

prototype1

July 16, 2025

```
[1]: from pdf2image import convert_from_path
import matplotlib.pyplot as plt
from IPython.display import display
import cv2
import pytesseract
from matplotlib.patches import Rectangle
import copy
import json
import os
import pandas as pd
```

Chargement des données

```
[2]: # Charger le PDF
pdf_path = './pdfs/doc.pdf'
images = convert_from_path(pdf_path)
```



```
[ ]: display(images[0])
```

BSA / ASK GS
MADAGASCAR
Andraharo

Le : 25/07/2023

MADAGASCAR

RELEVE DE REMBOURSEMENTS DES FRAIS DE SANTE

Lot :	625171	GRACE _ 24 255 06
N° :	115202	PHARMACIE GRACE
Banque :	BOA	ENCEINTE POINT PACOM
Ville :	ANTA	ANTANANARIVO

A , le 25/07/2023

DATE	AYANT-DROIT	EXECUTANT	ACTE	FR.REELS	1ERE MUT	Tx (%)	REMB	NON REMB	TPG*
813981-1 20/03/2023	ADHESION: RANDRIAMISAINA HARIFIDY TAHIRY	RANDRIAMISAINA HARIFIDY TAHIRY PHARMACIE GRACE DOLIPRANE 1 000 mg cp : B/8	PH	Client: AMBASSADE DE FRANCE (AMBASSADE DE FRANCE 100%) 7 000,00 0,00 100,00 7 000,00 0,00 0,00					
	Total décompte :	813981	Facture N°:	03/23	7 000,00	0,00	7 000,00	0,00	0,
			Date facture:	Dt.Facture:	AMBASSADE DE FRANCE Facture MARS 2023 du 04/04/23				
813982-1 15/03/2023	ADHESION: RANDRIATSLAMA MBOLATAHINA	RANDRIATSLAMA MBOLATAHINA PHARMACIE GRACE MBOLATAHINA OLIVA SOFT DROPS COLLYRE	PH	Client: AQUALMA (AQUALMA OPTION 1 80%) 12 500,00 0,00 80,00 10 000,00 2 500,00 0,00					
				SOFT DROPS COLLYRE					
813982-2 20/03/2023	ADHESION: RANDRIATSLAMA MBOLATAHINA	RANDRIATSLAMA MBOLATAHINA PHARMACIE GRACE MBOLATAHINA OLIVA	PH	Client: AQUALMA (AQUALMA OPTION 1 80%) 55 200,00 0,00 80,00 44 160,00 11 040,00 0,00					
				NOVATEN AM CP					
813982-3 31/03/2023	ADHESION: RANDRIATSLAMA MBOLATAHINA	RANDRIATSLAMA MBOLATAHINA RAZAFIA LIVONISON PHARMACIE GRACE FARANIRINA	PH	Client: AQUALMA (AQUALMA OPTION 1 80%) 25 200,00 0,00 80,00 20 160,00 5 040,00 0,00					
				M LOSARTAN PLUS					
813982-4 02/03/2023	ADHESION: CR-001 RANDALANA ROGER	RANDALANA ROGER PHARMACIE GRACE	PH	Client: BIODIVERSITY CONSERVATION MADAGASCAR (BIODIVERSITY 118 000,00 0,00 80,00 94 400,00 23 600,00 0,00					
				COVERAM 10					
813982-5 27/03/2023	ADHESION: 61850 RAJAOHARINAVALONA IRINDRA	RAJAOHARINAVALONA IRINDRA JOELLE PHARMACIE GRACE DOLIPRANE 1 000 mg cp : B/8	PH	Client: CFAO MOTORS MADAGASCAR (CFAO MOTORS JH8 - 80%) 7 000,00 0,00 80,00 5 600,00 1 400,00 0,00					
				DOLIPRANE 1 000 mg cp : B/8					
				✓					
813982-6 17/03/2023	ADHESION: 3657 ANJARAMAHASOA	ANJARAMAHASOA RAPHAËLAMARIE PHARMACIE GRACE	PH	Client: COMDATA (COMDATA - 80%) 29 600,00 0,00 80,00 23 680,00 5 920,00 0,00					
				CEFIX 200					
813982-7 17/03/2023	ADHESION: 3657 ANJARAMAHASOA	ANJARAMAHASOA RAPHAËLAMARIE PHARMACIE GRACE FLAGYL	PH	Client: COMDATA (COMDATA - 80%) 28 200,00 0,00 80,00 22 560,00 5 640,00 0,00					
				FLAGYL cp enrobé 500 mg : 14					
813982-8 17/03/2023	ADHESION: 3657 ANJARAMAHASOA	ANJARAMAHASOA RAPHAËLAMARIE PHARMACIE GRACE PROFENID	PH	Client: COMDATA (COMDATA - 80%) 16 400,00 0,00 80,00 13 120,00 3 280,00 0,00					
				PROFENID suppos Ad 100 mg : 12					
813982-9 17/03/2023	ADHESION: 3657 ANJARAMAHASOA	ANJARAMAHASOA RAPHAËLAMARIE PHARMACIE GRACE	PH	Client: COMDATA (COMDATA - 80%) 30 300,00 0,00 80,00 24 240,00 6 060,00 0,00					
				ESOFAG 20					
813982-10 23/03/2023	ADHESION: 0004 RABE RATINARIVO HENINTSOA	RABE RATINARIVO HENINTSOA PHARMACIE GRACE	PH	Client: FINANCE STREAM (FINANCE STREAM - ECO 80%) 10 600,00 0,00 80,00 8 480,00 2 120,00 0,00					
				DOLOWIN PLUS 100MG					

