DRAWING APPLICATION SYSTEM

PROJECT REPORT

OF MAJOR PROJECT

BACHELOR OF COMPUTER APPLICATION (BCA)

SUBMITTED BY

DINESH SINGH

BCA 6th Semester

Batch Year - 2020-2023

Enrollment No. - U2046035

PROJECT GUIDE: - Mr. ANAND DURGA SINGH

Centre of Computer Education & Training

Institute of Professional Studies

University of Allahabad, Prayagraj, Uttar Pradesh

ACKNOWLEDGEMENT

This project report is based on **'DRAWING APPLICATION SYSTEM'**. I have taken all my efforts in this project. However, it would not have been possible without the kind support and help of many individuals. I would like to extend my sincere thanks to all of them.

I am highly indebted to **Mr. ANAND DURGA SINGH** for his guidance and constant supervision as well as for providing necessary information regarding the project & also for his support in completing the project. I would also like to express my gratitude towards my parents & members of **Institute of Professional Studies (IPS), University of Allahabad** for their kind cooperation and encouragement which helped me in completion of this project.

My thanks and appreciation also go to my Friends in developing the project and people who have willingly helped me out with their abilities.

DINESH SINGH

BCA, 6th Semester

Enrollment No. - U2046035

CERTIFICATE

It is here by certified that the project work entitled DRAWING APPLICATION SYSTEM using PYTHON is a bonafide work carried out by DINESH SINGH Enrollment NO: U2046035, Bachelor of Computer Application in Centre of Computer Education & Training, Institute of Professional Studies, University of Allahabad during the year 2020-2023.

It is certified that all the correction/suggestion indicated for Major Project have been incorporated in the report. The project report has been approved as it satisfies the academic requirements in respect of project work allotted for the said degree.

Name of supervisor: Mr. ANAND DURGA SINGH

DECLARATION

I, **DINESH SINGH,** solemnly declare that the project report **DRAWING APPLICATION SYSTEM** is based on my own work carried out during the course of our study under the supervision of **Mr. ANAND DURGA SINGH.**

I assert the statements made and conclusions drawn are an outcome of my research work. I further certify that

1. The work contained in the report is original and has been done by me under the general supervision of my supervisor.
2. The work has not been submitted to any other Institution for any other degree/diploma/certificate in this university or any other University of India or Abroad.
3. I have followed the guidelines provided by the university in writing the report.
4. Whenever we have used materials (data, theoretical analysis, and text) from other sources, we have given due credit to them in the text of the report and given their details in the references.

DINESH SINGH

BCA, 6th Semester

Enrollment No. – U2046035

SYNOPSIS

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INTRODUCTION

Drawing Application System is the application software used to create simple images like vector graphics on canvas using various tools like Pencil, Eraser, Brushes, colors and various shapes for example rectangle, circle, oval etc.

User can also import files like images from the local computer and use it in their Drawing project. This application also provides features to save, save as, edit, open, close files and so on.

This application provides support of large number of colors and provides features to insert text which helps user to make their drawing project more interactive and eye-catching.

PROBLEM DEFINITION

Drawing Application helps user to draw sketches, images and pictures according to the user necessity. This application will also provide features like edit, where we can resize, change its appearance, compress the selected images or pictures.

User can register or login him/her with User Id and password which create separate workspace for them where they can save their work and made it inaccessible from the other user. User can also access their works remotely by simply login in the application.

This application is useful for a beginner for creating simple drawing as well as to createadvanced designs as it has vast range of tools support.

MOTIVATION

The Graphical User Interface of this application is very interactive and user friendly which provides ease of use to the user so they can use this application without any difficulty. In this we have all important graphical icons like pencil, brush, eraser, coloring tools, text boxes and all by which user can easily use these tools to create their illustrations to fulfill their requirements.

User can also create their own personal lobby where they can hide their work from other users bycreating User id and Password.

OBJECTIVE

The main objective of this project to build a Drawing Application System using Python which provides the following features.

- Drawing tools to draw objects, for example lines, arcs, polygons etc.
- Vast amount of coloring tools to make the drawing objects more attractive.
- Facility to import other image files which can be used in the current work.
- User can have their separate workspace which made this application multiuser.
- User ID and Password make user’s files secure from unwanted access and modification.

REQUIREMENT ANALYSIS

SOFTWARE REQUIREMENT

Operating System:	Window/Linux/Mac
Language Used:	Python
Additional Software:	Photoshop
IDE:	VsCode/PyCharm/IDLE

HARDWARE REQUIREMENT

CPU:	Intel I5 Gen-10
RAM:	8 GB or Higher

SYSTEM DESIGN

System Design includes the various modules of the system which will build. In other word it describes about the features that the software is going to provide and how it will be helpful to thetarget user/client.

Main Window

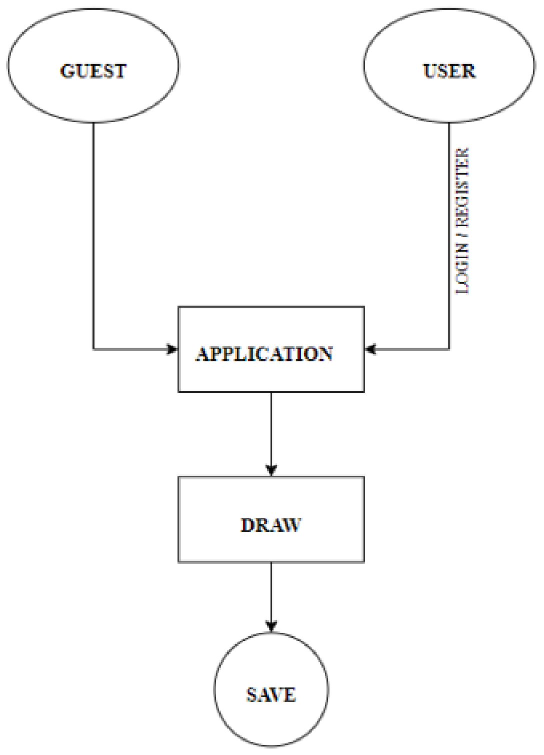
Basic Interface with all the important tools and the canvas area for drawing the sketches.

Login/Register

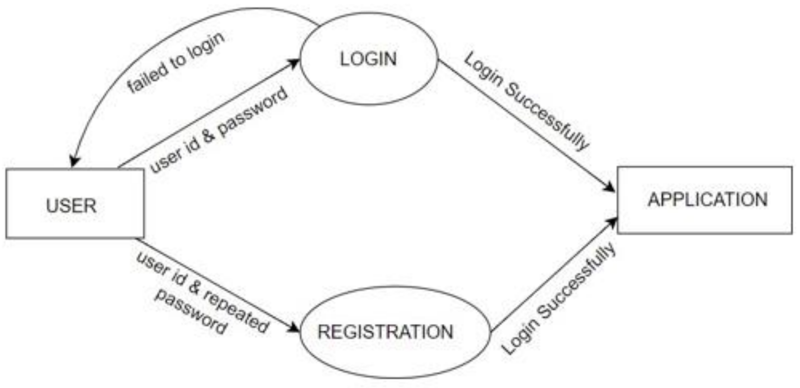
Here user can register/login him/her to create their own workspace to accomplish security andconfidentiality.

PROJECT ARCHITECTURE

BASIC PROJECT STRUCTURE



LOGIN & REGISTRATION



PROJECT REPORT

TABLE OF CONTENT

INTRODUCTION

1.1 Objective

The main objective of the project is to build a Drawing Application System using Python as a programming language which helps users to draw sketches and drawing as per their requirement.

1.2 Project Description

- Drawing Application System is the application software used to create simple images like vector graphics on canvas using various tools like Pencil, Eraser, Brushes, colors and various shapes for example rectangle, circle, oval etc.
- User can also import files like images from the local computer and use it in their Drawing project. This application also provides features to save, save as, edit, open, close files and so on.
- This application provides support of large number of colors and provides features to insert text which helps user to make their drawing project more interactive and eye-catching.

MOTIVATION

The motivation for creating a drawing application can vary depending on the goals of project and the target audience. Some common motivations for creating a drawing application includes:

1. Creative Expression: People enjoy using drawing applications to create digital art, express themselves, and experiment with different colors, textures, and styles.

2. Productivity: Drawing applications can be useful tools for graphic designers, artists, and other professionals who need to create visual content quickly and efficiently.

3. Education: Drawing applications can be used in educational settings to teach art and design concepts, as well as to facilitate collaborative learning and creativity.

4. Entertainment: Drawing applications can be designed to be fun and engaging, offering users a way to unwind and express their creativity in a casual setting.

Overall, a drawing application can provide a versatile and accessible platform for people to express their creativity, communicate visually, and explore new ideas.

REQUIREMENT & SOFTWARE ANALYSIS

The process of deciding on the requirement of a software system, which determines the responsibilities of a system, is called requirement analysis. Requirement analysis is a software engineering task that bridges the gap between system level requirements engineering and software design.

Requirement engineering activities result in the specification of software's operational characteristics, indicate the software's interface with other system elements and establish constraints that the software must meet. The following section presents the detailed requirement analysis of our project

3.1 SOFTWARE REQUIREMENT

• **Operating System:**	Window/Linux/Mac
• **Language Used:**	Python
• **Additional Software:**	Photoshop
• **IDE:**	VsCode/PyCharm/IDLE

3.2 HARDWARE REQUIREMENT

• **CPU:**	Intel I5 Gen-10
• **RAM:**	8 GB or Higher

SOFTWARE ANALYSIS

Software analysis and design includes all activities, which help the transformation of requirement specification into implementation. Requirement specifications specify all functional and non-functional expectations from the software. These requirement specifications come in the shape of human readable and understandable documents, to which a computer has nothing to do.

Software analysis and design is the intermediate stage, which helps human readable requirements to be transformed into actual code.

In order to achieve the objectives of coming up with the DRAWING APPLICATION SYSTEM, the preliminary investigation about the workability of the software is necessary and need to be carried out first. This will equip me with the relevant materials and knowledge on how to carry out the implementation.

TECHNOLOGIES USED

PYTHON is a language used to build proposed project on Drawing Application System. In this Project we have used GUI feature of Python called tkinter and various other modules as follows:-

- **Tkinter:** Tkinter is a de-facto standard GUI package for Pythons (Graphical User Interface). It is on top of Tcl/Tk, a thin object-oriented layer. TKinter is not the only Python toolkit for Gui Programming. However, it is the most commonly used one. Cameron Laird calls the annual decision to keep Tkinter "one of the minor traditions of the Python world." If you run python-m tkinter from the command prompt, it is important to open a window showing a simple Tk interface, letting you know that tkinter is correctly installed on your device, and also showing which version of Tcl/Tk is running.
- **Pillow:** The Standard Python Library (abbreviated as PIL) (known in newer versions as Pillow) is an additional free and open-source Python programming language library that supports the opening, manipulation, and saving of several different image file formats.
- **Time:** As the name suggests Python time module allows to work with time in Python. It allows functionality like getting the current time, pausing the Program from executing, etc. So before starting with this module we need to import it.

SYSTEM DESIGN

System Design includes various modules of the system which is build. In other word it describes about the features that software is going to provide and how it will be helpful to the target user/client.

1. Main Window

Main window is divided into two parts, 1st upper part for controllers and 2nd lower for drawing sketches

2. Controllers

Controllers includes various sub parts providing buttons dedicated for different purposes. These sub parts are as follows: -

- **Tools: -** Contains Buttons like pencil, eraser, color pen, clear, text box and select region.
- **Width Controller: -** Contains slider to choose the width of outline and eraser.
- **Index Box: -** Contains the recent drawn object as number, user can manipulate these objects by selecting in the index box
- **Shapes & Lines: -** Contains lines and shapes like, rectangle, parallelogram, triangle, pentagon, hexagon, arrow, circle etc.
- **Color Box: -** Contains various colors for drawing purpose.
- **Mode Box: -** Contains coloring modes as fill (fill the shapes and line), outline (change the outline color of the shapes) and permanent fill and outline color for choosing the fill and outline color for upcoming shapes.

