Giving Wings to Thoughts
ESTD : 2007

St. PETER'S
ENGINEERING COLLEGE
UGC - AUTONOMOUS

Affiliated to JNTUH, Approved by AICTE, Accredited by NAAC with "A" Grade, NBA Programe Accredited (EEE, CSE, ECE)

A NAAC

A MINI PROJECT REPORT
ON
MINISTRY OF HOUSING AND URBAN AFFAIRS(MOHUA)

Submitted in the partial fulfilment of the requirements for the award of

BACHELOR
OF
INFORMATION TECHNOLOGY

SUBMITTED BY

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Under the guidance of
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(M.Tech)
Assistant Professor
DEPARTMENT OF CSE&IT

Giving Wings To Thoughts

DEPARTMENT OF INFORMATION TECHNOLOGY

St. Peter's Engineering College (UGC Autonomous)

Approved by AICTE, New Delhi, Accredited by NBA and NAAC with 'A' Grade,

Affiliated to JNTU, Hyderabad, Telangana

2021-2025

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DEPARTMENT OF INFORMATION TECHNOLOGY

CERTIFICATE

This is to certify that a Mini Project entitled **"MINISTRY OF HOUSING AND URBAN AFFAIRS"** is carried out by **GANGA SRIJA (21BK1A1241), G. KISHORE (21BK1A1237), DHARPALLY NAVEEN (21BK1A1231),** in partial fulfilment for the award of the degree of **Bachelor of Technology in INFORMATION TECHNOLOGY** is a record of Bonafide work done by her/him under my supervision during the academic year 2024–2025.

INTERNAL GUIDE
Mrs. T.MANASA
M.Tech
Assistant Professor
Department of CSE
St. Peter's Engineering College
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DEPARTMENT OF INFORMATION TECHNOLOGY

ACKNOWLEDGEMENT

We sincerely express our deep sense of gratitude to **Mrs.T. MANASA,** for his valuable guidance, encouragement and cooperation during all phases of the project.

We are greatly indebted to our Project Coordinator **Mr.A.SENTHIL MURUGAN** for providing valuable advice, constructive suggestions and encouragement without whom it would not been possible to complete this project.

It is a great opportunity to render our sincere thanks to Head of the Department , Computer Science and Engineering for her timely guidance and highly interactive attitude which helped us a lot in successful execution of the Project.

We are extremely thankful to our Principal **Dr.K.SREE LATHA,** who stood as an inspiration behind this project and heartfelt for her endorsement and valuable suggestions.

We respect and thank our secretary **Sri.T.V.REDDY,** for providing us an opportunity to do the project work at **St. PETERS ENGINEERING COLLEGE** and we are extremely thankful to him for providing such a nice support and guidance which made us to complete the project.

We also acknowledge with a deep sense of reverence, our gratitude towards our parents, who have always supported us morally as well as economically. We also express gratitude to all our friends who have directly or indirectly helped us to complete this project work. We hope that we can build upon the experience and knowledge that we have gained and make a valuable contribution towards the growth of the society in coming future.

GANGA SRIJA (21BK1A1241)

G. KISHORE (21BK1A1237)

DHARPALLY NAVEEN (21BK1A1231)

INSTITUTE VISION

To be a renowned Educational Institution that moulds Students into Skilled Professionals fostering Technological Development, Research, and Entrepreneurship meeting societal needs.

INSTITUTE MISSION

IM1: Making students knowledgeable in the field of core and applied areas of Engineering to innovate Technological solutions to the problems in the Society.

IM2: Training the Students to impart the skills in cutting edge technologies, with the help of relevant stakeholder.

IM3: Fostering a conducive ambiance that inculcates research attitude, identifying promising fields for entrepreneurship with ethical, moral, and social responsibilities.

DEPARTMENT OF INFORMATION TECHNOLOGY

DEPARTMENT VISION

To be a vibrant nodal center for Computer Science Engineering Education, Research that make the students to contribute to technologies for IT, IT-Enabled Services; to involve in innovative research on thrust areas of industry and academia; to establish start-ups supporting major players in the industry.

DEPARTMENT MISSION

DM1: Emphasize project-based learning by employing the state-of art technologies, algorithms in software development for the problems in inter-disciplinary avenues.

DM2: Involve stakeholders to make the students industry ready with training in skill-oriented computer application software.

DM3: Facilitate to learn the theoretical nuances of Computer Science, Computer Engineering courses and motivate to carry out research in both core and applied areas of CSE.

PROGRAM EDUCATIONAL OBJECTIVES(PEOs)

PEO1: Graduates shall involve in research & development activities in industry and government areas to conceive useful products for the society.

PEO2: Graduates shall be entrepreneurs contributing to national development in the fields of Computer Science based technologies.

PEO3: Graduates shall be team leaders working for software development, maintenance in the fields of software industry and government agencies.

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:

1: ENGINEERING KNOWLEDGE: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2: PROBLEM ANALYSIS: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using the first principles of mathematics, natural sciences, and engineering sciences.

3: DESIGN/DEVELOPMENT OF SOLUTIONS: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and the cultural, societal, and environmental considerations.

4: CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS: Use research-based knowledge and research methods including design of experiments, analysis, interpretation of data, and synthesis of the information to provide valid conclusions.

5: MODERN TOOL USAGE: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6: THE ENGINEER AND SOCIETY: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues, and the consequent responsibilities relevant to the professional engineering practice.

7: ENVIRONMENT AND SUSTAINABILITY: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8: ETHICS: Apply ethical principles and commit to professional ethics and, responsibilities and norms of the engineering practice.

9: INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams, and multidisciplinary settings.

10: COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and draft effective reports and design documentation, make an effective presentation, give, and receive clear instructions.

11: PROJECT MANAGEMENT AND FINANCE: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's work, as a member and leader in a team, to manage projects and in a multidisciplinary environment.

DEPARTMENT OF INFORMATION TECHNOLOGY

PROGRAM SPECIFIC OUTCOMES(PSO'S)

PSO1

Design and develop computing subsystems for data storage, communication, information processing, and knowledge discovery.

PSO2

Design algorithms for real world problems focusing on execution, complexity analysis considering the security, cost, quality, and privacy parameters in software development.

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DECLARATION

We declare that a Mini Project entitled **"Ministry of Housing And Urban Affairs"** is an Original Work submitted by the following group members who have actively contributed and submitted in partial fulfillment for the award of degree in **"Bachelor of Information Technology"**, at **St. Peter's Engineering College**, Hyderabad, and this project work has not been submitted by me to any other college or university for the award of any kind of degree.

Group No: 10

Program: B. Tech

Branch: Information Technology

Mini Project Title: Ministry of Housing and Urban Affairs

Date Submitted:

Name	Roll Number	Signature
GANGA SRIJA	**21BK1A1241**	G. Srija
G KISHORE	**21BK1A1237**	G. Kishore
DHARPALLY NAVEEN	**21BK1A1231**	D. Naveen

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ABSTRACT

The Smart Cities Mission, launched by the Ministry of Housing and Urban Affairs (MoHUA) of India, aims to drive economic growth and improve the quality of life of people by enabling local area development and harnessing technology to create smart outcomes for citizens. The mission covers 100 cities, selected through a competitive process, with the objective of promotingsustainable and inclusive cities that provide core infrastructure and give a decent quality of life toits citizens, a clean and sustainable environment, and the application of ‘Smart’ Solutions.

This project aims to develop a Chatbot-based complaint management system for the Ministry of Housing and Urban Affairs (MoHUA) in India. The system allows users to securely log in using OTP authentication and submit complaints in multiple languages (English, Telugu, Hindi) via audio files or text. Users can track the status of their complaints and delete them if desired. Admins, using a default username and password ('admin'/'admin'), can view pending complaints and update their statuses upon resolution.

LIST OF FIGURES

CHAPTER-1

INTRODUCTION

The Ministry of Housing and Urban Affairs (MoHUA) is a pivotal entity within the Government of India, tasked with formulating and executing policies related to housing and urban development. It plays a crucial role in addressing the challenges posed by rapid urbanization, focusing on creating sustainable and inclusive urban environments. The ministry's initiatives include promoting affordable housing through schemes like Pradhan Mantri Awas Yojana (PMAY), enhancing urban infrastructure via the Smart Cities Mission and the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), and ensuring cleanliness and sanitation through the Swachh Bharat Mission (Urban). By leveraging technology, fostering collaborative governance, and emphasizing sustainable practices, MoHUA aims to improve the quality of life for urban residents, making cities more livable, resilient, and smart. The Ministry of Housing and Urban Affairs is at the forefront of India’s efforts to transform its urban landscape, addressing the challenges of rapid urbanization through innovative and inclusive solutions. By fostering sustainable development, enhancing urban infrastructure, and ensuring affordable housing, MoHUA aims to create livable, resilient, and smart urban spaces that improve the quality of life for all citizens. The Ministry of Housing and Urban Affairs (MoHUA) plays a critical role in addressing urban development challenges in India. Rapid urbanization necessitates efficient complaint management systems to ensure timely resolution of citizen grievances. This project proposes a Chatbot-based approach to enhance the transparency and effectiveness of complaint handling within MoHUA. By integrating modern technologies and multilingual support, the system aims to streamline the process of lodging.

CHAPTER -2

LITERATURE SURVEY

Author: Tathagata Chatterji

Title: "Smart Cities in India: Urban Laboratory, Paradigm or Trajectory?"

Description: This book explores the Smart Cities Mission in India, analyzing its conceptual framework, implementation strategies, and the challenges faced. It discusses how the mission aims to leverage technology to improve urban infrastructure and governance, positioning India on a new urban trajectory.

Author: Isher Judge Ahluwalia, Ravi Kanbur, and P. K. Mohanty (Editors)

Title: "Urbanization in India: Challenges, Opportunities and the Way Forward"

Description: This edited volume examines the multifaceted challenges and opportunities associated with India's rapid urbanization. It includes discussions on housing, infrastructure development, and policy frameworks designed to support sustainable urban growth, with insights into initiatives like PMAY and AMRUT.

Author: Bimal Patel, Amita Bhide, and Himanshu Burte

Title: "Urban Planning in India"

Description: This book provides an in-depth analysis of urban planning practices in India, highlighting the role of MoHUA in shaping policies and strategies for urban development. It covers key programs and reforms, including the development of smart cities and affordable housing schemes.

Author: Ministry of Housing and Urban Affairs, Government of India

Title: "Pradhan Mantri Awas Yojana - Housing for All (Urban): Mission Document"

Description: This official document outlines the objectives, strategies, and implementation framework of the Pradhan Mantri Awas Yojana (PMAY). It details the steps taken to provide affordable housing to the urban poor and the progress made since the launch of the scheme.

