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.v42i2.37019

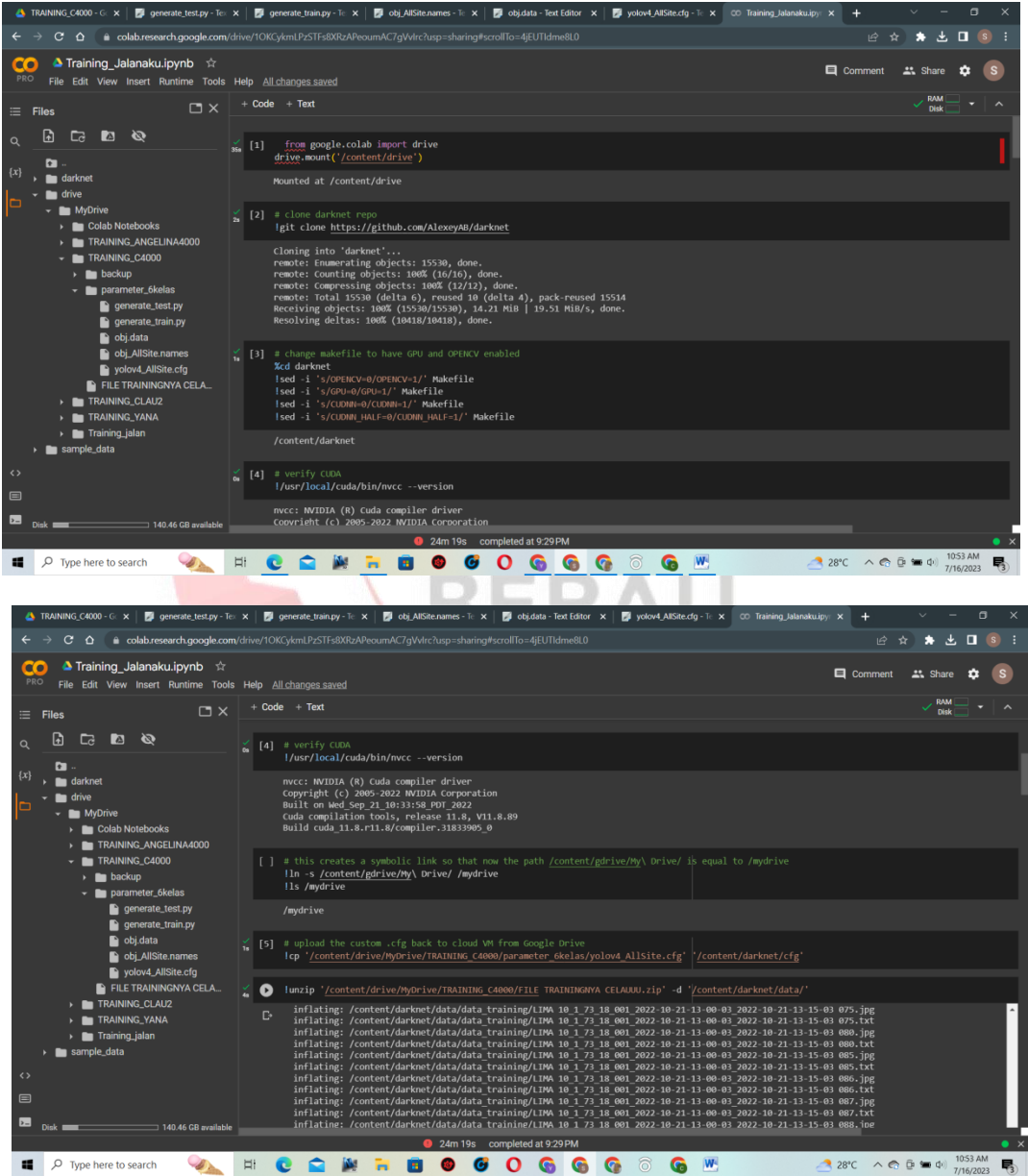
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LAMPIRAN

Lampiran 1. Proses Pengujian *Training* Menggunakan *Google Colab*



The screenshot shows a Google Colab notebook environment. The top bar displays the notebook title 'Training_Jalanaku.ipynb' and various icons for file management and sharing. The left sidebar shows a file explorer with a directory structure. The main area contains four code blocks. The first block uploads files to cloud VM. The second block verifies the upload. The third block downloads darknet and yolov4 models. The fourth block shows a progress bar for the download, indicating 140.46 GB available and 24m 19s completed at 9:29 PM.

```
[12] # upload the obj.names and obj.data files to cloud VM from Google Drive
!cp '/content/drive/MyDrive/TRAINING_C4000/parameter_ekelas.obj.AllSite.names' '/content/darknet/data/'
!cp '/content/drive/MyDrive/TRAINING_C4000/parameter_ekelas.obj.data' '/content/darknet/data/'

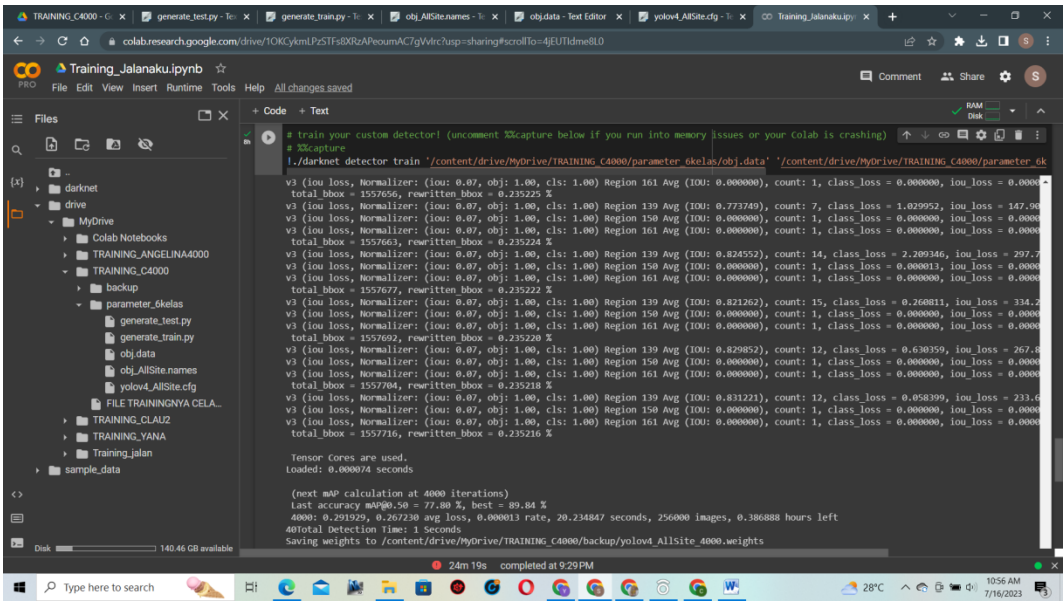
[13] # verify that the newly generated train.txt and test.txt can be seen in our darknet/data folder
!ls '/content/darknet/data'

9k.tree          eagle.jpg         labels            test.txt
coco.names       giraffe.jpg      obj.AllSite.names train.txt
coco.names       goal.txt         obj.data         voc.names
data_testing     horses.jpg       openimages.names
data_training    imagenet.labels.list person.jpg
dog.jpg          imagenet.shortnames.list scream.jpg

[14] !wget https://github.com/AlexeyAB/darknet/releases/download/darknet_yolo_v4_pre/yolov4.conv.137
--2023-07-15 13:03:27-- https://github.com/AlexeyAB/darknet/releases/download/darknet_yolo_v4_pre/yolov4.conv.137
Resolving github.com (github.com)... 140.82.121.4
Connecting to github.com (github.com)[140.82.121.4]:443... connected.
HTTP request sent, awaiting response... 302 found
location: https://objects.githubusercontent.com/github-production-release-asset-2656be/75388965/95733400-b2d7-11eb-9a7a-710f1962a8b7?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=aws4_credentials&X-Amz-Date=2023-07-15%2013%3A03%27--&X-Amz-Security-Token=token&X-Amz-SignedHeaders=host&X-Amz-Target=aws4_target
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.111.133, 185.199.110.133, 185.199.109.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)[185.199.111.133]:443... connected.
HTTP request sent, awaiting response... 200 OK
length: 170038676 (162M) [application/octet-stream]
Saving to: 'yolov4.conv.137'

yolov4.conv.137 100%[=====] 162.16M 46.69M/s in 3.5s

2023-07-15 13:03:31 (46.6 MB/s) - 'yolov4.conv.137' saved [170038676/170038676]
```

