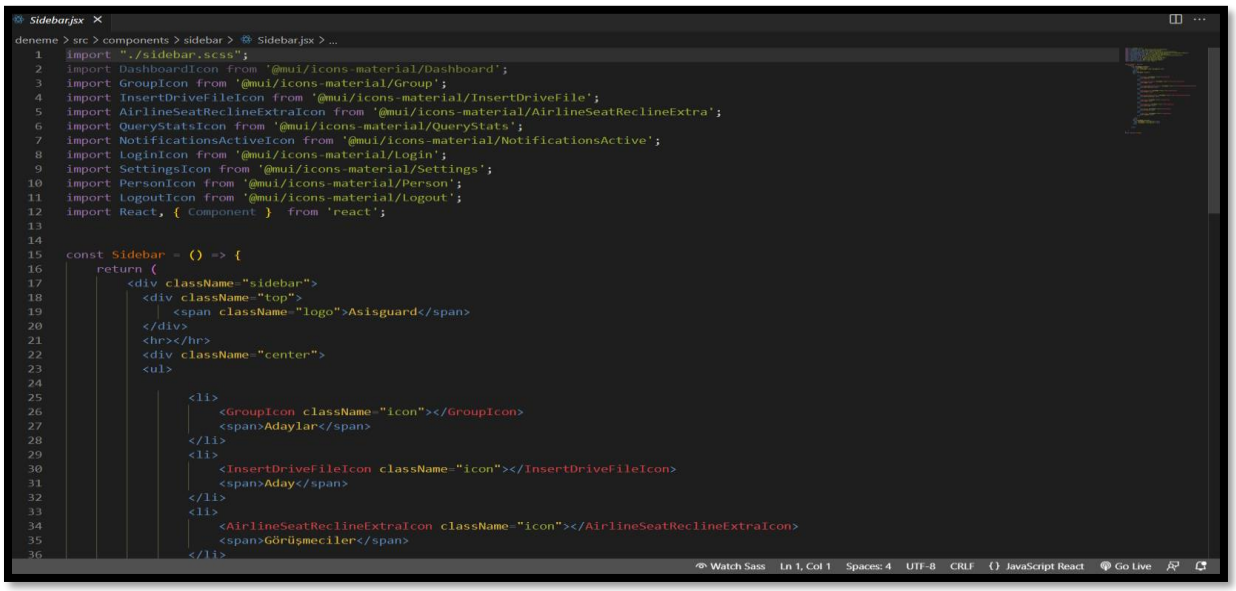
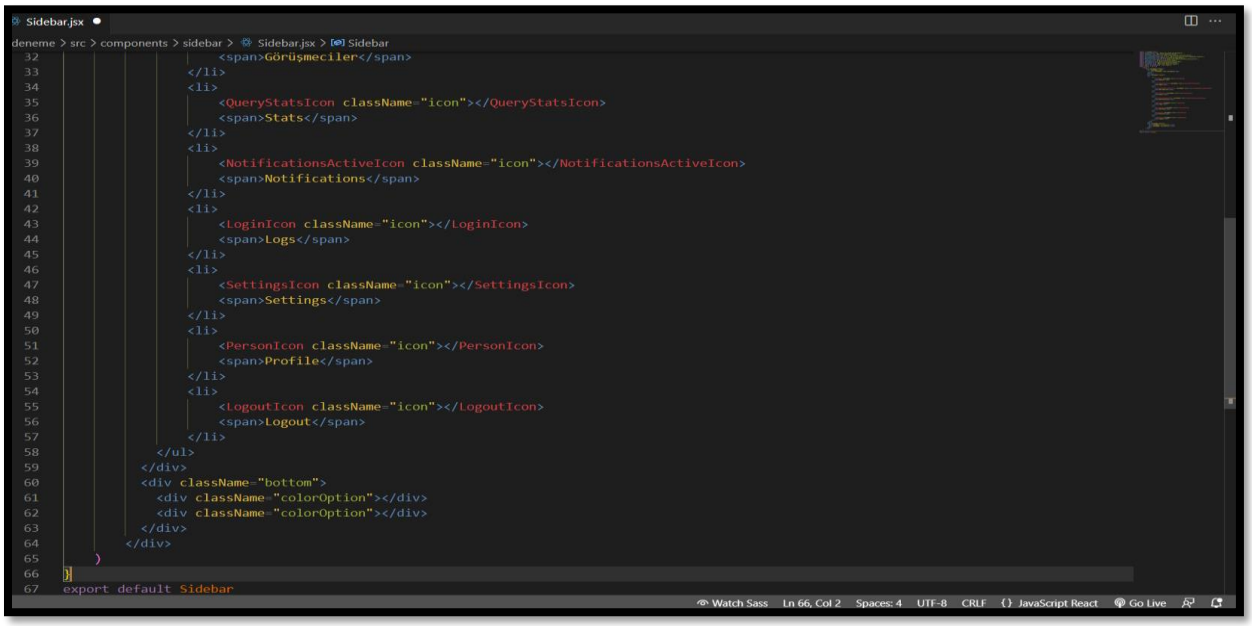
9th Day- 23.06.2022

Today I created the sidebar part of our project. I did menu editing (image operations). I used mui (material ui icons) while doing these operations . Due to the parts I created today , there will be a menu in the static part of our application . I got help from my teammates for my shortcomings and the parts of my code that I couldn't write. I am attaching the code I wrote as appendix.