Author: Ravikesh Srivastava and Tanu Priya Uteng

Title: "Urban Transport in India: Issues, Challenges, and the Way Forward"

Description: This book delves into the urban transport challenges faced by Indian cities and the role of MoHUA in addressing these issues. It discusses various initiatives, such as metro rail projects and smart transport solutions, aimed at improving urban mobility and reducing congestion

CHAPTER-3

METHODOLOGY

1. Strategic Planning

a. Vision and Mission Setting

Defining Objectives: Establishing long-term goals and strategic objectives for urban development and housing.

Policy Framework: Creating a coherent policy framework that aligns with national priorities and sustainable development goals.

b. Data Collection and Research

Urban Data Analysis: Collecting and analyzing data on urbanization trends, housing deficits, infrastructure needs, and demographic changes.

Research Studies: Conducting studies on best practices, innovative solutions, and global benchmarks to inform policy decisions.

2. Program Development

a. Policy Formulation

Drafting Policies: Formulating detailed policies based on research, stakeholder consultations, and national priorities.

Regulatory Framework: Establishing guidelines and regulations to implement policies effectively.

b. Stakeholder Engagement

Consultations: Engaging with state governments, urban local bodies, private sector players, and civil society organizations.

Public Feedback: Incorporating feedback from citizens and stakeholders through public consultations and forums.

3. Implementation

a. Project Planning

Framework Design: Designing implementation frameworks that outline roles, responsibilities, and processes.

Resource Allocation: Planning and allocating financial, human, and technical resources for various projects and schemes.

b. Coordination and Execution

State and Local Coordination: Collaborating with state governments and municipal authorities to ensure project alignment and execution.

Monitoring Mechanisms: Setting up mechanisms to track project progress, address challenges, and ensure adherence to timelines.

4. Monitoring and Evaluation

a. Performance Monitoring

Key Performance Indicators (KPIs): Defining KPIs to measure the effectiveness and impactof policies and projects.

Progress Tracking: Regularly tracking progress through reports, audits, and field visits.

b. Evaluation

Impact Assessment: Evaluating the outcomes of projects to assess their impact on urban development and housing.

Feedback and Adjustments: Gathering feedback from beneficiaries and stakeholders to make necessary adjustments and improve

CHAPTER-4

SYSTEM ANALYSIS

EXISTING SYSTEM

Researchers have been studying about many approaches for detection of these fake, online Some approaches are review content based and some are based on behavior of the user whois posting reviews. Content based study focuses on what is written on the review that is the textof the review where user behavior-based method focuses on country, ip-address, number of posts of the reviewer etc. Most of the proposed approaches are supervised classification models. Few researchers, also have worked with semi-supervised models. Semi-supervised methods are being introduced for lack of reliable labeling of the reviews**.**

PROPOSED SYSTEM

We have implemented both semi-supervised and supervised classifications. For semi-supervised classification of the data set, we have used Expectation-Maximization (EM) algorithm. The Expectation Maximization algorithm, first proposed by Karimpour et al., is designed to label unlabeled data to be used for training. The algorithm operates as follows: A classifier is first derived from the labeled dataset. This classifier is then used to label the unlabeled dataset. The algorithm is given below.

As classifier, we have used Support Vector machines (SVM) and Naive Bayes (NB) classifier with EM algorithm. Scikit Learn package of Python programming language provides sophisticated library of these classifiers. Hence for our research work, we have used Python with scikit-learn and NumPy packages. We have tuned the parameters of the SVM for better results. For supervised classification, we have used Naive Bayes and SVM classifiers. We know, Naive Bayes classifier can be implemented where conditional independence property is maintained. As, text comes randomly from user mind, we can’t know what the next line and word is going to be. Hence, Naive Bayes classifier is popularly used in text mining. It is probabilistic method hence it can be used both for classification and regression. It is also very fast to calculate.

CHAPTER-5

SYSTEM DESIGN

UML DIAGRAMS

UML stands for Unified Modeling Language. UML is a standardized general-purpose modeling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group. The goal is for UML to become a common language for creating models of object-oriented computer software. In its current form UML is comprised of two major components: a

GOALS:

The Primary goals in the design of the UML are as follows:

Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.

Provide extendibility and specialization mechanisms to extend the core concepts.

USECASE:

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.

CLASS DIAGRAM:

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. It explains which class contains information.

SEQUENCE DIAGRAM:

A sequence diagram in Unified Modeling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams.

ACTIVITY DIAGRAM:

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity

UML DIAGRAMS

Fig-5.1: CLASS DIAGRAM

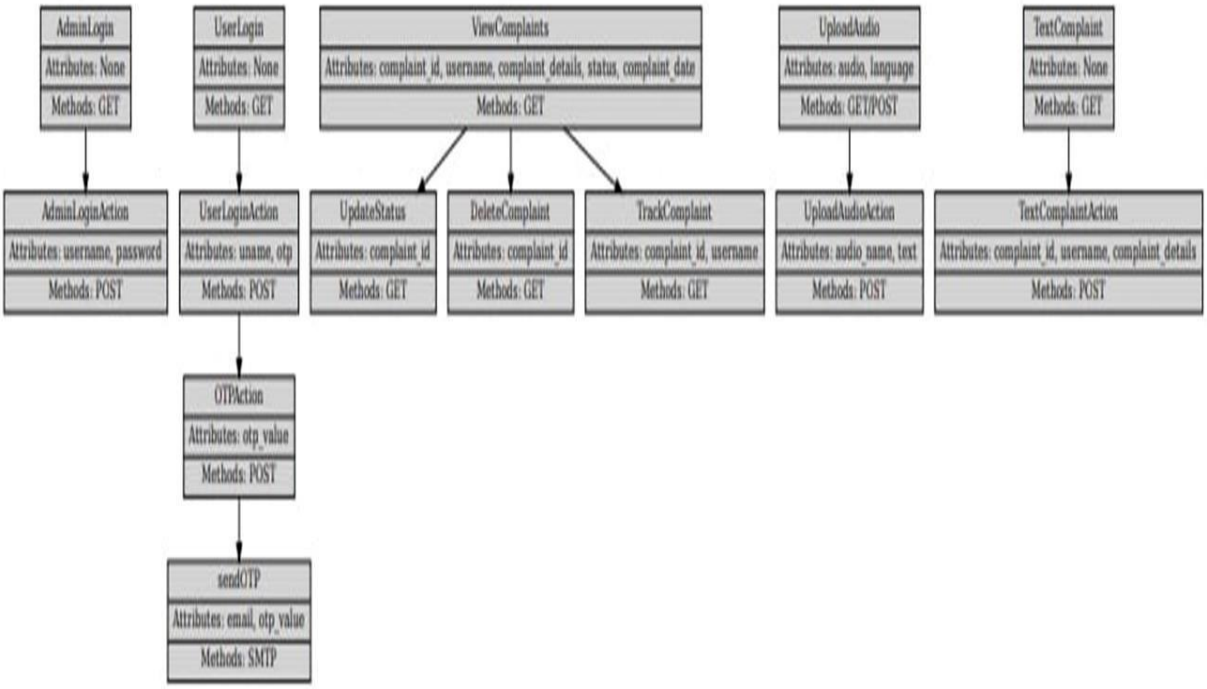


Fig-5.2: USE CASE DIAGRAM

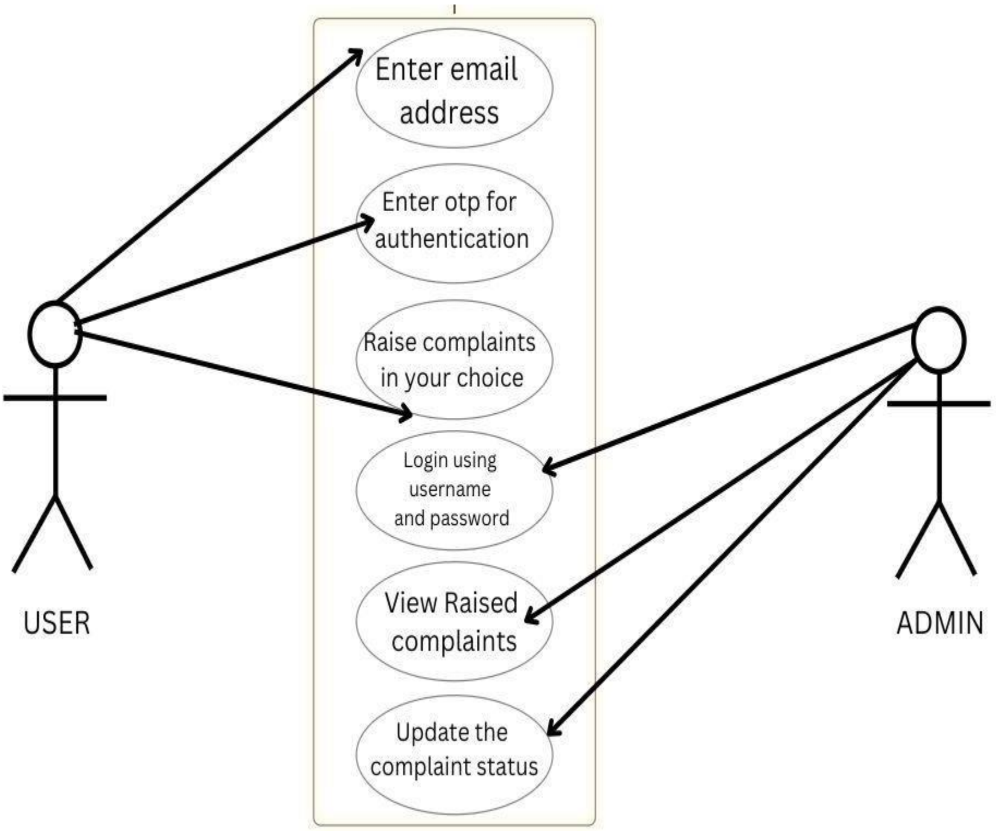
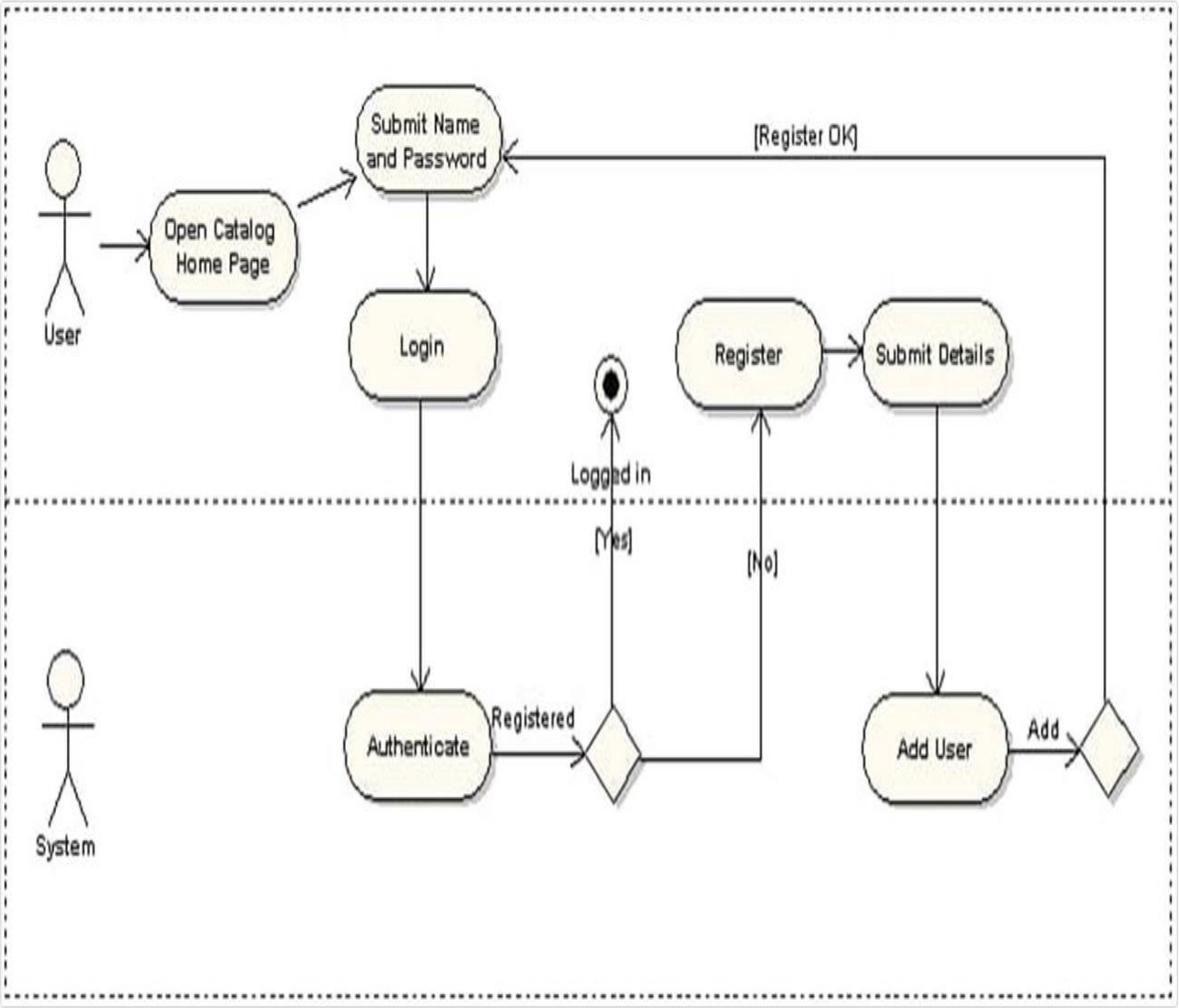