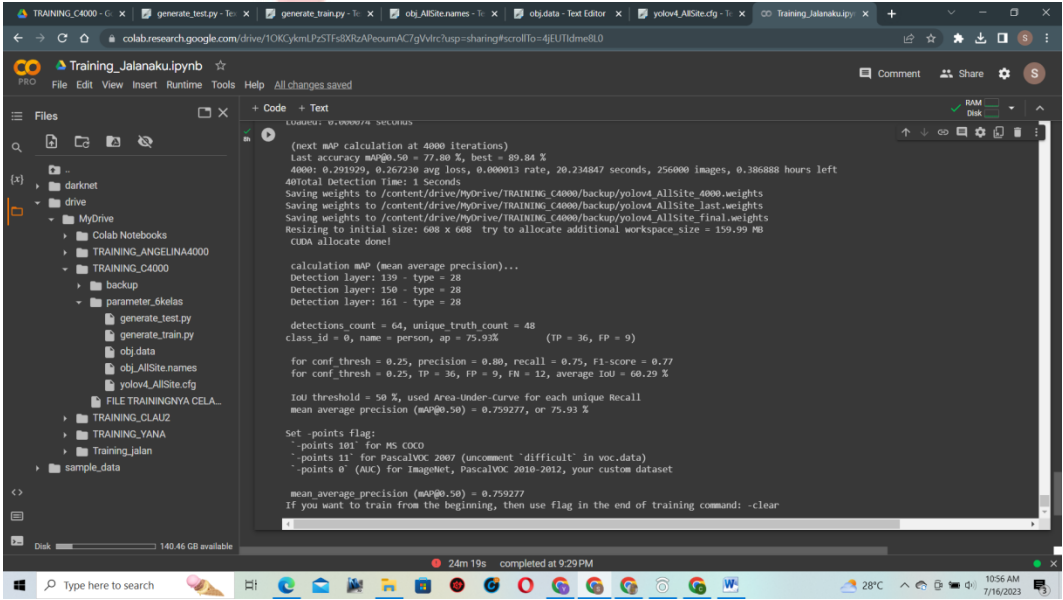


```
# train your custom detector! (uncomment %capture below if you run into memory issues or your colab is crashing)
%capture
!./darknet detector train "/content/drive/myDrive/TRAINING_C4000/parameter/ekelas/obj.data" "/content/drive/myDrive/TRAINING_C4000/parameter/ekelas/obj.names" "/content/drive/myDrive/TRAINING_C4000/parameter/ekelas/obj.data"

v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 161 Avg (IOU: 0.000000), count: 1, class_loss = 0.000000, iou_loss = 0.000000)
total_bbox = 1557656, rewritten_bbox = 0.235225 %
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 139 Avg (IOU: 0.773740), count: 7, class_loss = 1.029952, iou_loss = 147.96)
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 150 Avg (IOU: 0.000000), count: 1, class_loss = 0.000000, iou_loss = 0.000000)
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 161 Avg (IOU: 0.000000), count: 1, class_loss = 0.000000, iou_loss = 0.000000)
total_bbox = 1557663, rewritten_bbox = 0.235224 %
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 139 Avg (IOU: 0.824552), count: 14, class_loss = 2.209346, iou_loss = 297.7)
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 150 Avg (IOU: 0.000000), count: 1, class_loss = 0.000011, iou_loss = 0.000000)
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 161 Avg (IOU: 0.000000), count: 1, class_loss = 0.000000, iou_loss = 0.000000)
total_bbox = 1557677, rewritten_bbox = 0.235224 %
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 139 Avg (IOU: 0.821262), count: 15, class_loss = 0.260811, iou_loss = 334.7)
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 150 Avg (IOU: 0.000000), count: 1, class_loss = 0.000000, iou_loss = 0.000000)
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 161 Avg (IOU: 0.000000), count: 1, class_loss = 0.000000, iou_loss = 0.000000)
total_bbox = 1557692, rewritten_bbox = 0.235220 %
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 139 Avg (IOU: 0.820852), count: 12, class_loss = 0.630159, iou_loss = 267.4)
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 150 Avg (IOU: 0.000000), count: 1, class_loss = 0.000000, iou_loss = 0.000000)
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 161 Avg (IOU: 0.000000), count: 1, class_loss = 0.000000, iou_loss = 0.000000)