2/5

Créer une nouvelle structure

```
[3]: struct = [
    {
        'boxes': [
            {'x': 80, 'y': 2370, 'w': 370, 'h': 130, 'c': 'r', 'col': 'Date'},
            # Date
            {'x': 460, 'y': 2390, 'w': 735, 'h': 180, 'c': 'g', 'col': 'Patient'}, # Nom
            {'x': 3650, 'y': 2375, 'w': 250, 'h': 130, 'c': 'b', 'col': 'Ticket modérateur'},
            # Ticket modérateur
            {'x': 4390, 'y': 2375, 'w': 400, 'h': 130, 'c': 'm', 'col': 'NonRembourse'}, # Non remboursé
            {'x': 3930, 'y': 2375, 'w': 400, 'h': 130, 'c': 'y', 'col': 'Rembourse'}, # Remboursé
            {'x': 2500, 'y': 2500, 'w': 1100, 'h': 130, 'c': 'c', 'col': 'Autre1'}, # Autres 1
        ],
        'decal': 385
    }
]
```

Teste de la nouvelle structure

```
[96]: # Choix de la page par l'utilisateur
group = struct[0]['boxes']
page = 2 # choix = page 2
une_image = images[page - 1]
```

```
[97]: fig, ax = plt.subplots(1, figsize=(10, 10))
ax.imshow(une_image)

for box in group:
    rect = Rectangle((box['x'], box['y']), box['w'], box['h'], linewidth=1,
                     edgecolor=box['c'], facecolor='none')
    ax.add_patch(rect)

plt.show()
```

0

BSA / ASK GS MADAGASCAR Andraharo	MADAGASCAR	Le : 25/07/2023																																																																																																																																																																																																																																																																																																																					
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Correction des paramètres de la nouvelle structure

Teste OCR sur la nouvelle structure

```
[98]: for i, box in enumerate(group):
    cropped = une_image.crop((box['x'], box['y'], box['x'] + box['w'], box['y'] + box['h']))
    text = pytesseract.image_to_string(cropped)
    print(f"{'box['col']} : {text}")
```

Date : 20/03/2023

Patient : RANDRIAMISAINA
HARIFIDY TAHIRY

TM : 100,00

NonRembourse : 0,00

Rembourse : 7 000,00

Autre1 : DOLIPRANE 1 000 mg cp : B/8

Initialisation des noms de fichiers

```
[99]: pharmacie = "grace"
assureur = "bsa"
college = "boa"
# récupérer la date du jour
aamm = "2303"
```

Enregistrer la nouvelle structure (par rapport à l'assureur)

```
[100]: struct_path = f'./structures/{assureur}.struct.json'

with open(struct_path, 'w') as f:
    json.dump(struct, f)
```

Initialisation du fichier de données

```
[101]: # Créer un fichier JSON vide pour stocker ultérieurement les données extraites
data = []
nom_data = f'{pharmacie}_{assureur}_{college}_{aamm}.json'

with open(f'./dataout/{nom_data}', 'w') as f:
    json.dump(data, f)
```

OCR Page 2 Choix de la page à traiter

```
[102]: page = 2
```

Chargement de la structure initiale depuis l'EF

```
[103]: # Chargement de la structure initiale depuis l'EF
jsonpath = f'./structures/bsa.struct.json'

with open(jsonpath, 'r') as f:
    init = json.load(f)
print(init)

[{'boxes': [{'x': 80, 'y': 2370, 'w': 370, 'h': 130, 'c': 'r', 'col': 'Date'}, {'x': 460, 'y': 2390, 'w': 735, 'h': 180, 'c': 'g', 'col': 'Patient'}, {'x': 3650, 'y': 2375, 'w': 250, 'h': 130, 'c': 'b', 'col': 'TM'}, {'x': 4390, 'y': 2375, 'w': 400, 'h': 130, 'c': 'm', 'col': 'NonRembourse'}, {'x': 3930, 'y': 2375, 'w': 400, 'h': 130, 'c': 'y', 'col': 'Rembourse'}, {'x': 2500, 'y': 2500, 'w': 1100, 'h': 130, 'c': 'c', 'col': 'Autre1'}], 'decal': 385}]
```

```
[104]: init[0]['decal']
```

[104]: 385

```
[105]: inter = init[0]['decal']
```

Création d'une LAYOUT pour la page 2

```
[106]: layout2 = copy.deepcopy(init)
```

```
[107]: # Nombre de lignes à ajouter pour le layout de la page 2
nbp2 = 11

for i in range(nbp2-1):
    new_group = copy.deepcopy(layout2[i])
    for box in new_group['boxes']:
        box['y'] += inter

    layout2.append(new_group)
```

Rajouter une décalage à une position

```
[108]: # L'utilisateur active ou pas l'option "décalage"

is_decal = True
dec_list_p2 = []

if is_decal:
    # L'utilisateur entre les valeurs et les positions des décalages
    dec1 = 340
    pos1 = 2

    dec2 = 0
    pos2 = 0
```

```

dec3 = 0
pos3 = 0

# Charger la liste des décalages
dec_list_p2 = [
    (dec1, pos1),
    (dec2, pos2),
    (dec3, pos3)
]

# itérer sur les occurrences à partir de la position donnée
for decal, pos in dec_list_p2:
    if pos > 0: # Vérifier que la position est valide
        for occur in layout2[pos-1:]:
            for box in occur['boxes']:
                box['y'] += decal # décaler y de chaque box

```

[109]: layout2

```

[109]: [ {'boxes': [{ 'x': 80, 'y': 2370, 'w': 370, 'h': 130, 'c': 'r', 'col': 'Date' },
{'x': 460, 'y': 2390, 'w': 735, 'h': 180, 'c': 'g', 'col': 'Patient' },
{'x': 3650, 'y': 2375, 'w': 250, 'h': 130, 'c': 'b', 'col': 'TM' },
{'x': 4390, 'y': 2375, 'w': 400, 'h': 130, 'c': 'm', 'col': 'NonRembourse' },
{'x': 3930, 'y': 2375, 'w': 400, 'h': 130, 'c': 'y', 'col': 'Rembourse' },
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{'x': 3650, 'y': 3100, 'w': 250, 'h': 130, 'c': 'b', 'col': 'TM' },
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'decal': 385},
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'decal': 385},