Enter email address
Enter otp for authentication
Raise complaints in your choice
Login using username and password
View Raised complaints
Update the complaint status
USER
ADMIN

Fig-5.3: ACTIVITY DIAGRAM



CHAPTER-6

SYSTEM ARCHITECTURE

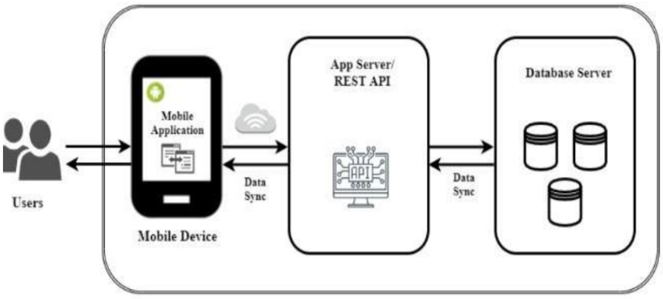


Fig- 6:1

MODULES:

TensorFlow: TensorFlow is a free and open-source software library for dataflow and differentiable programming across a range of tasks. It is a symbolic math library, and is also used for machine learning applications such as neural networks. It is used for both research and production at Google.

NumPy: NumPy is a general-purpose array-processing package. It provides a high-performance multidimensional array object, and tools for working with these arrays.It is the fundamental package for scientific computing with Python. It contains various features including these important ones.

Pandas: Pandas is an open-source Python Library providing high-performance data manipulation and analysis tool using its powerful data structures. Python was majorly used for data munging and preparation. It had very little contribution towards data analysis. Pandas solved this problem. Using Pandas, we can accomplish five typical steps in the processing and analysis of data, regardless of the origin of data load, prepare, manipulate, model, and analyze.

Scikit – learn: Scikit-learn provides a range of supervised and unsupervised learning algorithms via a consistent interface in Python. It is licensed under a permissive simplified BSD license and is distributed under many Linux distributions, encouraging academic and commercial use.

Matplotlib: Matplotlib is a Python 2D plotting library which produces publication quality figures in a variety of hardcopy formats and interactive environments across platforms. Matplotlib can be used in Python scripts, the Python and IPython shells and Jupiter Notebook.

ALGORITHMS

Random Forest

Random Forest is an ensemble learning method used for classification and regression tasks. It builds multiple decision trees during training and merges their outputs to improve predictive accuracy and control over-fitting. Each tree is trained on a random subset of the data with replacement (bootstrap sampling), and at each split in the tree, a random subset of features is considered. This approach helps to reduce variance and enhance the robustness of the model, making it effective for various data types and distributions. The final prediction is typically made by averaging the predictions of the individual trees (for regression) or by majority vote (for classification).

SVM Algorithm:

Machine learning involves predicting and classifying data and to do so we employ various machine learning algorithms according to the dataset. SVM or Support Vector Machine is a linear model for classification and regression problems. It can solve linear and non-linear problems and work well for many practical problems. The idea of SVM is simple: The algorithm creates a line or a hyperplane which separates the data into classes. In machine learning, the radial basis function kernel, or RBF kernel, is a popular kernel function used in various kernelized learning algorithms

Naive Bayes:

Naïve Bayes algorithm is a supervised learning algorithm, which is based on Bayes theorem and used for solving classification problem.Naïve Bayes Classifier is one of the simple and most effective Classification algorithms which helps in building the fast machine learning models that can make quick predictions.

CHAPTER-7

IMPLEMENTATION

STEP1: IMPORTING LIBRARIES:

```
pip install numpy==1.19.2
pip install pandas==0.25.3
pip install Django==2.1.7
pip install PyMySQL==0.9.3
pip install scikit-learn==1.0.2
pip install matplotlib==3.1.1
```

STEP2: CREATING DATA BASE

```
create database complaint;
use complaint;
create table user_complaint(complaint_id int,
username varchar(50),
complaint_details varchar(1000),
status varchar(50),
complaint_date varchar(65));
```