3. Menu Bar

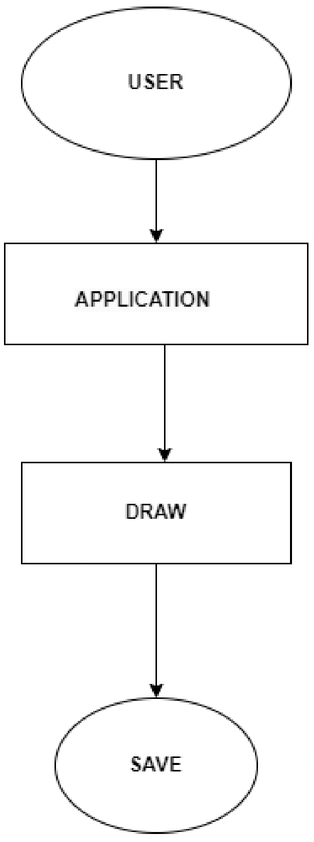
Menu bar contains following options: - new, open, save, undo, cut, copy, paste, screenshot, clear, change background color, zoom, color pen width controller, movement, about, tips, about etc.

4. Status Bar

Display Coordinate position of the cursor along with the message according to the selected tool.

ACTIVITY DIAGRAM

Activity diagram provides a graphical representation of various activities that are carried out in an application. A clear overview of the DRAWING APPLICATION SYSTEM will be provided from the beginning till the end. The workflow of the activities and their dependencies with each other during the execution of the tasks and processes is shown in the activity diagram. The major functionalities of the site have been depicted using the diagram as shown below.



