WHITEBOARD

Whiteboard as the name suggests, does the same work you expect a whiteboard to do. It can be used for writing and doodling. It can become exceptionally useful for teachers in online classes. Users can make anything on it ranging from casual drawing to graphing, to doing rough work or explaining something to fellow mates. Its fast and easy to use. Many of the functions that are required with this type of program are present on the mouse itself, allowing a quick and easy access to these features.

ALGORITHMS AND LIBRARIES:

To write this program I had to learn the pygame library. To learn the pygame library I took the help of the pygame documentation available on its website. It was very extensive library with many definitions. It took a lot of time to read and understand what part of library is relevant for the program. But after lot of searches and YouTube videos, I was able to figure out what are the relevant objects for my program. Once I understood the *objects*, understanding the *methods* associated with it was not that hard.

After writing the entire program, here is a list of *methods* that were primarily used:

- Whiteboard is made in python3.9 using pygame library and requires pygame library to function.
- For using mouse, ***pygame.MOUSEBUTTONDOWN*** and ***pygame.MOUSEBUTTONUP*** for controlling what has to be done when the mouse button is either pushed down or up. ***mouse.get_pos()*** was used to track the position of the cursor.
- ***pygame.key.get_pressed()*** was used to check if a key is pressed.
- All images used are made by the author of this document and are saved in **colors** folder which is being attached with the project.
- ***pygame.image.load()*** was used to load the images in the program.
- ***pygame.display*** was used for setting the background.
- ***pygame.display.update*** was used to update the display.

FEATURES OF WHITEBOARD

- Press and hold the left-click button to draw.
- The background color can be changed from white (default setting) to black by clicking right-click button on your mouse. When the screen is white the marker is black by default and when the screen is black the marker is white by default. The screen can be changed back to white by clicking the mouse wheel button. Consequently, the mouse wheel button acts as a clear

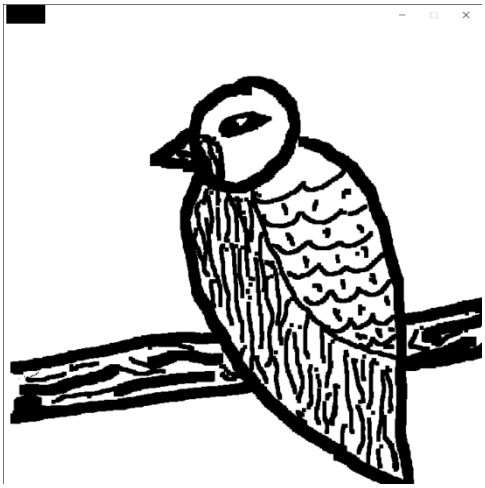
screen button when the background is white and right-click acts as a clear screen button when the background is black.

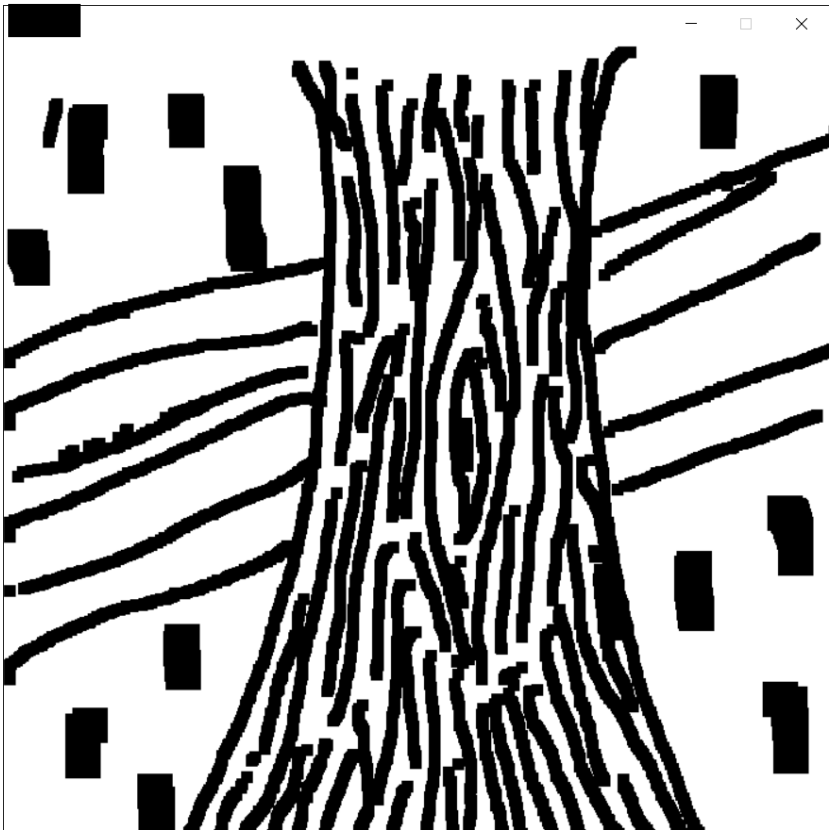
- The default color is **Black.** The colors can be changed to the following list of colors.

