

Before using this notebook read the following

To use the Cloud Vision API, you must enable it for your project:

Check this [link to setup Cloud Vision API](#).

Import the modules

google.cloud module for the google cloud vision api and other modules files for plotting and IO operations.

In [44]:

```
from google.cloud import vision
import io
import matplotlib.pyplot as plt
from IPython.display import Image
```

Implement detect_document function for detecting the text from the image by using the cloud vision API

In [45]:

```
def detect_document(path):
    client = vision.ImageAnnotatorClient()

    with io.open(path, 'rb') as image_file:
        content = image_file.read()

    image = vision.Image(content=content)

    response = client.document_text_detection(image=image)
    for page in response.full_text_annotation.pages:
        for block in page.blocks:
            print('\nBlock confidence: {}'.format(block.confidence))

            for paragraph in block.paragraphs:
                print('Paragraph confidence: {}'.format(
                    paragraph.confidence))

            for word in paragraph.words:
                word_text = ''.join([
                    symbol.text for symbol in word.symbols
                ])
                print('Word text: {} (confidence: {})'.format(
                    word_text, word.confidence))

            for symbol in word.symbols:
                print('\tSymbol: {} (confidence: {})'.format(
                    symbol.text, symbol.confidence))

    if response.error.message:
        raise Exception(
            '{}\nFor more info on error messages, check: '
            '{}'.format(
                response.error.message,
                'https://cloud.google.com/apis/design/errors'))
    return response
```

Implement the annotate function for plotting the detected text using matplotlib

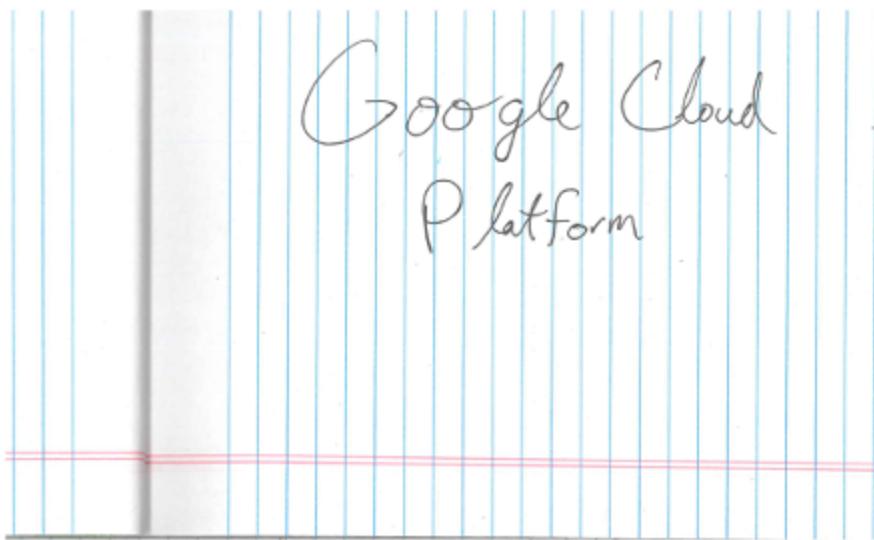
```
In [46]: def annotate(result):
    from PIL import Image
    from matplotlib.patches import Polygon
    img = Image.open(imageFile)
    fig, ax = plt.subplots()
    ax.imshow(img)

    coOrdX=[]
    coOrdY=[]
    for page in result.full_text_annotation.pages:
        for block in page.blocks:
            for vertice in block.bounding_box.vertices:
                coOrdX.append(vertice.x)
                coOrdY.append(vertice.y)
    poly = Polygon(list(zip(coOrdX, coOrdY)), linewidth=2, edgecolor='green', facecolor='r')
    ax.add_patch(poly)
    plt.show()
```

```
In [47]: imageFile="detect_handwriting_OCR-detect-handwriting_SMALL.png"
```

```
In [48]: Image(imageFile)
```