total_bbox = 1557704, rewritten_bbox = 0.235218 %
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 139 Avg (IOU: 0.831221), count: 12, class_loss = 0.050399, iou_loss = 234.4)
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 150 Avg (IOU: 0.000000), count: 1, class_loss = 0.000000, iou_loss = 0.000000)
v3 (iou loss, Normalizer: (iou: 0.07, obj: 1.00, cls: 1.00) Region 161 Avg (IOU: 0.000000), count: 1, class_loss = 0.000000, iou_loss = 0.000000)
total_bbox = 1557716, rewritten_bbox = 0.235216 %

Tensor Cores are used.
Loaded: 0.000074 seconds

(next mAP calculation at 4000 iterations)
Last accuracy mAP@0.50 = 77.80 %, best = 89.84 %
4000: 0.291929, 0.267230 avg loss, 0.000013 rate, 20.234847 seconds, 256000 images, 0.386888 hours left
40Total Detection Time: 1 Seconds
Saving weights to /content/drive/myDrive/TRAINING_C4000/backup/yolov4_AllSite_4000.weights
```



```
(next mAP calculation at 4000 iterations)
Last accuracy mAP@0.50 = 77.80 %, best = 89.84 %
4000: 0.291929, 0.267230 avg loss, 0.000013 rate, 20.234847 seconds, 256000 images, 0.386888 hours left
40Total Detection Time: 1 Seconds
Saving weights to /content/drive/myDrive/TRAINING_C4000/backup/yolov4_AllSite_4000.weights
Saving weights to /content/drive/myDrive/TRAINING_C4000/backup/yolov4_AllSite_final.weights
Resizing to initial size: 608 x 608 try to allocate additional workspace_size = 159.99 MB
CUDA allocate done!

calculation mAP (mean average precision)...
Detection layer: 139 - type = 28
Detection layer: 150 - type = 28
Detection layer: 161 - type = 28

detections_count = 64, unique_truth_count = 48
class_id = 0, name = person, ap = 75.93% (TP = 36, FP = 9)

for conf_thresh = 0.25, precision = 0.80, recall = 0.75, F1-score = 0.77
for conf_thresh = 0.25, TP = 36, FP = 9, FN = 12, average IoU = 60.29 %

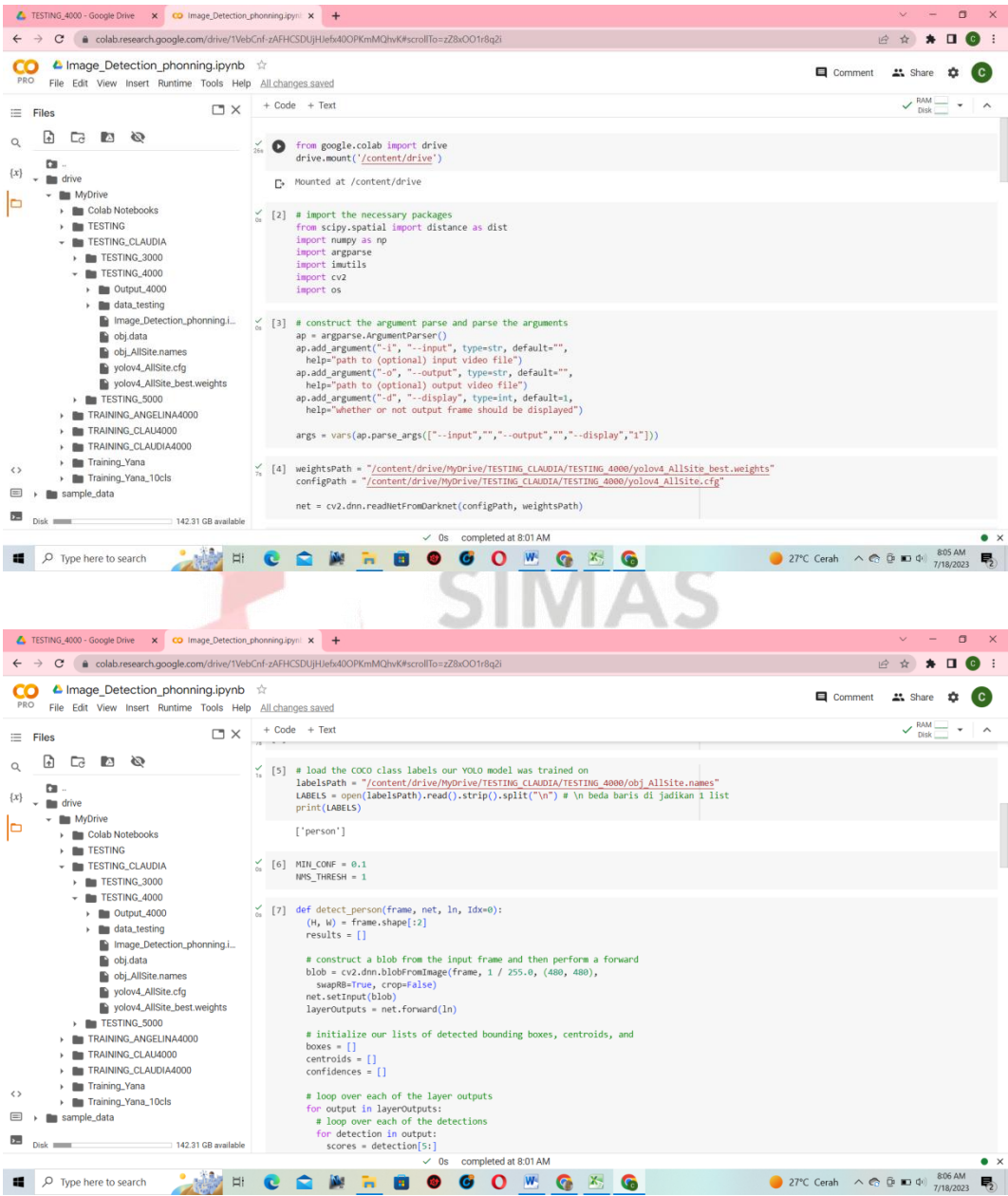
IoU threshold = 50 %, used Area-Under-Curve for each unique Recall
mean average precision (mAP@0.50) = 0.759277, or 75.93 %

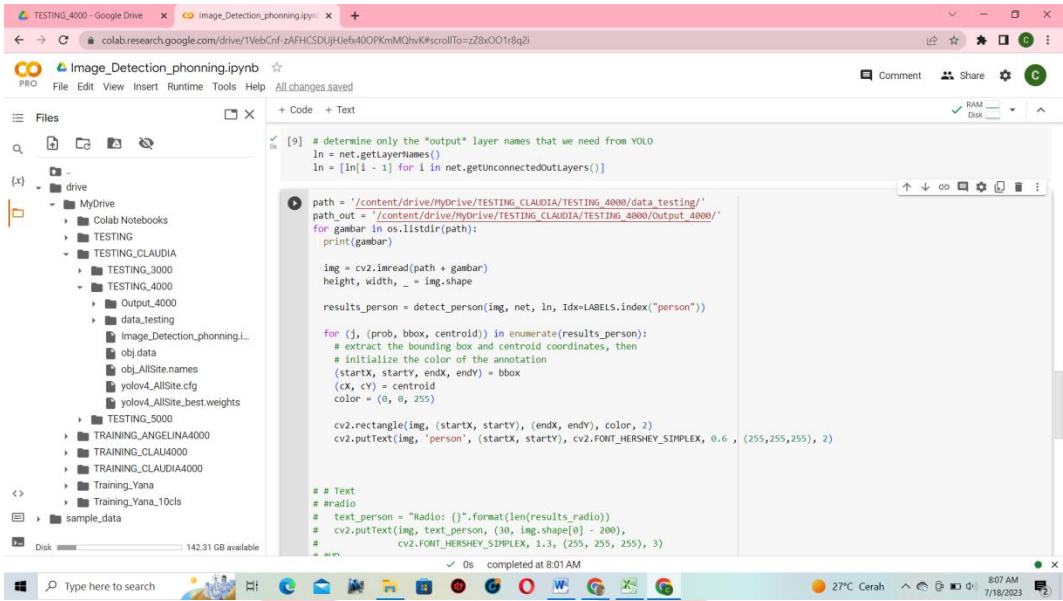
Set -points flag:
'-points 1a1' for MS COCO
'-points 11' for PascalVOC 2007 (uncomment 'difficult' in voc.data)
'-points 0' (AUC) for ImageNet, PascalVOC 2010-2012, your custom dataset

mean average precision (mAP@0.50) = 0.759277
If you want to train from the beginning, then use flag in the end of training command: -clear
```