```

```

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{'x': 3650, 'y': 5410, 'w': 250, 'h': 130, 'c': 'b', 'col': 'TM'},
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{'x': 4390, 'y': 5795, 'w': 400, 'h': 130, 'c': 'm', 'col': 'NonRembourse'},
{'x': 3930, 'y': 5795, 'w': 400, 'h': 130, 'c': 'y', 'col': 'Rembourse'},
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{'x': 3930, 'y': 6565, 'w': 400, 'h': 130, 'c': 'y', 'col': 'Rembourse'}]

```

```
{'x': 2500, 'y': 6690, 'w': 1100, 'h': 130, 'c': 'c', 'col': 'Autre1'}],  
'decal': 385}]
```

Vérifier le décalage

```
[110]: fig, ax = plt.subplots(1, figsize=(10, 10))  
ax.imshow(images[page - 1])  
  
for group in layout2:  
    boxes = group['boxes']  
  
    for box in boxes:  
        rect = Rectangle((box['x'], box['y']), box['w'], box['h'], linewidth=1,  
        edgecolor=box['c'], facecolor='none')  
        ax.add_patch(rect)  
  
plt.show()
```

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2000	A , le 25/07/2023																																																																																																														
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80%)</td> <td>7 000,00</td> <td>0,00</td> <td>80,00</td> <td>5 600,00</td> <td>1 400,00</td> <td>0,00</td> </tr> <tr> <td>813982-6 17/03/2023</td> <td>ADHESION: 3657 ANJARAMAHASOA ANJARAMAHASOA RAPHAËLAMARIE</td> <td>ANJARAMAHASOA RAPHAËLAMARIE</td> <td>PH</td> <td>Client: COMDATA (COMDATA - 80%)</td> <td>29 600,00</td> <td>0,00</td> <td>80,00</td> <td>23 680,00</td> <td>5 920,00</td> <td>0,00</td> </tr> <tr> <td>813982-7 17/03/2023</td> <td>ADHESION: 3657 ANJARAMAHASOA</td> <td>ANJARAMAHASOA PHARMACIE GRACE RAPHAËLAMARIE FLAGYL</td> <td>PH</td> <td>Client: COMDATA (COMDATA - 80%)</td> <td>28 200,00</td> <td>0,00</td> <td>80,00</td> <td>22 560,00</td> <td>5 640,00</td> <td>0,00</td> </tr> <tr> <td>813982-8 17/03/2023</td> <td>ADHESION: 3657 ANJARAMAHASOA</td> <td>ANJARAMAHASOA PHARMACIE GRACE RAPHAËLAMARIE PROFENID</td> <td>PH</td> <td>Client: COMDATA (COMDATA - 80%)</td> <td>16 400,00</td> <td>0,00</td> <td>80,00</td> <td>13 120,00</td> <td>3 280,00</td> <td>0,00</td> </tr> <tr> <td>813982-9 17/03/2023</td> <td>ADHESION: 3657 ANJARAMAHASOA</td> <td>ANJARAMAHASOA PHARMACIE GRACE RAPHAËLAMARIE</td> <td>PH</td> <td>Client: COMDATA (COMDATA - 80%)</td> <td>30 300,00</td> <td>0,00</td> <td>80,00</td> <td>24 240,00</td> <td>6 060,00</td> <td>0,00</td> </tr> <tr> <td>813982-10 23/03/2023</td> <td>ADHESION: 0004 RABE RATINARIVO HENINTSOA</td> <td>RABE RATINARIVO PHARMACIE GRACE HENINTSOA</td> <td>PH</td> <td>Client: FINANCE STREAM (FINANCE STREAM - ECO 80%)</td> <td>10 600,00</td> <td>0,00</td> <td>80,00</td> <td>8 480,00</td> <td>2 120,00</td> <td>0,00</td> </tr> </tbody> </table>	813982-1 15/03/2023	ADHESION: RANDRIATSLAMA MBOLATAHINA RANDRIATSLAMA MBOLATAHINA OLIVA	RANDRIATSLAMA MBOLATAHINA PHARMACIE GRACE SOFT DROPS COLLYRE	PH	Client: AQUALMA (AQUALMA OPTION 1 80%)	12 500,00	0,00	80,00	10 000,00	2 500,00	0,00	813982-2 10/03/2023	ADHESION: RANDRIATSLAMA MBOLATAHINA	RANDRIATSLAMA MBOLATAHINA OLIVA	PH	Client: AQUALMA (AQUALMA OPTION 1 80%)	55 200,00	0,00	80,00	44 160,00	11 040,00	0,00	813982-3 11/03/2023	ADHESION: RANDRIATSLAMA MBOLATAHINA RUZAFIAJILVISON FARANIRINA	RANDRIATSLAMA MBOLATAHINA PHARMACIE GRACE	PH	Client: AQUALMA (AQUALMA OPTION 1 80%)	25 200,00	0,00	80,00	20 160,00	5 040,00	0,00	813982-4 12/03/2023	ADHESION: CR-001 RANDALANA ROGER RANDALANA ROGER	RANDALANA ROGER PHARMACIE GRACE	PH	Client: BIODIVERSITY CONSERVATION MADAGASCAR (BIODIVERSITY)	118 000,00	0,00	80,00	94 400,00	23 600,00	0,00	813982-5 27/03/2023	ADHESION: 61850 RAJAOHARINAVALONA IRINDRA	RAJAOHARINAVALONA IRINDRA JOELLE	PH	Client: CFAO MOTORS MADAGASCAR (CFAO MOTORS JHB - 80%)	7 000,00	0,00	80,00	5 600,00	1 400,00	0,00	813982-6 17/03/2023	ADHESION: 3657 ANJARAMAHASOA ANJARAMAHASOA RAPHAËLAMARIE	ANJARAMAHASOA RAPHAËLAMARIE	PH	Client: COMDATA (COMDATA - 80%)	29 600,00	0,00	80,00	23 680,00	5 920,00	0,00	813982-7 17/03/2023	ADHESION: 3657 ANJARAMAHASOA	ANJARAMAHASOA PHARMACIE GRACE RAPHAËLAMARIE FLAGYL	PH	Client: COMDATA (COMDATA - 80%)	28 200,00	0,00	80,00	22 560,00	5 640,00	0,00	813982-8 17/03/2023	ADHESION: 3657 ANJARAMAHASOA	ANJARAMAHASOA PHARMACIE GRACE RAPHAËLAMARIE PROFENID	PH	Client: COMDATA (COMDATA - 80%)	16 400,00	0,00	80,00	13 120,00	3 280,00	0,00	813982-9 17/03/2023	ADHESION: 3657 ANJARAMAHASOA	ANJARAMAHASOA PHARMACIE GRACE RAPHAËLAMARIE	PH	Client: COMDATA (COMDATA - 80%)	30 300,00	0,00	80,00	24 240,00	6 060,00	0,00	813982-10 23/03/2023	ADHESION: 0004 RABE RATINARIVO HENINTSOA	RABE RATINARIVO PHARMACIE GRACE HENINTSOA	PH	Client: FINANCE STREAM (FINANCE STREAM - ECO 80%)	10 600,00	0,00	80,00	8 480,00	2 120,00	0,00
813982-1 15/03/2023	ADHESION: RANDRIATSLAMA MBOLATAHINA RANDRIATSLAMA MBOLATAHINA OLIVA	RANDRIATSLAMA MBOLATAHINA PHARMACIE GRACE SOFT DROPS COLLYRE	PH	Client: AQUALMA (AQUALMA OPTION 1 80%)	12 500,00	0,00	80,00	10 000,00	2 500,00	0,00																																																																																																					
813982-2 10/03/2023	ADHESION: RANDRIATSLAMA MBOLATAHINA	RANDRIATSLAMA MBOLATAHINA OLIVA	PH	Client: AQUALMA (AQUALMA OPTION 1 80%)	55 200,00	0,00	80,00	44 160,00	11 040,00	0,00																																																																																																					
813982-3 11/03/2023	ADHESION: RANDRIATSLAMA MBOLATAHINA RUZAFIAJILVISON FARANIRINA	RANDRIATSLAMA MBOLATAHINA PHARMACIE GRACE	PH	Client: AQUALMA (AQUALMA OPTION 1 80%)	25 200,00	0,00	80,00	20 160,00	5 040,00	0,00																																																																																																					
813982-4 12/03/2023	ADHESION: CR-001 RANDALANA ROGER RANDALANA ROGER	RANDALANA ROGER PHARMACIE GRACE	PH	Client: BIODIVERSITY CONSERVATION MADAGASCAR (BIODIVERSITY)	118 000,00	0,00	80,00	94 400,00	23 600,00	0,00																																																																																																					
813982-5 27/03/2023	ADHESION: 61850 RAJAOHARINAVALONA IRINDRA	RAJAOHARINAVALONA IRINDRA JOELLE	PH	Client: CFAO MOTORS MADAGASCAR (CFAO MOTORS JHB - 80%)	7 000,00	0,00	80,00	5 600,00	1 400,00	0,00																																																																																																					
813982-6 17/03/2023	ADHESION: 3657 ANJARAMAHASOA ANJARAMAHASOA RAPHAËLAMARIE	ANJARAMAHASOA RAPHAËLAMARIE	PH	Client: COMDATA (COMDATA - 80%)	29 600,00	0,00	80,00	23 680,00	5 920,00	0,00																																																																																																					
813982-7 17/03/2023	ADHESION: 3657 ANJARAMAHASOA	ANJARAMAHASOA PHARMACIE GRACE RAPHAËLAMARIE FLAGYL	PH	Client: COMDATA (COMDATA - 80%)	28 200,00	0,00	80,00	22 560,00	5 640,00	0,00																																																																																																					
813982-8 17/03/2023	ADHESION: 3657 ANJARAMAHASOA	ANJARAMAHASOA PHARMACIE GRACE RAPHAËLAMARIE PROFENID	PH	Client: COMDATA (COMDATA - 80%)	16 400,00	0,00	80,00	13 120,00	3 280,00	0,00																																																																																																					
813982-9 17/03/2023	ADHESION: 3657 ANJARAMAHASOA	ANJARAMAHASOA PHARMACIE GRACE RAPHAËLAMARIE	PH	Client: COMDATA (COMDATA - 80%)	30 300,00	0,00	80,00	24 240,00	6 060,00	0,00																																																																																																					
813982-10 23/03/2023	ADHESION: 0004 RABE RATINARIVO HENINTSOA	RABE RATINARIVO PHARMACIE GRACE HENINTSOA	PH	Client: FINANCE STREAM (FINANCE STREAM - ECO 80%)	10 600,00	0,00	80,00	8 480,00	2 120,00	0,00																																																																																																					
7000	2 / 5																																																																																																														