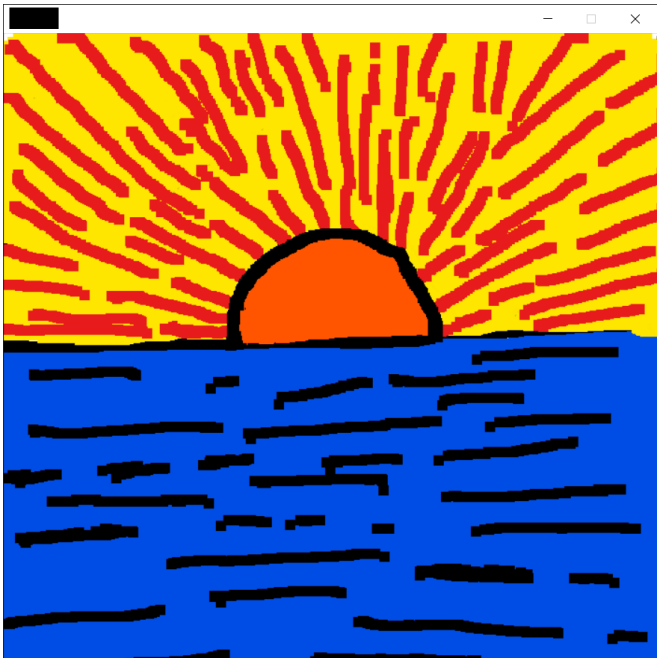
Sr.No.	COLOUR	KEY TO BE PRESSED (to activate the color)	
1.	Black	0(default)	
2.	Blue	b	
3.	Red	r	
4.	Green	g	
5.	Yellow	y	
6.	Purple	1	
7.	Orange	2	
8.	Mustard	3	
9.	Magenta	4	
10.	Gray	5	
11.	Brown	6	
12.	Beige	7	
13.	Pink	8	
14.	White	e	

- The key for eraser is e. Whiteboard is programmed in a such a way that when the background is white, the eraser is white in color and when the background is black, the eraser is black in color
- The size of the marker pointer can be varied by scrolling up the mouse wheel (increases the marker size) and scrolling down the mouse wheel (decreases the marker size)

USER INTERFACE: The UI is easy to use. You can make your art pieces on Whiteboard. UI consist of the program screen on which the user can draw.







CHALLENGES AND PROBLEMS FACED:

I faced problems related to syntax when I started learning pygame. But after two days of studying the documentation, I was able to figure it out. Next challenge that I faced was when I tried to take user input. It also took a lot of reading to get through. Initially reading files from the folder and then implementing changes was also difficult.

Also, I faced problems in updating the cursor color. Initially when I used to click a key corresponding to a particular color, the color was not getting updated. Soon I realized how to go about the problem.

I faced problem while designing the eraser code. But I was able to come up with a solution very fast.

Acknowledgement

Through the medium of this project, I was able to learn about the different libraries like tkinter and pygame. It increased my knowledge and made me more interested in python.

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