BERAU COAL

Lampiran 2. Proses Pengujian *Testing* Menggunakan *Google Colab*









2022-10-14 08:21:33

E Camera 1



2022-10-14 08:29:17

E Camera 1





2022-10-21 14:02:02

E Camera 1



2022-10-21 14:02:04

E Camera 1





2022-10-14 11:05:03

E Camera 1



2022-10-14 11:05:39

E Camera 1







Lampiran 4. Perhitungan *Testing* Iterasi 3000

PERSON (3000)

No	CCTV	Hasil Pengamatan	Terdeteksi dan Benar (TP)	Tidak Terdeteksi (FN)	Terdeteksi dan tidak benar (FP)	Keterangan FN	Keterangan FP	Accuracy
								Recall
1	01-10-2022 11:45:02_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
2	01-10-2022 11:45:02_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
3	01-10-2022 11:45:07_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
4	01-10-2022 11:45:12_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
5	01-10-2022 11:45:17_ WEST CAMERA 1.jpg	6	5	1	0	Objek Tidak Terdeteksi		83.33%
6	01-10-2022 11:45:22_ WEST CAMERA 1.jpg	6	5	1	0	Objek Tidak Terdeteksi		83.33%
7	01-10-2022 11:45:27_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
8	01-10-2022 11:45:32_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
9	01-10-2022 11:45:37_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
10	01-10-2022 11:45:42_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
11	01-10-2022 11:45:47_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
12	02-08-2022 09:15:13_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
13	02-08-2022 09:15:13_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
14	02-08-2022 09:15:17_ WEST CAMERA 1.jpg	6	5	0	0			100.00%
15	02-08-2022 09:15:22_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
16	02-08-2022 09:15:27_ WEST CAMERA 1.jpg	4	4	0	0			100.00%

17	02-08-2022 09:15:32_WEST CAMERA 1.jpg	4	4	0	1		Salah Deteksi Objek (Belakang Truck Terdeteksi Person)	100.00%
18	02-08-2022 09:15:37_WEST CAMERA 1.jpg	5	5	0	0			100.00%
19	02-08-2022 09:15:42_WEST CAMERA 1.jpg	5	5	0	0			100.00%
20	02-08-2022 09:15:47_WEST CAMERA 1.jpg	6	4	2	0	Objek Tidak Terdeteksi		66.67%
21	02-08-2022 09:15:52_WEST CAMERA 1.jpg	6	6	0	0			100.00%
22	02-08-2022 09:15:57_WEST CAMERA 1.jpg	5	5	0	0			100.00%
23	02-08-2022 09:16:02_WEST CAMERA 1.jpg	5	4	1	0	Objek Tidak Terdeteksi		80.00%
24	02-08-2022 09:16:07_WEST CAMERA 1.jpg	6	6	0	0			100.00%
25	02-08-2022 09:16:12_WEST CAMERA 1.jpg	6	5	1	1	Objek Tidak Terdeteksi	Salah Deteksi Objek (Belakang LV Terdeteksi Person)	83.33%
26	02-08-2022 09:16:17_WEST CAMERA 1.jpg	6	5	1	0	Objek Tidak Terdeteksi		83.33%
27	14-10-2022 08:21:33_E CAMERA 1.jpg	1	1	0	0			100.00%
28	14-10-2022 08:25:52_E CAMERA 1.jpg	1	0	1	0			0.00%