CODING

```
#Importing All Necessary libraries
from tkinter import *
from tkinter import messagebox,colorchooser,filedialog
from PIL import Image,ImageTk,ImageGrab
import time


class Draw:


    def __init__(self):
        self.window = Tk()
        self.window.title("DRAWINGO : wings to your imagination")
        self.window.geometry("1536x864")
        self.window.maxsize(1536,864)
        self.window.minsize(1536,864)
        self.window.config(bg="linen")
        self.window.iconbitmap("Icons/appicon.ico")


        #Variable
        self.main_menu = None
        self.file_menu = None
        self.edit_menu = None
        self.color_menu = None
        self.option_menu = None
        self.help_menu = None
        self.coord = None
        self.status_msg = None
        self.notation_box = None
        self.tools = None
        self.width_controller = None
        self.Index_Box = None
        self.shapes_lines = None
        self.delete_seg = None
        self.top = None
        self.choosing_color = None
        self.intro_img = None

        #All necessary variables
        self.shape_outline_width_label = None
        self.eraser_width_label = None
        self.eraser_controller = None

        #Input variable initialization
        self.fill_information = IntVar()
        self.outline_information = IntVar()
        self.input_take = StringVar()
        self.fill_information.set(0)
        self.outline_information.set(0)
        self.input_take.set(" ")
```

```
#All scale initialization under Text button
self.font_size = Scale()
self.font_size.set(20)

#Coordinate variable
self.old_x = None
self.old_y = None
self.new_x = None
self.new_y = None

#Some value initialization
self.color_circle_width_maintainer = 15
self.img_counter = -1
self.width_controller_scale = 0
self.counter = -1
self.width_maintainer = 2
self.erase_width_maintainer = 5
self.active_coloring = 2

#All initialize lists
self.img_container = []
self.cut_copy_img = []
self.undo_container = []
self.redo_container = []
self.temp = []
self.tools_container = []
self.shapes_container = []

self.colors_container = []

self.modes_container = []

self.menu_img_container = []

self.about_img = []


#By default set color

self.fill_color = "white"

self.fill_color_line = "black"

self.outline_color_line = "black"

self.text_fg = "black"

self.color_container_box = "black"


#All necessary Buttons

self.tool_btn = Button()

self.shape_btn = Button()

self.color_btn = Button()

self.mode_btn = Button()


#All necessary frame

self.main_frame = LabelFrame()

self.tools = LabelFrame()

self.width_controller = LabelFrame()

self.Index_Box = LabelFrame()

self.shapes_lines = LabelFrame()

self.color_Box = LabelFrame()
```

```
        self.color_mode = LabelFrame()

        #All necessary canvas

        self.drawing_canvas = Canvas()



        #Creating Frame for placing frame for tool, shapes, colors etc

        self.main_frame =
LabelFrame(self.window,text="CONTROLLERS",cursor="arrow",labelanchor=SE,relief=GROOVE,font=("timesn
ewroman",12,"bold"),bg="snow",height=160,width=1536,highlightbackground="grey",highlightthickness=2)

        self.main_frame.grid(row=0,column=0,sticky=NSEW,pady=5)



        #Creating canvas for drawing

        self.drawing_canvas = Canvas(self.window,bg = "white",width=1510,height=570, highlightthickness=2,
highlightbackground="grey",relief=GROOVE)

        self.drawing_canvas.grid(row=1,column=0,sticky=NSEW,padx = 10, pady = 1)



        #Calling controls method which contains frame and buttons for tools, shapes, color etc

        self.controls(0)



        #Creating Controllers to various tools,shape, color box etc

        self.controllers()



        #Creating all necessary menu option

        self.make_menu()



        #Creating status bar

        self.make_status()
        #setting up zoom feature in canvas
        self.drawing_canvas.bind("<Control-MouseWheel>",self.zoom_controller)

        #seting up color box width controller
        self.drawing_canvas.bind("<Shift-MouseWheel>",self.color_box_width_controller)

        #displaying pixel position in status bar
        self.drawing_canvas.bind("<Motion>",self.movement_cursor)

        self.window.mainloop()

    def make_menu(self):
        self.main_menu = Menu(self.window)
        self.window.config(menu=self.main_menu)

        menu_img = ["new.png", "open.png", "save.png", "exit.png", "undo.png", "clear.png", "cut.png", "copy.png",
"paste.png","screenshot.png", "bgcolor.png", "fill_outline.png", "zoom_in.png", "zoom_out.png", "color_pen.png",
"movement.png","about.png","tips.png"]

        for i in range(18):
            self.menu_img_container.append(i)
            self.menu_img_container[i] = ImageTk.PhotoImage(Image.open("Icons/"+menu_img[i]).resize((30,30)))

        #Creating File Menu
        self.file_menu = Menu(self.main_menu,tearoff=False)
        self.main_menu.add_cascade(label="File",menu=self.file_menu)
        #Placing options to file menu

        self.file_menu.add_command(label="New",accelerator="(Ctrl+N)",command=lambda:
self.controls(19),image=self.menu_img_container[0],compound=LEFT,background="linen",foreground="black",fon
t=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        self.file_menu.add_command(label="Open",accelerator="(Ctrl+O)",command=lambda:
self.open(False),image=self.menu_img_container[1],compound=LEFT,background="linen",foreground="black",fon
t=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        self.file_menu.add_command(label="Save",accelerator="(Ctrl+S)",command=lambda:
self.save(False),state=DISABLED,image=self.menu_img_container[2],compound=LEFT,background="linen",foreg
round="black",font=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        self.file_menu.add_command(label="Exit",command=lambda: self.controls(20)
,image=self.menu_img_container[3],compound=LEFT,background="linen",foreground="black",font=("timesnewro
man",12,"bold"),activebackground="silver",activeforeground="black")


        self.window.bind('<Control-Key-n>', lambda e: self.controls(19))

        self.window.bind('<Control-Key-o>', self.open)

        self.window.bind('<Control-Key-s>', self.save)


        #Creating edit menu

        self.edit_menu = Menu(self.main_frame,tearoff=False)

        self.main_menu.add_cascade(label="Edit",menu=self.edit_menu)


        #Placing options in edit menu

        self.edit_menu.add_command(label="Undo",accelerator="(Ctrl+Z)",command=lambda:
self.undo(False),image=self.menu_img_container[4],compound=LEFT,background="linen",foreground="black",stat
e=DISABLED,font=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")
```

```
        self.edit_menu.add_command(label="Clear",command=lambda: 
self.controls(18),image=self.menu_img_container[5],compound=LEFT,background="linen",foreground="black",sta
te=DISABLED,font=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        self.edit_menu.add_command(label="Cut",accelerator="(Ctrl+X)",command=lambda: 
self.cut(False),image=self.menu_img_container[6],compound=LEFT,background="linen",foreground="black",state
=DISABLED,font=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        self.edit_menu.add_command(label="Copy",accelerator="(Ctrl+C)",command=lambda: 
self.copy(0),image=self.menu_img_container[7],compound=LEFT,background="linen",foreground="black",state=
DISABLED,font=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        self.edit_menu.add_command(label="Paste",accelerator="(Ctrl+V)",command=lambda: 
self.paste(False),image=self.menu_img_container[8],compound=LEFT,background="linen",foreground="black",stat
e=DISABLED,font=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        self.edit_menu.add_command(label="Screenshot",accelerator="(Ctrl+Alt+C)",command=lambda: 
self.screenshot(False),image=self.menu_img_container[9],compound=LEFT,background="linen",foreground="blac
k",state=DISABLED,font=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        self.window.bind("<Control-Key-z>",self.undo)

        self.window.bind("<Control-Key-x>", self.cut)

        self.window.bind("<Control-Key-c>",self.copy)

        self.window.bind("<Control-Key-v>", self.paste)

        self.window.bind("<Control-Alt-Key-c>",self.screenshot)


        #Creating edit menu

        self.color_menu = Menu(self.main_frame,tearoff=False)

        self.main_menu.add_cascade(label="Color",menu=self.color_menu)
        self.color_menu.add_command(label="Change Background Color",command=lambda:
self.controls(21),image=self.menu_img_container[10],compound=LEFT,background="linen",foreground="black",fo
nt=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        self.color_menu.add_command(label="Change Permanent Fill and Outline
Color",command=self.change_permanent_fill_outline_color,image=self.menu_img_container[11],compound=LEFT
,background="linen",foreground="black",font=("timesnewroman",12,"bold"),activebackground="silver",activeforeg
round="black")


        #Creating option menu

        self.option_menu = Menu(self.main_menu,tearoff=False)

        self.main_menu.add_cascade(label="Option",menu=self.option_menu)


        #Placing options in option menu

        self.option_menu.add_command(label="Zoom in",accelerator="(Ctrl+Scroll up)",command=lambda:
self.zoom_controller(1),image=self.menu_img_container[12],compound=LEFT,background="linen",foreground="b
lack",font=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        self.option_menu.add_command(label="Zoom out",accelerator="(Ctrl+Scroll down)",command=lambda:
self.zoom_controller(0),image=self.menu_img_container[13],compound=LEFT,background="linen",foreground="b
lack",font=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        self.option_menu.add_separator(background="linen")


        self.option_menu.add_command(label="Color Pen Width Increase",accelerator="(Shift+Scroll
up)",command=lambda:
self.color_box_width_controller(1),image=self.menu_img_container[14],compound=LEFT,background="linen",for
eground="black",font=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        self.option_menu.add_command(label="Color Pen Width Decrease",accelerator="(Shift+Scroll
down)",command=lambda:
self.color_box_width_controller(0),image=self.menu_img_container[14],compound=LEFT,background="linen",for
eground="black",font=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")
```

```
        self.option_menu.add_separator(background="linen")


        self.option_menu.add_command(label="Movement",command=lambda:
self.controls(22),image=self.menu_img_container[15],compound=LEFT,background="linen",foreground="black",st
ate=DISABLED,font=("timesnewroman",12,"bold"),activebackground="silver",activeforeground="black")


        #Create Help Menu

        self.help_menu = Menu(self.main_menu,tearoff=False)

        self.main_menu.add_cascade(label="Help",menu=self.help_menu)


        #Placing Options in Help menu

self.help_menu.add_command(label="About",command=self.about,image=self.menu_img_container[16],compound
=LEFT,background="linen",foreground="black",font=("timesnewroman",12,"bold"),activebackground="silver",acti
veforeground="black")



self.help_menu.add_command(label="Tips",command=self.tips,image=self.menu_img_container[17],compound=L
EFT,background="linen",foreground="black",font=("timesnewroman",12,"bold"),activebackground="silver",activef
oreground="black")


    def make_status(self):

        #Creating label for status message

        self.status_msg = Label(self.window,text="Draw With Fun\t",bg =
"grey",fg="black",font=("timesnewroman",10,"bold"),anchor=NE)

        self.status_msg.grid(row=2,column=0,sticky=NSEW)


        #Creating label for coordinate values
        self.coord = 
Label(self.status_msg,text="",bg="grey",fg="black",font=("timesnewroman",10,"bold"),anchor=NW)

        self.coord.grid(row=2,column=0)


    #For cursor position by movement

    def movement_cursor(self,event):

        self.coord.config(text=f"{event.x},{event.y}px")




    def controls(self,notation):

        if self.temp:

            self.drawing_canvas.delete(self.temp.pop())


        if self.notation_box:

            if self.notation_box["state"] == DISABLED:

                self.notation_box["state"] = NORMAL


        self.drawing_canvas.config(cursor="TCROSS")


        self.drawing_canvas.unbind("<B1-Motion>")

        self.drawing_canvas.unbind("<ButtonRelease-1>")

        self.drawing_canvas.unbind("<Button-1>")


        if notation == 1:

            self.drawing_canvas.config(cursor="Pencil")

            self.drawing_canvas.bind("<B1-Motion>",self.draw_with_pencil)

        elif notation == 2:
```

```
    self.drawing_canvas.bind("<B1-Motion>",self.draw_circle)
elif notation == 3:
    self.drawing_canvas.bind("<B1-Motion>",self.draw_rectangle)
elif notation == 4:
    self.drawing_canvas.bind("<B1-Motion>",self.draw_bent_line)
    self.drawing_canvas.bind("<Shift-B1-Motion>",self.draw_straight_line)
elif notation == 5:
    self.drawing_canvas.config(cursor=DOTBOX)
    self.drawing_canvas.bind("<B1-Motion>",self.eraser)
elif notation == 6:
    self.text_creation_input_take()
elif notation == 7:
    self.drawing_canvas.bind("<B1-Motion>",self.draw_triangle)
elif notation == 8:
    self.drawing_canvas.bind("<B1-Motion>",self.draw_parallelogram)
elif notation == 9:
    self.drawing_canvas.bind("<B1-Motion>",self.draw_pentagon)
elif notation == 10:
    self.drawing_canvas.bind("<B1-Motion>",self.draw_hexagon)
elif notation == 11:
    self.drawing_canvas.bind("<B1-Motion>",self.draw_arrow_up_down)
elif notation == 12:
    self.drawing_canvas.bind("<B1-Motion>",self.draw_dashed_line)
elif notation == 13:
    self.drawing_canvas.bind("<B1-Motion>",self.select_region)
    self.drawing_canvas.bind("<Delete>",self.delete_selected_region)
```

```
elif notation == 14:
    self.drawing_canvas.config(cursor="circle")
    self.color_container_box = colorchooser.askcolor()[1]
    self.drawing_canvas.bind("<B1-Motion>",self.color_boxer)
elif notation == 15:
    self.drawing_canvas.bind("<B1-Motion>",self.draw_arrow_left_right)
elif notation == 16:
    self.drawing_canvas.bind("<B1-Motion>",self.draw_rounded_rectangle)
elif notation == 17:
    self.drawing_canvas.bind("<B1-Motion>",self.draw_right_angled_triangle)
elif notation == 18 or notation == 19:
    if notation == 18:
        take = messagebox.askyesno("Clear Conformation","Are you sure to Clear?")
    else:
        take = messagebox.askyesno("New Window Conformation","Are you want to open new window?")
    if take is True:
        self.drawing_canvas.delete("all")
        self.clear()
elif notation == 20:
    take = messagebox.askyesno("Exit Confermation","Are you sure to Exit?")
    if take is True:
        self.window.destroy()
elif notation == 21:
    take = colorchooser.askcolor()[1]
    if take:
        self.drawing_canvas["bg"] = take
```

```
                self.drawing_canvas.update()

        elif notation == 22:

            messagebox.showinfo("Movement Direction","At first click on the shape or line number from indexing box\n\n1. Right Arrow---->  Right Movement\n\n2. Left Arrow----> Left Movement\n\n3. Up Arrow---->Up Movement\n\n4. Down Arrow--->Down Movement\n\n5. Space Button--->Stop Movement")



    def controllers(self):



        #Creating frame for tools

        self.tools = LabelFrame(self.main_frame,text="Tools",labelanchor=S,bg="white",height=130,width=150,highlightbackground="grey",highlightthickness=2,relief=GROOVE,font=("timesnewroman",10,"bold"))

        self.tools.grid(row=0,column=0,padx=10,pady=5)



        tools_storage = ["pencil.png","eraser.png","color_box.png","clear.png","text_box.png","selection_box.png"]



        for i in range(6):

            self.tools_container.append(i)

            self.tools_container[i] = ImageTk.PhotoImage(Image.open("Icons/"+tools_storage[i]).resize((20,20)))



        #Pencil

        self.tool_btn = Button(self.tools,image=self.tools_container[0],relief=RAISED,command=lambda: self.controls(1))

        self.tool_btn.grid(row=0,column=0,padx=2,pady=2,ipadx=2,ipady=2)



        #Eraser

        self.tool_btn = Button(self.tools,image=self.tools_container[1],relief=RAISED,command=lambda: self.controls(5))

        self.tool_btn.grid(row=0,column=1,padx=2,pady=2,ipadx=2,ipady=2)
        #Color Box

        self.tool_btn = Button(self.tools,image=self.tools_container[2],relief=RAISED,command=lambda: self.controls(14))

        self.tool_btn.grid(row=1,column=0,padx=2,pady=2,ipadx=2,ipady=2)


        #Clear

        self.tool_btn = Button(self.tools,image=self.tools_container[3],relief=RAISED,command=lambda: self.controls(18))

        self.tool_btn.grid(row=1,column=1,padx=2,pady=2,ipadx=2,ipady=2)


        #Text box

        self.tool_btn = Button(self.tools,image=self.tools_container[4],relief=RAISED,command=lambda :self.controls(6))

        self.tool_btn.grid(row=2,column=0,padx=2,pady=2,ipadx=2,ipady=2)


        #Selection

        self.tool_btn = Button(self.tools,image=self.tools_container[5],relief=RAISED,command=lambda: self.controls(13))

        self.tool_btn.grid(row=2,column=1,padx=2,pady=2,ipadx=2,ipady=2)


        #Movement Keyboard setup

        self.window.bind("<space>",self.movement)

        self.window.bind("<Left>",self.movement)

        self.window.bind("<Right>",self.movement)

        self.window.bind("<Up>",self.movement)

        self.window.bind("<Down>",self.movement)
        #Creating frame for width controller

        self.width_controller = LabelFrame(self.main_frame,text="Width
Controller",labelanchor=S,bg="white",height=130,width=150,highlightbackground="grey",highlightthickness=2,reli
ef=GROOVE,font=("timesnewroman",10,"bold"))

        self.width_controller.grid(row=0,column=1,padx=10,pady=5)


        #Shape Border Width Controller

        def shape_outline_width_controller(event):

            self.width_maintainer = event


        #Eraser Width Controller

        def eraser_width_controller(event):

            self.erase_width_maintainer = event


        #Shape Border width label

        self.shape_outline_widht_label = Label(self.width_controller,text="Outline Width :-
",font=("timesnewroman",12,"bold"),bg="white",fg="black")

        self.shape_outline_widht_label.grid(row=0,column=0,padx=2,pady=2)


        #Shape Border width scale

        self.width_controller_scale =
Scale(self.width_controller,orient=HORIZONTAL,from_=0,to=100,bg="black",fg="white",font=("timesnewroman"
,10,"bold"),relief=RAISED,bd=2,command=shape_outline_width_controller,activebackground="silver")

        self.width_controller_scale.set(self.width_maintainer)

        self.width_controller_scale.grid(row=0,column=1,padx=2,pady=2)


        #Eraser Width label

        self.eraser_width_label = Label(self.width_controller,text="Eraser Width :-
",font=("timesnewroman",12,"bold"),bg="white",fg="black")
```

```
        self.eraser_width_label.grid(row=1,column=0,padx=2,pady=2)


