LOVELY PROFESSIONAL UNIVERSITY

REPORT FOR TEXT BASED CAPTCHA

As a project work for Course PYTHON PROGRAMMING (INT 213)

Name	**:**	**ANAND KUMAR BHARTI**
Registration Number	**:**	**12109304(66)**
Name	**:**	**ASMEET ARORA**
Registration Number	**:**	**12109295(45)**
Name	**:**	**MANAV JOSHI**
Registration Number	**:**	**12109303(48)**

Program : B.Tech CSE

TEXT BASED CAPTCHA

ABSTRACT:-

CAPTCHA is an acronym for "Completely Automated Public Turing test to tell Computers and Humans Apart." It is a type of challenge-response test used in computing to ensure that the response is not generated by a computer.

The process usually involves one computer (a server) asking a user to complete a simple test which the computer is able to generate and grade. Because other computers are unable to solve the CAPTCHA, any user entering a correct solution is presumed to be human. A common type of CAPTCHA requires that the user type letters or digits from a distorted image that appears on the screen.

CAPTCHA technique is basically a challenge response test which involves a computer (server) initiating a task for the user to complete. If the user completes it successfully then the user is considered as “human” else it is treated as a “web-bot”.

ACKNOWLEDGEMENT: -

The satisfaction that accompanies the successful completion of this project would be in complete without the mention of the people who made it possible, without whose constant guidance and encouragement would have made efforts go in vain. I consider myself privileged to express gratitude and respect towards all those who guided us through the completion of this project.

I would like to thank my prof. - Dr. Deepika Ghai for her advice and inputs on this project. Many thanks to my friends and seniors as well, who spent countless hours to listen and provide feedbacks.

Last but not the least, we wish to thank our parents for financing our studies in this college as well as for constantly encouraging us to learn engineering. Their personal sacrifice in providing this opportunity to learn engineering is gratefully acknowledged

Table of Contents

1. ABSTRACT

2. INTRODUCTION
   - 2.1 CONTEXT
   - 2.2 MOTIVATION
   - 2.3 IDEA

3. TEAM MEMBERS WITH ROLES
   - 3.1 TEAM LEADER
   - 3.2 MEMBERS
   - 3.3 CONTRIBUTIONS

4. LIBRARIES
   - 4.1 DIFFERENT TYPES
   - 4.2 WHY THEY ARE USED

5. GUI Screenshots

6. GUI Screenshot description

7. Source code

8. conclusion

INTRODUCTION:-

1.1 Context

This section gives a scope description and overview of Everything included in this Project Report. Also, the purpose for this document is described and system overview along with goal and vision are listed.

1.2 Motivations

The group project was a great occasion to give us the time to learn and confirm our interest for this field. During this project we realised the use of python in our day to day life which motivated us to word of this project

1.3 Idea:-

A CAPTCHA system presents a visitor with an obscured word, words, or phrase. The obscuring is usually achieved by warping the words, distorting the background, or segmenting the word by adding lines.Users are asked to decode the image and enter the alphanumeric characters in the correct order (they may or may not be case sensitive) before submitting the form. Upon form submission, the response is verified, and users are either taken to the next step or presented with an error.

TEAM MEMBERS:-

1. **Anand Kumar Bharti**

   Reg. No.: 12109304

   Roll No.: RK21GXB66

WORK: Information gathering and all the data finding as well as designing part of code.

2. **Asmeet Arora**

   Reg. No.: 12109295

   Roll No.: RK21GXB45

WORK: Asmeet have done half of the coding part. As he is familiar with Visual code software

3. **Manav Joshi**

   Reg. No.: 12109303

   Roll No.: RK21GXB48

WORK: Logical and thinking part as well as contribution in coding.

LIBRARIES:-

tkinter:-

Tkinter is the standard GUI library for Python. Python when combined with Tkinter provides a fast and easy way to create GUI applications.

Tkinter module helps in creating GUI applications in a fast and easy way. Tkinter provides 15 types of widgets. Some common ones are Button, Label, Frame, Menu. The message, Radiobutton, Text, Scrollbar