Out[48]:



```
In [49]: result=detect_document(imageFile)
```

```
Block confidence: 0.893754780292511

Paragraph confidence: 0.9167048931121826
Word text: Google (confidence: 0.989648163318634)
    Symbol: G (confidence: 0.984728991985321)
    Symbol: o (confidence: 0.991116464138031)
    Symbol: o (confidence: 0.9963294267654419)
    Symbol: g (confidence: 0.9910480380058289)
    Symbol: l (confidence: 0.9875669479370117)
    Symbol: e (confidence: 0.9870989918708801)
Word text: Cloud (confidence: 0.8291730284690857)
    Symbol: C (confidence: 0.8676581978797913)
    Symbol: l (confidence: 0.9362463355064392)
    Symbol: o (confidence: 0.7873052954673767)
```

```
Symbol: u (confidence: 0.6800588965415955)
Symbol: d (confidence: 0.8745964765548706)
Paragraph confidence: 0.8621983528137207
Word text: Platform (confidence: 0.8621983528137207)
    Symbol: P (confidence: 0.6394678950309753)
    Symbol: l (confidence: 0.7058737874031067)
    Symbol: a (confidence: 0.8146386742591858)
    Symbol: t (confidence: 0.9121209383010864)
    Symbol: f (confidence: 0.9278522729873657)
    Symbol: o (confidence: 0.9610851407051086)
    Symbol: r (confidence: 0.9718555212020874)
    Symbol: m (confidence: 0.9646927714347839)
```

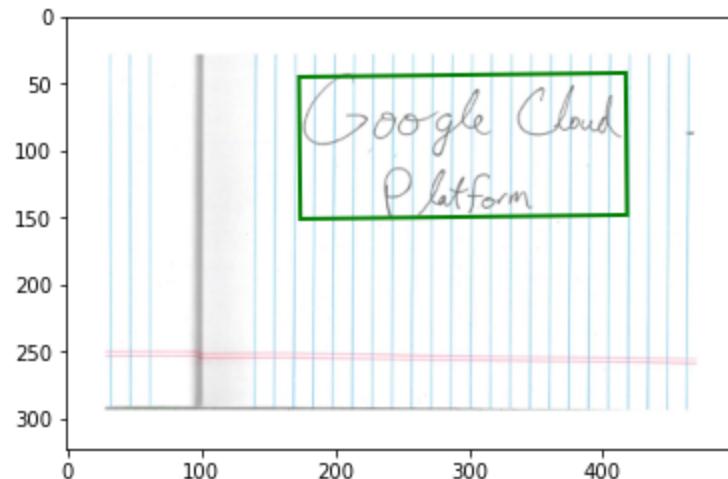
```
In [50]:  
for page in result.full_text_annotation.pages:  
    print(page.property.detected_languages)
```

```
[language_code: "en"  
confidence: 1  
]
```

```
In [51]:  
print("WORDS DETECTED FROM IMAGE:")  
for words in result.text_annotations:  
    print(words.description)
```

```
WORDS DETECTED FROM IMAGE:  
Google Cloud  
Platform  
Google  
Cloud  
Platform
```

```
In [52]:  
annotate(result)
```



```
In [66]:  
imageFile="hindiTest.jpeg"
```

```
In [67]:  
Image(imageFile)
```

```
Out[67]:
```

यह मेरा प्रोजेक्ट है

In [68]:

```
result=detect_document(imageFile)

Block confidence: 0.9896780252456665

Paragraph confidence: 0.9896780252456665
Word text: यह (confidence: 0.9896780252456665)
    Symbol: य (confidence: 0.991659939289093)
    Symbol: ह (confidence: 0.9876960515975952)

Block confidence: 0.9634953141212463

Paragraph confidence: 0.9634953141212463
Word text: मेरा (confidence: 0.9878958463668823)
    Symbol: मे (confidence: 0.9835496544837952)
    Symbol: रा (confidence: 0.9922419786453247)
Word text: प्रोजेक्ट (confidence: 0.9460099935531616)
    Symbol: प्रो (confidence: 0.9679659008979797)
    Symbol: जे (confidence: 0.9495843052864075)
    Symbol: क्ट (confidence: 0.9204797744750977)
Word text: है (confidence: 0.9671502709388733)
    Symbol: है (confidence: 0.9671502709388733)
```