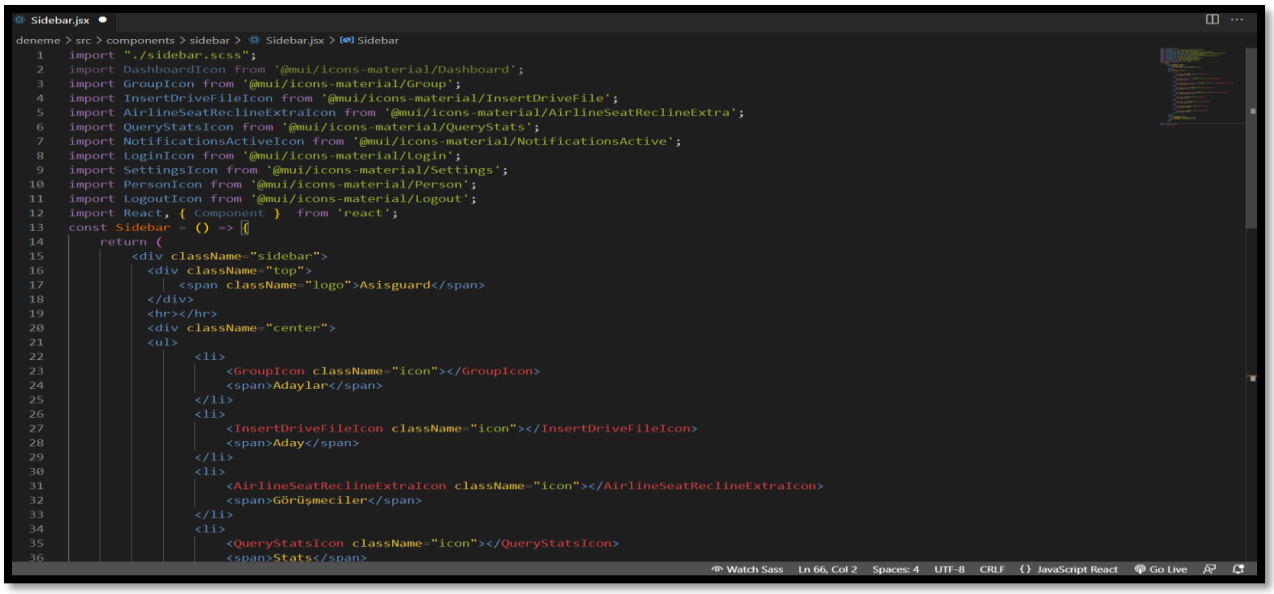
Appendix 9



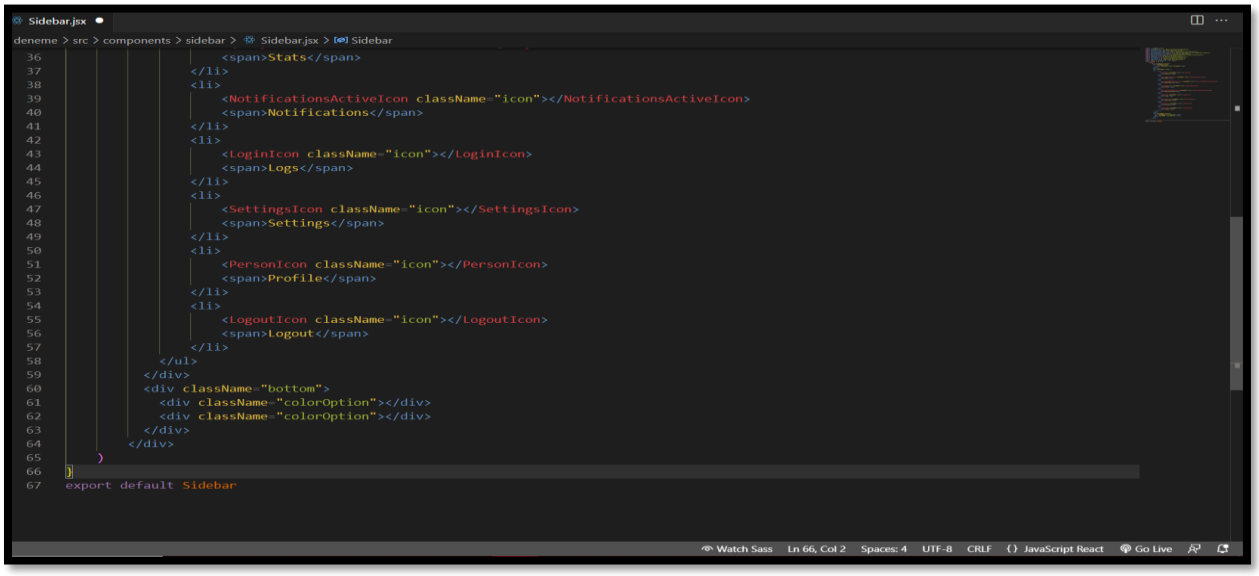
Appendix 9a

10 th Day- 24.06.2022

Today I reviewed the sidebar part of our project again and made a few edits. Then I started creating the navbar part. I had some difficulty in the navbar part and got a lot of errors. I was able to write the static code part of the navbar by searching the internet and asking my teammates. This part took longer than I expected. I did some research on how to do the scss part of the navbar. I will continue the scss part tomorrow. I am attaching the code of my work today in the appendix.