STEP3:VIEWS.PY(CODE):

```
from django.shortcuts import render
from django.template import RequestContext
from django.contrib import messages
from django.http import HttpResponse
import os
import pymysql
import os
from django.core.files.storage import FileSystemStorage
from datetime import date
import numpy as np
import smtplib
import random
import speech_recognition as sr
global uname, ot
```

```
    recognizer = sr.Recognizer()
    def AdminLogin(request):
    if request.method == 'GET':
           return render(request, 'AdminLogin.html', {})
    def UserLogin(request):
    if request.method == 'GET':
           return render(request, 'UserLogin.html', {})
    def index(request):
    if request.method == 'GET':
           return render(request, 'index.html', {})
    def AdminLoginAction(request):
if request.method == 'POST':
    global uname
    username = request.POST.get('t1', False)
    password = request.POST.get('t2', False)
if username == 'admin' and password == 'admin':
    context= {'data':'welcome '+username}
        return render(request, 'AdminScreen.html', context)else:
    context= {'data':'login failed'}
                return render(request, 'AdminLogin.html', context)
    def sendOTP(email, otp_value):
    em = []
    em.append(email)
with smtplib.SMTP_SSL('smtp.gmail.com', 465) as connection:
    email_address = 'kaleem202120@gmail.com' email_password =
    'xyljzncebdxcubjq' connection.login(email_address,
    email_password)
            connection.sendmail(from_addr="kaleem202120@gmail.com", to_addrs=em,
    msg="Subject : Your OTP : "+otp_value)
    def OTPAction(request):
    if request.method == 'POST':
```

```
                  global uname,otp
   otp_value = request.POST.get('t1', False)
   if otp_value == otp:

    context= {'data': "Welcome "+uname}
       return render(request, 'UserScreen.html', context)else:
    context= {'data': "Invalid OTP! Please retry"}return
    render(request, 'OTP.html', context) def
    UserLoginAction(request):
 if request.method == 'POST':
    global uname, otp
    uname = request.POST.get('t1', False)otp =
    str(random.randint(1000,              9999))
    sendOTP(uname, otp)
    context= {'data': "OTP sent to your mail"}return
    render(request, 'OTP.html', context)
    def UpdateStatus(request):
    if request.method == 'GET':
    complaint_id = request.GET.get('t1', False)
          db_connection = pymysql.connect(host='127.0.0.1',port = 3306,user = 'root', password =
    'root', database = 'complaint',charset='utf8')
    db_cursor = db_connection.cursor()
          student_sql_query = "update user_complaint set status='Completed' where
    complaint_id='"+complaint_id+"'"
    db_cursor.execute(student_sql_query)
    db_connection.commit()
    status = "Error occured during complaint update status. Please try after sometime"if
    db_cursor.rowcount == 1:
      status = "Complaint status completed"
    context= {'data': status}
          return render(request, 'AdminScreen.html', context)
    def ViewComplaints(request):
```

```
if request.method == 'GET':
        global uname output = "output+='<table border=1 align=center width=100%><tr><th><font
 size="" color="black">Complaint ID</th><th><font size="" color="black">Username</th>'
          output+='<th><font size="" color="black">Complaint Details</th>'
          output+='<th><font size="" color="black">Complaint Status</th>'
          output+='<th><font size="" color="black">Complaint Date</th>'
          output+='<th><font size="" color="black">Update Complaint Status</th></tr>'
          con = pymysql.connect(host='127.0.0.1',port = 3306,user = 'root', password = 'root',
    database = 'complaint',charset='utf8')
          with con:
             cur = con.cursor()
             cur.execute("select * FROM user_complaint where status = 'Pending'")
             rows = cur.fetchall()
             for row in rows:
                output+='<td><font size="" color="black">'+str(row[0])+'</td>'
                output+='<td><font size="" color="black">'+row[1]+'</td>'
                output+='<td><font size="" color="black">'+row[2]+'</td>'
                output+='<td><font size="" color="black">'+row[3]+'</td>'
                output+='<td><font size="" color="black">'+row[4]+'</td>'
                output+='<td><a href=\'UpdateStatus?t1='+str(row[0])+'\'><font size=3
    color=black>Click Here to Update Status</font></a></td></tr>'
          output+= "</table></br></br>"
          context= {'data':output}
          return render(request, 'AdminScreen.html', context)
    def DeleteComplaint(request):
       if request.method == 'GET':
          complaint_id = request.GET.get('t1', False)
          db_connection = pymysql.connect(host='127.0.0.1',port = 3306,user = 'root', password =
    'root',
    database = 'complaint',charset='utf8')
          db_cursor = db_connection.cursor()
          student_sql_query = "delete from user_complaint where
    complaint_id='"+complaint_id+"'"
```

```
   db_cursor.execute(student_sql_query)
   db_connection.commit ()
   status = "Error occured during complaint deletion. Please try after sometime
if db_cursor.rowcount == 1:
      status = "Your Complaint Deleted with Complaint ID = "+str(complaint_id)
    context= {'data': status}
    return render(request, 'UserScreen.html', context)
def TrackComplaint(request):
  if request.method == 'GET':
    global uname
    output = "
    output+='<table border=1 align=center width=100%><tr><th><font size="
"color="black">Complaint ID</th><th><font size="" color="black">Username</th>'
    output+='<th><font size="" color="black">Complaint Details</th>'
    output+='<th><font size="" color="black">Complaint Status</th>'
    output+='<th><font size="" color="black">Complaint Date</th>'
    output+='<th><font size="" color="black">Delete Complaint</th></tr>'
    con = pymysql.connect(host='127.0.0.1',port = 3306,user = 'root', password = 'root',
database = 'complaint',charset='utf8')
    with con:
      cur = con.cursor()
      cur.execute("select * FROM user_complaint where username = '"+uname+"'")
      rows = cur.fetchall()
      for row in rows:
        output+='<td><font size="" color="black">'+str(row[0])+'</td>'
        output+='<td><font size="" color="black">'+row[1]+'</td>'
        output+='<td><font size="" color="black">'+row[2]+'</td>'
        output+='<td><font size="" color="black">'+row[3]+'</td>'
        output+='<td><font size="" color="black">'+row[4]+'</td>'
        output+='<td><a href=\'DeleteComplaint?t1='+str(row[0])+'\'><font size=3
color=black>Delete</font></a></td></tr>'
      output+= "</table></br></br>"
    context= {'data':output}
```

```
                return render (request,'UserScreen.html', context)
    def UploadAudio(request):
    if request.method == 'GET':

    return render(request, 'UploadAudio.html', {})
    def TextComplaint(request):
    if request.method == 'GET':
            return render(request, 'TextComplaint.html', {})
    def TextComplaintAction(request):
if request.method == 'POST':
    global uname
    complaint = request.POST.get('t1', False)
    complaint_id = 0
            con = pymysql.connect(host='127.0.0.1',port = 3306,user = 'root', password = 'root',
    database = 'complaint',charset='utf8')
    with con:
    cur = con.cursor()
    cur.execute("select max(complaint_id) from user_complaint")rows =
    cur.fetchall()
for row in rows: complaint_id =
    row[0]
if complaint_id is not None:
    complaint_id += 1
    else:
        complaint_id = 1 today =
    str(date.today())
            db_connection = pymysql.connect(host='127.0.0.1',port = 3306,user = 'root', password =
    'root', database = 'complaint',charset='utf8')
    db_cursor = db_connection.cursor()
    student_sql_query = "INSERT
    user_complaint(complaint_id,username,complaint_details,status,complaint_date)
    VALUES('"+str(complaint_id)+"','"+uname+"','"+complaint+"','Pending','"+today+"')"
```

```
                db_cursor.execute(student_sql_query)
  db_connection.commit()
  print(db_cursor.rowcount, "Record Inserted")if
  db_cursor.rowcount == 1:
  status = "Your Complaint Accepted with Complaint ID = "+str(complaint_id)+". Our Admin will
  review"
  context= {'data': status}
      return render(request, 'UserScreen.html', context)
  def UploadAudioAction(request):
if request.method == 'POST':
  global uname
  language = request.POST.get('t1', False)audio
  = request.FILES['t2']
  audio_name = request.FILES['t2'].name status
  = "Unable to save your complaint"fs =
  FileSystemStorage()
if os.path.exists('ComplaintApp/static/files/'+audio_name):
  os.remove('ComplaintApp/static/files/'+audio_name)
  filename = fs.save('ComplaintApp/static/files/'+audio_name, audio)ltype
  = "en-US"
if language == "Telugu":ltype =
  "te-IN"
elif language == "Hindi":ltype =
  "hi-IN"
with sr.WavFile('ComplaintApp/static/files/'+audio_name) as source:audio =
  recognizer.record(source)
  try:
    text = recognizer.recognize_google(audio, language=ltype)
  except Exception as ex:
  text = "unable to recognize"
```

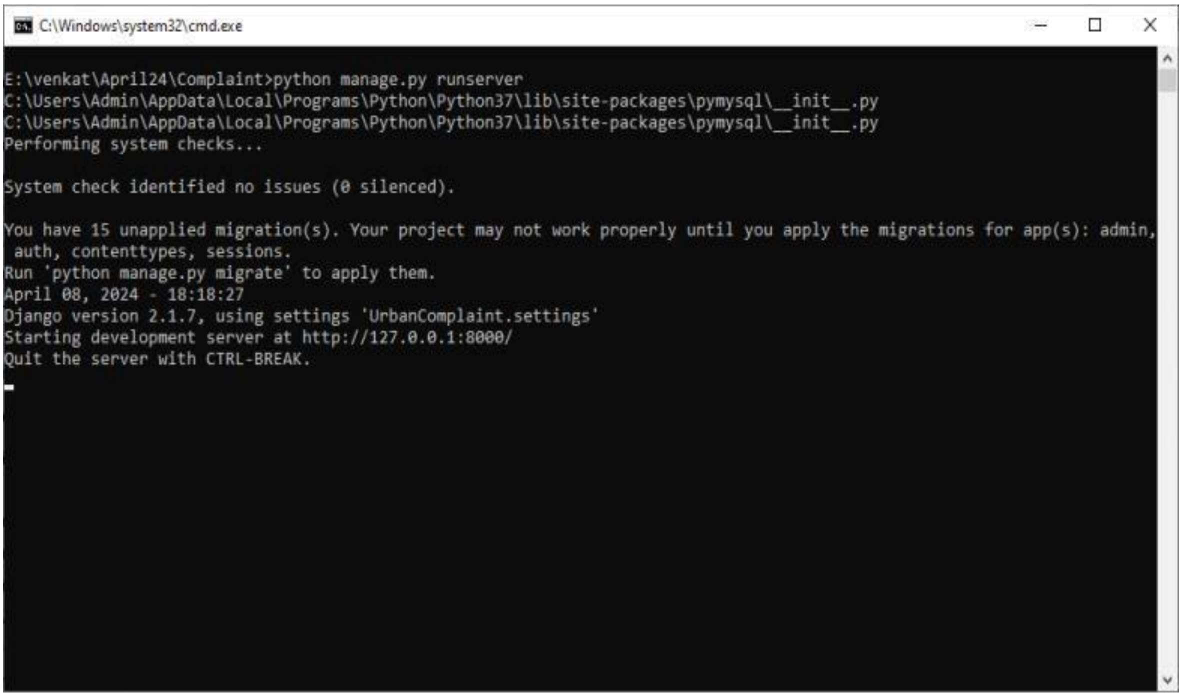
```
    print(text)
     complaint_id = 0
      con = pymysql.connect(host='127.0.0.1',port = 3306,user = 'root', password = 'root',
database = 'complaint',charset='utf8')
      with con:
        cur = con.cursor()
         cur.execute("select max(complaint_id) from user_complaint")
         rows = cur.fetchall()

    for row in rows:
            complaint_id = row[0]
      if complaint_id is not None:
         complaint_id += 1
      else:
         complaint_id = 1
      today = str(date.today())
      db_connection = pymysql.connect(host='127.0.0.1',port = 3306,user = 'root', password =
'root', database = 'complaint',charset='utf8')
      db_cursor = db_connection.cursor()
      student_sql_query = "INSERT INTO
user_complaint(complaint_id,username,complaint_details,status,complaint_date)
VALUES('"+str(complaint_id)+"','"+uname+"','"+text+"','Pending','"+today+"')"
      db_cursor.execute(student_sql_query)
      db_connection.commit()
      print(db_cursor.rowcount, "Record Inserted")
      if db_cursor.rowcount == 1:
         status = "Your Complaint Accepted with Complaint ID = "+str(complaint_id)+". Our
Admin will review"
      context= {'data': status}
      return render(request, 'UserScreen.html', context)
         os.path.dirname(os.path.dirname(os.path.abspath(_file_)))
```

CHAPTER-8

OUTPUT SCREENS

To run project double click on ‘run.bat’ file to start python web server and get below page

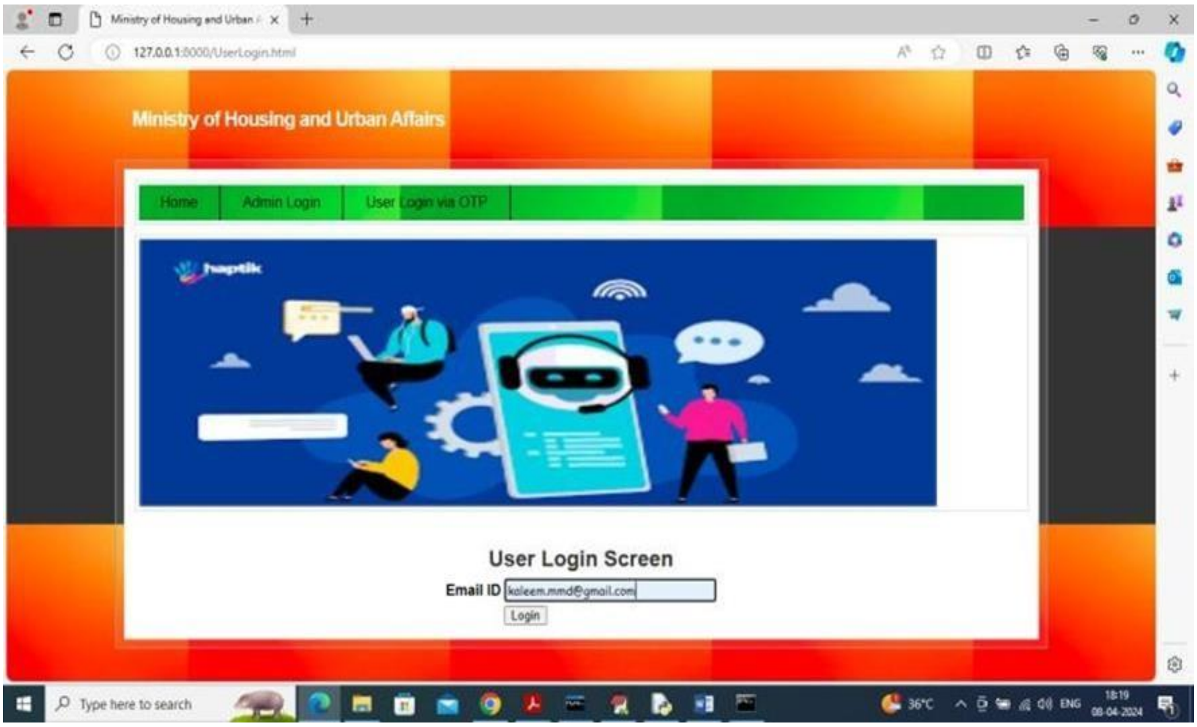


```
E:\venkat\April24\Complaint>python manage.py runserver
C:\Users\Admin\AppData\Local\Programs\Python\Python37\lib\site-packages\pymysql\__init__.py
C:\Users\Admin\AppData\Local\Programs\Python\Python37\lib\site-packages\pymysql\__init__.py
Performing system checks...

System check identified no issues (0 silenced).

You have 15 unapplied migration(s). Your project may not work properly until you apply the migrations for app(s): admin,
 auth, contenttypes, sessions.
Run 'python manage.py migrate' to apply them.
April 08, 2024 - 18:18:27
Django version 2.1.7, using settings 'UrbanComplaint.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CTRL-BREAK.
```