Random:-

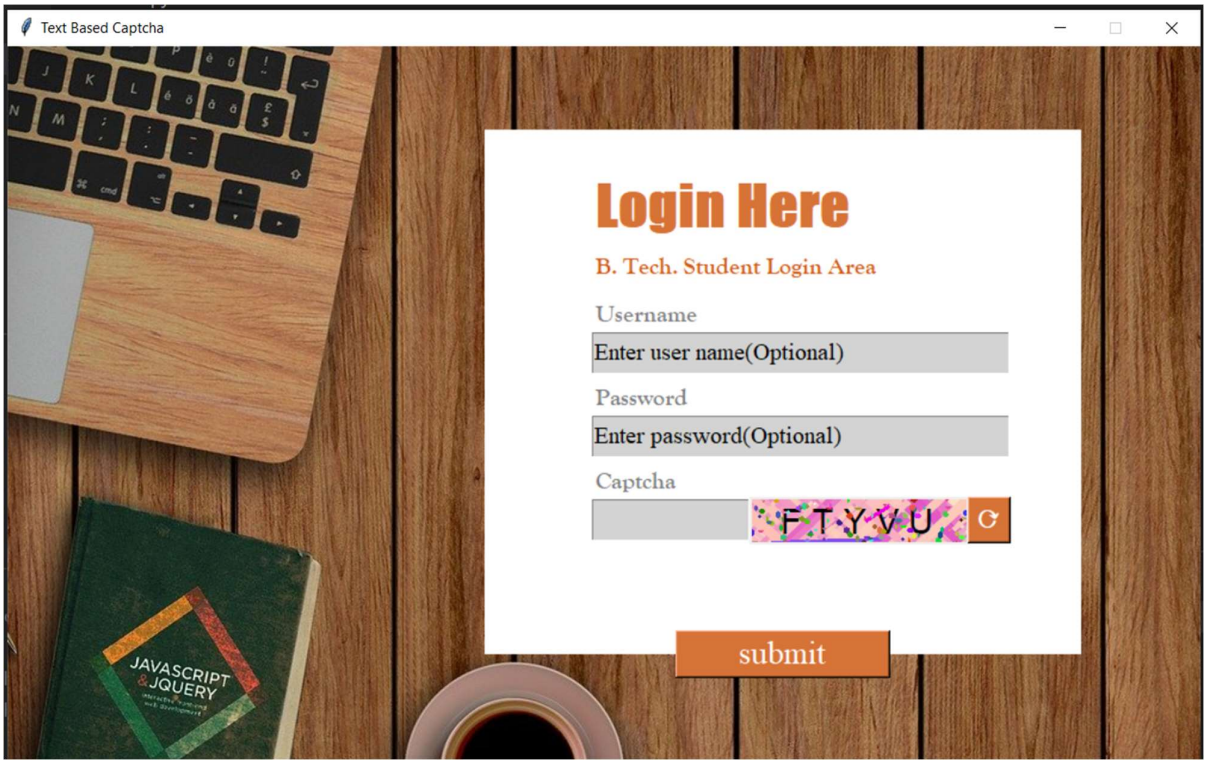
Sometimes we want the computer to pick a random number in a given range, pick a random element from a list, pick a random card from a deck, flip a coin, etc. The random module provides access to functions that support these types of operations

PIL:-

In case, we are working with Python programming language, it provides lot of image processing libraries to add image processing capabilities to digital images. Some of the most common image processing libraries are: OpenCV, Python Imaging Library (PIL), Scikit-image, Pillow.