29	14-10-2022 08:29:17_E CAMERA 1.jpg	1	1	0	0			100.00%
30	14-10-2022 08:29:50_E CAMERA 1.jpg	1	1	0	0			100.00%
31	14-10-2022 08:29:53_E CAMERA 1.jpg	1	1	0	0			100.00%
32	14-10-2022 08:29:57_E CAMERA 1.jpg	1	1	0	0			100.00%
33	21-10-2022 11:09:25_E CAMERA 1.jpg	2	2	0	0			100.00%
34	21-10-2022 11:09:30_E CAMERA 1.jpg	2	2	0	0			100.00%
35	21-10-2022 11:09:34_E CAMERA 1.jpg	2	1	1				50.00%
36	21-10-2022 11:09:39_E CAMERA 1.jpg	2	2	0	0			100.00%
37	21-10-2022 14:02:02_E CAMERA 1.jpg	1	1	0	0			100.00%
38	21-10-2022 14:02:04_E CAMERA 1.jpg	1	1	0	1		Salah Deteksi Objek (Rambu Terdeteksi Person)	100.00%
39	21-10-2022 14:02:06_E CAMERA 1.jpg	1	1	0	0			100.00%
40	21-10-2022 14:02:08_E CAMERA 1.jpg	1	1	0	0			100.00%
41	21-10-2022 14:02:10_E CAMERA 1.jpg	1	1	0	1		Salah Deteksi Objek (HD Terdeteksi Person)	100.00%
42	21-10-2022 14:02:11_E CAMERA 1.jpg	1	1	0	0			100.00%
43	21-10-2022 14:02:13_E CAMERA 1.jpg	1	1	0	0			100.00%
44	21-10-2022 14:02:15_E CAMERA 1.jpg	1	1	0	0			100.00%
45	21-10-2022 14:02:24_E CAMERA 1.jpg	1	1	0	0			100.00%
46	21-10-2022 14:02:33_E CAMERA 1.jpg	1	1	0	0			100.00%

47	21-10-2022 14:02:35_E CAMERA 1.jpg	1	1	0	0			100.00%
48	21-10-2022 14:02:37_E CAMERA 1.jpg	1	0	1	1	Objek Tidak Terdeteksi	Salah Deteksi Objek (Belakang LV Terdeteksi Person)	0.00%
49	21-10-2022 14:02:38_E CAMERA 1.jpg	1	1	0	0			100.00%
50	14-10-2022 11:05:03_E CAMERA 1.jpg	1	1	0	0			100.00%
51	14-10-2022 11:05:11_E CAMERA 1.jpg	1	1	0	0			100.00%
52	14-10-2022 11:05:12_E CAMERA 1.jpg	1	1	0	0			100.00%
53	14-10-2022 11:05:14_E CAMERA 1.jpg	1	1	0	0			100.00%
54	14-10-2022 11:05:16_E CAMERA 1.jpg	1	1	0	0			100.00%
55	14-10-2022 11:05:18_E CAMERA 1.jpg	1	1	0	0			100.00%
56	14-10-2022 11:05:20_E CAMERA 1.jpg	1	1	0	0			100.00%
57	14-10-2022 11:05:21_E CAMERA 1.jpg	1	1	0	0			100.00%
58	14-10-2022 11:05:23_E CAMERA 1.jpg	1	1	0	0			100.00%
59	14-10-2022 11:05:25_E CAMERA 1.jpg	1	1	0	0			100.00%
60	14-10-2022 11:05:32_E CAMERA 1.jpg	1	1	0	0			100.00%
61	14-10-2022 11:05:34_E CAMERA 1.jpg	1	1	0	0			100.00%
62	14-10-2022 11:05:36_E CAMERA 1.jpg	1	1	0	0			100.00%
63	14-10-2022 11:05:38_E CAMERA 1.jpg	1	1	0	0			100.00%
64	14-10-2022 11:05:39_E CAMERA 1.jpg	1	1	0	0			100.00%
65	14-10-2022 11:05:41_E CAMERA 1.jpg	1	1	0	0			100.00%
66	16-10-2022 12:38:46_E CAMERA 1.jpg	2	2	0	0			100.00%

67	16-10-2022 12:38:46_E CAMERA 1.jpg	2	2	0	0			100.00%
68	16-10-2022 12:38:47_E CAMERA 1.jpg	2	2	0	0			100.00%
69	16-10-2022 12:38:49_E CAMERA 1.jpg	1	1	0	0			100.00%
70	16-10-2022 12:38:51_E CAMERA 1.jpg	2	1	0	0			100.00%
71	16-10-2022 12:38:53_E CAMERA 1.jpg	2	2	0	0			100.00%
72	16-10-2022 12:38:55_E CAMERA 1.jpg	2	2	0	0			100.00%
73	16-10-2022 12:42:00_E CAMERA 1.jpg	2	0	2	0	Objek Tidak Terdeteksi		0.00%
74	16-10-2022 12:42:02_E CAMERA 1.jpg	2	0	2	0	Objek Tidak Terdeteksi		0.00%
75	16-10-2022 12:42:04_E CAMERA 1.jpg	2	0	2	0	Objek Tidak Terdeteksi		0.00%
TOTAL		210	192	16	5			

Lampiran 5. Perhitungan *Testing* Iterasi 4000

PERSON (4000)

No	CCTV	Hasil Pengamatan	Terdeteksi dan Benar (TP)	Tidak Terdeteksi (FN)	Terdeteksi dan tidak benar (FP)	Keterangan FN	Keterangan FP	Accuracy
								Recall
1	01-10-2022 11:45:02_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
2	01-10-2022 11:45:02_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
3	01-10-2022 11:45:07_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
4	01-10-2022 11:45:12_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
5	01-10-2022 11:45:17_ WEST CAMERA 1.jpg	6	5	1	0			83.33%
6	01-10-2022 11:45:22_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
7	01-10-2022 11:45:27_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
8	01-10-2022 11:45:32_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
9	01-10-2022 11:45:37_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
10	01-10-2022 11:45:42_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
11	01-10-2022 11:45:47_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
12	02-08-2022 09:15:13_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
13	02-08-2022 09:15:13_ WEST CAMERA 1.jpg	6	6	0	0			100.00%
14	02-08-2022 09:15:17_ WEST CAMERA 1.jpg	5	5	0	0			100.00%
15	02-08-2022 09:15:22_ WEST CAMERA 1.jpg	6	6	0	0			100.00%

16	02-08-2022 09:15:27_WEST CAMERA 1.jpg	5	4	1	0			80.00%
17	02-08-2022 09:15:32_WEST CAMERA 1.jpg	5	4	1	1	Objek Tidak Terdeteksi	Salah Deteksi Objek (Belakang Truck Terdeteksi Person)	80.00%
18	02-08-2022 09:15:37_WEST CAMERA 1.jpg	5	5	0	1		Salah Deteksi Objek (Bagian Depan Truck Terdeteksi Person)	100.00%
19	02-08-2022 09:15:42_WEST CAMERA 1.jpg	6	5	1	0	Objek Tidak Terdeteksi		83.33%
20	02-08-2022 09:15:47_WEST CAMERA 1.jpg	6	4	2	0	Objek Tidak Terdeteksi		66.67%
21	02-08-2022 09:15:52_WEST CAMERA 1.jpg	7	7	0	0			100.00%
22	02-08-2022 09:15:57_WEST CAMERA 1.jpg	5	5	0	0			100.00%
23	02-08-2022 09:16:02_WEST CAMERA 1.jpg	4	4	0	0			100.00%
24	02-08-2022 09:16:07_WEST CAMERA 1.jpg	6	6	0	0			100.00%