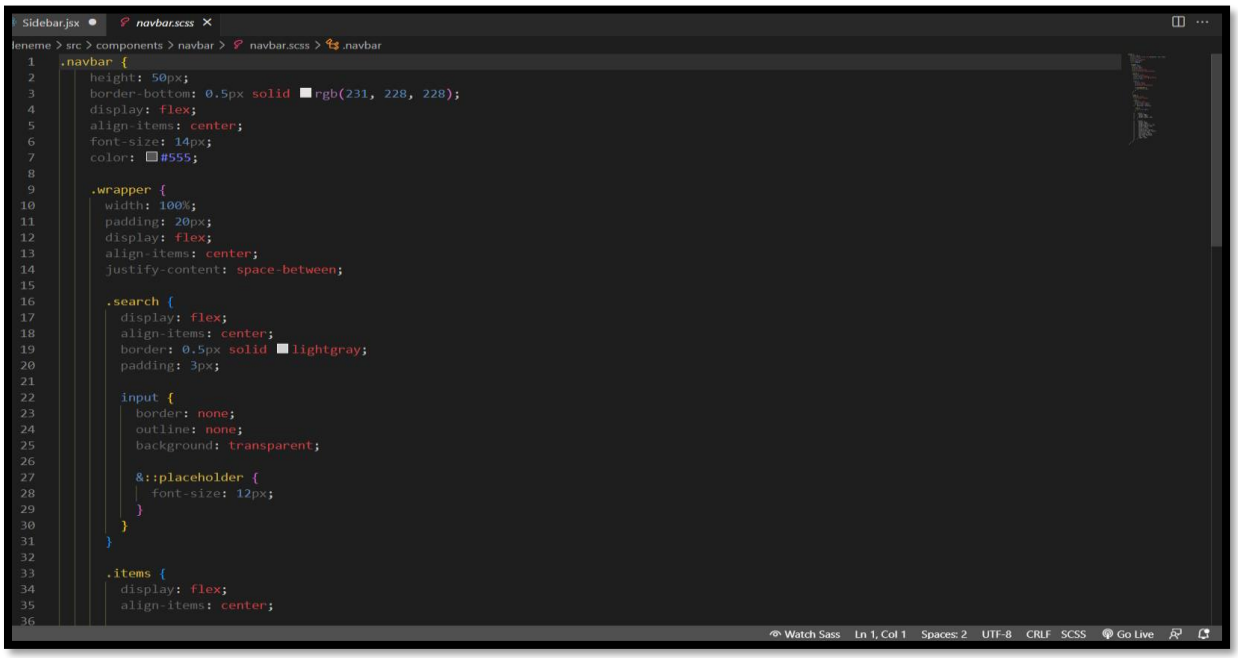
Appendix 10



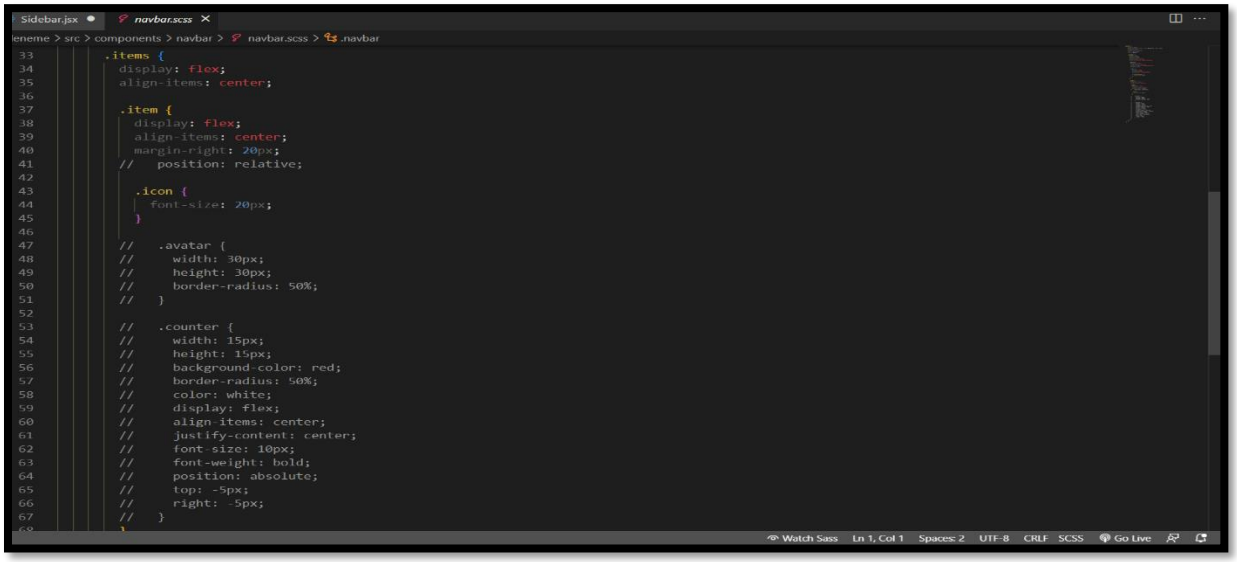
Appendix 10a

11th Day- 27.06.2022

Today, I wrote the missing scss codes of the navbar yesterday. It was a lot of fun, I had a lot of fun doing it. Then I started researching how to make the datatable part and created a form page. I had a hard time creating a form page, I did some research on the internet. I am adding the codes I wrote today as an appendix .



Appendix 11



Appendix 11a

12th Day - 28.06.2022

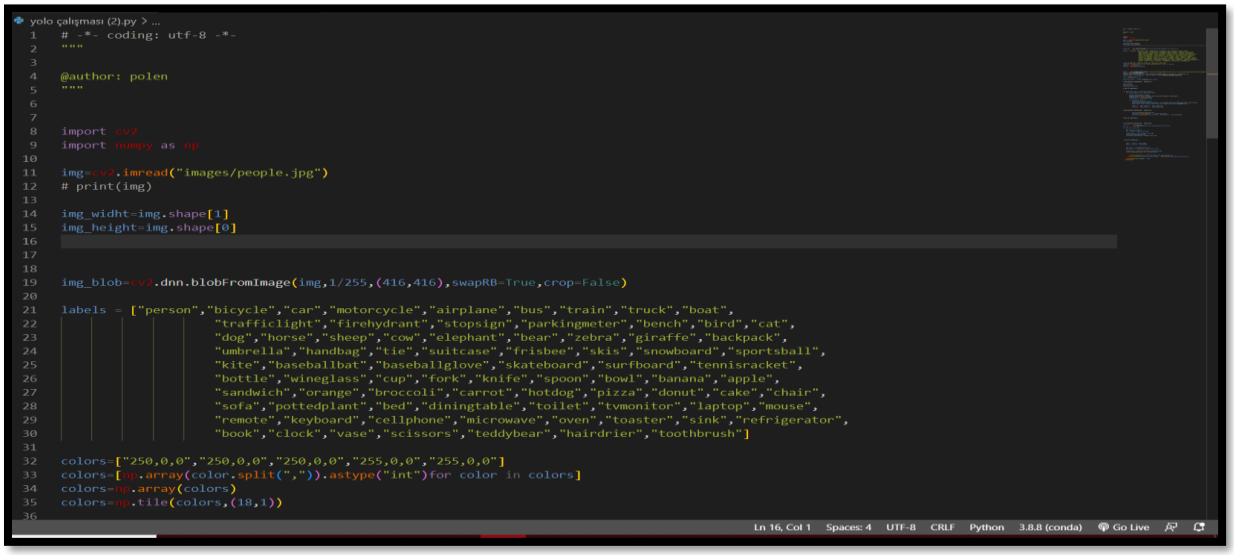
Talking to my teammates today, we decided to use js and css by changing the jsx and scss extensions we use. I learned that scss and css are very different things. In scss, a format close to css is used, code blocks are separated by curly braces and rules are separated by semicolons. Thanks to this change, valid css codes can be used as scss code, but they are different from each other. After this decision I got a lot of errors in my project. So I started reorganizing my project. I ran into a lot of issues trying to change extensions and fix the issues. Because the extensions are different, the index parts are also different. For example, {} signs are nested in scss, but must be written separately in css.

13 th Day- 29.06.2022

Today, our manager called the people responsible for our project one by one. I have presented the static parts and my work that I have done so far. He said that this project is almost finished and he will give me another project . Now my new project is a gun recognition program created using image processing. Thanks to the model I trained, if there is any weapon in the video or photos, the model will recognize it and put it in a box. While doing this project, I was told to use a ready-made model and to train my own model. I did some research on this project and thought I could code more comfortably using Python. I did research about which libraries of Python I can use and decided to use opencv , yolo . I have worked on image processing with opencv before but had no idea about yolo and did research. I decided to use spyder via anaconda as IDE and created a sketch of my project. I am glad that I took on this new project because I had the opportunity to improve myself by learning something new.