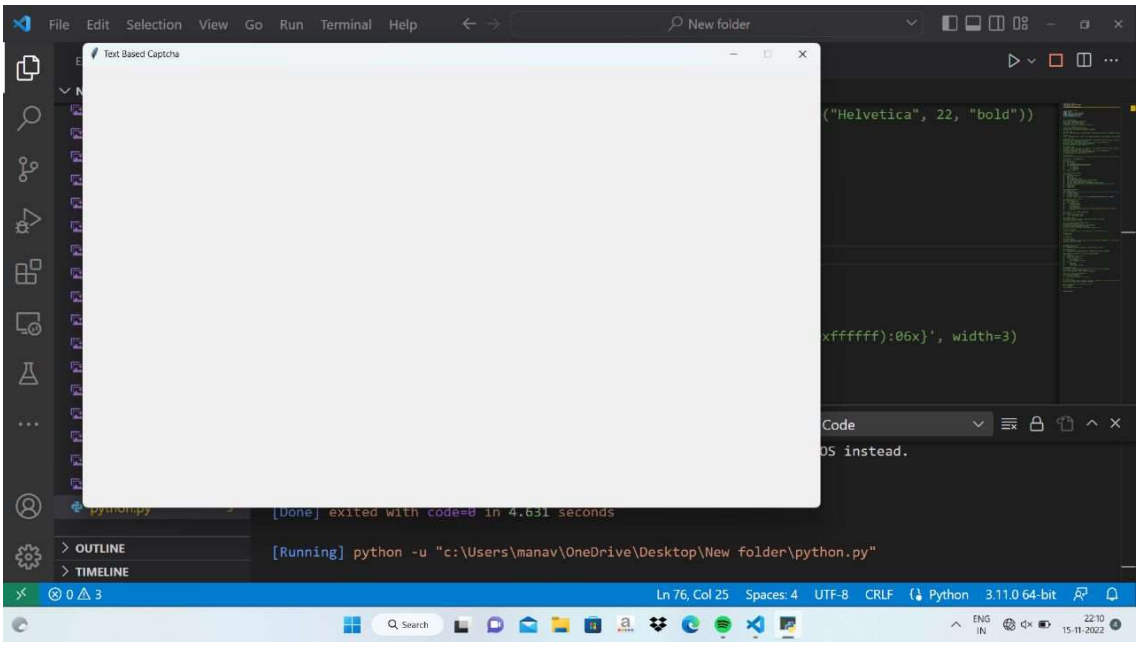
SCREENSHOTS:-

1.Main page:-



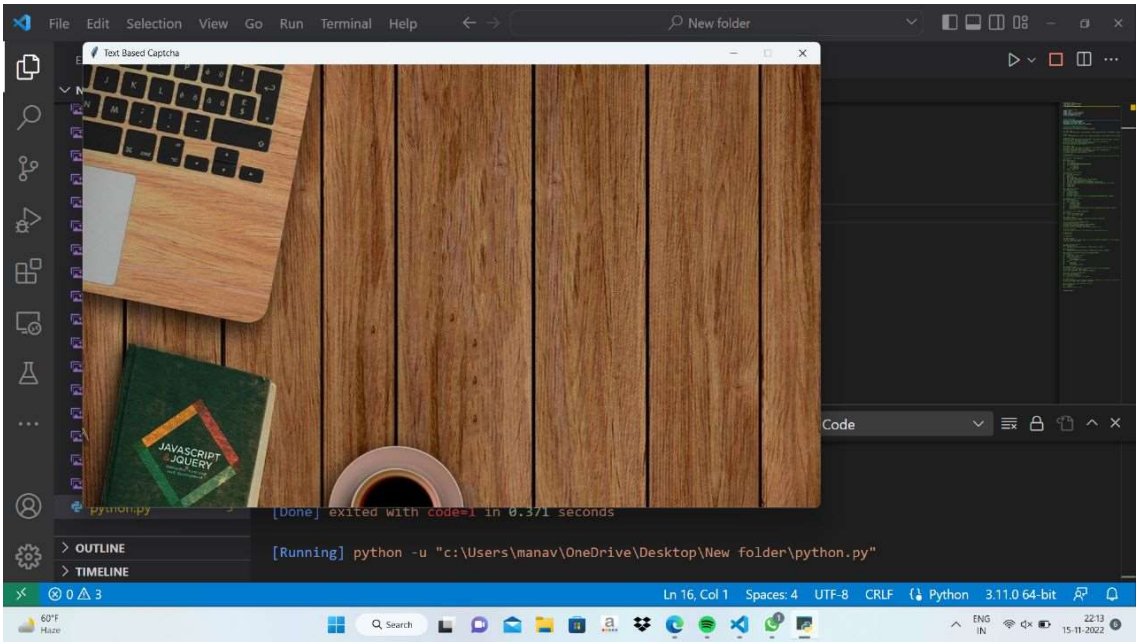
1.1

LABEL BOX



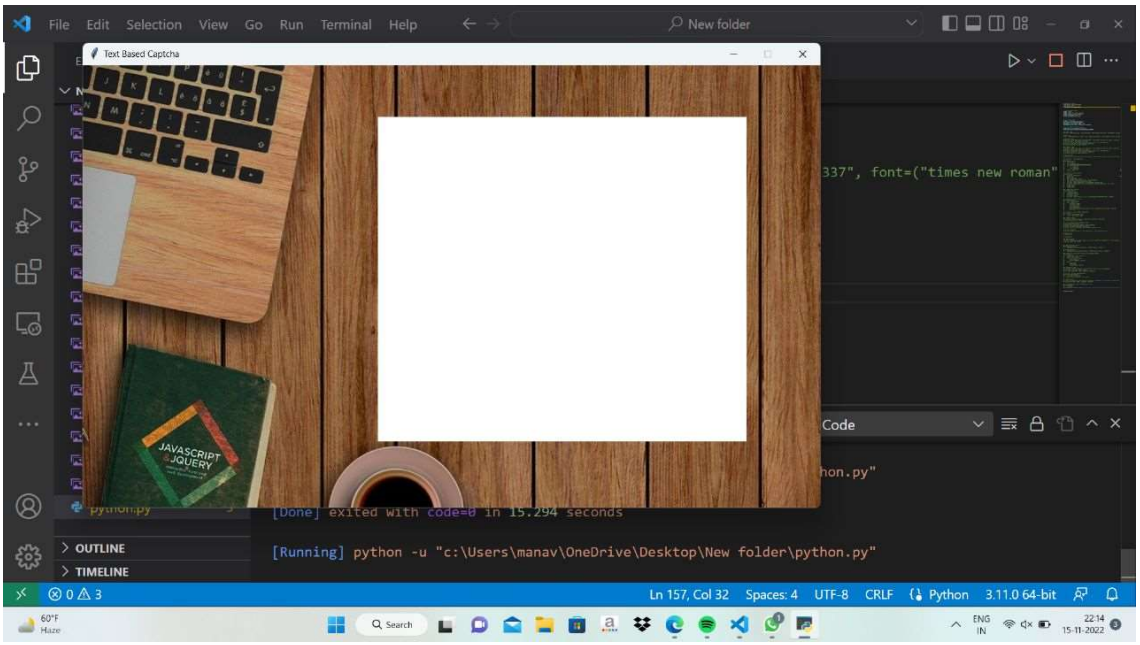
Here, ‘text-based captcha’ is titled. It is used using title keyword. The heading of each page using tittle.