25	02-08-2022 09:16:12_WEST CAMERA 1.jpg	6	6	0	0			100.00%
26	02-08-2022 09:16:17_WEST CAMERA 1.jpg	6	5	1		Objek Tidak Terdeteksi		83.33%
27	14-10-2022 08:21:33_E CAMERA 1.jpg	1	0	1	0	Objek Tidak Terdeteksi		0.00%
28	14-10-2022 08:25:52_E CAMERA 1.jpg	1	1	0	0			100.00%
29	14-10-2022 08:29:17_E CAMERA 1.jpg	1	1	0	0			100.00%
30	14-10-2022 08:29:50_E CAMERA 1.jpg	1	1	0	0			100.00%
31	14-10-2022 08:29:53_E CAMERA 1.jpg	1	1	0	0			100.00%
32	14-10-2022 08:29:57_E CAMERA 1.jpg	1	1	0	0			100.00%
33	21-10-2022 11:09:25_E CAMERA 1.jpg	2	2	0	0			100.00%
34	21-10-2022 11:09:30_E CAMERA 1.jpg	2	2	0	0			100.00%
35	21-10-2022 11:09:34_E CAMERA 1.jpg	2	2	0	0			100.00%
36	21-10-2022 11:09:39_E CAMERA 1.jpg	2	1	1	0	Objek Tidak Terdeteksi		50.00%
37	21-10-2022 14:02:02_E CAMERA 1.jpg	1	1	0	0			100.00%

38	21-10-2022 14:02:04_E CAMERA 1.jpg	1	1	0	1		Salah Deteksi Objek (Rambu Terdeteksi Person)	100.00%
39	21-10-2022 14:02:06_E CAMERA 1.jpg	1	1	0	0			100.00%
40	21-10-2022 14:02:08_E CAMERA 1.jpg	1	1	0	0			100.00%
41	21-10-2022 14:02:10_E CAMERA 1.jpg	1	1	0	1		Salah Deteksi Objek (HD Terdeteksi Person)	100.00%
42	21-10-2022 14:02:11_E CAMERA 1.jpg	1	1	0	0			100.00%
43	21-10-2022 14:02:13_E CAMERA 1.jpg	1	1	0	0			100.00%
44	21-10-2022 14:02:15_E CAMERA 1.jpg	1	1	0	0			100.00%
45	21-10-2022 14:02:24_E CAMERA 1.jpg	1	1	0	0			100.00%
46	21-10-2022 14:02:33_E CAMERA 1.jpg	1	1	0	0			100.00%
47	21-10-2022 14:02:35_E CAMERA 1.jpg	1	1	0	0			100.00%
48	21-10-2022 14:02:37_E CAMERA 1.jpg	1	0	1	1		Salah Deteksi Objek (Belakang LV Terdeteksi Person)	0.00%

49	21-10-2022 14:02:38_E CAMERA 1.jpg	1	1	0	1		Salah Deteksi Objek (Belakang LV Terdeteksi Person)	100.00%
50	14-10-2022 11:05:03_E CAMERA 1.jpg	1	1	0	0			100.00%
51	14-10-2022 11:05:11_E CAMERA 1.jpg	1	1	0	0			100.00%
52	14-10-2022 11:05:12_E CAMERA 1.jpg	1	1	0	0			100.00%
53	14-10-2022 11:05:14_E CAMERA 1.jpg	1	1	0	0			100.00%
54	14-10-2022 11:05:16_E CAMERA 1.jpg	1	1	0	0			100.00%
55	14-10-2022 11:05:18_E CAMERA 1.jpg	1	1	0	0			100.00%
56	14-10-2022 11:05:20_E CAMERA 1.jpg	1	1	0	0			100.00%
57	14-10-2022 11:05:21_E CAMERA 1.jpg	1	1	0	0			100.00%
58	14-10-2022 11:05:23_E CAMERA 1.jpg	1	1	0	0			100.00%
59	14-10-2022 11:05:25_E CAMERA 1.jpg	1	1	0	0			100.00%
60	14-10-2022 11:05:32_E CAMERA 1.jpg	1	1	0	0			100.00%
61	14-10-2022 11:05:34_E CAMERA 1.jpg	1	1	0	0			100.00%
62	14-10-2022 11:05:36_E CAMERA 1.jpg	1	1	0	0			100.00%
63	14-10-2022 11:05:38_E CAMERA 1.jpg	1	1	0	0			100.00%
64	14-10-2022 11:05:39_E CAMERA 1.jpg	1	1	0	0			100.00%
65	14-10-2022 11:05:41_E CAMERA 1.jpg	1	1	0	0			100.00%
66	16-10-2022 12:38:46_E CAMERA 1.jpg	2	2	0	0			100.00%
67	16-10-2022 12:38:46_E CAMERA 1.jpg	2	2	0	0			100.00%
68	16-10-2022 12:38:47_E CAMERA 1.jpg	2	2	0	0			100.00%

69	16-10-2022 12:38:49_E CAMERA 1.jpg	1	1	0	0			100.00%
70	16-10-2022 12:38:51_E CAMERA 1.jpg	2	1	1	0	Objek Tidak Terdeteksi		50.00%
71	16-10-2022 12:38:53_E CAMERA 1.jpg	2	2	0	0			100.00%
72	16-10-2022 12:38:55_E CAMERA 1.jpg	2	2	0	0			100.00%
73	16-10-2022 12:42:00_E CAMERA 1.jpg	2	0	0	0			#DIV/0!
74	16-10-2022 12:42:02_E CAMERA 1.jpg	2	0	0	0			#DIV/0!
75	16-10-2022 12:42:04_E CAMERA 1.jpg	2	0	2	0			0.00%
TOTAL		212	195	13	6			



Lampiran 6. Perhitungan *Testing* Iterasi 5000

PERSON (5000)