0 1000 2000 3000 4000 5000

Enregistrer le LAYOUT

```

[111]: posdec_nom = ''.join(str(pos) for _, pos in dec_list_p2)

# Save layout2 to a json file
layout2_nom = f'{pharmacie}_{assureur}_{college}_{aamm}_d{posdec_nom}.lay.json'

[112]: layout2_path = f'./structures/{layout2_nom}'
with open(layout2_path, 'w') as f:
    json.dump(layout2, f, indent=4)

[113]: data_page2 = []
for group in layout2:
    group_data = {} # Create a dictionary to store data for the current group
    boxes = group['boxes']
    for box in boxes:
        cropped = une_image.crop((box['x'], box['y'], box['x'] + box['w'], box['y'] + box['h']))
        text = pytesseract.image_to_string(cropped)
        group_data[box['col']] = text.strip().replace("\n", " ") # Add the field to the group dictionary
    data_page2.append(group_data) # Append the group dictionary to the output list

[114]: df_page2 = pd.DataFrame(data_page2)
df_page2.head(10)

[114]:          Date             Patient      TM NonRembourse \
0  20/03/2023  RANDRIAMISAINA HARIFIDY TAHIRY  100,00       0,00
1  15/03/2023  RANDRIATSALAMA MBOLATAHINA OLIVA   80,00    2 500,00
2  20/03/2023  RANDRIATSALAMA MBOLATAHINA OLIVA   80,00   11 040,00
3  31/03/2023  RAZAFIALIVONISON FARANIRINA   80,00    5 040,00
4   2/03/2023  RANDALANA ROGER                80,00   23 600,00
5  27/03/2023  RAJAOHARINAVALONA IRINDRA JOELLE   80,00    1 400,00
6  17/03/2023  ANJARAMAHASOA RAPHAELAMARIE   80,00    5 920,00
7  17/03/2023  ANJARAMAHASOA RAPHAELAMARIE   80,00    5 640,00
8  17/03/2023  ANJARAMAHASOA RAPHAELAMARIE   80,00    3 280,00
9  17/03/2023  ANJARAMAHASOA RAPHAELAMARIE   80,00    6 060,00

          Rembourse           Autre1
0    7 000,00  DOLIPRANE 1 000 mg cp : B/8
1   10 000,00            SOFT DROPS COLLYRE
2   44 160,00            NOVATEN AM CP
3   20 160,00            M LOSARTAN PLUS
4   94 400,00            COVERAM 10
5    5 600,00  DOLIPRANE 1 000 mg cp : B/8
6   23 680,00            CEFIX 200
7   22 560,00  FLAGYL cp enrobé 500 mg : 14