        #Eraser Width Scale

        self.eraser_controller =
Scale(self.width_controller,orient=HORIZONTAL,from_=0,to=100,bg="black",fg="white",activebackground="silv
er",font=("timesnewroman",10,"bold"),relief=RAISED,bd=2,command=eraser_width_controller)

        self.eraser_controller.set(self.erase_width_maintainer)

        self.eraser_controller.grid(row=1,column=1,padx=2,pady=2)


        #Creating frame for Index box

        self.Index_Box = LabelFrame(self.main_frame,text="Index
Box",labelanchor=S,bg="white",height=130,width=100,highlightbackground="grey",highlightthickness=2,relief=G
ROOVE,font=("timesnewroman",10,"bold"))

        self.Index_Box.grid(row=0,column=2,padx=10,pady=5)


        #Creating index box

        self.notation_box =
Listbox(self.Index_Box,width=5,height=4,font=("timesnewroman",12,"bold"),fg="black",bg="linen",relief=GROO
VE,bd=5)

        self.notation_box.grid(row=0,column=0,padx=10,pady=5)


        #Creating frame for shapes and lines

        self.shapes_lines = LabelFrame(self.main_frame,text="Shape &
Lines",labelanchor=S,bg="white",height=130,width=300,highlightbackground="grey",highlightthickness=2,relief=
GROOVE,font=("timesnewroman",10,"bold"))

        self.shapes_lines.grid(row=0,column=3,padx=10,pady=5)


        shape_storage =
["line.png","dashed_line.png","rectangle.png","parallelogram.png","triangle.png","pentagon.png","hexagon.png","a
rrow.png","circle.png","right_angled_triangle.png","rounded_rectangle.png","left_arrow.png"]
```

```
for i in range(12):

    self.shapes_container.append(i)

    self.shapes_container[i] = ImageTk.PhotoImage(Image.open("Icons/"+shape_storage[i]).resize((20,20)))


#Creating line

self.shape_btn = Button(self.shapes_lines,image=self.shapes_container[0],relief=RAISED,command=lambda: self.controls(4))

self.shape_btn.grid(row=0,column=0,padx=2,pady=2,ipadx=2,ipady=2)


#Creating dashed line

self.shape_btn = Button(self.shapes_lines,image=self.shapes_container[1],relief=RAISED,command=lambda: self.controls(12))

self.shape_btn.grid(row=0,column=1,padx=2,pady=2,ipadx=2,ipady=2)


#Creating rectangle

self.shape_btn = Button(self.shapes_lines,image=self.shapes_container[2],relief=RAISED,command=lambda: self.controls(3))

self.shape_btn.grid(row=0,column=2,padx=2,pady=2,ipadx=2,ipady=2)


#Creating parallelogram

self.shape_btn = Button(self.shapes_lines,image=self.shapes_container[3],relief=RAISED,command=lambda: self.controls(8))

self.shape_btn.grid(row=0,column=3,padx=2,pady=2,ipadx=2,ipady=2)


#Creating triangle

self.shape_btn = Button(self.shapes_lines,image=self.shapes_container[4],relief=RAISED,command=lambda: self.controls(7))
```

```
        self.shape_btn.grid(row=1,column=0,padx=2,pady=2,ipadx=2,ipady=2)


        #Creating pentagon

        self.shape_btn = Button(self.shapes_lines,image=self.shapes_container[5],relief=RAISED,command=lambda:
self.controls(9))

        self.shape_btn.grid(row=1,column=1,padx=2,pady=2,ipadx=2,ipady=2)


        #Creating hexagon

        self.shape_btn = Button(self.shapes_lines,image=self.shapes_container[6],relief=RAISED,command=lambda:
self.controls(10))

        self.shape_btn.grid(row=1,column=2,padx=2,pady=2,ipadx=2,ipady=2)


        #Creating Arrow

        self.shape_btn = Button(self.shapes_lines,image=self.shapes_container[7],relief=RAISED,command=lambda:
self.controls(11))

        self.shape_btn.grid(row=1,column=3,padx=2,pady=2,ipadx=2,ipady=2)


        #Creating Circle

        self.shape_btn = Button(self.shapes_lines,image=self.shapes_container[8],relief=RAISED,command=lambda:
self.controls(2))

        self.shape_btn.grid(row=2,column=0,padx=2,pady=2,ipadx=2,ipady=2)


        #Creating Right Angled Triangle

        self.shape_btn = Button(self.shapes_lines,image=self.shapes_container[9],relief=RAISED,command=lambda:
self.controls(17))

        self.shape_btn.grid(row=2,column=1,padx=2,pady=2,ipadx=2,ipady=2)


        #Creating Rounded Rectangle
        self.shape_btn = Button(self.shapes_lines,image=self.shapes_container[10],relief=RAISED,command=lambda:
self.controls(16))

        self.shape_btn.grid(row=2,column=2,padx=2,pady=2,ipadx=2,ipady=2)



        #Creating Left arrow

        self.shape_btn = Button(self.shapes_lines,image=self.shapes_container[11],relief=RAISED,command=lambda:
self.controls(15))

        self.shape_btn.grid(row=2,column=3,padx=2,pady=2,ipadx=2,ipady=2)



        #Creating frame for color box

        self.color_Box = LabelFrame(self.main_frame,text="Color
Box",labelanchor=S,bg="white",height=130,width=300,highlightbackground="grey",highlightthickness=2,relief=G
ROOVE,font=("timesnewroman",10,"bold"))

        self.color_Box.grid(row=0,column=4,padx=10,pady=5)



        color_storage =
["red.png","brown.png","blue.png","grey.png","yellow.png","green.png","orange.png","black.png","white.png","pin
k.png","indigo.png","voilet.png","light_green.png","olive.png","maroon.png","blush.png","silver.png","saffron.png
","cream.png","peach.png","choose_color.png"]



        for i in range(21):

            self.colors_container.append(i)

            self.colors_container[i] = ImageTk.PhotoImage(Image.open("Icons/"+color_storage[i]).resize((20,20)))



        #Button for red color

        self.color_btn = Button(self.color_Box,image=self.colors_container[0],relief=RAISED,command=lambda:
self.check(0,self.active_coloring))

        self.color_btn.grid(row=0,column=0,padx=2,pady=2,ipadx=2,ipady=2)



        #Button for brown color
        self.color_btn = Button(self.color_Box,image=self.colors_container[1],relief=RAISED,command=lambda:
self.check(1,self.active_coloring))

        self.color_btn.grid(row=0,column=1,padx=2,pady=2,ipadx=2,ipady=2)


        #Button for blue color

        self.color_btn = Button(self.color_Box,image=self.colors_container[2],relief=RAISED,command=lambda:
self.check(2,self.active_coloring))

        self.color_btn.grid(row=0,column=2,padx=2,pady=2,ipadx=2,ipady=2)


        #Button for grey color

        self.color_btn = Button(self.color_Box,image=self.colors_container[3],relief=RAISED,command=lambda:
self.check(3,self.active_coloring))

        self.color_btn.grid(row=0,column=3,padx=2,pady=2,ipadx=2,ipady=2)


        #Button for yellow color

        self.color_btn = Button(self.color_Box,image=self.colors_container[4],relief=RAISED,command=lambda:
self.check(4,self.active_coloring))

        self.color_btn.grid(row=0,column=4,padx=2,pady=2,ipadx=2,ipady=2)


        #Button for green color

        self.color_btn = Button(self.color_Box,image=self.colors_container[5],relief=RAISED,command=lambda:
self.check(5,self.active_coloring))

        self.color_btn.grid(row=0,column=5,padx=2,pady=2,ipadx=2,ipady=2)


        #Button for orange color

        self.color_btn = Button(self.color_Box,image=self.colors_container[6],relief=RAISED,command=lambda:
self.check(6,self.active_coloring))

        self.color_btn.grid(row=0,column=6,padx=2,pady=2,ipadx=2,ipady=2)
        #Button for black color

        self.color_btn = Button(self.color_Box,image=self.colors_container[7],relief=RAISED,command=lambda: 
self.check(7,self.active_coloring))

        self.color_btn.grid(row=1,column=0,padx=2,pady=2,ipadx=2,ipady=2)



        #Button for white color

        self.color_btn = Button(self.color_Box,image=self.colors_container[8],relief=RAISED,command=lambda: 
self.check(8,self.active_coloring))

        self.color_btn.grid(row=1,column=1,padx=2,pady=2,ipadx=2,ipady=2)



        #Button for pink color

        self.color_btn = Button(self.color_Box,image=self.colors_container[9],relief=RAISED,command=lambda: 
self.check(9,self.active_coloring))

        self.color_btn.grid(row=1,column=2,padx=2,pady=2,ipadx=2,ipady=2)



        #Button for indigo color

        self.color_btn = Button(self.color_Box,image=self.colors_container[10],relief=RAISED,command=lambda: 
self.check(10,self.active_coloring))

        self.color_btn.grid(row=1,column=3,padx=2,pady=2,ipadx=2,ipady=2)



        #Button for voilet color

        self.color_btn = Button(self.color_Box,image=self.colors_container[11],relief=RAISED,command=lambda: 
self.check(11,self.active_coloring))

        self.color_btn.grid(row=1,column=4,padx=2,pady=2,ipadx=2,ipady=2)



        #Button for light green color

        self.color_btn = Button(self.color_Box,image=self.colors_container[12],relief=RAISED,command=lambda: 
self.check(12,self.active_coloring))

        self.color_btn.grid(row=1,column=5,padx=2,pady=2,ipadx=2,ipady=2)
        #Button for olive color

        self.color_btn = Button(self.color_Box,image=self.colors_container[13],relief=RAISED,command=lambda:
self.check(13,self.active_coloring))

        self.color_btn.grid(row=1,column=6,padx=2,pady=2,ipadx=2,ipady=2)



        #Button for maroon color

        self.color_btn = Button(self.color_Box,image=self.colors_container[14],relief=RAISED,command=lambda:
self.check(14,self.active_coloring))

        self.color_btn.grid(row=2,column=0,padx=2,pady=2,ipadx=2,ipady=2)


        #Button for blush color

        self.color_btn = Button(self.color_Box,image=self.colors_container[15],relief=RAISED,command=lambda:
self.check(15,self.active_coloring))

        self.color_btn.grid(row=2,column=1,padx=2,pady=2,ipadx=2,ipady=2)


        #Button for silver color

        self.color_btn = Button(self.color_Box,image=self.colors_container[16],relief=RAISED,command=lambda:
self.check(16,self.active_coloring))

        self.color_btn.grid(row=2,column=2,padx=2,pady=2,ipadx=2,ipady=2)


        #Button for night color

        self.color_btn = Button(self.color_Box,image=self.colors_container[17],relief=RAISED,command=lambda:
self.check(17,self.active_coloring))

        self.color_btn.grid(row=2,column=3,padx=2,pady=2,ipadx=2,ipady=2)


        #Button for cream color
        self.color_btn = Button(self.color_Box,image=self.colors_container[18],relief=RAISED,command=lambda: 
self.check(18,self.active_coloring))

        self.color_btn.grid(row=2,column=4,padx=2,pady=2,ipadx=2,ipady=2)



        #Button for peach color

        self.color_btn = Button(self.color_Box,image=self.colors_container[19],relief=RAISED,command=lambda: 
self.check(19,self.active_coloring))

        self.color_btn.grid(row=2,column=5,padx=2,pady=2,ipadx=2,ipady=2)



        #Button for choose color

        self.color_btn = Button(self.color_Box,image=self.colors_container[20],relief=RAISED,command=lambda: 
self.check(20,self.active_coloring))

        self.color_btn.grid(row=2,column=6,padx=2,pady=2,ipadx=2,ipady=2)



        #Frame for color mode

        self.color_mode = 
LabelFrame(self.main_frame,text="Mode",labelanchor=S,bg="white",height=130,width=300,highlightbackground=
"grey",highlightthickness=2,relief=GROOVE,font=("timesnewroman",10,"bold"))

        self.color_mode.grid(row=0,column=5,padx=10,pady=5)



        modes_storage = ["fill.png","outline.png","permanent.png"]



        for i in range(3):

            self.modes_container.append(i)

            self.modes_container[i] = ImageTk.PhotoImage(Image.open("Icons/"+modes_storage[i]).resize((20,20)))



        #Button for Fill

        self.mode_btn = Button(self.color_mode,image=self.modes_container[0],relief=RAISED,command=lambda: 
self.activate_coloring(1))
```

```
        self.mode_btn.grid(row=0,column=0,padx=10,pady=2,ipadx=2,ipady=2)


        #Button for Outline

        self.mode_btn = Button(self.color_mode,image=self.modes_container[1],relief=RAISED,command=lambda: 
self.activate_coloring(2))

        self.mode_btn.grid(row=1,column=0,padx=10,pady=2,ipadx=2,ipady=2)


        #Button for permanent color

        self.mode_btn = 
Button(self.color_mode,image=self.modes_container[2],relief=RAISED,command=self.change_permanent_fill_outl
ine_color)

        self.mode_btn.grid(row=2,column=0,padx=10,pady=2,ipadx=2,ipady=2)


    #Movement of any widget by selecting indexing number

    def movement(self,event):

        try:

            self.status_msg['text'] = "Movement"

            take = self.notation_box.get(ACTIVE)

            self.notation_box.config(state=DISABLED)

            take = self.undo_container[take]

            if event.keycode == 32:

                self.notation_box.config(state=NORMAL)

            if event.keycode == 37:

                if type(take) == list:

                    for x in take:

                        self.drawing_canvas.move(x, -8, 0)

                else:
```

```
                self.drawing_canvas.move(take, -8, 0)
        if event.keycode == 38:
            if type(take) == list:
                for x in take:
                    self.drawing_canvas.move(x, 0, -8)
            else:
                self.drawing_canvas.move(take, 0, -8)
        if event.keycode == 39:
            if type(take) == list:
                for x in take:
                    self.drawing_canvas.move(x, 8, 0)
            else:
                self.drawing_canvas.move(take, 8, 0)
        if event.keycode == 40:
            if type(take) == list:
                for x in take:
                    self.drawing_canvas.move(x, 0, 8)
            else:
                self.drawing_canvas.move(take, 0, 8)
    except:
        messagebox.showerror("Error","Nothing selected from indexing box")


#Method for opening file
def open(self,event):
    self.status_msg["text"] = "Open a File"
    if self.notation_box["state"] == DISABLED:
            self.notation_box["state"] = NORMAL
        self.drawing_canvas.unbind("<B1-Motion>")
        self.drawing_canvas.unbind("<ButtonRelease-1>")
        self.drawing_canvas.unbind("<Button-1>")

        img = filedialog.askopenfilename(initialdir="Saved_file",title="Select an Image",filetypes=(("PNG
Images","*.png"),("All Images","*,*")))

        if img:
            self.img_container.append(ImageTk.PhotoImage(Image.open(img)))
            self.img_counter+=1
            take = self.drawing_canvas.create_image(100,200,image=self.img_container[self.img_counter])
            self.undo_container.append(take)
            self.notation_box.insert(END,len(self.undo_container)-1)
            self.reset()
        self.controls(1)

    #Method For Save a file
    def save(self,event):
        self.status_msg['text'] = "Save current file"
        file = filedialog.asksaveasfilename(initialdir="Saved_file",filetypes=[("PNG File","*.png")])
        if file:
            x = self.window.winfo_rootx() + self.drawing_canvas.winfo_x()+10
            y = self.window.winfo_rooty() + self.drawing_canvas.winfo_y()+10
            x1 = x + self.drawing_canvas.winfo_width()-20
            y1 = y + self.drawing_canvas.winfo_height()-20
            ImageGrab.grab().crop((x,y,x1,y1)).save(file+'.png')
        self.window.title("DRAWINGO : wings to your imagination -----" + file + ".png")


#Method for undo operation

def undo(self,event):

    self.status_msg["text"] = "Undo"

    if self.notation_box:

        if self.notation_box["state"] == DISABLED:

            self.notation_box["state"] = NORMAL

        self.notation_box.delete(END)

        if self.undo_container:

            take = self.undo_container.pop()

            #self.redo_container.append(take)

            if type(take) == list:

                for x in take:

                    self.drawing_canvas.delete(x)

            else:

                self.drawing_canvas.delete(take)

            if len(self.undo_container) == 0:

                self.clear()


#For clear the drawing canvas

def clear(self):

    self.undo_container.clear()

    self.notation_box.delete(0,END)

    self.file_menu.entryconfig("Save",state=DISABLED)

    self.edit_menu.entryconfig("Undo",state=DISABLED)
    self.edit_menu.entryconfig("Clear",state=DISABLED)
    self.edit_menu.entryconfig("Cut",state=DISABLED)
    self.edit_menu.entryconfig("Copy",state=DISABLED)
    self.edit_menu.entryconfig("Paste",state=DISABLED)
    self.edit_menu.entryconfig("Screenshot",state=DISABLED)
    self.option_menu.entryconfig("Movement",state=DISABLED)
    self.temp.clear()
    self.img_container.clear()
    self.cut_copy_img.clear()
    self.img_counter = -1
    self.counter = -1

#Cut the selected region
def cut(self,event):
    self.copy(1)
    self.delete_selected_region(False)
    self.status_msg["text"] = "Selected Region Cut  Successfully"

#Copy the selected region
def copy(self,event):
    try:
        if event!=1:
            self.drawing_canvas.delete(self.temp.pop())
            self.status_msg["text"] = "Selected Region Copied"
        else:
            self.drawing_canvas.itemconfig(self.temp[len(self.temp)-1],outline="white")
            time.sleep(0.0001)

            self.drawing_canvas.update()

            x1 = self.window.winfo_rootx() + self.drawing_canvas.winfo_x()

            y1 = self.window.winfo_rooty() + self.drawing_canvas.winfo_y()

            ImageGrab.grab().crop((x1 + self.old_x,y1 + self.old_y,x1 + self.new_x,y1 + 
self.new_y)).save("cutting.png")

            self.counter += 1

            self.reset()

        except:

            if event == 1:

                messagebox.showerror("Cut Error","Select a region by selector tool under the 'Tools', then cut the selected 
region")

            else:

                messagebox.showerror("Copy Error","Select a region by selector tool under 'Tools', then copy the selected 
region")


    #Paste in the selected region

    def paste(self,event):

        try:

            if self.notation_box["state"] == DISABLED:

                self.notation_box["state"] = NORMAL

            self.cut_copy_img.append(ImageTk.PhotoImage(Image.open("cuttion.png")))

            take = self.drawing_canvas.create_image(100,200,image=self.cut_copy_img[self.counter])

            self.undo_container.append(take)

            self.notation_box.insert(END,len(self.undo_container)-1)

            self.status_msg["text"] = "Paste on the screen"

        except:
```

```
        messagebox.showerror("Paste Error","Paste Error")


#Method for selection region
def select_region(self,event):
    try:
        self.status_msg["text"] = "Select a particular region"
        if self.old_x and self.old_y:
            take = self.drawing_canvas.create_rectangle(self.old_x,self.old_y,event.x,event.y)
            self.temp.append(take)
            def select_region_final(event):
                for x in self.temp:
                    self.drawing_canvas.delete(x)
                self.new_x = event.x
                self.new_y = event.y
                self.delete_seg = self.drawing_canvas.create_rectangle(self.old_x,self.old_y,self.new_x,self.new_y)
                self.temp.append(self.delete_seg)
            self.drawing_canvas.bind("<ButtonRelease-1>",select_region_final)
        else:
            self.old_x = event.x
            self.old_y = event.y
    except:
        messagebox.showerror("Error","Select region error")


#Method for deleting selected region