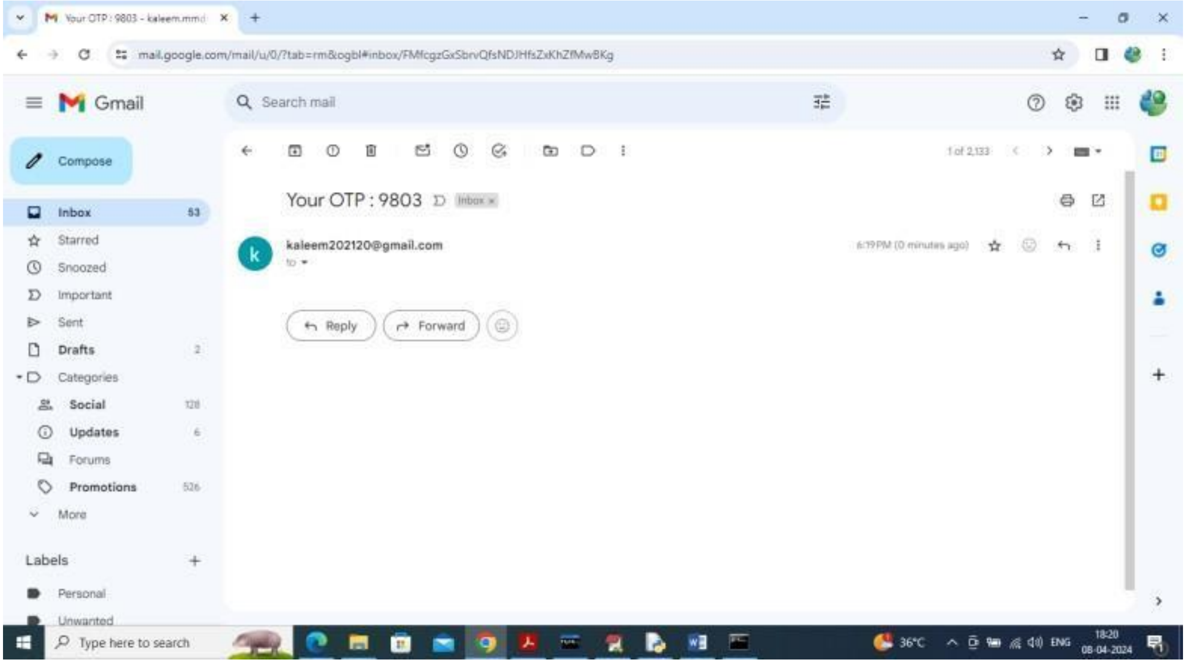
In above screen python server started and now open browser and enter URL as http://127.0.0.1:8000/index.html and press enter key to get below


Ministry of Housing and Urban A
127.0.0.1:8000/UserLogin.html
Ministry of Housing and Urban Affairs
Home
Admin Login
User Login via OTP
haptik
Type here to search
36°C
ENG
18:19
08-04-2024

User Login Screen

Email ID kaleem.mmd@gmail.com

In the above screen enter valid email id and then press button to get below page



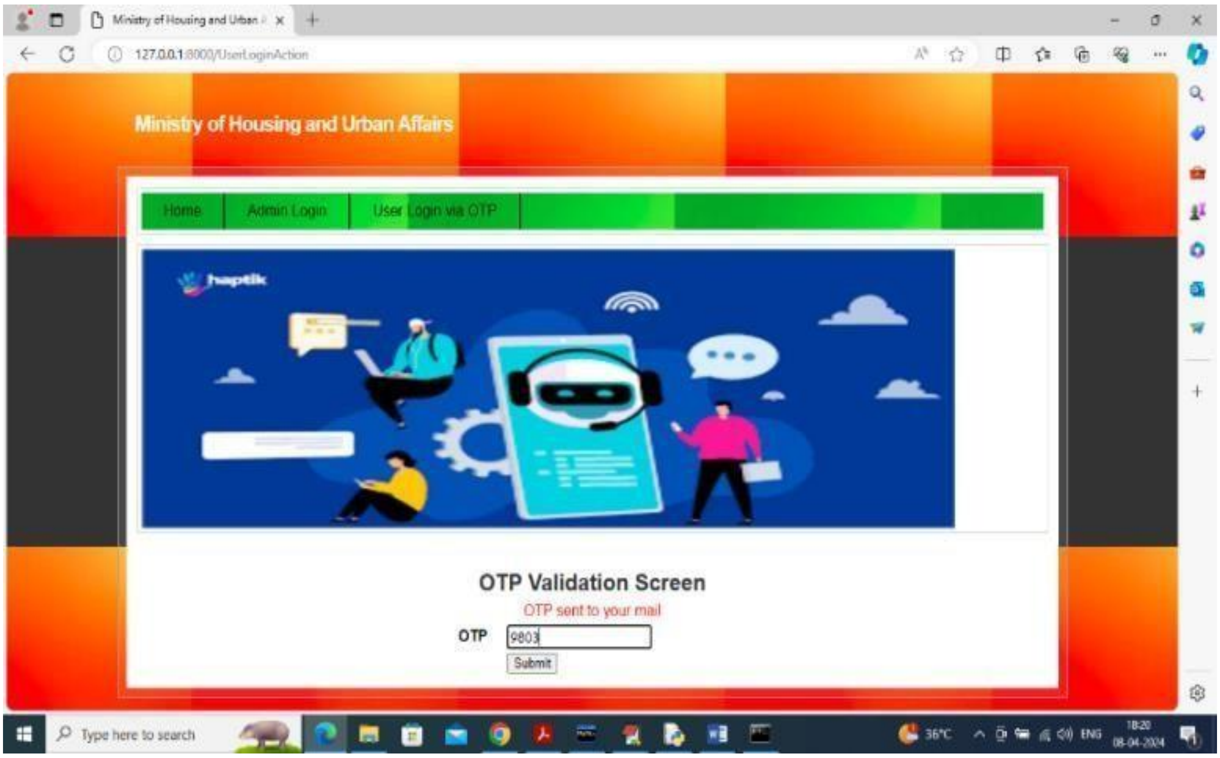
Your OTP : 9803

kaleem202120@gmail.com

to

6:19 PM (0 minutes ago)

In above screen OTP received as 9803 and enter in application for validation


Ministry of Housing and Urban A
127.0.0.1:8000/UserLoginAction
Ministry of Housing and Urban Affairs
Home
Admin Login
User Login via OTP
haptik
Type here to search
36°C
ENG
18:20
08-04-2024

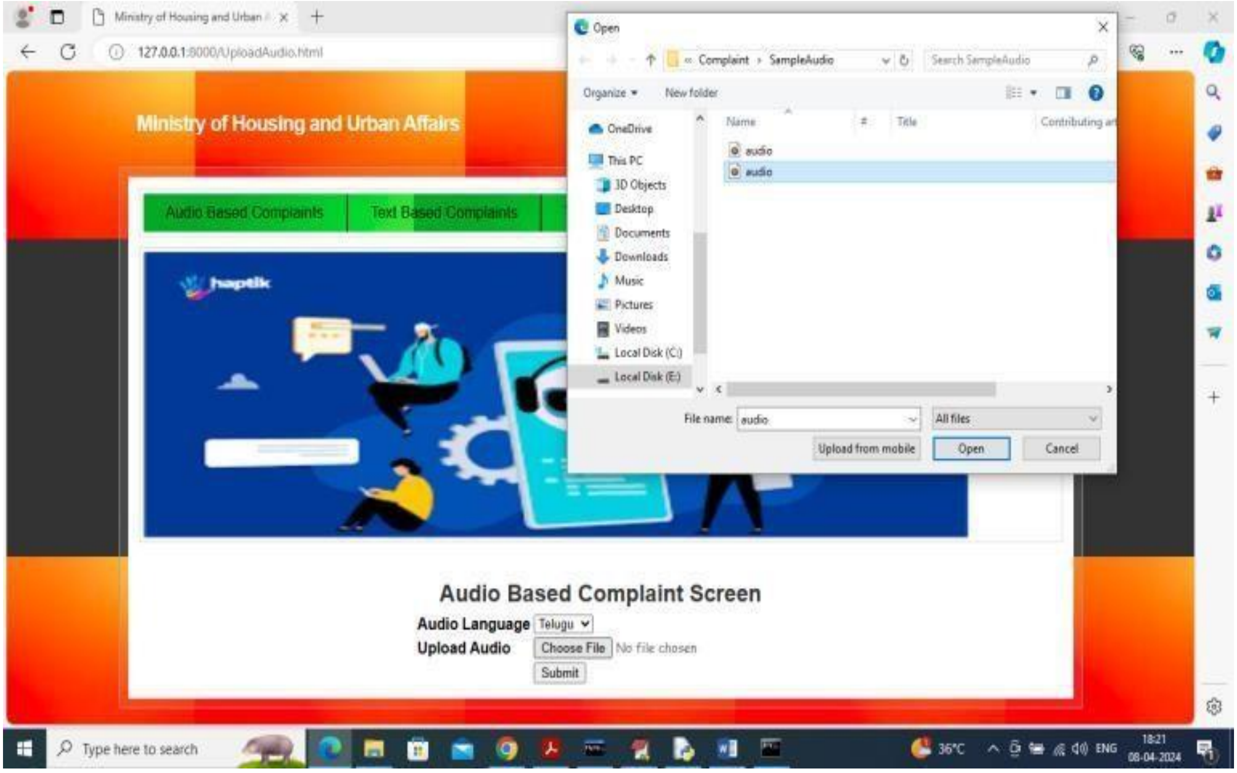
OTP Validation Screen

OTP sent to your mail

OTP 9803

Submit

In above screen after entering OTP will get below page.