```

```

8 13 120,00 PROFENID suppos Ad 100 mg: 12
9 24 240,00 ESOFAG 20

```

```

[115]: df_page2['Date'] = pd.to_datetime(df_page2['Date'], errors='coerce',
                                         dayfirst=True)

df_page2['TM'] = df_page2['TM'].str.replace(',', '.').astype(float)

df_page2['NonRembourse'] = df_page2['NonRembourse'].str.replace(' ', '').str.
    replace(',', '.').astype(float)

df_page2['Rembourse'] = df_page2['Rembourse'].str.replace(' ', '').str.
    replace(',', '.').astype(float)

df_page2

```

	Date	Patient	TM	NonRembourse	\
0	2023-03-20	RANDRIAMISAINA HARIFIDY TAHIRY	100.0	0.0	
1	2023-03-15	RANDRIATSALAMA MBOLATAHINA OLIVA	80.0	2500.0	
2	2023-03-20	RANDRIATSALAMA MBOLATAHINA OLIVA	80.0	11040.0	
3	2023-03-31	RAZAFIALIVONISON FARANIRINA	80.0	5040.0	
4	2023-03-02	RANDALANA ROGER	80.0	23600.0	
5	2023-03-27	RAJAOHARINAVALONA IRINDRA JOELLE	80.0	1400.0	
6	2023-03-17	ANJARAMAHASOA RAPHAELAMARIE	80.0	5920.0	
7	2023-03-17	ANJARAMAHASOA RAPHAELAMARIE	80.0	5640.0	
8	2023-03-17	ANJARAMAHASOA RAPHAELAMARIE	80.0	3280.0	
9	2023-03-17	ANJARAMAHASOA RAPHAELAMARIE	80.0	6060.0	
10	2023-03-23	RABE RATINARIVO HENINTSOA	80.0	2120.0	

	Rembourse	Autre1
0	7000.0	DOLIPRANE 1 000 mg cp : B/8
1	10000.0	SOFT DROPS COLLYRE
2	44160.0	NOVATEN AM CP
3	20160.0	M LOSARTAN PLUS
4	94400.0	COVERAM 10
5	5600.0	DOLIPRANE 1 000 mg cp : B/8
6	23680.0	CEFIX 200
7	22560.0	FLAGYL cp enrobé 500 mg : 14
8	13120.0	PROFENID suppos Ad 100 mg: 12
9	24240.0	ESOFAG 20
10	8480.0	DOLOWIN PLUS 100MG

```

[116]: # Sauvegarder les données dans le fichier data.json

out_path = './dataout/data.json'
#output_df.to_json(out_path, orient='records', lines=True)

```

```

# Vérifier si le fichier existe et charger les données existantes

if os.path.exists(out_path):
    with open(out_path, 'r') as f:
        try:
            existing_data2 = json.load(f)
        except json.JSONDecodeError:
            existing_data2 = [] # Si le fichier est vide ou corrompu
else:
    existing_data2 = []

# Convertir les Timestamp en string avant de les ajouter
data2 = df_page2.map(lambda x: x.strftime('%Y-%m-%d') if isinstance(x, pd.Timestamp) else x).to_dict(orient='records')

# Ajouter les nouvelles données
existing_data2.extend(data2)

# Sauvegarder les données combinées dans le fichier
# out_path2 = './dataout/data2.json'
with open(out_path, 'w') as f:
    json.dump(existing_data2, f, indent=4)

