**List 3 projects / products you have built or have planned to build in the upcoming year, also explain your role in the same.**

I have built 3 projects in Python which are

1. **Image Steganography App-**

Developed and implemented a user interface featuring two options: "Insert" and "Extract"

Utilized Python, PIL, and tkinter libraries to create an interactive interface

Implemented the "Insert" functionality to hide a text file behind an image by specifying the image

location, text file, key, and location of the newly formed image

Designed the "Extract" functionality to retrieve hidden messages by only providing the image location and key.

1. **Text Summarizer: -**

Developed a final year group project utilizing Python's libraries including transformer, pipeline, BeautifulSoaps, and request.

Aimed to provide concise summaries of extensive English news articles.

Showcased passion for natural language processing and data analysis through the implementation of powerful tools.

Successfully applied Python libraries to extract relevant information and generate accurate summaries.

Collaborated with team members to ensure seamless project execution and timely completion

My role in this project is to do the implementation of code which includes making code and implementing it without any errors and warnings.

**3. Snooker Game App: -**

1. *Game Class:*

Initializes the game state, including the pool balls, stick, pockets, turn information, menu, and other variables.

Provides methods for drawing the game elements, checking pocket collisions, checking victory conditions, handling user clicks, toggling turns, setting player ball type, checking ball movement, and checking collisions between balls.

1. *Ball Class:*

Represents individual balls in the game.

Initializes a ball with a position, velocity, angle, radius, color, and number.

Provides methods for setting force and angle, drawing the ball, moving the ball, and drawing a pocketed ball.

1. *Pocket Class:*

Represents the pockets on the pool table.

Initializes a pocket with a position and radius.

Provides a method for drawing the pocket (currently commented out).

1. *Stick Class:*

Represents the cue stick used to hit the cue ball.

Initializes the stick with position, angle, images, and charging information.

Provides methods for setting the stick angle, drawing the stick, and handling the hit.

1. *Button Class:*

Represents buttons in the game menu.

Initializes a button with position, size, background color, text, and offsets.

Provides methods for drawing the button and handling clicks.

1. *Label Class:*

Represents labels in the game menu.

Initializes a label with position and text.

Provides a method for drawing the label.

1. Menu Class:

Manages the game menu, including hosting and connecting buttons, player labels, and winner information.

Provides methods for drawing the menu and handling clicks.

Host and Client Functions:

host(): Sets up a server socket and waits for a connection from a client.

client(): Connects to a server socket.

1. *Main Game Loop:*

Initializes Pygame, and loads images and sounds.

Handles user input, including clicks, key presses, and quitting the game.

Draws the game elements, checks collisions, handles remote communication (if connected/hosting), and updates the screen.

***3 projects in Python that I have planned to build in the upcoming year: -***

1. Autonomous drone navigation

2. Movie Similarity in Plot Summaries

3. Electronics Price Comparison Extension