14th Day- 30.06.2022

Today I first downloaded open cv to use in my project. Then I looked at the sample codes that I can use when processing images with yolo. Usually a ready-made model is used on the internet, but I need to create and train my model myself. Today I chose an image to practice writing image recognition codes with yolo and did object recognition from that image. I struggled a bit and got errors in my code. I was introducing the image I wanted into the code, but I was getting too much object recognition output. I tried with non-maximum suppression to solve this problem, still my problem is not fully resolved, I will continue to investigate tomorrow. I am attaching my work today as an appendix .



```
yolo çalışması (2).py > ...
# -*- coding: utf-8 -*-
"""

@author: polen
"""


import cv2
import numpy as np

img=cv2.imread("images/people.jpg")
# print(img)

img_widht=img.shape[1]
img_height=img.shape[0]


img_blob=cv2.dnn.blobFromImage(img,1/255,(416,416),swapRB=True,crop=False)

labels = ["person","bicycle","car","motorcycle","airplane","bus","train","truck","boat",
                    "trafficlight","firehydrant","stopsign","parkingmeter","bench","bird","cat",
                    "dog","horse","sheep","cow","elephant","bear","zebra","giraffe","backpack",
                    "umbrella","handbag","tie","suitcase","frisbee","skis","snowboard","sportsball",
                    "kite","baseballbat","baseballglove","skateboard","surfboard","tennisracket",
                    "bottle","wineglass","cup","fork","knife","spoon","bowl","banana","apple",
                    "sandwich","orange","broccoli","carrot","hotdog","pizza","donut","cake","chair",
                    "sofa","pottedplant","bed","diningtable","toilet","tvmonitor","laptop","mouse",
                    "remote","keyboard","cellphone","microwave","oven","toaster","sink","refrigerator",
                    "book","clock","vase","scissors","teddybear","hairdrier","toothbrush"]

colors=["250,0,0","250,0,0","250,0,0","255,0,0","255,0,0"]
colors=[np.array(color.split(",")).astype("int")for color in colors]
colors=np.array(colors)
colors=np.tile(colors,(18,1))
```

Appendix 14

```
yolo çalışması (2).py > ...
model=cv2.dnn.readNetFromDarknet("C:/yolo/pretrained_model/yolov3.cfg","C:/yolo/pretrained_model/yolov3.weights")
layers=model.getLayerNames()
#output layerları bulmak için model.getUnconnectedOutLayers() kullan ve 1 eksiklerini al .
output_layer = [layers[layer - 1] for layer in model.getUnconnectedOutLayers()]

model.setInput(img_blob)

detection_layers = model.forward(output_layer)

# NON-MAXIMUM SUPPRESSION - OPERATION 1

ids_list=[]
boxes_list=[]
confidences_list=[]

# END OF OPERATION 1


for detection_layer in detection_layers:
    for object_detection in detection_layer:

        scores=object_detection[5:]
        #argmax yaptığında o listedeki max değerinin bulunduğu index gelir.
        predicted_id=np.argmax(scores)
        confidence=scores[predicted_id]

        if confidence >0.50 :
            label=labels[predicted_id]
            bounding_box=object_detection[0:4]*np.array([img_widht,img_height,img_widht,img_height])
            (box_center_x,box_center_y,box_widht,box_height)=bounding_box.astype("int")

            start_x=int(box_center_x - (box_widht/2))
            start_y=int(box_center_y - (box_height/2))


# NON-MAXIMUM SUPPRESSION - OPERATION 2
```