```

OCR Page 3

```

[117]: layout3 = copy.deepcopy(init)
nbpage3 = 12

[118]: for i in range(nbpage3-1):
    new_group = copy.deepcopy(layout3[i])
    for box in new_group['boxes']:
        box['y'] += inter

    layout3.append(new_group)

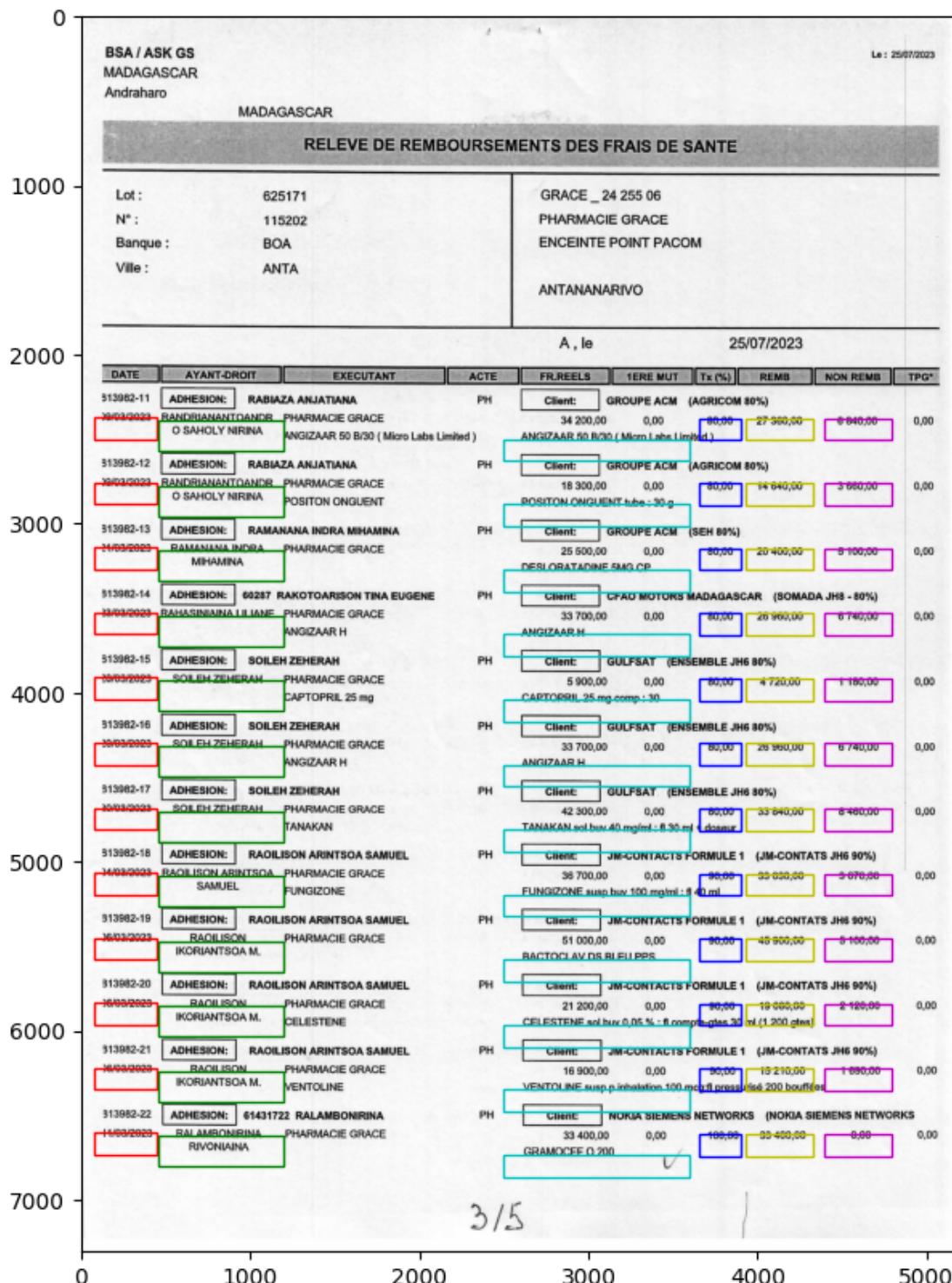
[119]: # Vérification de layout3
fig, ax = plt.subplots(1, figsize=(10, 10))
ax.imshow(images[2])

for group in layout3:
    boxes = group['boxes']

    for box in boxes:
        rect = Rectangle((box['x'], box['y']), box['w'], box['h'], linewidth=1, edgecolor=box['c'], facecolor='none')
        ax.add_patch(rect)

```

plt.show()



```
[120]: # Correction de layout3
decal3 = -60
pos3 = 0

for occur in layout3[pos3:]:
    for box in occur['boxes']:
        box['y'] += decal3

fig, ax = plt.subplots(1, figsize=(10, 10))
ax.imshow(images[2])

for group in layout3:
    boxes = group['boxes']

    for box in boxes:
        rect = Rectangle((box['x'], box['y']), box['w'], box['h'], linewidth=1, edgecolor=box['c'], facecolor='none')
        ax.add_patch(rect)
plt.show()
```

0

BSA / ASK GS MADAGASCAR Andraharo		Le : 25/07/2023								
MADAGASCAR										
RELEVE DE REMBOURSEMENTS DES FRAIS DE SANTE										
1000	Lot : 625171 N° : 115202 Banque : BOA Ville : ANTA		GRACE _ 24 255 06 PHARMACIE GRACE ENCEINTE POINT PACOM ANTANANARIVO							
2000			A , le 25/07/2023							
3000										
4000										
5000										
6000										
7000										
0	DATE	AYANT-DROIT	EXECUTANT	ACTE	FR.REELS	1ERE MUT	Tx (%)	REMB	NON REMB	TPG*
513982-11	29/03/2023	ADHESION: RANDRIAMANTANDR	RABIAZA ANJATIANA O SAHOLY NIRINA	PHARMACIE GRACE ANGIZAAR 50 B/30 (Micro Labs Limited)	PH Client: GROUPE ACM (AGRICOM 80%)	34 200,00 0,00	80,00	27 360,00	6 840,00	0,00
513982-12	29/03/2023	ADHESION: RANDRIAMANTANDR	RABIAZA ANJATIANA O SAHOLY NIRINA	PHARMACIE GRACE POSITON ONGUENT	PH Client: GROUPE ACM (AGRICOM 80%)	18 300,00 0,00	80,00	14 840,00	3 860,00	0,00
513982-13	21/03/2023	ADHESION: RAMANANA INDRA MIHAMINA	RAMANANA INDRA MIHAMINA	PHARMACIE GRACE ANGIZAAR H	PH Client: GROUPE ACM (SEH 89%)	25 500,00 0,00	80,00	20 400,00	5 100,00	0,00
513982-14	23/03/2023	ADHESION: RAHASINAINA LILIANE	RAHASINAINA LILIANE	PHARMACIE GRACE ANGIZAAR H	PH Client: CFAO MOTORS MADAGASCAR (BOMADA JH6 - 80%)	33 700,00 0,00	80,00	26 960,00	6 740,00	0,00
513982-15	20/03/2023	ADHESION: SOILEH ZEHERAH	SOILEH ZEHERAH	PHARMACIE GRACE CAPTOPRIL 25 mg	PH Client: GULFSAT (ENSEMBLE JH6 80%)	5 900,00 0,00	80,00	4 720,00	1 180,00	0,00
513982-16	20/03/2023	ADHESION: SOILEH ZEHERAH	SOILEH ZEHERAH	PHARMACIE GRACE ANGIZAAR H	PH Client: GULFSAT (ENSEMBLE JH6 80%)	33 700,00 0,00	80,00	26 960,00	6 740,00	0,00
513982-17	20/03/2023	ADHESION: SOILEH ZEHERAH	SOILEH ZEHERAH	PHARMACIE GRACE TANAKAN	PH Client: GULFSAT (ENSEMBLE JH6 80%)	42 300,00 0,00	80,00	33 840,00	8 460,00	0,00
513982-18	14/03/2023	ADHESION: RAOILISON ARINTSOA SAMUEL	RAOILISON ARINTSOA SAMUEL	PHARMACIE GRACE FUNGIZONE	PH Client: JM-CONTACTS FORMULE 1 (JM-CONTACTS JH6 90%)	38 700,00 0,00	90,00	33 030,00	3 670,00	0,00
513982-19	16/03/2023	ADHESION: RAOILISON ARINTSOA SAMUEL	RAOILISON IKORIANTSOA M.	PHARMACIE GRACE	PH Client: JM-CONTACTS FORMULE 1 (JM-CONTACTS JH6 90%)	51 000,00 0,00	90,00	45 900,00	5 100,00	0,00
513982-20	16/03/2023	ADHESION: RAOILISON ARINTSOA SAMUEL	RAOILISON IKORIANTSOA M.	PHARMACIE GRACE CELESTENE	PH Client: JM-CONTACTS FORMULE 1 (JM-CONTACTS JH6 90%)	21 200,00 0,00	90,00	19 660,00	2 120,00	0,00
513982-21	16/03/2023	ADHESION: RAOILISON ARINTSOA SAMUEL	RAOILISON IKORIANTSOA M.	PHARMACIE GRACE VENTOLINE	PH Client: JM-CONTACTS FORMULE 1 (JM-CONTACTS JH6 90%)	16 900,00 0,00	90,00	15 210,00	1 690,00	0,00
513982-22	11/03/2023	ADHESION: 61431722 RALAMBONIRINA	RALAMBONIRINA RIVONIANA	PHARMACIE GRACE	PH Client: NOKIA SIEMENS NETWORKS (NOKIA SIEMENS NETWORKS)	33 400,00 0,00	100,00	33 400,00	0,00	0,00
						GRAMOCEF 0 200				