def delete_selected_region(self):
    self.drawing_canvas.itemconfig(self.delete_seg,fill="white",width=0.00001,outline="white")
```

```
        self.reset()


    #Method for Screenshot

    def screenshot(self,event):

        try:

            self.drawing_canvas.delete(self.temp.pop())

            time.sleep(0.0000001)

            self.window.update()

            x1 = self.window.winfo_rootx() + self.drawing_canvas.winfo_x()

            y1 = self.window.winfo_rooty() + self.drawing_canvas.winfo_y()

            file = filedialog.asksaveasfilename(initialdir="\Desktop",title="Screenshot save",filetypes=[("PNG
File","*.png")])

            if file:

                ImageGrab.grab().crop((x1 + self.old_x,y1 + self.old_y,x1 + self.new_x,y1 + self.new_y)).save(file +
".png")

            self.reset()

            self.status_msg["text"] = "Screenshot taken and saved"

        except:

            print("Screenshot Error")

            messagebox.showerror("Selection Error", "At first select a region by selector under 'Tools' then take screen
shot")


    #Set permanent color: border and background

    def change_permanent_fill_outline_color(self):

        self.status_msg["text"] = "Set Permanent fill and outline color"

        top = Toplevel()

        top.title("Set Permanent Fill and Outline Color")
        top.config(bg="linen")

        top.geometry("400x200")

        top.resizable(False,False)

        top.wm_iconbitmap("Icons/permanent.ico")


        #take color and set

        def color_set(choice):

            take_color = colorchooser.askcolor()[1]

            if choice == 1:

                self.fill_color = take_color

                self.fill_color_line = take_color

                self.fill_information.set(1)

            else:

                self.outline_color_line = take_color

                self.outline_information.set(1)

            self.window.update()


        fill_check = Checkbutton(top,variable=self.fill_information,text="Permanent fill
color",font=("timesnewroman",12,"bold"),bg="snow",fg="black")

        fill_check.place(x=50,y=20)


        self.choosing_color = ImageTk.PhotoImage(Image.open("Icons/choose_color.png").resize((10,10)))


        fill_colorchooser = Button(top,image=self.choosing_color,bg="black",command=lambda: color_set(1))

        fill_colorchooser.place(x=280,y=28)
```

```
        outline_check = Checkbutton(top,variable=self.outline_information,text="Permanent outline color",font=("timesnewroman",12,"bold"),bg="snow",fg="black")

        outline_check.place(x=50,y=80)


        outline_colorchooser = Button(top,image=self.choosing_color,bg="black",command=lambda: color_set(2))

        outline_colorchooser.place(x=320,y=90)


        def message():

            messagebox.showinfo("Information","For any kind of line online Fill is available")


        information = Button(top,text="Information",font=("timesnewroman",14,"bold"),bg="black",fg="white",command=message,relief=RAISED,bd=8)

        information.place(x=50,y=140)


        ok = Button(top,text="OK",font=("timesnewroman",14,"bold"),bg="black",fg="white",command=top.destroy,relief=RAISED,bd=8)

        ok.place(x=280,y=140)


    #Method for zoom controller

    def zoom_controller(self,event):

        self.status_msg["text"] = "Zoom Controller"

        try:

            if event.delta > 0:

                self.drawing_canvas.scale("all",event.x,event.y,1.1,1.1)

            elif event.delta < 0:

                self.drawing_canvas.scale("all",event.x,event.y,0.9,0.9)
        except:
            if event == 1:
                self.drawing_canvas.scale("all",550,350,1.1,1.1)
            else:
                self.drawing_canvas.scale("all",550,350,0.9,0.9)

    #Color box with maintain by keyboard or mouse event
    def color_box_width_controller(self,event):
        try:
            print(event)
            if event.delta > 0:
                self.color_circle_width_maintainer += 3
            else:
                self.color_circle_width_maintainer -= 3
        except:
            if event == 1:
                self.color_circle_width_maintainer += 3
            else:
                self.color_circle_width_maintainer -= 3

    #Method for Reset
    def reset(self):
        self.status_msg['text'] = "Draw with Fun"
        if self.notation_box:
            self.file_menu.entryconfig("Save", state=NORMAL)
            self.edit_menu.entryconfig("Undo",state=NORMAL)
```

```
            self.edit_menu.entryconfig("Clear", state=NORMAL)

            self.edit_menu.entryconfig("Cut", state=NORMAL)

            self.edit_menu.entryconfig("Copy", state=NORMAL)

            self.edit_menu.entryconfig("Paste", state=NORMAL)

            self.edit_menu.entryconfig("Screenshot", state=NORMAL)

            self.option_menu.entryconfig("Movement", state=NORMAL)

            if self.notation_box['state'] == DISABLED:

                self.notation_box['state'] = NORMAL

        self.new_x = None

        self.new_y = None

        self.old_x = None

        self.old_y = None

        self.temp= []


    def about(self):

        self.top = Toplevel()

        self.top.geometry("1000x500")

        self.top.wm_iconbitmap("Icons/about.ico")

        self.top.title("About")

        self.top.resizable(False,False)

        self.top.config(bg="linen")

        img = PhotoImage(file="Icons\DraWingo.png")

        Label(self.top,image=img).grid(row=0,column=0)

        about_frame =
Frame(self.top,height=450,width=470,relief=RAISED,highlightbackground="silver",highlightthickness=5,bg="sno
w")

        about_frame.grid(row=0,column=1,padx=10,pady=5)
```

```
Label(about_frame,text="DRAWINGO",bg="white",fg="black",font=("timesnewroman",24,"bold")).place(x=150,y
=10)

        Text = "This is the Major Project on 'Drawing Application' created by\nDinesh Singh(me) of BCA-6 from
University of Allahabad."

        Label(about_frame,text=Text,font=("timesnewroman",12,"italic"),bg="snow",fg="black").place(x=10,y=80)

        Text = "This project is created using Python as a programming\nlanguage and provides the following features:-
\t"

        Label(about_frame,text=Text,font=("timesnewroman",12,"italic"),bg="snow",fg="black").place(x=10,y=160)

        Text = "1. Drawing tools like pencil, eraser, color box, text box etc."

        Label(about_frame,text=Text,font=("timesnewroman",12,"italic"),bg="snow",fg="black").place(x=10,y=240)

        Text = "2. Width Controller for adjust the size of pencil,shapes\n& eraser\t\t\t\t\t"

        Label(about_frame,text=Text,font=("timesnewroman",12,"italic"),bg="snow",fg="black").place(x=10,y=270)

        Text = "3. Index box for object manipulation."

        Label(about_frame,text=Text,font=("timesnewroman",12,"italic"),bg="snow",fg="black").place(x=10,y=320)

        Text = "4. Provides various shapes and color box."

        Label(about_frame,text=Text,font=("timesnewroman",12,"italic"),bg="snow",fg="black").place(x=10,y=350)

        self.top.mainloop()


    def tips(self):

        self.top = Toplevel()

        self.top.geometry("1200x700")

        self.top.resizable(False,False)

        self.top.title("Tips")

        self.top.iconbitmap(r"Icons\tips.ico")

        self.top.config(bg="linen")

        tips_frame =
Frame(self.top,height=675,width=1175,relief=RAISED,highlightbackground="silver",highlightthickness=5,bg="sno
w")
```

```
    tips_frame.grid(row=0,column=0,padx=10,pady=10)

    Label(tips_frame,text="IMPORTANT
TIPS",font=("timesnewroman",24,"bold","underline"),bg="snow",fg="black").place(x=450,y=20)


    #Tips for straight line

    Label(tips_frame,text="Shift      +",font=("timesnewroman",12,),bg="snow",fg="black").place(x=100,y=100)

    line_img = ImageTk.PhotoImage(Image.open("Icons/line.png").resize((20,20)))

    Label(tips_frame,image=line_img).place(x=200,y=100)

    Label(tips_frame,text="=> Used to make Straight Line: Horizontal and
Vertical",font=("timesnewroman",12,),bg="snow",fg="black").place(x=250,y=100)


    #Tips for modes


    #tips for fill

    fill_img = ImageTk.PhotoImage(Image.open("Icons/fill.png").resize((20,20)))

    Label(tips_frame,image=fill_img).place(x=200,y=150)

    Label(tips_frame,text="=> Used to change background color of the Selected Shape or
Line",font=("timesnewroman",12,),bg="snow",fg="black").place(x=250,y=150)


    #tips for outline

    outline_img = ImageTk.PhotoImage(Image.open("Icons/outline.png").resize((20,20)))

    Label(tips_frame,image=outline_img).place(x=200,y=200)

    Label(tips_frame,text="=> Used to change outline color of the Selected
Shape",font=("timesnewroman",12,),bg="snow",fg="black").place(x=250,y=200)


    #tips for permanent color

    permanent_img = ImageTk.PhotoImage(Image.open("Icons/permanent.png").resize((20,20)))

    Label(tips_frame,image=permanent_img).place(x=200,y=250)
```

```
        Label(tips_frame,text="=> Used to change background and outline color permanently of the upcoming shapes and lines",font=("timesnewroman",12,),bg="snow",fg="black").place(x=250,y=250)


        #tips for movement of drawn element

        Label(tips_frame,text="Shift     +    Arrow Keys  => Used for move selected drawing element Left, Right, Up and Down",font=("timesnewroman",12,),bg="snow",fg="black").place(x=100,y=350)


        #tips for zoom in/ zoom out

        Label(tips_frame,text="Ctrl     +    Scroll  => Used for zoom in and zoom out",font=("timesnewroman",12,),bg="snow",fg="black").place(x=100,y=400)


        #tips for inc/dec the size of color pen

        Label(tips_frame,text="Shift     +    Scroll  => Used for increasing and decreasing the size of color pen",font=("timesnewroman",12,),bg="snow",fg="black").place(x=100,y=450)


        #More tips video link

#        Label(tips_frame,text="For Complete project demonstration, click on the below link:-",font=("timesnewroman",12,),bg="snow",fg="black").place(x=100,y=550)


        self.top.mainloop()


    #Colorbox under "Tolls" for pen color

    def color_boxer(self,event):

        self.status_msg["text"] = "Draw with the color pen"

        if self.old_x and self.old_y:

            take = self.drawing_canvas.create_line(self.old_x,self.old_y,event.x,event.y,fill=self.color_container_box,width=self.color_circle_width_maintainer,smooth=True,capstyle=ROUND)

            self.temp.append(take)
        self.old_x = event.x

        self.old_y = event.y


        def color_input(event):

            self.undo_container.append(self.temp)

            self.notation_box.insert(END,len(self.undo_container)-1)

            self.reset()

        self.drawing_canvas.bind("<ButtonRelease-1>",color_input)


    #Method to draw using pencil

    def draw_with_pencil(self,event):

        self.status_msg["text"] = "Draw With Pencil"

        if self.old_x and self.old_y:

            take = 
self.drawing_canvas.create_line(self.old_x,self.old_y,event.x,event.y,fill=self.fill_color_line,width=self.width_main
tainer,smooth=True,capstyle=ROUND)

            self.temp.append(take)


        self.old_x = event.x

        self.old_y = event.y


        def push_value(event):

            self.undo_container.append(self.temp)

            self.notation_box.insert(END,len(self.undo_container)-1)

            self.reset()
        self.drawing_canvas.bind("<ButtonRelease-1>",push_value)


    #Method eraser
    def eraser(self,event):
        self.status_msg["text"] = "Erasing"
        if self.old_x and self.old_y:
            take =
self.drawing_canvas.create_rectangle(self.old_x,self.old_y,event.x,event.y,width=self.erase_width_maintainer,fill="
white",outline="white")
            self.temp.append(take)


        self.old_x = event.x
        self.old_y = event.y


        def real_erasing(event):
            self.undo_container.append(self.temp)
            self.notation_box.insert(END,len(self.undo_container)-1)
            self.reset()


        self.drawing_canvas.bind("<ButtonRelease-1>",real_erasing)


    def text_creation_input_take(self):
        def message_show():
            messagebox.showinfo("Done","Click on targeting position on the main window to input text")
        self.status_msg["text"] = "Make your own Text"
        self.top = Toplevel()
        self.top.title("Text Here")
        self.top.geometry("400x500")

        self.top.wm_iconbitmap("Icons/text_box.ico")

        self.top.config(bg="linen")

        self.top.resizable(False,False)


        label_1 = Label(self.top,text="Enter the text",font=("timesnewroman",25,"bold"),fg="Black",bg="snow")

        label_1.pack(pady=20)


        entry_take =
Entry(self.top,width=20,font=("timesnewroman",20,"bold","italic"),bg="snow",fg="black",textvariable=self.input_t
ake,relief = SUNKEN,bd = 10)

        entry_take.pack(pady=10)

        entry_take.focus()


        ok_btn = Button(self.top,text = "OK", fg = "snow", bg =
"black",width=10,font=("timesnewroan",15,"bold"),relief=RAISED,bd=5,command=message_show)

        ok_btn.pack(pady=20)


        self.text_collection =
Listbox(self.top,width=17,height=9,font=("timesnewroman",13,"bold"),bg="snow",fg="black",relief=SUNKEN,bd
=8)

        self.text_collection.place(x=10,y=280)


        text_list = ["Times New Roman","Arial","Courier New","Comic Sans MS","Fixedsys","MS Sans
Serif","System","Verdana","Symbol"]


        for x in text_list:

            self.text_collection.insert(END,x)
        self.text_collection.activate(0)

        self.text_collection.selection_set(0)


        #For text color set

        def color_choose():

            self.text_fg = colorchooser.askcolor()[1]


        color_chooser = Button(self.top,text = "Text
Color",fg="white",bg="black",font=("timesnewroman",15,"bold"),relief=RAISED,bd=5,command=color_choose)

        color_chooser.place(x=200,y=280)


        self.font_size =
Scale(self.top,from_=1,to=100,orient=HORIZONTAL,bg="black",fg="white",font=("timesnewroman",10,"bold"),a
ctivebackground="grey")

        self.font_size.place(x=200,y=433)


        #For make text on the screen by click

        def text_creation(event):

            take = self.drawing_canvas.create_text(event.x, event.y, text=self.input_take.get(),
font=(self.text_collection.get(ACTIVE), self.font_size.get(), "bold", "italic"), fill=self.text_fg)

            self.undo_container.append(take)

            self.notation_box.insert(END, len(self.undo_container) - 1)

            self.input_take.set(" ")

            self.top.destroy()


        self.drawing_canvas.bind("<Button-1>", text_creation)


    #Method for color activation
    def activate_coloring(self,notation):
        if notation == 1:
            self.active_coloring = 1
        else:
            self.active_coloring = 2


    #Color set finally in the widget
    def check(self,number,index):
        try:
            color_list = ["red","#8B4513","blue","grey","yellow","green","orange","black","white","pink","sky
blue","violet","#90EE90","#808000","#800000","#FFE6E8","#C0C0C0","#FBB917","#FFFFCC","#FFE5B4"]
            take = self.undo_container[self.notation_box.get(ACTIVE)]


            if number == 20:
                take_color = colorchooser.askcolor()[1]
            else:
                take_color = color_list[number]


            if index == 1:
                if type(take) == list:
                    for x in take:
                        self.drawing_canvas.itemconfig(x,fill=take_color)


                else:
                    self.drawing_canvas.itemconfig(self.undo_container[self.notation_box.get(ACTIVE)],fill=take_color)
            else:
                self.drawing_canvas.itemconfig(self.undo_container[self.notation_box.get(ACTIVE)],outline=take_color)
            self.status_msg["text"] = "Colored"


        except:
            if len(self.undo_container) == 0:
                messagebox.showwarning("Nothing Present","Sorry, Nothing present to change color")
            else:
                messagebox.showwarning("Problem Raise",f"For any kind of line only Fill is allowed")


    #Method for draw bent line
    def draw_bent_line(self,event):
        self.status_msg["text"] = "Draw bent line"
        if self.old_x and self.old_y:
            take =
self.drawing_canvas.create_line(self.old_x,self.old_y,event.x,event.y,width=self.width_maintainer,fill=self.fill_colo
r_line)
            self.temp.append(take)
        else:
            self.old_x = event.x
            self.old_y = event.y


        def bent_line_draw(event):
            for x in self.temp:
                self.drawing_canvas.delete(x)


            try:
                take =
self.drawing_canvas.create_line(self.old_x,self.old_y,event.x,event.y,width=self.width_maintainer,fill=self.fill_colo
r_line,capstyle=ROUND)

                self.undo_container.append(take)

                self.notation_box.insert(END,len(self.undo_container)-1)

                self.reset()

            except:

                messagebox.showerror("Error","Click only not motion")


        self.drawing_canvas.bind("<ButtonRelease-1>",bent_line_draw)


    #Method for drawing straight line

    def draw_straight_line(self,event):

        self.status_msg["text"] = "Draw Straight line"


        if self.old_x and self.old_y:

            if event.x - self.old_x and event.y - self.old_y:

                take = self.drawing_canvas.create_line(self.old_x, self.old_y, event.x, self.old_y,
width=self.width_maintainer,fill=self.fill_color_line)

                self.temp.append(take)

            else:

                take = self.drawing_canvas.create_line(self.old_x, self.old_y, self.old_x, event.y,
width=self.width_maintainer,fill=self.fill_color_line)

                self.temp.append(take)

        else:

            self.old_x = event.x

            self.old_y = event.y
        def straight_line_draw(event):
            for x in self.temp:
                self.drawing_canvas.delete(x)

            try:
                if event.x - self.old_x > event.y - self.old_y:
                    take = self.drawing_canvas.create_line(self.old_x, self.old_y, event.x, 
self.old_y,width=self.width_maintainer, fill=self.fill_color_line)

                else:
                     take = self.drawing_canvas.create_line(self.old_x, self.old_y, self.old_x, 
event.y,width=self.width_maintainer, fill=self.fill_color_line)

                self.undo_container.append(take)
                self.notation_box.insert(END,len(self.undo_container)-1)
                self.reset()
            except:
                messagebox.showerror("Error","Click only not motion")

        self.drawing_canvas.bind("<Shift-ButtonRelease-1>",straight_line_draw)

    #Method for drawing dashed line
    def draw_dashed_line(self,event):
        self.status_msg["text"] = "Draw Dash line"
        if self.old_x and self.old_y:
            take = 
self.drawing_canvas.create_line(self.old_x,self.old_y,event.x,event.y,width=self.width_maintainer,fill=self.fill_colo
r_line,dash=(10,1))
```