No	CCTV	Hasil Pengamatan	Terdeteksi dan Benar (TP)	Tidak Terdeteksi (FN)	Terdeteksi dan tidak benar (FP)	Keterangan FN	Keterangan FP	Accuracy
								Recall
1	01-10-2022 11:45:02_WEST CAMERA 1.jpg	6	6	0	0			100.00%
2	01-10-2022 11:45:02_WEST CAMERA 1.jpg	6	6	0	0			100.00%
3	01-10-2022 11:45:07_WEST CAMERA 1.jpg	6	6	0	0			100.00%
4	01-10-2022 11:45:12_WEST CAMERA 1.jpg	6	6	0	0			100.00%
5	01-10-2022 11:45:17_WEST CAMERA 1.jpg	6	5	0	0			100.00%
6	01-10-2022 11:45:22_WEST CAMERA 1.jpg	6	6	0	0			100.00%
7	01-10-2022 11:45:27_WEST CAMERA 1.jpg	6	6	0	0			100.00%
8	01-10-2022 11:45:32_WEST CAMERA 1.jpg	6	6	0	0			100.00%
9	01-10-2022 11:45:37_WEST CAMERA 1.jpg	6	6	0	0			100.00%
10	01-10-2022 11:45:42_WEST CAMERA 1.jpg	6	6	0	0			100.00%
11	01-10-2022 11:45:47_WEST CAMERA 1.jpg	6	6	0	0			100.00%
12	02-08-2022 09:15:13_WEST CAMERA 1.jpg	6	6	0	0			100.00%
13	02-08-2022 09:15:13_WEST CAMERA 1.jpg	6	6	0	0			100.00%
14	02-08-2022 09:15:17_WEST CAMERA 1.jpg	6	5	1	0	Objek Tidak Terdeteksi		83.33%
15	02-08-2022 09:15:22_WEST CAMERA 1.jpg	6	6	0	0			100.00%

16	02-08-2022 09:15:27_WEST CAMERA 1.jpg	5	4	1	0	Objek Tidak Terdeteksi		80.00%
17	02-08-2022 09:15:32_WEST CAMERA 1.jpg	5	4	1	1	Objek Tidak Terdeteksi	Salah Deteksi Objek (Belakang Truck Terdeteksi Person)	80.00%
18	02-08-2022 09:15:37_WEST CAMERA 1.jpg	5	5	0	0			100.00%
19	02-08-2022 09:15:42_WEST CAMERA 1.jpg	5	5	0	0			100.00%
20	02-08-2022 09:15:47_WEST CAMERA 1.jpg	6	4	2	0	Objek Tidak Terdeteksi		66.67%
21	02-08-2022 09:15:52_WEST CAMERA 1.jpg	6	6	0	0			100.00%
22	02-08-2022 09:15:57_WEST CAMERA 1.jpg	5	5	0	0			100.00%
23	02-08-2022 09:16:02_WEST CAMERA 1.jpg	5	5	0	0			100.00%
24	02-08-2022 09:16:07_WEST CAMERA 1.jpg	6	6	0	0			100.00%
25	02-08-2022 09:16:12_WEST CAMERA 1.jpg	5	5	0	0			100.00%

26	02-08-2022 09:16:17_WEST CAMERA 1.jpg	5	5	0	0			100.00%
27	14-10-2022 08:21:33_E CAMERA 1.jpg	1	0	1	0	Objek Tidak Terdeteksi		0.00%
28	14-10-2022 08:25:52_E CAMERA 1.jpg	1	1	0	0			100.00%
29	14-10-2022 08:29:17_E CAMERA 1.jpg	1	1	0	0			100.00%
30	14-10-2022 08:29:50_E CAMERA 1.jpg	1	1	0	0			100.00%
31	14-10-2022 08:29:53_E CAMERA 1.jpg	1	1	0	0			100.00%
32	14-10-2022 08:29:57_E CAMERA 1.jpg	1	1	0	0			100.00%
33	21-10-2022 11:09:25_E CAMERA 1.jpg	2	2	0	0			100.00%
34	21-10-2022 11:09:30_E CAMERA 1.jpg	2	2	0	0			100.00%
35	21-10-2022 11:09:34_E CAMERA 1.jpg	2	1	1	0	Objek Tidak Terdeteksi		50.00%
36	21-10-2022 11:09:39_E CAMERA 1.jpg	2	2	0	0			100.00%
37	21-10-2022 14:02:02_E CAMERA 1.jpg	1	1	0	0			100.00%
38	21-10-2022 14:02:04_E CAMERA 1.jpg	1	1	0	0			100.00%
39	21-10-2022 14:02:06_E CAMERA 1.jpg	1	1	0	0			100.00%
40	21-10-2022 14:02:08_E CAMERA 1.jpg	1	1	0	0			100.00%

41	21-10-2022 14:02:10_E CAMERA 1.jpg	1	1	0	0			100.00%
42	21-10-2022 14:02:11_E CAMERA 1.jpg	1	1	0	0			100.00%
43	21-10-2022 14:02:13_E CAMERA 1.jpg	1	1	0	1		Salah Deteksi Objek	100.00%
44	21-10-2022 14:02:15_E CAMERA 1.jpg	1	1	0	0			100.00%
45	21-10-2022 14:02:24_E CAMERA 1.jpg	1	1	0	0			100.00%
46	21-10-2022 14:02:33_E CAMERA 1.jpg	1	1	0	0			100.00%
47	21-10-2022 14:02:35_E CAMERA 1.jpg	1	1	0	0			100.00%
48	21-10-2022 14:02:37_E CAMERA 1.jpg	1	0	1	1	Objek Tidak Terdeteksi	Salah Deteksi Objek (Belakang LV Terdeteksi Person)	0.00%
49	21-10-2022 14:02:38_E CAMERA 1.jpg	1	1	0	0			100.00%
50	14-10-2022 11:05:03_E CAMERA 1.jpg	1	1	0	0			100.00%
51	14-10-2022 11:05:11_E CAMERA 1.jpg	1	1	0	0			100.00%
52	14-10-2022 11:05:12_E CAMERA 1.jpg	1	1	0	0			100.00%
53	14-10-2022 11:05:14_E CAMERA 1.jpg	1	1	0	0			100.00%