3/5

```
[121]: # Sauvegarder layout3 dans un fichier json
output_json_path3 = './structures/layout3.json'
```

```

with open(output_json_path3, 'w') as f:
    json.dump(layout3, f, indent=4)

```

```

[122]: # Extraire les données de la page 3 (OCR)
data_page3 = []
for group in layout3:
    group_data = {} # dict pour stocker les données du groupe
    boxes = group['boxes']
    for box in boxes:
        cropped = images[2].crop((box['x'], box['y'], box['x'] + box['w'], ↵
        ↵box['y'] + box['h']))
        text = pytesseract.image_to_string(cropped)
        group_data[box['col']] = text.strip().replace("\n", " ") # Add the ↵
        ↵field to the group dictionary

    data_page3.append(group_data) # Append the group dictionary to the output ↵
    ↵list

```

```

[123]: # Vérification des données extraites
df_page3 = pd.DataFrame(data_page3)
df_page3.head(15)

```

	Date	Patient	TM	NonRembourse	\
0	9/03/2023	RANDRIANANTOANDR O SAHOLY NIRINA	80,00	6 840,00	
1	9/03/2023	RANDRIANANTOANDR O SAHOLY NIRINA	80,00	3 660,00	
2	21/03/2023	RAMANANA INDRA MIHAMINA	80,00	5 100,00	
3	23/03/2023	RAHASINIAINA LILIANE	80,00	6 740,00	
4	20/03/2023	SOILEH ZEHERAH	80,00	1 180,00	
5	20/03/2023	SOILEH ZEHERAH	80,00	6 740,00	
6	20/03/2023	SOILEH ZEHERAH	80,00	8 460,00	
7	4/03/2023	RAOILISON ARINTSOA SAMUEL	90,00	3 670,00	
8	6/03/2023	RAOILISON IKORIANTSOA M.	90,00	5 100,00	
9	6/03/2023	RAOILISON IKORIANTSOA M.	90,00	2 120,00	
10	6/03/2023	RAOILISON IKORIANTSOA M.	90,00	1 690,00	
11	11/03/2023	RALAMBONIRINA RIVONIAINA	100,00	0,00	
	Rembourse		Autre1		
0	27 360,00	ANGIZAAR 50 B/30 (Micro Labs Lim			
1	14 640,00	POSITON ONGUENT tube : 30 g			
2	20 400,00	DESLORATADINE 5MG CP			
3	26 960,00	ANGIZAAR H			
4	4 720,00	CAPTOPRIL 25 mg comp : 30			
5	26 960,00	ANGIZAAR H			
6	33 840,00	TANAKAN sol buv 40 mg/ml : fl30 m			
7	33 030,00	FUNGIZONE susp buv 100 mg/ml : fi			
8	45 900,00	BACTOCLAV DS BLEU PPS			
9	19 080,00	CELESTENE sol buv 0,05 % : flcom			

```

10 15 210,00 VENTOLINE susp p inhalation 100 n
11 33 400,00 GRAMOCEF O 200

```

```
[124]: print(df_page3.info())
print(df_page3.head(2))
```

```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 12 entries, 0 to 11
Data columns (total 6 columns):
 #   Column      Non-Null Count  Dtype  
---  --          -----          ----  
 0   Date        12 non-null    object  
 1   Patient     12 non-null    object  
 2   TM          12 non-null    object  
 3   NonRembourse 12 non-null   object  
 4   Rembourse   12 non-null    object  
 5   Autre1      12 non-null    object  
dtypes: object(6)
memory usage: 708.0+ bytes
None
      Date             Patient       TM  NonRembourse \
0   9/03/2023 RANDRIANANTOANDR O SAHOLY NIRINA  80,00   6 840,00
1   )9/03/2023 RANDRIANANTOANDR O SAHOLY NIRINA  80,00   3 660,00

      Rembourse           Autre1
0   27 360,00  ANGIZAAR 50 B/30 ( Micro Labs Lim
1   14 640,00      POSITON ONGUENT tube : 30 g