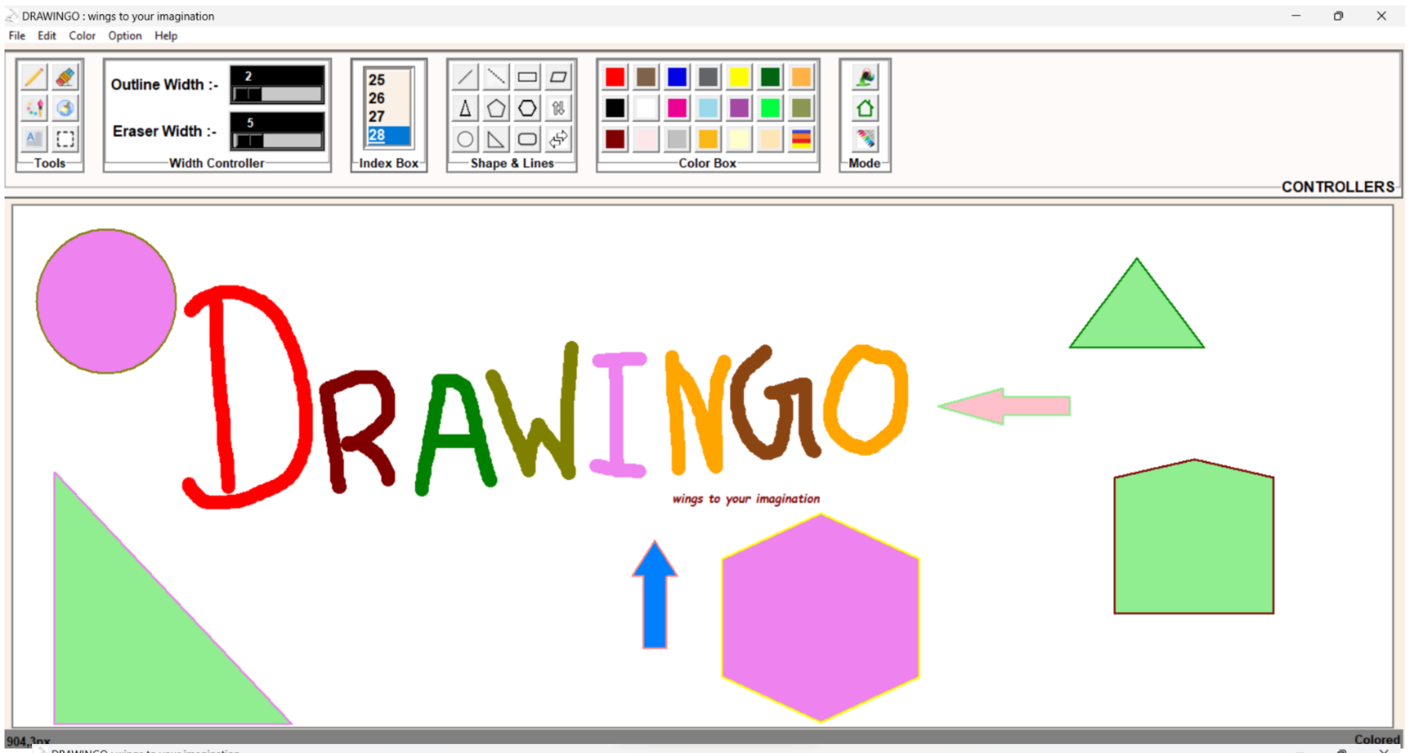
```
            self.temp.append(take)
        else:
            self.old_x = event.x
            self.old_y = event.y

        def dashed_line_draw(event):
            for x in self.temp:
                self.drawing_canvas.delete(x)
            try:
                take = 
self.drawing_canvas.create_line(self.old_x,self.old_y,event.x,event.y,width=self.width_maintainer,fill=self.fill_colo
r_line,capstyle=ROUND,dash=(10,1))
                self.undo_container.append(take)
                self.notation_box.insert(END,len(self.undo_container)-1)
                self.reset()
            except:
                messagebox.showerror("Error","Click only not motion")

        self.drawing_canvas.bind("<ButtonRelease-1>",dashed_line_draw)

    #Method for drawing triangle
    def draw_triangle(self,event):
        self.status_msg["text"] = "Draw Triangle"
        if self.old_x and self.old_y:
            take = self.drawing_canvas.create_polygon(self.old_x, self.old_y, self.old_x-(event.x-self.old_x), event.y, 
event.x, event.y,width=self.width_maintainer, fill=self.fill_color,outline=self.outline_color_line)
            self.temp.append(take)
        else:
            self.old_x = event.x
            self.old_y = event.y

        def triangle_draw(event):
            for x in self.temp:
                self.drawing_canvas.delete(x)

            try:
                take = self.drawing_canvas.create_polygon(self.old_x, self.old_y, self.old_x - (event.x - self.old_x),
event.y, event.x,event.y, width=self.width_maintainer, fill=self.fill_color,outline=self.outline_color_line)
                self.undo_container.append(take)
                self.notation_box.insert(END,len(self.undo_container)-1)
                self.reset()
            except:
                messagebox.showerror("Error","click only not motion")

        self.drawing_canvas.bind("<ButtonRelease-1>",triangle_draw)

    #Method for drawing parallelogram
    def draw_parallelogram(self,event):
        self.status_msg["text"] = "Draw a Parallelogram"
        if self.old_x and self.old_y:
            points = [self.old_x,self.old_y,int(self.old_x)+30,event.y,event.x,event.y,int(event.x)-30,self.old_y]
            take = self.drawing_canvas.create_polygon(points,width=1,
fill=self.fill_color,outline=self.outline_color_line)
            self.temp.append(take)
        else:

            self.old_x=event.x

            self.old_y=event.y


        def parallelogram_draw(e):

            for x in self.temp:

                self.drawing_canvas.delete(x)

            try:

                points = [self.old_x, self.old_y, int(self.old_x) + 30, event.y, event.x, event.y, int(event.x) - 30, self.old_y]

                take = self.drawing_canvas.create_polygon(points, width=self.width_maintainer,
fill=self.fill_color,outline=self.outline_color_line)

                self.undo_container.append(take)

                self.notation_box.insert(END, len(self.undo_container) - 1)

                self.reset()

            except:

                messagebox.showerror("Error", "click only not motion")


        self.drawing_canvas.bind('<ButtonRelease-1>', parallelogram_draw)


    #Method for drawing circle

    def draw_circle(self,event):

        self.status_msg["text"] = "Draw a Circle"

        if self.old_x and self.old_y:

            take =
self.drawing_canvas.create_oval(self.old_x,self.old_y,event.x,event.y,width=self.width_maintainer,outline=self.outl
ine_color_line,fill=self.fill_color)

            self.temp.append(take)
        else:
            self.old_x = event.x
            self.old_y = event.y


        def circle_draw(event):
            for x in self.temp:
                self.drawing_canvas.delete(x)


            try:
                take =
self.drawing_canvas.create_oval(self.old_x,self.old_y,event.x,event.y,width=self.width_maintainer,fill=self.fill_col
or,outline=self.outline_color_line)
                self.undo_container.append(take)
                self.notation_box.insert(END,len(self.undo_container)-1)
                self.reset()
            except:
                messagebox.showerror("Error","click only not motion")
        self.drawing_canvas.bind("<ButtonRelease-1>",circle_draw)


    #Method to draw rectangle
    def draw_rectangle(self,event):
        self.status_msg["text"] = "Draw a Rectangle"
        if self.old_x and self.old_y:
            take =
self.drawing_canvas.create_rectangle(self.old_x,self.old_y,event.x,event.y,width=self.width_maintainer,fill=self.fill
_color,outline=self.outline_color_line)
            self.temp.append(take)
        else:
            self.old_x = event.x

            self.old_y = event.y


        def rectangle_draw(event):

            for x in self.temp:

                self.drawing_canvas.delete(x)

            try:

                take =
self.drawing_canvas.create_rectangle(self.old_x,self.old_y,event.x,event.y,width=self.width_maintainer,fill=self.fill
_color,outline=self.outline_color_line)

                self.undo_container.append(take)

                self.notation_box.insert(END,len(self.undo_container)-1)

                self.reset()

            except:

                messagebox.showerror("Error","Click only not motion")

        self.drawing_canvas.bind("<ButtonRelease-1>",rectangle_draw)


    #Method for drawing pentagon

    def draw_pentagon(self,event):

        self.status_msg["text"] = "Draw a Pentagon"

        if self.old_x and self.old_y:

            points = [self.old_x, self.old_y, int(self.old_x), event.y, event.x, event.y, int(event.x), self.old_y,
(self.old_x+event.x)/2,self.old_y-20]

            take = self.drawing_canvas.create_polygon(points,width=self.width_maintainer,
fill=self.fill_color,outline=self.outline_color_line)

            self.temp.append(take)

        else:

            self.old_x=event.x
            self.old_y=event.y


        def pentagon_draw(event):
            for x in self.temp:
                self.drawing_canvas.delete(x)
            try:
                points = [self.old_x, self.old_y, int(self.old_x), event.y, event.x, event.y, int(event.x), self.old_y,
                          (self.old_x + event.x) / 2, self.old_y - 20]
                take = self.drawing_canvas.create_polygon(points, width=self.width_maintainer,
fill=self.fill_color,outline=self.outline_color_line)
                self.undo_container.append(take)
                self.notation_box.insert(END, len(self.undo_container) - 1)
                self.reset()
            except:
                messagebox.showerror("Error","Click only not motion")


        self.drawing_canvas.bind('<ButtonRelease-1>', pentagon_draw)


    #Method for drawing hexagon
    def draw_hexagon(self, event):
        self.status_msg['text'] = "Draw a Hexagon"
        if self.old_x and self.old_y:
            points = [self.old_x, self.old_y, int(self.old_x), event.y, (int(self.old_x)+int(event.x))/2, int(event.y)+50,
event.x, event.y, int(event.x), self.old_y, (self.old_x+event.x)/2,self.old_y-50]
            take = self.drawing_canvas.create_polygon(points,width=self.width_maintainer,
fill=self.fill_color,outline=self.outline_color_line)
            self.temp.append(take)
        else:
            self.old_x=event.x
            self.old_y=event.y


        def hexagon_draw(event):
            for x in self.temp:
                self.drawing_canvas.delete(x)
            try:
                points = [self.old_x, self.old_y, int(self.old_x), event.y, (int(self.old_x) + int(event.x)) / 2, int(event.y) + 
50,event.x, event.y, int(event.x), self.old_y, (self.old_x + event.x) / 2, self.old_y - 50]
                take = self.drawing_canvas.create_polygon(points, width=self.width_maintainer, 
fill=self.fill_color,outline=self.outline_color_line)
                self.undo_container.append(take)
                self.notation_box.insert(END, len(self.undo_container) - 1)
                self.reset()
            except:
                messagebox.showerror("Error", "Click only not motion")


        self.drawing_canvas.bind('<ButtonRelease-1>', hexagon_draw)


    #Method for drawing arrow up down
    def draw_arrow_up_down(self,event):
        self.status_msg['text'] = "Draw Arrow"
        if self.old_x and self.old_y:
            points = [self.old_x, self.old_y, (int(self.old_x)+int(self.old_x+event.x)/2)/2, self.old_y, 
(int(self.old_x)+int(self.old_x+event.x)/2)/2, int(event.y), ((int(self.old_x+event.x)/2)+int(event.x))/2, event.y, 
((int(self.old_x+event.x)/2)+int(event.x))/2,self.old_y,  int(event.x),self.old_y,  int(self.old_x+event.x)/2, 
self.old_y+(int((self.old_y-event.y))/2)]
```