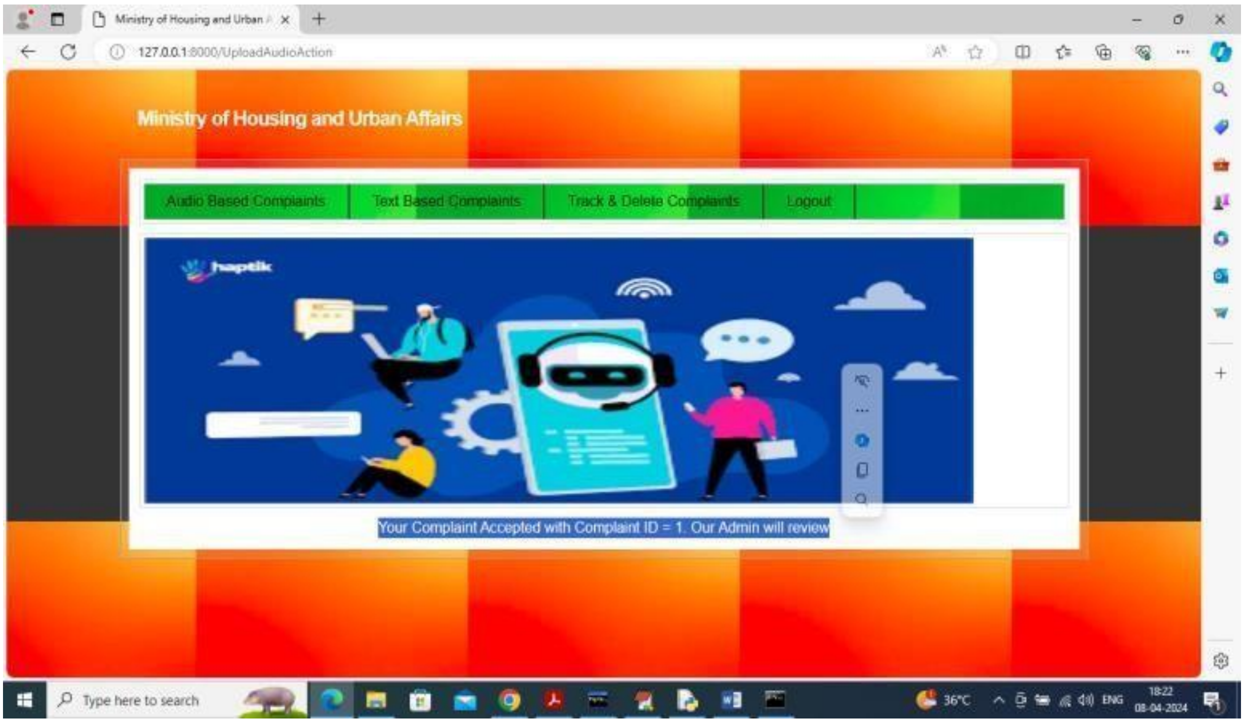
Audio Based Complaint Screen

Audio Language Telugu

Upload Audio Choose File No file chosen

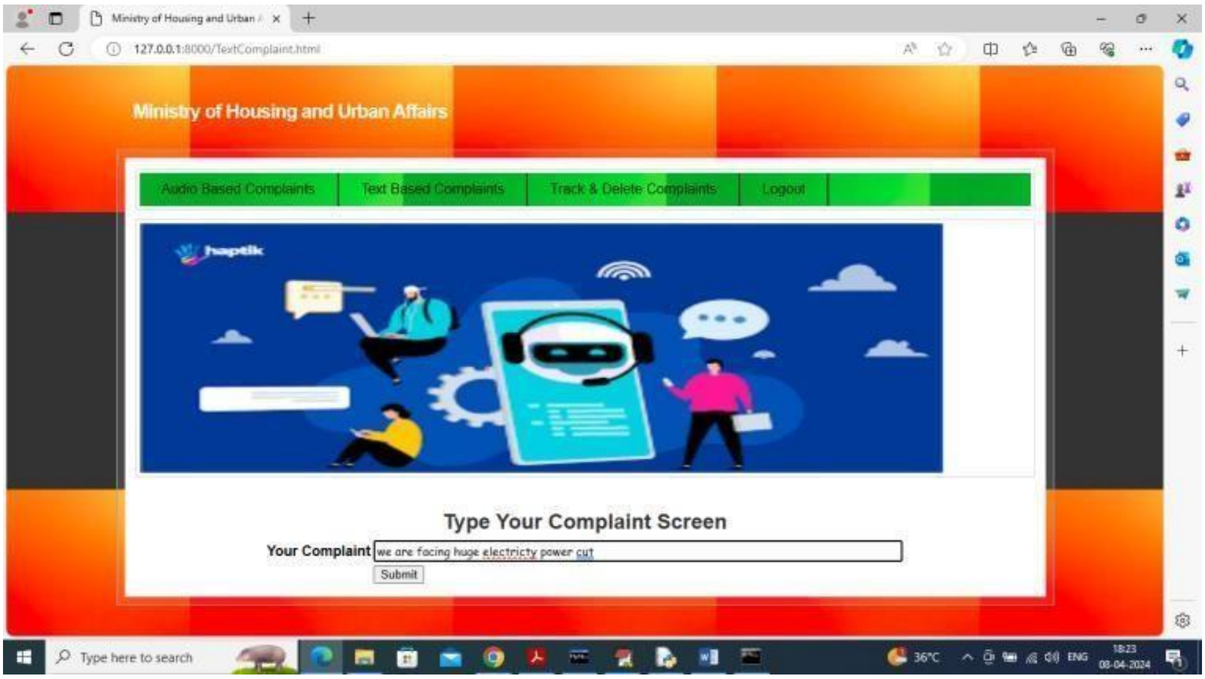
Submit

In above screen select audio language and then upload audio.wav file and then click on ‘Open’ and ‘Submit’ button to register complaint and get below page


Ministry of Housing and Urban Affairs
Audio Based Complaints
Text Based Complaints
Track & Delete Complaints
Logout

Your Complaint Accepted with Complaint ID = 1. Our Admin will review

In above screen can see complaint is submitted with ID = 1 and now if user want can submit complaint by typing in any language

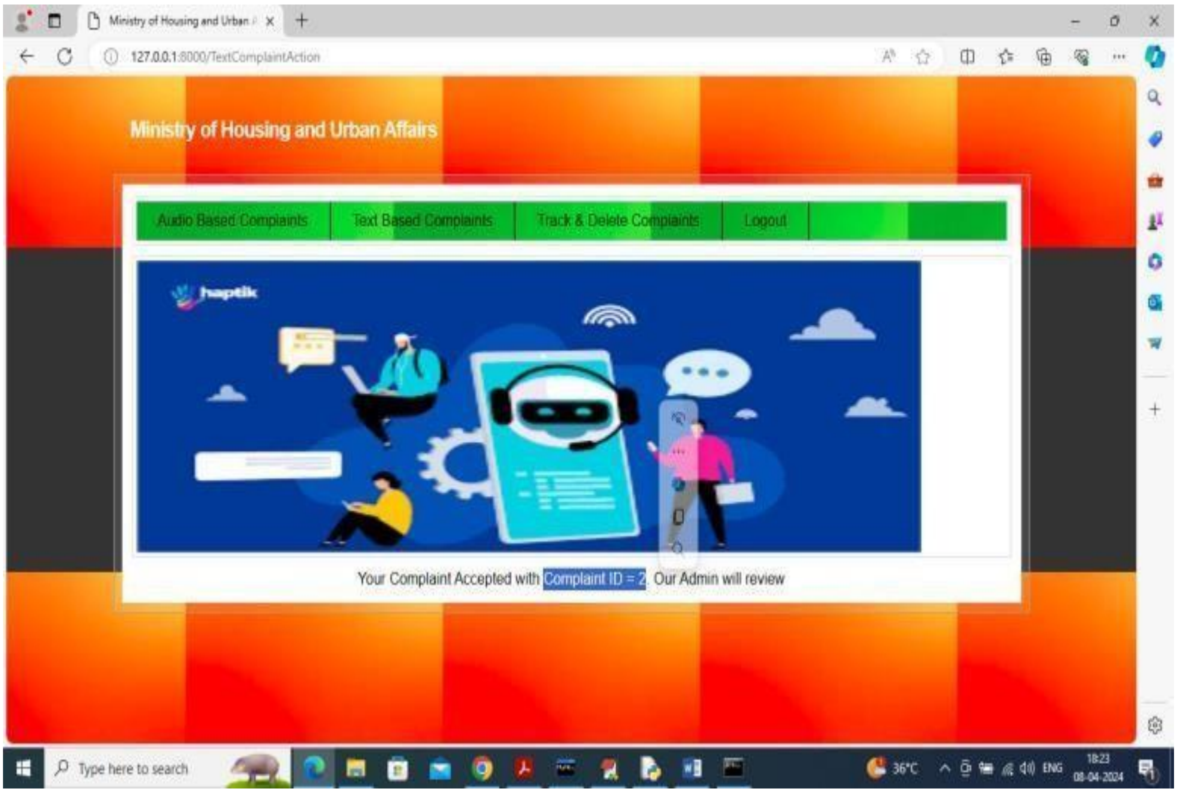

Ministry of Housing and Urban A
127.0.0.1:8000/TextComplaint.html
Ministry of Housing and Urban Affairs
Audio Based Complaints
Text Based Complaints
Track & Delete Complaints
Logout
haptik
Type here to search
36°C
ENG
18:23
08-04-2024