1.2 BACKGROUND IMAGE



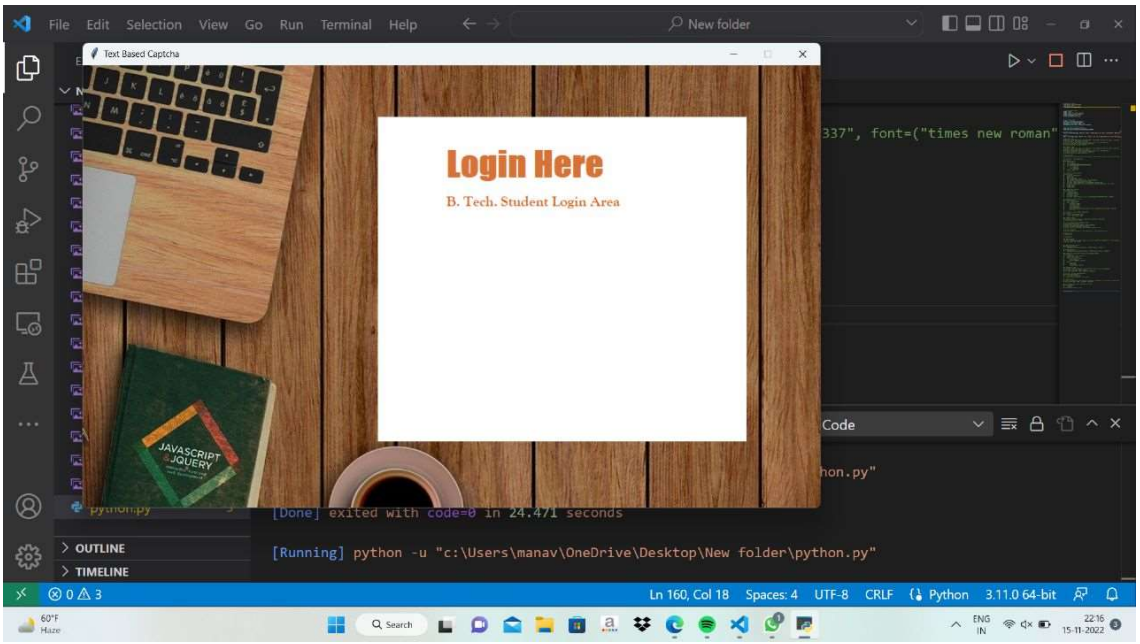
In Tkinter, there is a separate module for setting background image known as Python image library (PIL) as in for setting fonts, and the function is PhotoImage(); this function uses the image file name or the source path of the image to be set as a background image as an argument.

1.3 CAPTCHA FRAME



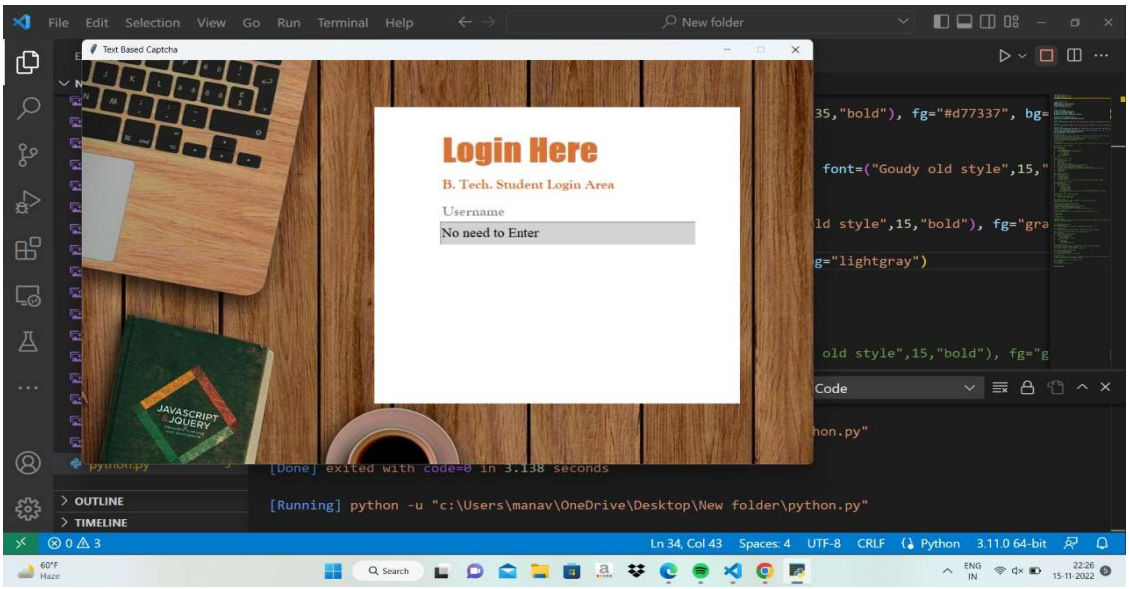
Here, We used frame inside the main window. Also we locked window resizing.