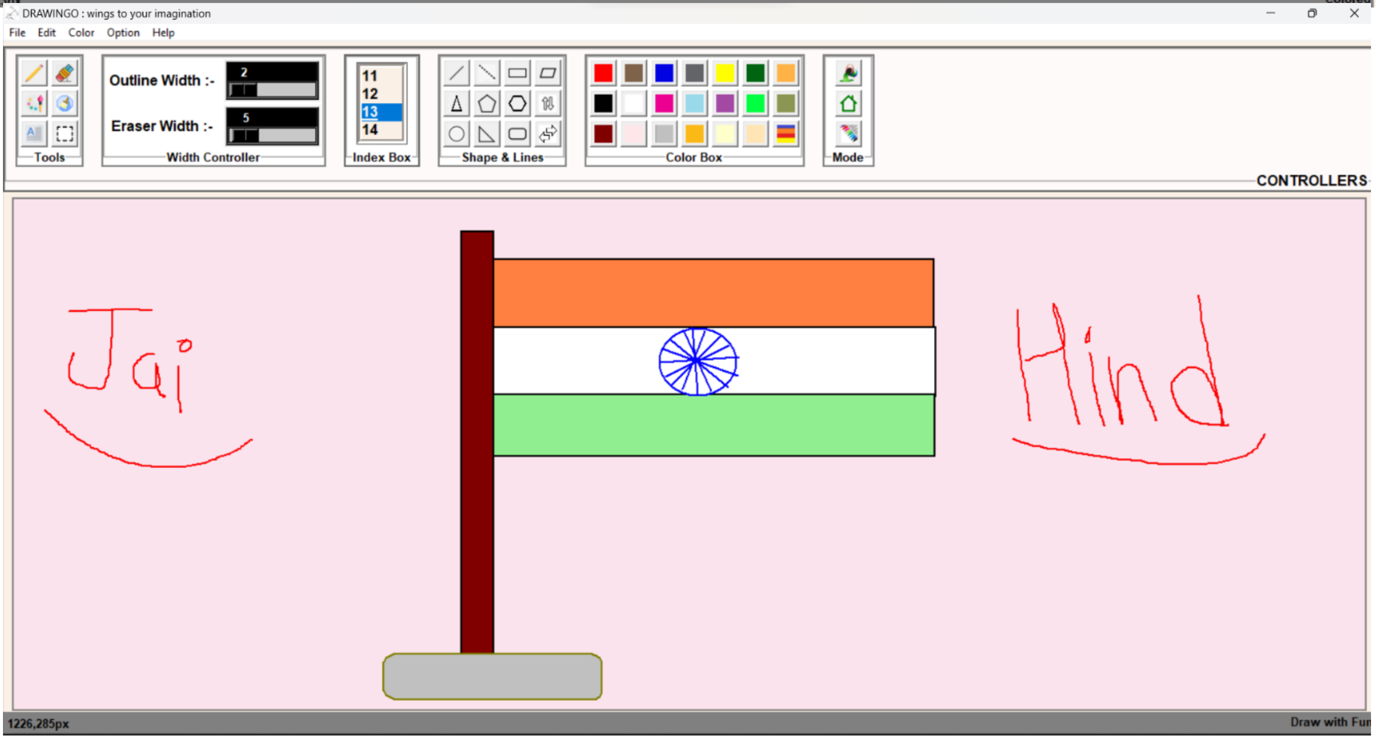
```
            take = self.drawing_canvas.create_polygon(points,width=self.width_maintainer,
fill=self.fill_color,outline=self.outline_color_line)

            self.temp.append(take)

        else:

            self.old_x=event.x

            self.old_y=event.y



        def arrow_up_down_draw(event):

            for x in self.temp:

                self.drawing_canvas.delete(x)

            try:

                points = [self.old_x, self.old_y, (int(self.old_x) + int(self.old_x + event.x) / 2) / 2,
self.old_y,(int(self.old_x) + int(self.old_x + event.x) / 2) / 2, int(event.y),((int(self.old_x + event.x) / 2) +
int(event.x)) / 2, event.y, ((int(self.old_x + event.x) / 2) + int(event.x)) / 2,self.old_y, int(event.x), self.old_y,
int(self.old_x + event.x) / 2,self.old_y + (int((self.old_y - event.y)) / 2)]

                take = self.drawing_canvas.create_polygon(points, width=self.width_maintainer,
fill=self.fill_color,outline=self.outline_color_line)

                self.undo_container.append(take)

                self.notation_box.insert(END, len(self.undo_container) - 1)

                self.reset()

            except:

                messagebox.showerror("Error","click only not motion")



        self.drawing_canvas.bind('<ButtonRelease-1>',arrow_up_down_draw)



    #Method for drawing left right arrow

    def draw_arrow_left_right(self, event):

        self.status_msg['text'] = "Draw Arrow"
        if self.old_x and self.old_y:

            m = (self.old_x + event.x)/2

            points = [self.old_x, self.old_y, int(m), self.old_y+20, int(m), self.old_y+10, event.x, int(self.old_y)+10,
event.x, int(self.old_y)-10, int(m), int(self.old_y)-10, int(m), int(self.old_y)-20]

            take = self.drawing_canvas.create_polygon(points,width=self.width_maintainer,
fill=self.fill_color,outline=self.outline_color_line)

            self.temp.append(take)

        else:

            self.old_x=event.x

            self.old_y=event.y



        def arrow_left_right_draw(event):

            for x in self.temp:

                self.drawing_canvas.delete(x)

            try:

                points = [self.old_x, self.old_y, int(m), self.old_y+20, int(m), self.old_y+10, event.x, int(self.old_y)+10,
event.x, int(self.old_y)-10, int(m), int(self.old_y)-10, int(m), int(self.old_y)-20]

                take = self.drawing_canvas.create_polygon(points, width=self.width_maintainer,
fill=self.fill_color,outline=self.outline_color_line)

                self.undo_container.append(take)

                self.notation_box.insert(END, len(self.undo_container) - 1)

                self.reset()

            except:

                messagebox.showerror("Error","click only not motion")



        self.drawing_canvas.bind('<ButtonRelease-1>',arrow_left_right_draw)
```

```
    #Method for drawing rounded rectangle

    def draw_rounded_rectangle(self,event):

        self.status_msg['text'] = "Draw Rounded Rectangle"

        if self.old_x and self.old_y:

            points = [self.old_x,self.old_y, int(self.old_x)+3,int(self.old_y)-5, int(self.old_x)+7,int(self.old_y)-7,
int(self.old_x)+11,int(self.old_y)-9, int(self.old_x)+13,int(self.old_y)-9, event.x,int(self.old_y)-9,
int(event.x)+5,int(self.old_y)-7, int(event.x)+8,int(self.old_y)-5, int(event.x)+11,self.old_y, int(event.x)+11,event.y,
int(event.x)+8,int(event.y)+5, int(event.x)+5,int(event.y)+7, event.x,int(event.y)+8,
int(self.old_x)+13,int(event.y)+8, int(self.old_x)+11,int(event.y)+7, int(self.old_x)+7,int(event.y)+5,
int(self.old_x)+3,int(event.y)+3, int(self.old_x),int(event.y)-2]


            take = self.drawing_canvas.create_polygon(points,width=self.width_maintainer,
fill=self.fill_color,outline=self.outline_color_line)

            self.temp.append(take)

        else:

            self.old_x=event.x

            self.old_y=event.y


        def rounded_rectangle_draw(event):

            for x in self.temp:

                self.drawing_canvas.delete(x)

            try:

                points = [self.old_x,self.old_y, int(self.old_x)+3,int(self.old_y)-5, int(self.old_x)+7,int(self.old_y)-7,
int(self.old_x)+11,int(self.old_y)-9, int(self.old_x)+13,int(self.old_y)-9, event.x,int(self.old_y)-9,
int(event.x)+5,int(self.old_y)-7, int(event.x)+8,int(self.old_y)-5, int(event.x)+11,self.old_y, int(event.x)+11,event.y,
int(event.x)+8,int(event.y)+5, int(event.x)+5,int(event.y)+7, event.x,int(event.y)+8,
int(self.old_x)+13,int(event.y)+8, int(self.old_x)+11,int(event.y)+7, int(self.old_x)+7,int(event.y)+5,
int(self.old_x)+3,int(event.y)+3, int(self.old_x),int(event.y)-2]


                take = self.drawing_canvas.create_polygon(points, width=self.width_maintainer,
fill=self.fill_color,outline=self.outline_color_line)
```

```
                self.undo_container.append(take)

                self.notation_box.insert(END, len(self.undo_container) - 1)

                self.reset()

            except:

                messagebox.showerror("Error: click only not motion")


        self.drawing_canvas.bind('<ButtonRelease-1>',rounded_rectangle_draw)


    #Method for drawing right angled triangle

    def draw_right_angled_triangle(self,event):

        self.status_msg['text'] = "Draw Right Angled Traingle"

        if self.old_x and self.old_y:

            points = [self.old_x,self.old_y, self.old_x,event.y, event.x,event.y]

            take = self.drawing_canvas.create_polygon(points,width=self.width_maintainer,
  fill=self.fill_color,outline=self.outline_color_line)

            self.temp.append(take)

        else:

            self.old_x=event.x

            self.old_y=event.y


        def right_angled_traingle_draw(event):

            for x in self.temp:

                self.drawing_canvas.delete(x)

            try:

                points = [self.old_x,self.old_y, self.old_x,event.y, event.x,event.y]

                take = self.drawing_canvas.create_polygon(points, width=self.width_maintainer, fill=self.fill_color,

                                                          outline=self.outline_color_line)
                self.undo_container.append(take)

                self.notation_box.insert(END, len(self.undo_container) - 1)

                self.reset()

            except:

                messagebox.showerror("Error","click only not motion")


        self.drawing_canvas.bind('<ButtonRelease-1>', right_angled_traingle_draw)


  #calling class constructor

  Draw()
```

