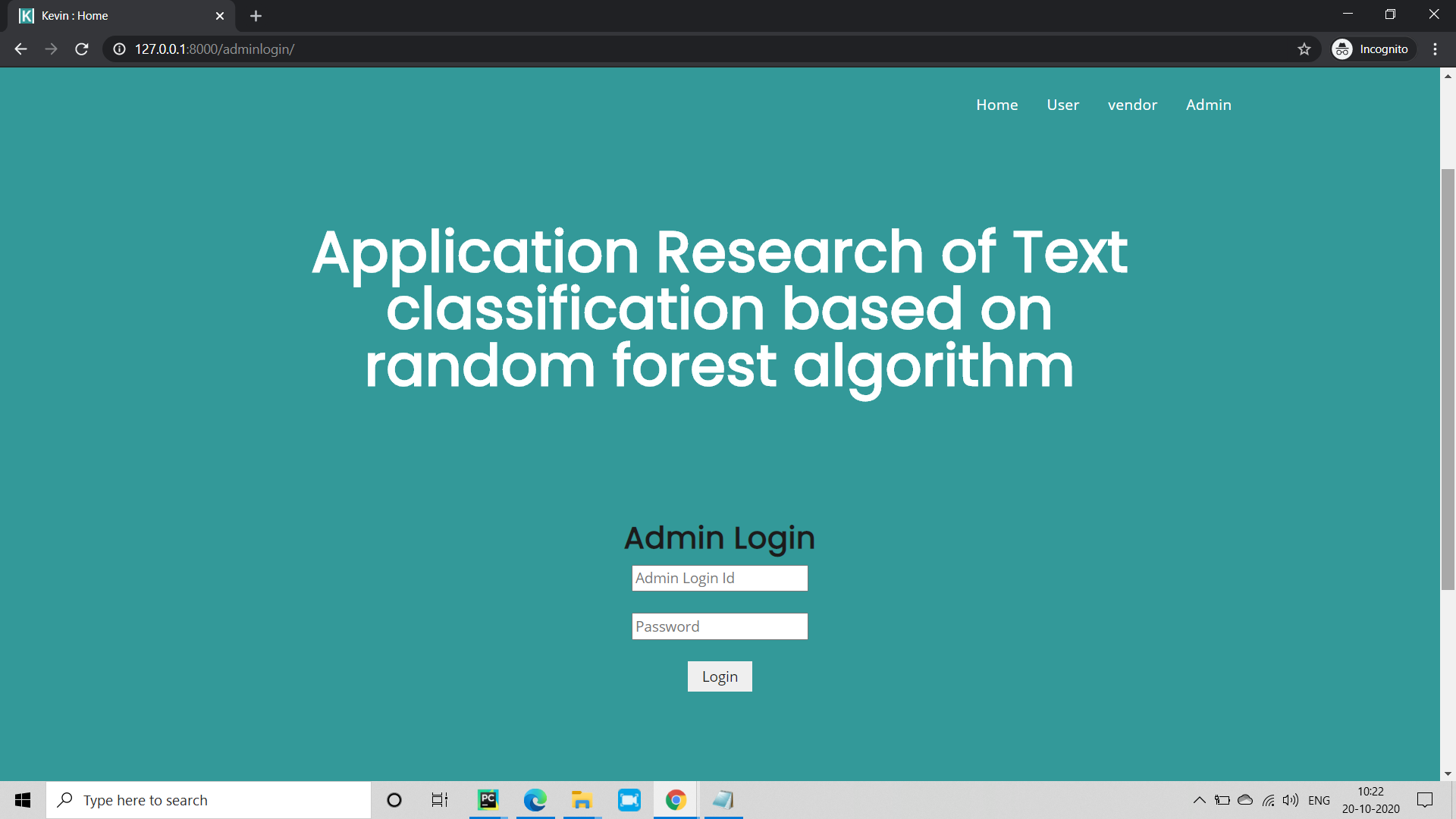
**User login:**

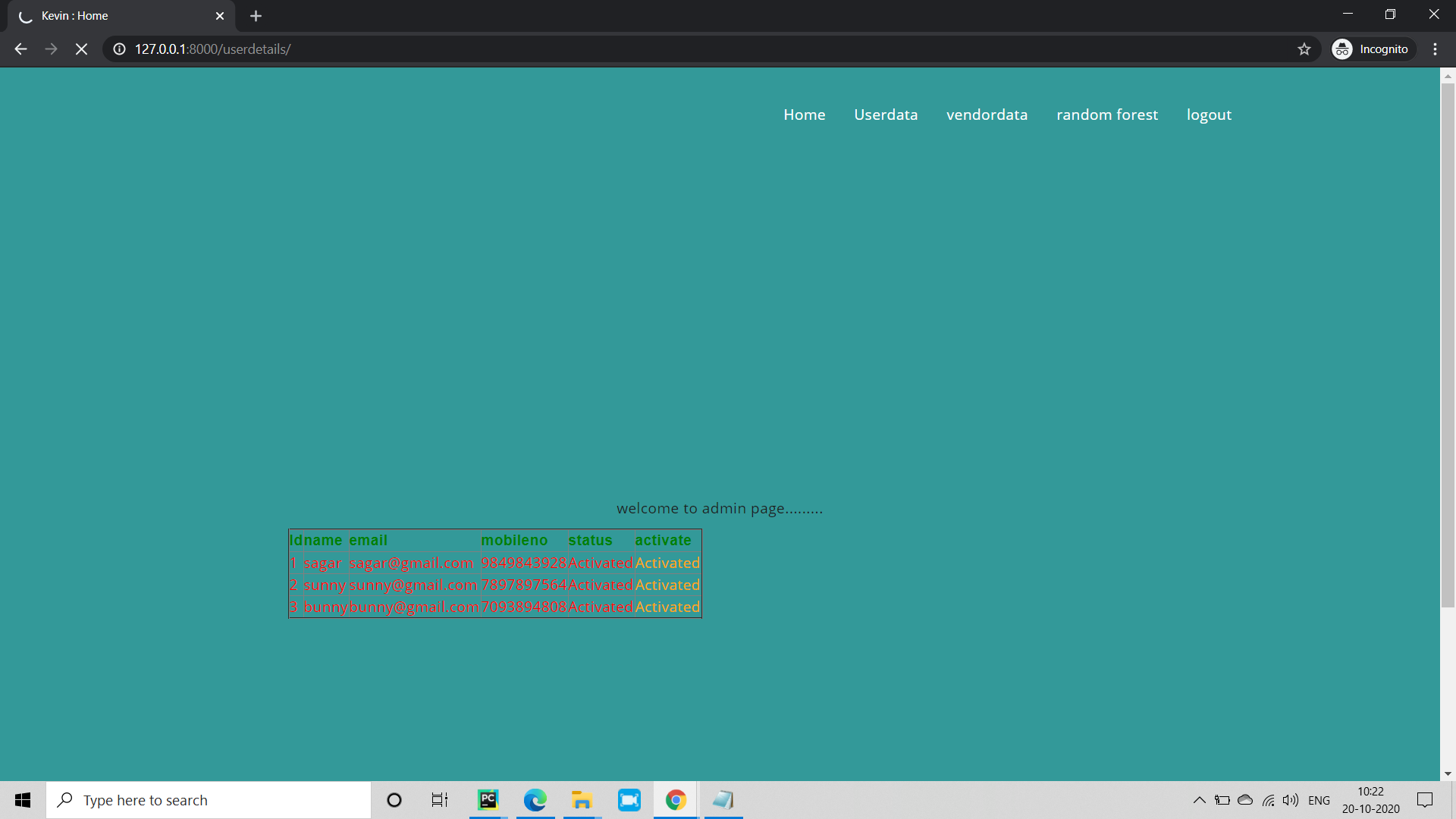


**vendor login:**

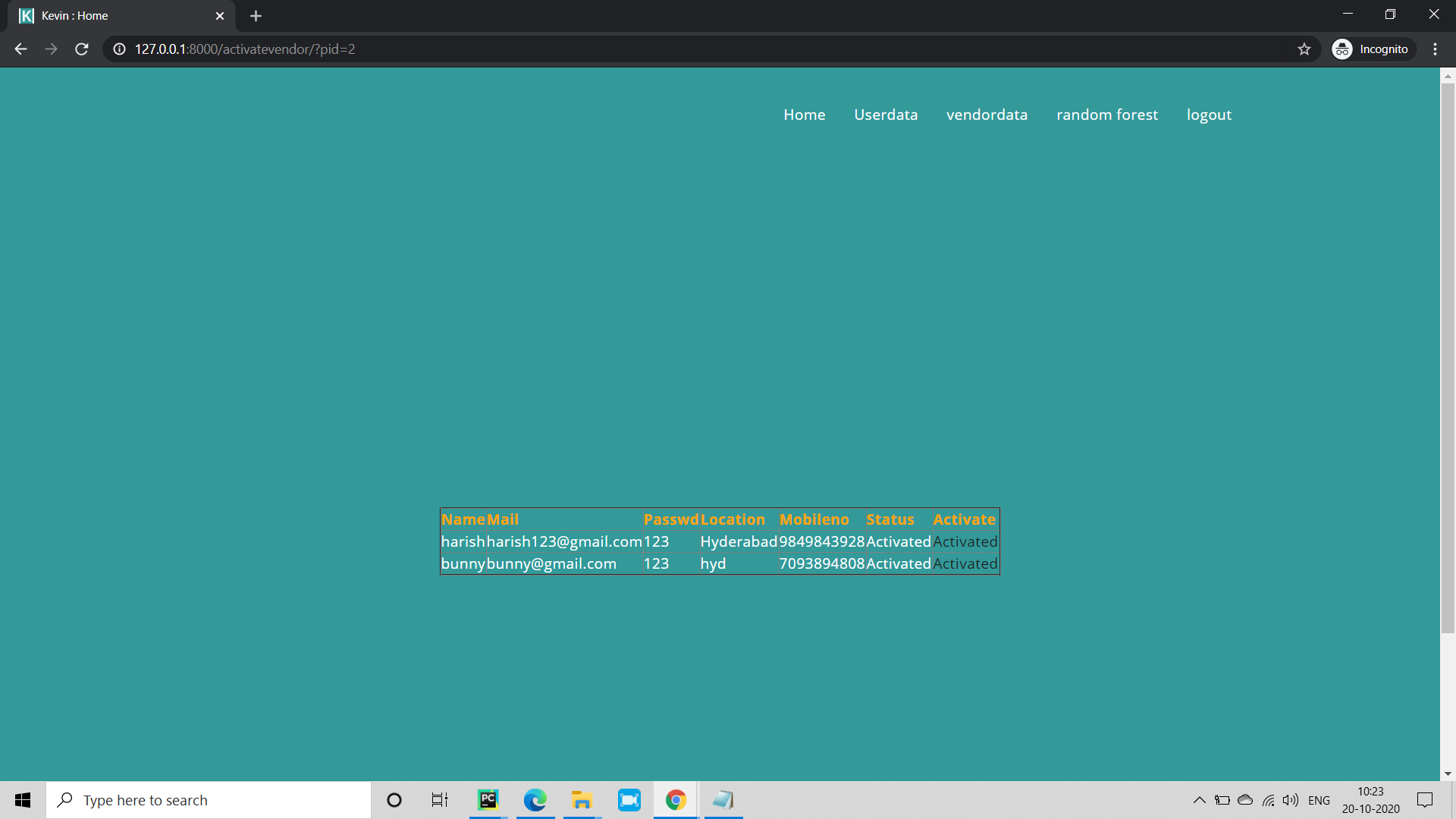


**Admin login:**

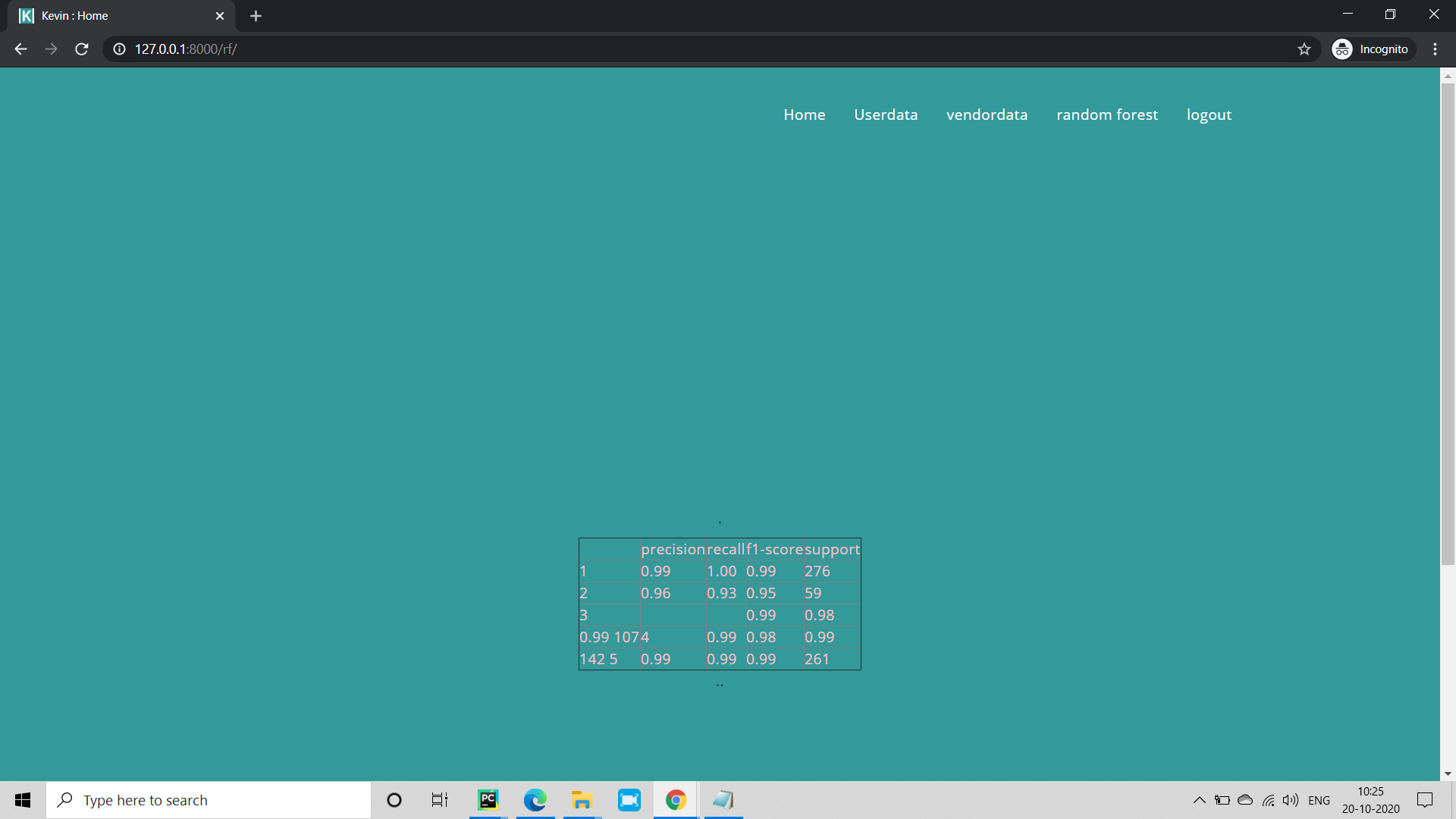




**Admin approve user:**



**random forest:**



1. **SYSTEM TESTING:**

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

**Types of Tests:**

**1)Unit Testing:**

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application .it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

**2)Integration testing:**

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

**3)Functional testing:**

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted.

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised.

Systems/Procedures : interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

**4)System Test:**

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points

**5)White Box Testing:**

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

**6)Black Box Testing:**

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot “see” into it. The test provides inputs and responds to outputs without considering how the software works.

**7)Unit Testing:**

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases.

**Test strategy and approach**

Field testing will be performed manually and functional tests will be written in detail.

**Test objectives**

* All field entries must work properly.
* Pages must be activated from the identified link.
* The entry screen, messages and responses must not be delayed.

**Features to be tested:**

* Verify that the entries are of the correct format
* No duplicate entries should be allowed
* All links should take the user to the correct page.

# Integration Testing:

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

**7)Acceptance Testing:**

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

**Test Results:** All the test cases mentioned above passed successfully. No defects encountered.

**8.CONCLUSION:**

In this paper, the input text data set of a random forest algorithm is processed to improve the classification effect. At the same time, we use the Bert word vector model to improve the quality of text representation, and then improve the classification accuracy of the final random forest. Experiments show that the model can effectively improve the classification accuracy and F1 value.

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