1.4 LOGIN AREA



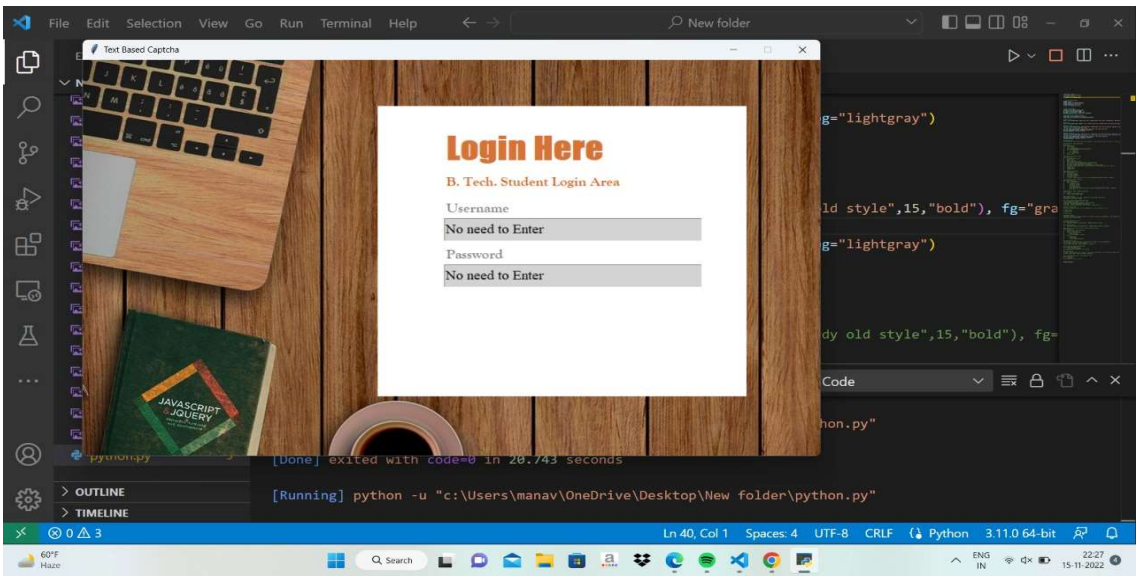
Here, We defined two labels 1st is login here and 2nd is b-tech student login area,where 'LOGIN HERE' is tittle and 'b-tech student login area' is subtitle.

1.5 **USERNAME ENTRY**



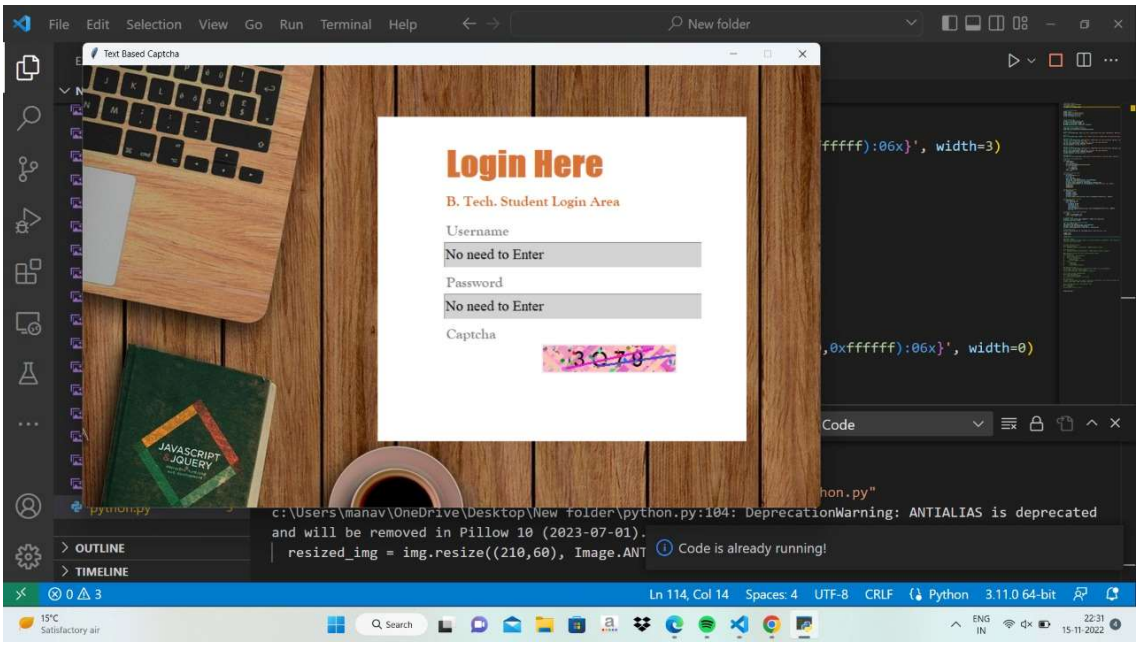
We defined another label called username and with the help of frame we created widget where user can enter their name.

1.6 **PASSWORD ENTRY**



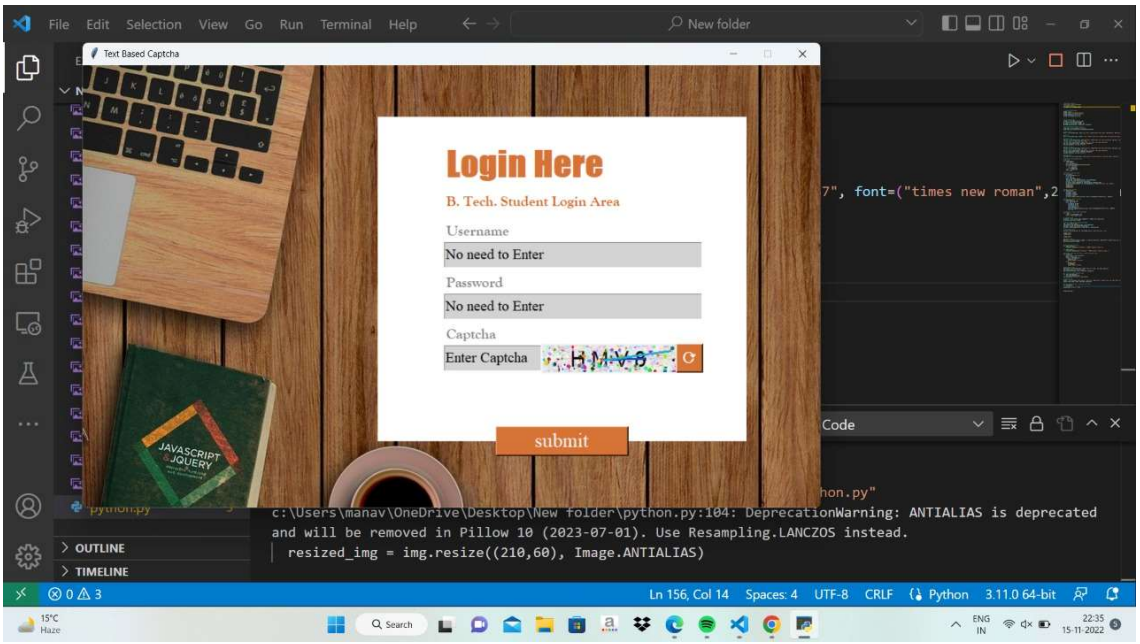
We defined another label called password and with the help of frame we created widget where user can enter their password.