```

```
[125]: # Retouche manuelle des erreurs OCR
df_page3.loc[1, "Date"] = '09/03/2023' # au lieu de )9/03/2023
df_page3
```

```

[125]:      Date             Patient       TM  NonRembourse \
0   9/03/2023 RANDRIANANTOANDR O SAHOLY NIRINA  80,00   6 840,00
1   09/03/2023 RANDRIANANTOANDR O SAHOLY NIRINA  80,00   3 660,00
2   21/03/2023 RAMANANA INDRA MIHAMINA  80,00   5 100,00
3   23/03/2023 RAHASINIAINA LILIANE  80,00   6 740,00
4   20/03/2023 SOILEH ZEHERAH  80,00   1 180,00
5   20/03/2023 SOILEH ZEHERAH  80,00   6 740,00
6   20/03/2023 SOILEH ZEHERAH  80,00   8 460,00
7   4/03/2023 RAOILISON ARINTSOA SAMUEL  90,00   3 670,00
8   6/03/2023 RAOILISON IKORIANTSOA M.  90,00   5 100,00
9   6/03/2023 RAOILISON IKORIANTSOA M.  90,00   2 120,00
10  6/03/2023 RAOILISON IKORIANTSOA M.  90,00   1 690,00
11  11/03/2023 RALAMBONIRINA RIVONIAINA 100,00   0,00

      Rembourse           Autre1
0   27 360,00  ANGIZAAR 50 B/30 ( Micro Labs Lim

```

```

1 14 640,00      POSITON ONGUENT tube : 30 g
2 20 400,00          DESLORATADINE 5MG CP
3 26 960,00          ANGIZAAR H
4 4 720,00          CAPTOPRIL 25 mg comp : 30
5 26 960,00          ANGIZAAR H
6 33 840,00  TANAKAN sol buv 40 mg/ml : f130 m
7 33 030,00  FUNGIZONE susp buv 100 mg/ml : fi
8 45 900,00  BACTOCLAV DS BLEU PPS
9 19 080,00  CELESTENE sol buv 0,05 % : flcom
10 15 210,00 VENTOLINE susp p inhalation 100 n
11 33 400,00          GRAMOCEF 0 200

```

```
[127]: # Formatter les données dates et montants
df_page3['Date'] = pd.to_datetime(df_page3['Date'], errors='coerce',
                                   dayfirst=True)

df_page3['Patient'] = df_page3['Patient'].astype(str)

df_page3['NonRembourse'] = df_page3['NonRembourse'].str.replace(' ', '').str.
                           replace(',', '.').astype(float)

df_page3['Rembourse'] = df_page3['Rembourse'].str.replace(' ', '').str.
                           replace(',', '.').astype(float)

df_page3['TM'] = df_page3['TM'].str.replace(' ', '').str.replace(',', '.').
                           astype(float)

df_page3
```

	Date	Patient	TM	NonRembourse	\
0	2023-03-09	RANDRIANANTOANDR O SAHOLY NIRINA	80.0	6840.0	
1	2023-03-09	RANDRIANANTOANDR O SAHOLY NIRINA	80.0	3660.0	
2	2023-03-21	RAMANANA INDRA MIHAMINA	80.0	5100.0	
3	2023-03-23	RAHASINIAINA LILIANE	80.0	6740.0	
4	2023-03-20	SOILEH ZEHERAH	80.0	1180.0	
5	2023-03-20	SOILEH ZEHERAH	80.0	6740.0	
6	2023-03-20	SOILEH ZEHERAH	80.0	8460.0	
7	2023-03-04	RAOILISON ARINTSOA SAMUEL	90.0	3670.0	
8	2023-03-06	RAOILISON IKORIANTSOA M.	90.0	5100.0	
9	2023-03-06	RAOILISON IKORIANTSOA M.	90.0	2120.0	
10	2023-03-06	RAOILISON IKORIANTSOA M.	90.0	1690.0	
11	2023-03-11	RALAMBONIRINA RIVONIAINA	100.0	0.0	

	Rembourse	Autre1
0	27360.0	ANGIZAAR 50 B/30 (Micro Labs Lim
1	14640.0	POSITON ONGUENT tube : 30 g
2	20400.0	DESLORATADINE 5MG CP

```

3      26960.0          ANGIZAAR H
4      4720.0          CAPTOPRIL 25 mg comp : 30
5      26960.0          ANGIZAAR H
6    33840.0  TANAKAN sol buv 40 mg/ml : f130 m
7    33030.0  FUNGIZONE susp buv 100 mg/ml : fi
8    45900.0          BACTOCLAV DS BLEU PPS
9    19080.0  CELESTENE sol buv 0,05 % : flcom
10   15210.0  VENTOLINE susp p inhalation 100 n
11   33400.0          GRAMOCEF O 200

```

[128]: out_path

[128]: './dataout/data.json'

Sauvegarde des données combinées

[129]: # Vérifier si le fichier existe et charger les données existantes

```

if os.path.exists(out_path):
    with open(out_path, 'r') as f:
        try:
            existing_data3 = json.load(f)
        except json.JSONDecodeError:
            existing_data3 = [] # Si le fichier est vide ou corrompu
else:
    existing_data3 = []

# Ajouter les nouvelles données
data3 = df_page3.map(lambda x: x.strftime('%Y-%m-%d') if isinstance(x, pd.
    ~Timestamp) else x).to_dict(orient='records')
existing_data3.extend(data3)

# Sauvegarder les données combinées dans une nouvelle fichier
out_path3 = './dataout/data3.json'
with open(out_path3, 'w') as f:
    json.dump(existing_data3, f, indent=4)

```

[130]: len(existing_data3)

[130]: 23

[131]: # Sauvegarder le DataFrame en Excel

```

excel_path = './dataout/data.xlsx'

# créer le fichier excel vide
with pd.ExcelWriter(excel_path, engine='xlsxwriter') as writer:
    df_page2.to_excel(writer, sheet_name='Page 2', index=False)
    df_page3.to_excel(writer, sheet_name='Page 3', index=False)

```