Appendix 14

15th Day- 01.07.2022

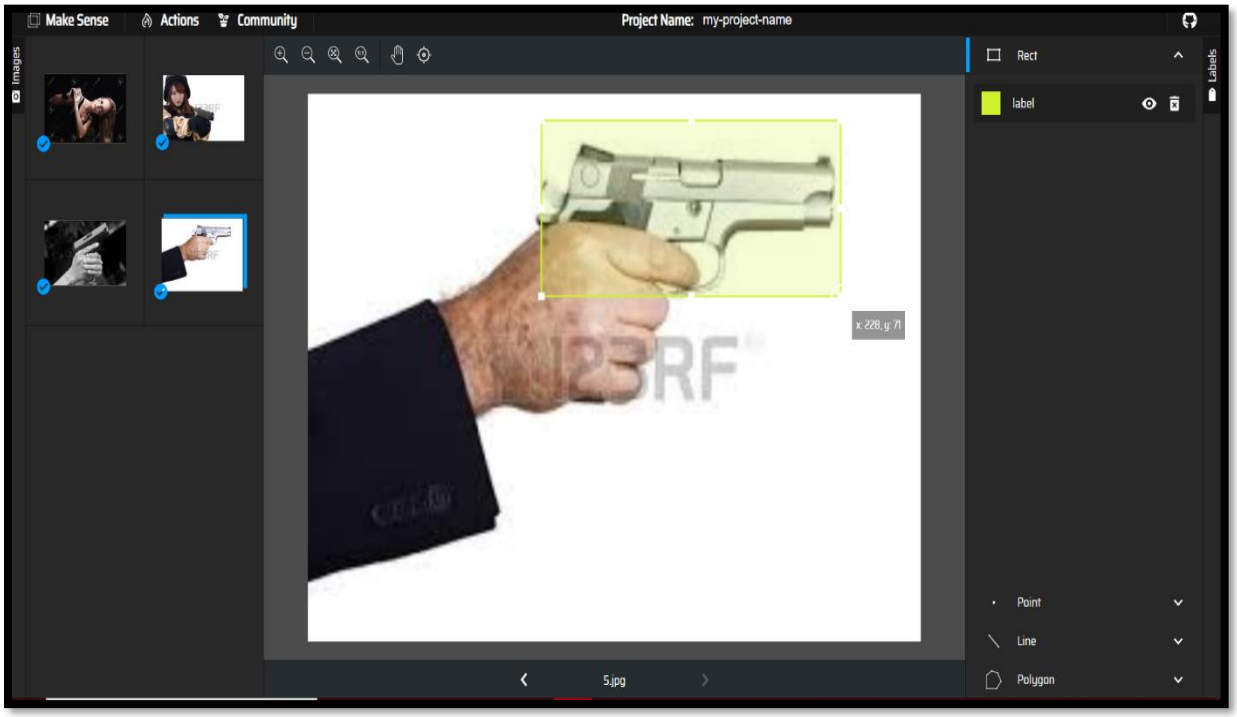
Today I fixed the problem I got yesterday, by adding few lines of code I fixed the problem. I am adding the part where I added the code as an appendix . Since I have successfully done object recognition via photo, I performed object recognition via video today. I made a sample video trial and my code worked successfully. Now I started researching for the model that I will develop myself. First I downloaded darknet and collected data about my project from internet. I created a zip file with 3000 different jpg files with gun photos and 3000 txt files with the information of these files. Then I tagged the guns in these photos using the MakeSense app, but I couldn't finish them all today because there was too much data, I will continue tomorrow.

```
# END OF OPERATION 2




# NON-MAXIMUM SUPPRESSION - OPERATION 3

max_ids = cv2.dnn.NMSBoxes(boxes_list,confidences_list,0.5,0.4)

for max_id in max_ids:

    max_class_id = max_id
    box = boxes_list[max_class_id]

    start_x=box[0]
    start_y=box[1]
    box_widht=box[2]
    box_height=box[3]

    predicted_id = ids_list[max_class_id]
    label=labels[predicted_id]
    confidence=confidences_list[max_class_id]



# END OF OPERATION 3


    end_x = start_x + box_widht
    end_y = start_y + box_height


    box_color = colors[predicted_id]
    box_color= [int(each) for each in box_color]
```

Appendix 15

16th Day- 04.07.2022

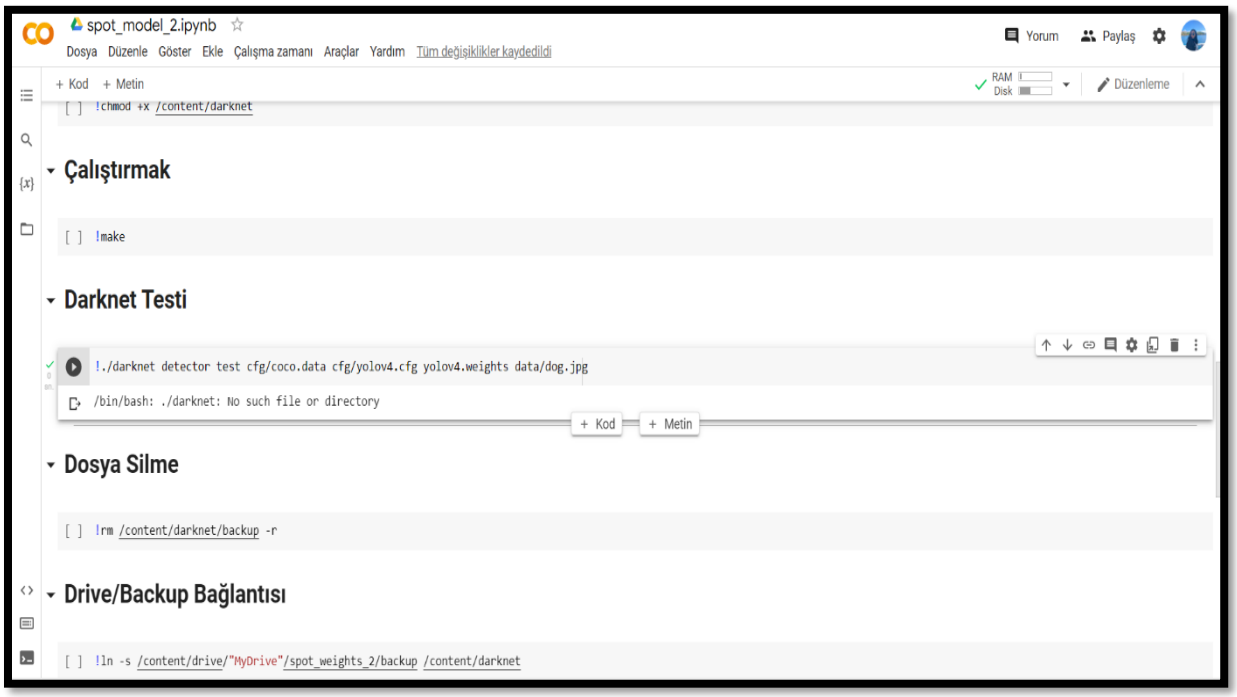
I finished tagging by working on the data that I couldn't finish tagging yesterday. I have attached your example as Appendix 1. Of the data I labeled, I divided 20% of the data as testing and 80% as training and started the process of teaching my model. First of all, I downloaded my darknet file using Google Drive and decided to write the training codes of my model via Google Colaboratory. I researched Colab a bit. Google Colab (Google Colaboratory) is an interactive, fully cloud-based, easy-to-use and collaborative programming environment for those working on artificial intelligence and deep learning projects. I had a hard time writing my codes in colab and I got a lot of errors because it is an idea that I had no knowledge of before.