1.7 **CREATING CAPTCHA LABEL**



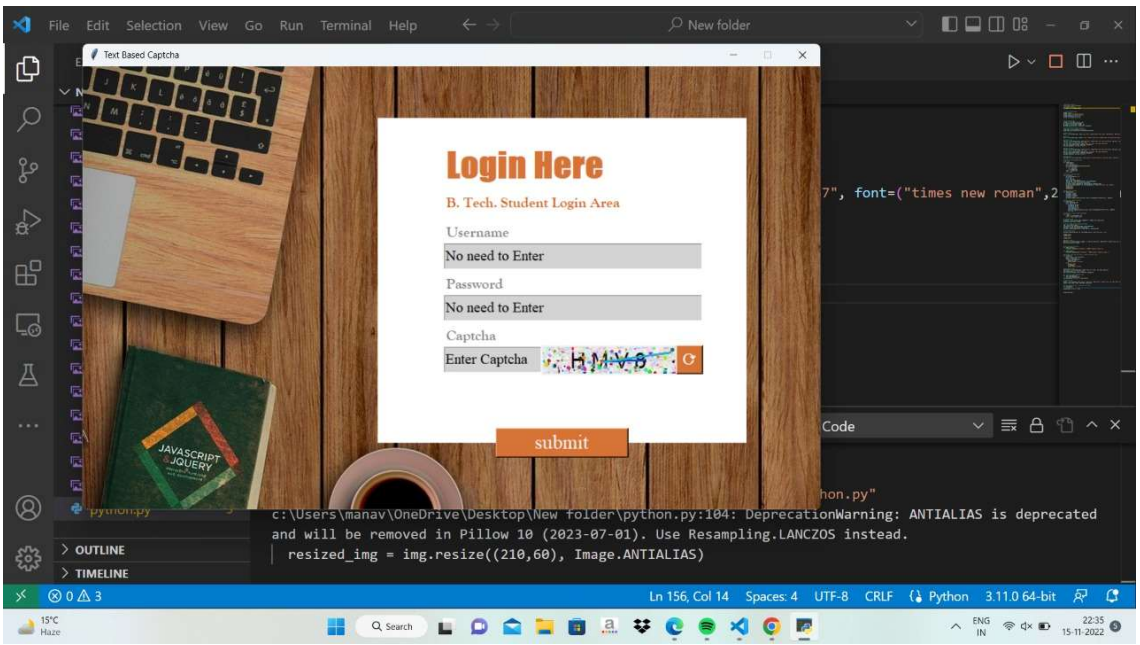
Have we define captcha label so that a user can see that given captcha which is generated randomly by the function random text in the canvas created for the captcha using a function B_refresh. Further we added random images in this canvas behind the text and also added random lines and dots in the background image

1.8 **USER INPUT IN CAPTCHA**



Here we defined a lable and a widget to take input from the user.