SNAPSHOTS


DRAWINGO : wings to your imagination
File
Edit
Color
Option
Help
Outline Width :-
2
Eraser Width :-
5
25
26
27
28
Tools
Width Controller
Index Box
Shape & Lines
Color Box
Mode
CONTROLLERS
DRAWINGO
wings to your imagination
904,3px
Colored


DRAWINGO : wings to your imagination
File
Edit
Color
Option
Help
Outline Width :-
2
Eraser Width :-
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13
14
Tools
Width Controller
Index Box
Shape & Lines
Color Box
Mode
CONTROLLERS
Jai
Hind
1226,285px
Draw with Fun

APPLICATIONS

Diversity:

This project not only intended to simple drawings, but also allows more complex drawings as it has variety of drawing tools.

Small Scale Use:

This application can be used in small institutes like schools for students to explore their creativity.

Large Scale Use:

This application can be used at high level for drawing complex design.

Commercial Use:

The software can be used as a source of income, because it can be useful for both learners as well as expert. As it is open source, hence can be enhanced with new features so drawing becomes easier and more exciting.

Future Scope

The future scope of this drawing application is quite broad and can involve many different areas of development and innovation. Here are some potential areas of future growth and expansion for a drawing application.

1. Integration with emerging technologies: As new technologies continue to emerge, there is a great potential for drawing application to integrate with them. For example, virtual reality (VR) and augmented reality (AR) technologies could be used to create immersive drawing experiences. Additionally, voice and gesture recognition technology could be used to control the application hands-free.
2. Collaborative features: Collaboration is becoming an increasingly important aspect of many creative industries, and drawing applications could include features that allow user to collaborate with others in real-time. This could include features like live editing, chat functionality, and shared project files.
3. Artificial Intelligence (AI): AI could be used to enhance the drawinging experience in a variety of ways. For example, AI could be used to suggest color palettes, provide intelligent brush settings, or event automatically generate background images.
4. Improved user experience: As user experience (UX) continues to be a key focus for digital products, this drawing application could focus on improving the usability and intuitiveness of their interfaces. This could involve redesigning the UI, implementing more intuitive controls, or using advanced UX techniques like gamification.
5. Mobile optimization: As more users move towards mobile devices for their creative work, drawing applications will need to adapt and optimize for mobile platforms. This could involve developing a separate mobile application or optimizing the existing application for use on mobile devices.

CONCLUSION

This Drawing Application project aims to provide a user-friendly and efficient drawing application that can be used for a range of purposes. The application will be designed using modern tools and technologies and will incorporate a range of features that enable users to create and edit digital images. The project will be developed using tkinter as a primary module of Python to ensure that the final product meets the user's requirements.

MILESTONE

S.No.	Project Activity	Estimated Start Date	Estimated End Date
1.	Synopsis Completion	17/02/2023	24/02/2023
2.	Synopsis Submission	27/02/2023	27/02/2023
3.	Project Completion	18/02/2023	02/04/2023
4.	Report Completion	10/04/2023	18/04/2023
5.	Pre-Presentation	20/04/2023	20/04/2023
6.	Final Presentation		

MEETING WITH THE SUPERVISOR

Date of the meet	Mode	Comments by the Supervisor	Signature of the Supervisor
10/01/2023	offline	Briefly Describe about the topic	
25/01/2023	offline	Project topic confirmation	
24/02/2023	offline	Project Synopsis Demonstration and Sign	
04/04/2023	offline	First Demonstration of working project	
19/04/2023	offline	Project Report Demonstration and sign	
	offline	Final Project Report Demonstration and sign	

REFERENCES

- https://en.wikipedia.org/wiki/Microsoft_Drawing
- https://chat.openai.com/
- https://images.google.com/
- https://docs.python.org/3/