54	14-10-2022 11:05:16_E CAMERA 1.jpg	1	1	0	0			100.00%
55	14-10-2022 11:05:18_E CAMERA 1.jpg	1	1	0	0			100.00%
56	14-10-2022 11:05:20_E CAMERA 1.jpg	1	1	0	0			100.00%
57	14-10-2022 11:05:21_E CAMERA 1.jpg	1	1	0	0			100.00%
58	14-10-2022 11:05:23_E CAMERA 1.jpg	1	1	0	0			100.00%
59	14-10-2022 11:05:25_E CAMERA 1.jpg	1	1	0	0			100.00%
60	14-10-2022 11:05:32_E CAMERA 1.jpg	1	1	0	0			100.00%
61	14-10-2022 11:05:34_E CAMERA 1.jpg	1	1	0	0			100.00%
62	14-10-2022 11:05:36_E CAMERA 1.jpg	1	1	0	0			100.00%
63	14-10-2022 11:05:38_E CAMERA 1.jpg	1	1	0	0			100.00%
64	14-10-2022 11:05:39_E CAMERA 1.jpg	1	1	0	0			100.00%
65	14-10-2022 11:05:41_E CAMERA 1.jpg	1	1	0	0			100.00%
66	16-10-2022 12:38:46_E CAMERA 1.jpg	2	2	0	0			100.00%
67	16-10-2022 12:38:46_E CAMERA 1.jpg	2	2	0	1		Salah Deteksi Objek (Tiang Rambu Terdeteksi Person)	100.00%
68	16-10-2022 12:38:47_E CAMERA 1.jpg	2	2	0	0			100.00%
69	16-10-2022 12:38:49_E CAMERA 1.jpg	1	1	0	0			100.00%
70	16-10-2022 12:38:51_E CAMERA 1.jpg	2	1	1	0	Objek Tidak Terdeteksi		50.00%
71	16-10-2022 12:38:53_E CAMERA 1.jpg	2	2	0	0			100.00%
72	16-10-2022 12:38:55_E CAMERA 1.jpg	2	2	0	0			100.00%

73	16-10-2022 12:42:00_E CAMERA 1.jpg	2	0	2	0			0.00%
74	16-10-2022 12:42:02_E CAMERA 1.jpg	2	0	2	0			0.00%
75	16-10-2022 12:42:04_E CAMERA 1.jpg	2	0	2	0			0.00%
TOTAL		210	194	15	4			



BIODATA PENULIS



Penulis bernama lengkap Claudia Angelina Putong, dilahirkan di Bitung, 23 Februari 2000 (Manado, Sulawesi Utara). Penulis merupakan anak pertama dari dua bersaudara. Penulis telah menempuh pendidikan formal di SD Katolik 1 Don Bosco Bitung, SMP Katolik Don Bosco Bitung dan SMA Katolik Karitas Tomohon yang bertempat di (Manado, Sulawesi Utara). Penulis meneruskan pendidikan di program studi Teknologi Rekayasa Logistik pada tahun 2019 dan terdaftar dengan NIM 19401024. Dalam masa perkuliahan, penulis aktif diberbagai bidang non akademik. Penulis aktif mengikuti kegiatan organisasi mahasiswa antara lain menjadi ketua UKM Tari, anggota UKM Paduan Suara Mahasiswa dan Ketua Kordinator *Departement* Akademik BEM (Badan Eksekutif Mahasiswa) Tahun 2020/2021. Pada tahun 2020 penulis mengikuti kegiatan Kuliah Praktik Industri (KPI) 1 di *Head Office* PT Berau Coal (*Div. System & Compliance*) selama 1 bulan pada tanggal (10 November 2020 – 24 Desember 2020), dan penulis mengikuti kegiatan Kuliah Praktik Industri (KPI) 2 di *Departement* Logistik Lati *Mining Operation* (LMO) selama 2 bulan pada tanggal (20 September 2021 – 15 Oktober 2021). Kemudian pada tahun 2022 penulis menjalankan kegiatan Prakerin (Praktik Kerja Industri) selama 7 bulan mulai dari tanggal 03 Oktober 2022 sampai dengan 30 Mei 2023 pada *Departement Mining Technology (Minetech)* di *Head Office* PT Berau Coal. Pada akhir perkuliahan penulis menyusun skripsi dengan judul “Pengaruh Jumlah Iterasi Terhadap Akurasi Model *Machine Learning Mining Eyes Analytics* Di PT Berau Coal Site Binungan *Mining Operation 2* (BMO)” dengan metode perhitungan slovin serta perhitungan khusus akurasi yaitu *recall*. Untuk keperluan penelitian, penulis dapat dihubungi melalui email: claudiaangelina.trl19@gmail.com



SURAT KETERANGAN

Dengan ini diterangkan bahwa TA/Skripsi yang ditulis oleh:

Nama : Claudia Angelina Putong
NIM : 19401024
Prodi : Teknologi Rekayasa Logistik
Judul : Pengaruh Jumlah Iterasi Terhadap Akurasi Model *Machine Learning Mining Eyes Analytics* di PT. Berau Coal Site Binungan Mining Operation 2 (BMO)

Berdasarkan hasil *scanning* menunjukkan tingkat plagiasi sebesar 10% dan memenuhi syarat untuk tahapan selanjutnya dengan ketentuan yang berlaku.

Demikian surat ini dibuat untuk dipergunakan sebagaimana mestinya.

Berau, 21 Agustus 2023

Staf Perpustakaan,



SURAT KETERANGAN

Saya yang bertanda tangan di bawah ini.

Nama Lengkap : Arif Widya S
 Jabatan : Senior Manager Mining Technology
 Departemen : Mining Technology
 Perusahaan : PT Berau Coal

Mengijinkan bahwa Tugas Akhir yang berjudul “Pengaruh Jumlah Iterasi Terhadap Akurasi Model *Machine Learning Mining Eyes Analytics* Di PT Berau Coal Site Binungan *Mining Operation 2* (BMO)” yang disusun oleh Claudia Angelina Putong dengan NIM 19401024 akan dipublikasikan pada **repository Poltek Simas Berau**.

Saya menyatakan bahwa Tugas Akhir ini,

(Silahkan pilih dengan memberi *checklist* pada pilihan yang disetujui pada pernyataan berikut)

1. Dipublikasikan secara **Langsung** ☒
2. Sebelum dipublikasikan penulis melakukan revisi dengan **menyamarkan nama perusahaan** ☐
3. Sebelum dipublikasikan penulis merevisi dengan **merekayasa data** yang digunakan dengan operasi aritmetik ☒

Departemen Mining Technology
PT Berau Coal


Arif Widya S

Berau, 29 Agustus 2023
Mahasiswa



Claudia Angelina Putong