Type Your Complaint Screen

Your Complaint: we are facing huge electricty power cut

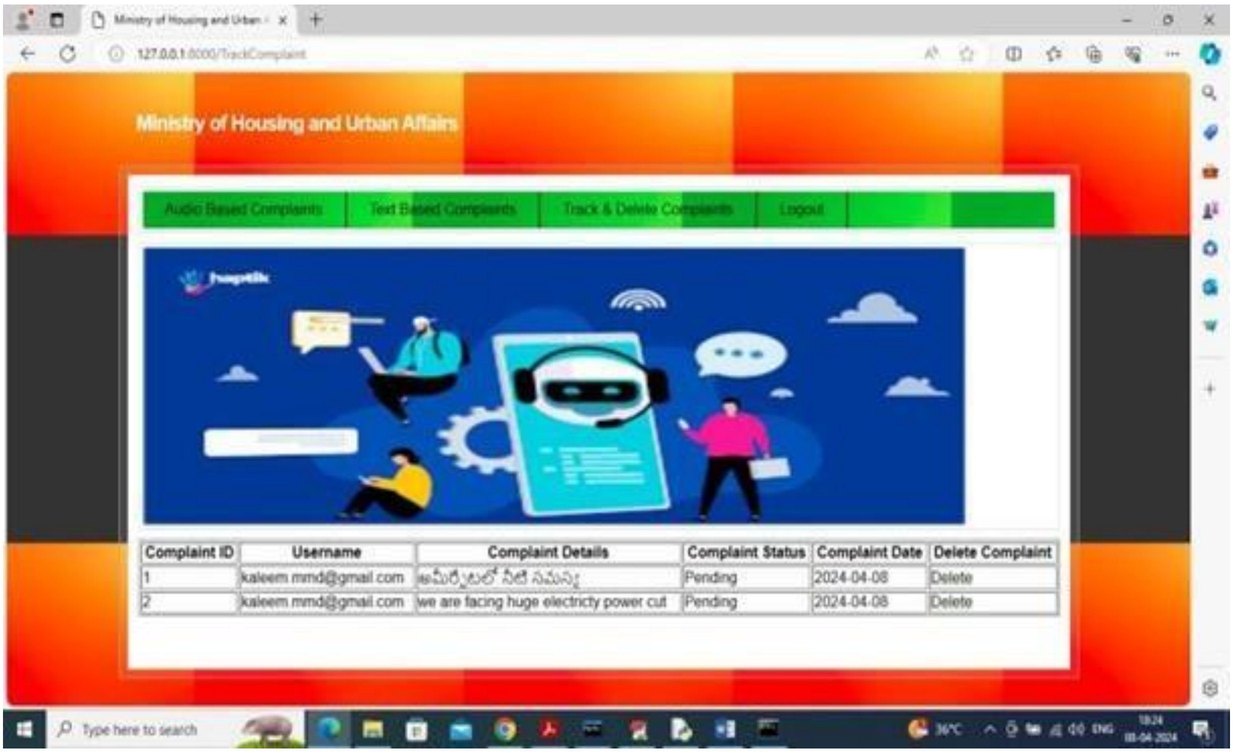
Submit

In above screen user is typing some complaint details and now click on 'Submit' button toupload complaint ministry of affairs and get below page


Ministry of Housing and Urban A
127.0.0.1:8000/TextComplaintAction
Ministry of Housing and Urban Affairs
Audio Based Complaints
Text Based Complaints
Track & Delete Complaints
Logout
haptik
Type here to search
36°C
ENG
18:23
08-04-2024

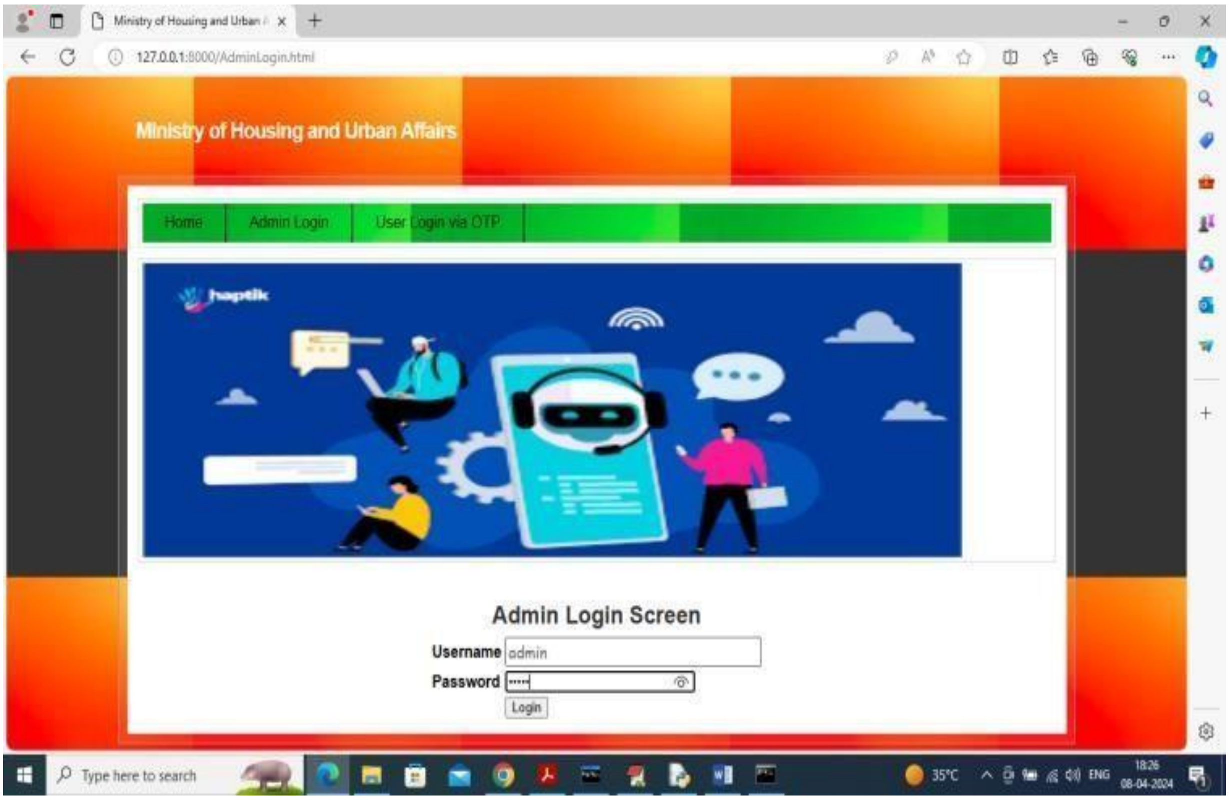
Your Complaint Accepted with Complaint ID = 2. Our Admin will review

In above screen complaint is submitted with id = 2 and now click on 'Track & Delete Complaint' link to get below page


Ministry of Housing and Urban Affairs
Audio Based Complaints
Text Based Complaints
Track & Delete Complaints
Logout
127.0.0.1:8000/TrackComplaint

Complaint ID	Username	Complaint Details	Complaint Status	Complaint Date	Delete Complaint
1	kaleem.mmd@gmail.com	అమీర్పేటలో నీటి సమస్య	Pending	2024-04-08	Delete
2	kaleem.mmd@gmail.com	we are facing huge electricty power cut	Pending	2024-04-08	Delete

In above screen user can view all submitted complaints and status will be update once admin Solved complaint and user can click on 'Delete' link to delete complaint and get below page

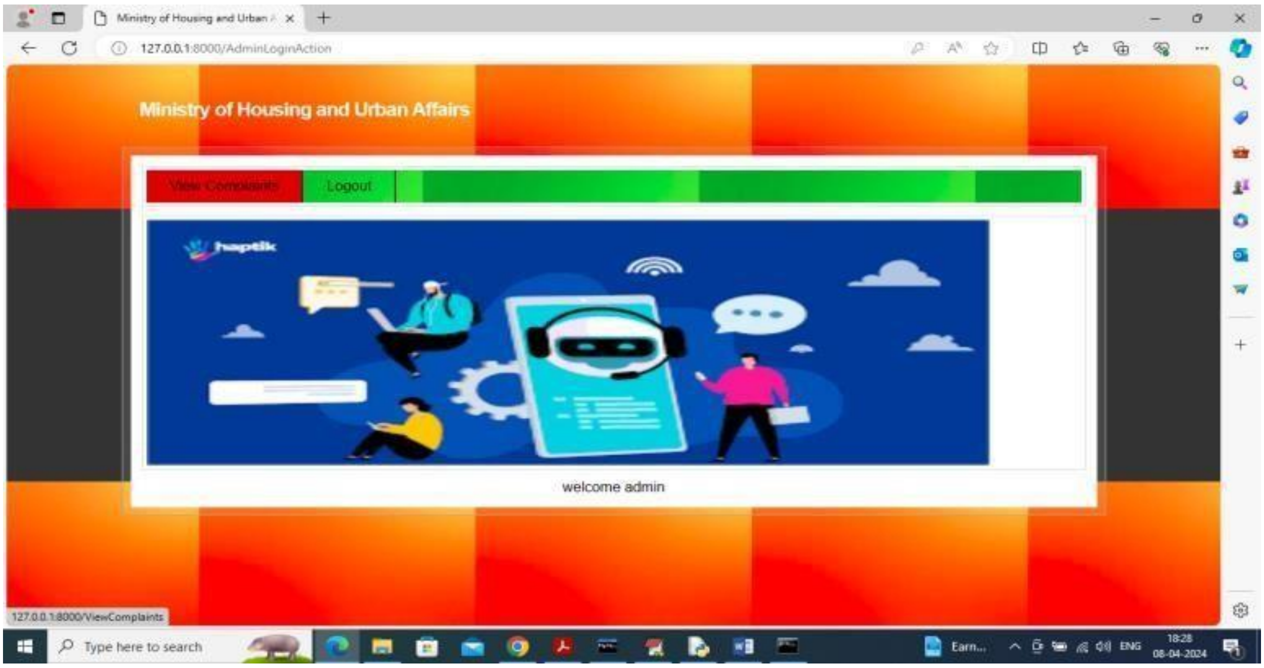

Ministry of Housing and Urban Affairs
Home
Admin Login
User Login via OTP
127.0.0.1:8000/AdminLogin.html