Appendix 16

17 th Day- 05.07.2022

My training model was completed, but since I kept the datasets of my first project to a minimum, many object definitions were made in the conclusion part and I could not reach the desired result. So I decided to organize my project using more datasets. I selected my datasets again and created my project by following the same steps. I got errors in Google Colabaratory and I couldn't fix it. I have added the error I got to appendix .



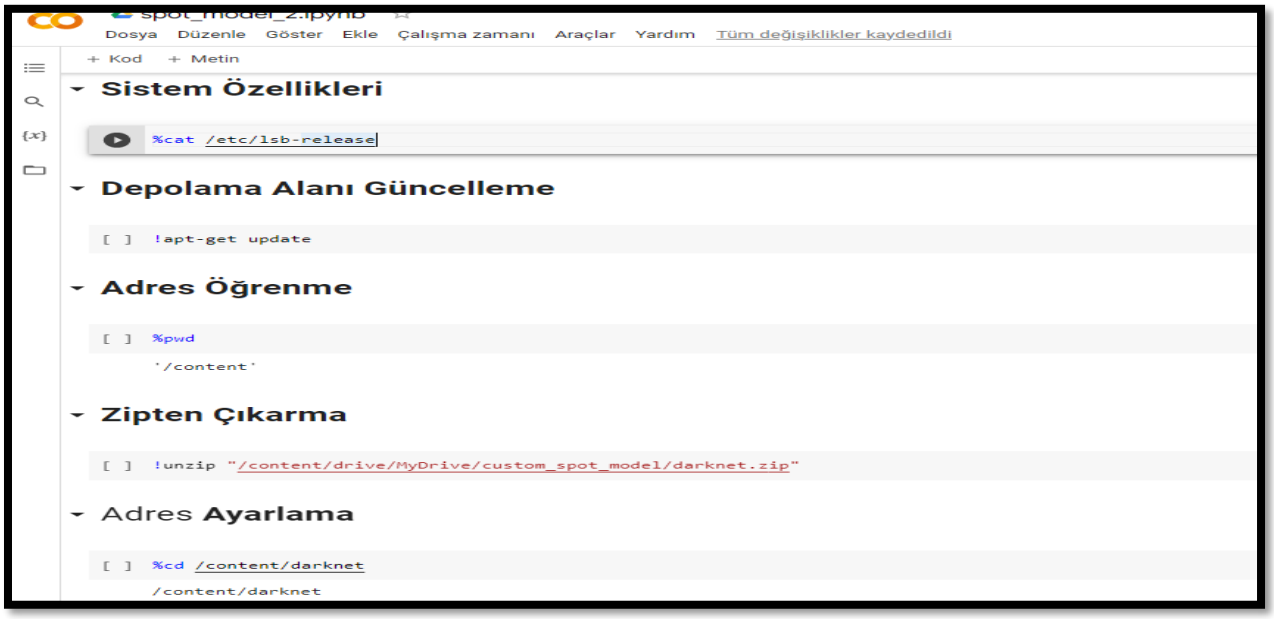
Appendix 17

18 th Day - 06.07.2022

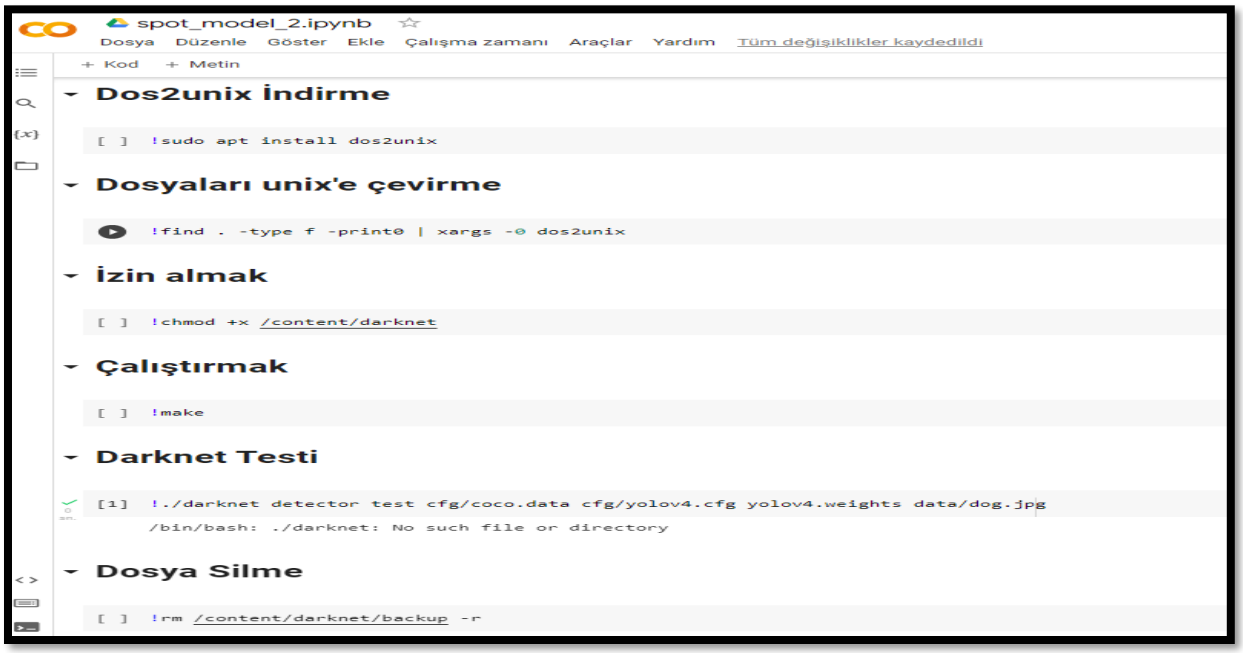
Today I tried to solve the errors in the Colabaratory part and I solved the error, but the computer shut down before the teaching process was completed and when I turned it back on, my whole project was deleted. Since the information I edited via colab was also deleted, I rebuilt the project and this time I got a GPU error over colab. I regret that I used colab, I was not satisfied at all.

19th Day - 07.07.2022

Since I got a colab error yesterday, I reinstalled the whole project by setting up a new google drive account and a new colab account, and this time I got a code error despite all this. What I did was the same. I continued my research because I was sure that there was no code error, but I could not solve the problem. I got help from the engineers at the company. Finally I solved the problem and my code worked. I am attaching the codes I wrote in Appendix .



Appendix 19



Appendix 19a

Appendix 19b

20 th Day - 08.07.2022

Today is my last internship day. Now I have run all the code I wrote in my project to get a result. All code works perfectly, but too much markup on objects. I guess this is a non-max error but I submitted my project today and didn't have time to fix it. Since I couldn't fix the errors I got in my project, I couldn't get the exact result I wanted. My project comment is that I am not satisfied with Colab and Spyder programs and I don't plan to use them again. My last project taught me image manipulation and my first project taught me to use react, html, css and some javascript. Although my project did not bear fruit, I learned a lot. I have attached an image of the result of my project and some of the code I wrote as an attachment.

Appendix 20