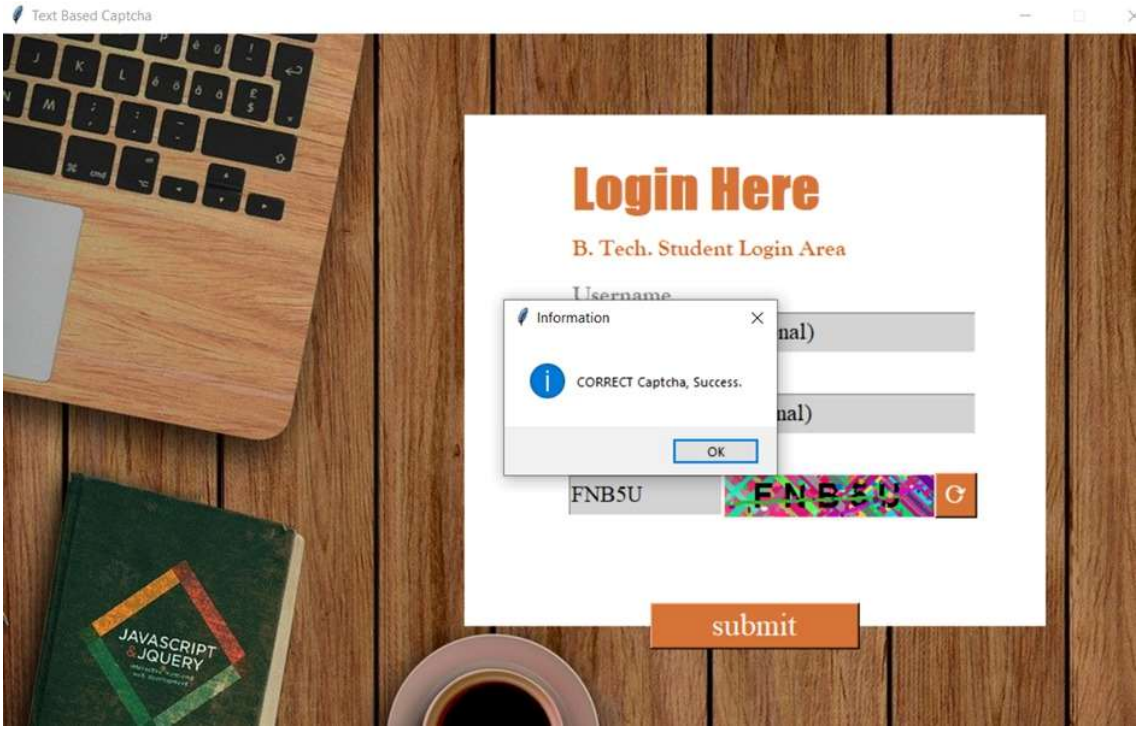
1.9 **SUBMIT BUTTON**



Here we add a button to submit the text entered by the user and check if it is correct or not.

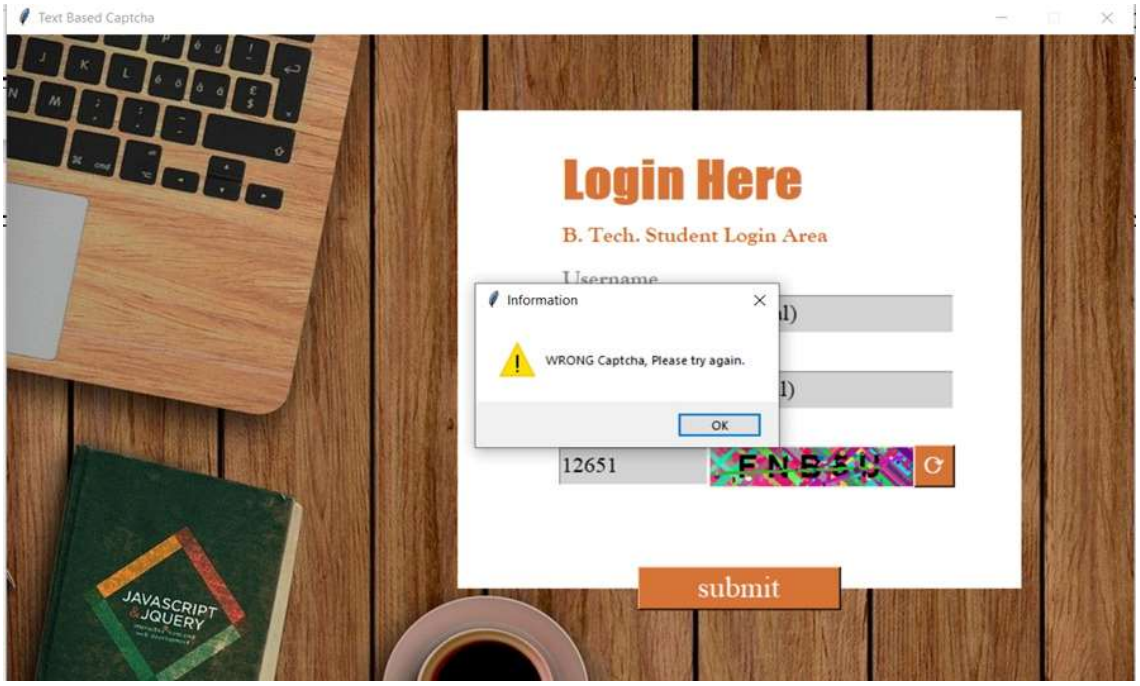
2.0 **POP UP MESSAGE**

2.0.1 IF CORRECT



If the data entered by the user in the captcha widget is matches perfectly with the generated captcha it will provide a message that correct captcha is entered.

2.0.2 **IF WRONG**



If the data entered by the user in the captcha widget DO NOT matches perfectly with the generated captcha it will provide a message that incorrect captcha is entered.