Admin Login Screen

Username admin

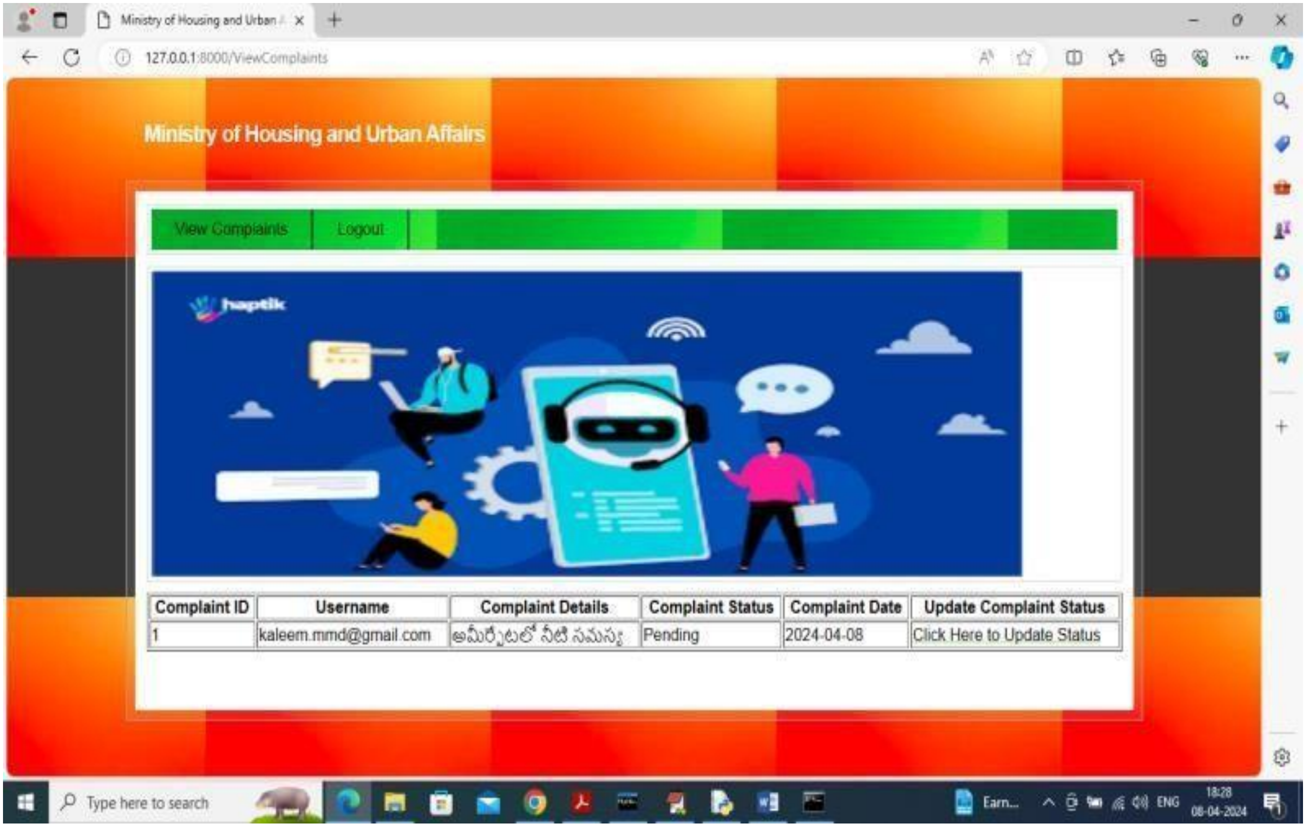
Password •••••

In above screen admin is login and after login will get below page

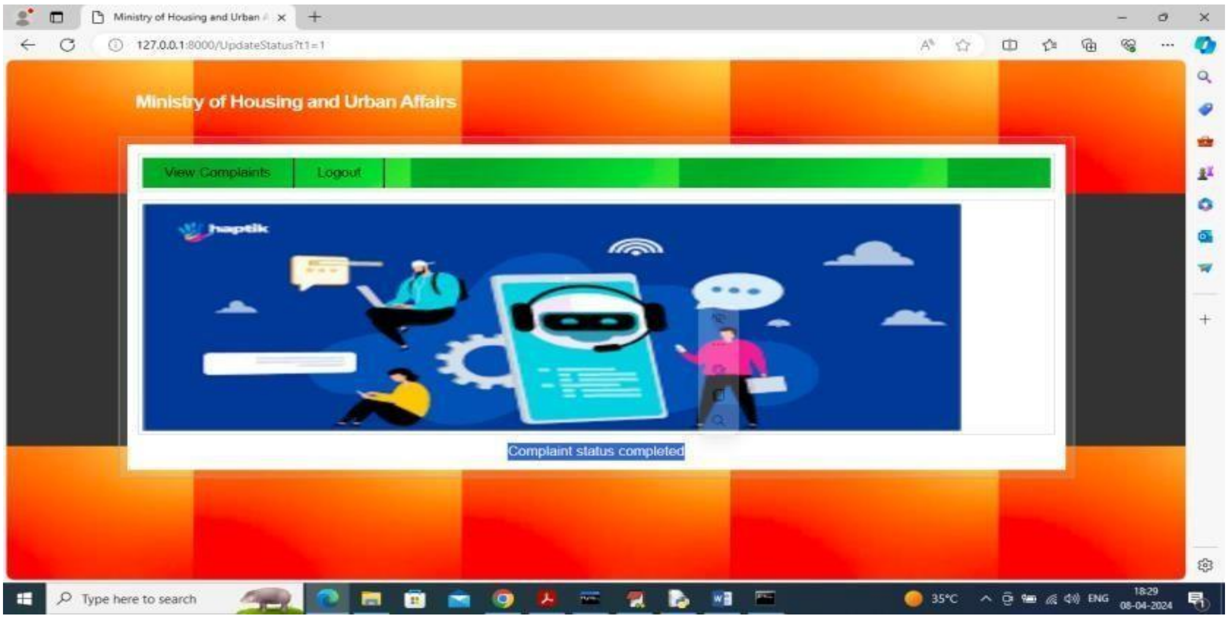

Ministry of Housing and Urban Affairs
127.0.0.1:8000/AdminLoginAction
Ministry of Housing and Urban Affairs
View Complaints
Logout
haptik
127.0.0.1:8000/ViewComplaints
Type here to search

welcome admin

In above screen admin can click on ‘View Complaints’ link to view all pending status complaint and get below page.

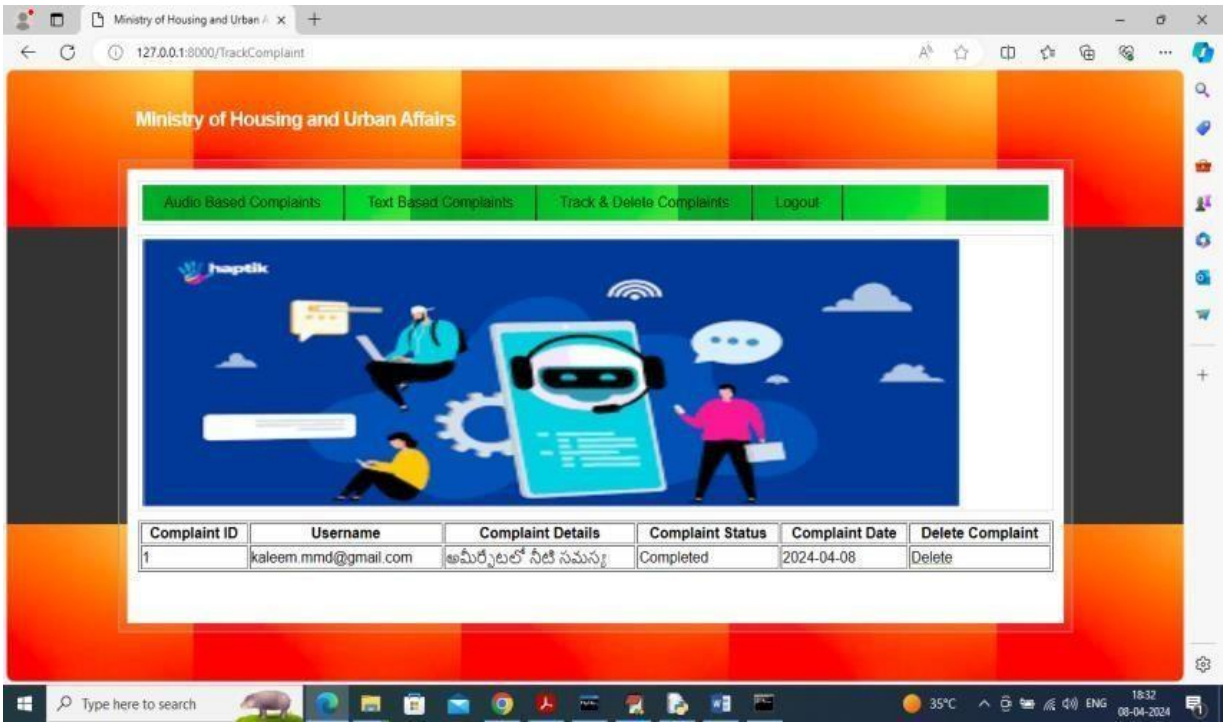

Ministry of Housing and Urban Affairs
127.0.0.1:8000/ViewComplaints
Ministry of Housing and Urban Affairs
View Complaints
Logout
haptik
Type here to search

Complaint ID	Username	Complaint Details	Complaint Status	Complaint Date	Update Complaint Status
1	kaleem.mmd@gmail.com	అమీర్పేటలో నీటి సమస్య	Pending	2024-04-08	Click Here to Update Status


Ministry of Housing and Urban A
127.0.0.1:8000/UpdateStatus?t1=1
Ministry of Housing and Urban Affairs
View Complaints
Logout
haptik
Type here to search
35°C
ENG
18:29
08-04-2024

Complaint status completed

In above screen can see complaint status updated and now logout and login as ‘user’ to view status


Ministry of Housing and Urban A
127.0.0.1:8000/TrackComplaint
Ministry of Housing and Urban Affairs
Audio Based Complaints
Text Based Complaints
Track & Delete Complaints
Logout
haptik
Type here to search
35°C
ENG
18:32
08-04-2024

Complaint ID	Username	Complaint Details	Complaint Status	Complaint Date	Delete Complaint
1	kaleem.mmd@gmail.com	అమీర్పేటలో నీటి సమస్య	Completed	2024-04-08	Delete

In above screen can see complaint status updated and now logout and login as ‘user’ to view status In above screen user can see status changed to ‘Completed’ which means complaint is solved. Similarly, by following above screens you can update complaints to ministry affairs. complaint and user can click on ‘Delete’ link to delete complaint and get below page.

CHAPTER-9

CONCLUSION &FUTURE SCOPE

In conclusion, the Chatbot-based complaint management system designed for the Ministry of Housing and Urban Affairs (MoHUA) represents a pivotal advancement in enhancing citizen engagement and operational efficiency within urban governance. By leveraging contemporary technologies and a user- centric approach, the system aims to address longstanding challenges in grievance redressal processes.

The system's emphasis on user accessibility through OTP-based login, multilingual complaint submission(including English, Telugu, and Hindi), and options for both audio and text complaints ensures inclusivity and convenience for citizens across diverse linguistic and technological backgrounds. Real-time trackingof complaint statuses fosters transparency and accountability, empowering citizens to monitor the progress of their issues promptly.

Administratively, the system equips MoHUA administrators with a robust toolset to manage and resolve complaints efficiently. The admin dashboard facilitates quick access to pending complaints and enables timely updates on complaint statuses, thereby optimizing resource allocation and enhancing service delivery.

Looking forward, the system could benefit from future enhancements such as AI-driven analytics for sentiment analysis of complaints, expanded language support, and integration with emerging technologiesto further streamline operations and enhance user interaction. These developments would contribute to the system's evolution as a cornerstone of effective urban governance, ensuring responsive and citizen- centric service delivery nationwide.

Key Enhancements: Expanded Language Support: Reach more citizens by supporting multiple languages, ensuring inclusivity and accessibility.

Emerging Technology Integration: Leverage technologies like blockchain, IoT, and augmented reality to enhance transparency, accountability, and service delivery.

Predictive Analytics: Use machine learning algorithms to forecast potential issues and opportunities, enabling proactive governance and improve governance in the years to come.

CHAPTER-10

REFERENCES

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