```python
    boxes_list = []
    confidences_list = []

    # END OF OPERATION 1

    for detection_layer in detection_layers:
        for object_detection in detection_layer:
            scores = object_detection[5:]
            # argmax yaptığında o listedeki max değerinin bulunduğu index gelir.
            predicted_id = np.argmax(scores)
            confidence = scores[predicted_id]

            if confidence > 0.50:
                label = labels[0]
                bounding_box = object_detection[0:4] * np.array([frame_widht, frame_height, frame_widht, frame_height])
                (box_center_x, box_center_y, box_widht, box_height) = bounding_box.astype("int")

                start_x = int(box_center_x - (box_widht / 2))
                start_y = int(box_center_y - (box_height / 2))

                # NON-MAXIMUM SUPPRESSION - OPERATION 2

                ids_list.append(0)
                confidences_list.append((float(predicted_id)))
                boxes_list.append([start_x, start_y, int(box_widht), int(box_height)])

    # END OF OPERATION 2

    # NON-MAXIMUM SUPPRESSION - OPERATION 3

    max_ids = cv2.dnn.NMSBoxes(boxes_list, confidences_list, 0.5, 0.4)

    for max_id in max_ids:
        max_class_id = max_id
        box = boxes_list[max_class_id]
```

Appendix 20a

```python
    for max_id in max_ids:
        max_class_id = max_id
        box = boxes_list[max_class_id]

        start_x = box[0]
        start_y = box[1]
        box_widht = box[2]
        box_height = box[3]

        predicted_id = ids_list[max_class_id]
        label = labels[predicted_id]
        confidence = confidences_list[max_class_id]

        # END OF OPERATION 3

        end_x = start_x + box_widht
        end_y = start_y + box_height

        box_color = colors[predicted_id]
        box_color = [int(each) for each in box_color]

        label = "{}: {:.2f}%".format(label, confidence * 100)
        print("predicted object {}".format(label))

        cv2.rectangle(frame, (start_x, start_y), (end_x, end_y), box_color, 3)
        cv2.putText(frame, label, (start_x, start_y - 10), cv2.FONT_HERSHEY_SIMPLEX, 0.5, box_color, 1)

    cv2.imshow("Detection Window", frame)

    if cv2.waitKey(1) & 0xFF == ord("q"):
        break
cap.release()
cv2.destroyAllWindows()
```

Appendix 20b