SOURCE CODE

```
from tkinter import *
from tkinter import messagebox
from random import *
from PIL import ImageTk,Image


 # creating main window
window = Tk()
window.title("Text Based Captcha")
window.geometry("1000x600+100+50")
window.resizable(False,False)


# Back-Ground Image
b_image = Image.open("bgImage.jpg")
bg = ImageTk.PhotoImage(b_image)
bg_image = Label(window, image = bg)
bg_image.place(x=0,y=0, relwidth=1, relheight=1)

#========= Captcha Frame ==========
Frame_login = Frame(window, bg="white")
Frame_login.place(x=400,y=70, height=440,width=500)

# Login Title
title = Label(Frame_login, text="Login Here", font=("Impact",35,"bold"),
fg="#d77337", bg="white").place(x=90,y=30)

#subtitle
desc = Label(Frame_login, text="B. Tech. Student Login Area", font=("Goudy old
style",15,"bold"), fg="#d25d17", bg="white").place(x=90,y=100)

#Username Label
lbl_user = Label(Frame_login, text="Username", font=("Goudy old
style",15,"bold"), fg="gray", bg="white").place(x=90,y=140)
#Entry widget to take username as input
txt_user = Entry(Frame_login, font=("times new roman", 15), bg="lightgray")
txt_user.place(x=90, y=170, width=350, height=35)
txt_user.insert(0, "Enter username(optional)")

# Password Label
lbl_pass = Label(Frame_login, text="Password", font=("Goudy old
style",15,"bold"), fg="gray", bg="white").place(x=90,y=210)
##Entry widget to take Password as input
txt_pass = Entry(Frame_login, font=("times new roman", 15), bg="lightgray")
txt_pass.place(x=90, y=240, width=350, height=35)
txt_pass.insert(0, "Enter passsword(optional)")
```

```
#Captcha Label
lbl_captcha = Label(Frame_login, text="Captcha", font=("Goudy old
style",15,"bold"), fg="gray", bg="white").place(x=90,y=280)

# Function to Creat Random text
r_lst = []
def random_text():
    r_lst.clear()
    num = randrange(4,7)
    st="ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789"
    for i in range(num):
        ch = choice(st)
        r_lst.append(ch)
    text=' '.join(r_lst)
    return text

# Function to refresh canvas
def B_refresh():
    my_canvas.delete("all")
    global img
    global new_img
    img = Image.open(f_img())
    resized_img = img.resize((210,60), Image.ANTIALIAS)
    new_img = ImageTk.PhotoImage(resized_img)
    my_canvas.create_image(100,25, anchor=CENTER, image=new_img)
    my_canvas.create_text(90, 20, text=random_text(), font=("Helvetica", 22,
"bold"))
    random_line()
    random_line()
    random_dots()

# random lines function
def random_line():
    x1=randint (0,100)
    y1=randint (5,50)
    x2=randint (100,200)
    y2=randint (5,50)
    my_canvas.create_line(x1,y1,x2,y2, fill=f'#{randint(0,0xffffff):06x}',
width=3)

# random Dots (NOISE) function
def random_dots():
    num = randint(80,150)
    while (num != 0):
        x1=randint (0,200)
```

```
        y1=randint (0,50)
        x2=x1+randint(1,5)
        y2=y1+randint(1,5)
        my_canvas.create_oval(x1,y1,x2,y2, fill=f'#{randint(0,0xffffff):06x}',
width=0)
        num = num - 1

# Function to chose a Random image Name
def f_img():
    r_num = str(randrange(7,18))
    return ("img"+r_num+".jpg")

# creating canvas
my_canvas = Canvas(Frame_login, height="36", width="180", bg="white")
my_canvas.place(x=222, y=308)

# canvas random captcha background image
img = Image.open(f_img())
resized_img = img.resize((210,60), Image.ANTIALIAS)
new_img = ImageTk.PhotoImage(resized_img)
my_canvas.create_image(100,25, anchor=CENTER, image=new_img)

#canvas random text
my_canvas.create_text(90, 20, text=random_text(), font=("Helvetica", 22))

random_line()
random_line()

random_dots()

# Refresh button
Refresh = Button(Frame_login, height = 1, text="⟳",fg="white", bg="#d77337",
font=("times new roman",14,"bold"), command=B_refresh)
Refresh.place(x=405, y=308)


# POPUP meassage functions
def popup_correct():
    messagebox.showinfo("Information", "CORRECT Captcha, Success.")

def popup_wrong():
    messagebox.showwarning("Information", "WRONG Captcha, Please try again.")

# function to get the user input on pressing submit button
def f_check ():
    entered_text = user_input.get()
    text=''.join(r_lst)
    if(text == entered_text):
        popup_correct()
```

```
        # print("CORRECT, Success")
    else:
        popup_wrong()
        B_refresh()
        # print("WRONG, Failed")

# taking user input
user_input = Entry(Frame_login, font=("times new roman", 15), bg="lightgray")
# user_input.insert(0, "Enter Captcha")
user_input.place(x=90, y=310, width=132, height=35)

#to cleare the USER PREVIOUSE INPUT
def clear_search(event):
    user_input.delete(0,END)
user_input.bind("<FocusIn>", clear_search)

# submit button
submit = Button(window, text="submit", fg="white", bg="#d77337", font=("times
new roman",20), command=f_check)
submit.place(x=560, y=490, width=180, height=40)

# on pressing Enter Key , submiting user input
def func(event):
    f_check()
window.bind('<Return>', func)


window.mainloop()
```

CONCLUSION

The captcha helps us to avoid both spam and bot present on different platform. It helps different platform to avoid fake accounts or post . The experience of developing this project also helped us learning lot about python and python GUI. It also simplify the problem of redundant accounts on any platform. It helps us to learn how to code in python and we are able to learn more about different module present in python. It also proved beneficial for us because we were able to design GUI in python .