In [69]:

```
for page in result.full_text_annotation.pages:
    print(page.property.detected_languages)
```

```
[language_code: "hi"
confidence: 0.744939148
]
```

In [70]:

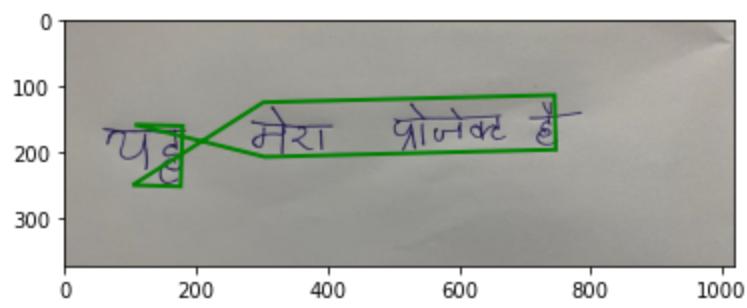
```
print("WORDS DETECTED FROM IMAGE:")
for words in result.text_annotations:
    print(words.description)
```

WORDs DETECTED FROM IMAGE:

यह
मेरा प्रोजेक्ट है
यह
मेरा
प्रोजेक्ट
है

In [71]:

```
annotate(result)
```



In [59]:

```
imageFile="malayalamTest.png"
```

In [60]:

```
Image(imageFile)
```

Out[60]:

BB23 ബാലകൾ

കേരളം ധനക്ഷേപണ

മന്ത്ര്യസ്വീകാർണ്ണ

രഹസ്യാവിഷ്കാരി മന്ത്രി

In [61]:

```
result=detect_document(imageFile)
```

Block confidence: 0.6198631525039673

Paragraph confidence: 0.6198631525039673
Word text: മറുള്ള (confidence: 0.8555367588996887)
 Symbol: മ (confidence: 0.8172088265419006)
 Symbol: റ (confidence: 0.8990538716316223)
 Symbol: ല്ള (confidence: 0.850347638130188)
Word text: ഭോഷകൾ (confidence: 0.6317702531814575)
 Symbol: ഭ (confidence: 0.35956549644470215)
 Symbol: ഓ (confidence: 0.46521592140197754)
 Symbol: ഷ (confidence: 0.8733677864074707)
 Symbol: കൾ (confidence: 0.8289317488670349)
Word text: കേവലം (confidence: 0.8912217617034912)
 Symbol: കേ (confidence: 0.7927815318107605)
 Symbol: വ (confidence: 0.9185965657234192)
 Symbol: ലം (confidence: 0.9622872471809387)
Word text: ധാതിമാർ (confidence: 0.5703134536743164)
 Symbol: ധ (confidence: 0.7693740129470825)
 Symbol: തി (confidence: 0.35412803292274475)
 Symbol: മാ (confidence: 0.45947006344795227)
 Symbol: ര (confidence: 0.6982818245887756)
Word text: മർത്ത്യനു (confidence: 0.7221801280975342)
 Symbol: മ (confidence: 0.5829271078109741)
 Symbol: ര (confidence: 0.7542331218719482)
 Symbol: ത്യ (confidence: 0.7280817627906799)
 Symbol: നു (confidence: 0.8234784603118896)
Word text: പെറ്റം (confidence: 0.2805841565132141)
 Symbol: പെ (confidence: 0.3143467605113983)
 Symbol: റ (confidence: 0.29391470551490784)
 Symbol: മ (confidence: 0.23349100351333618)
Word text: തന്റഭാഷ (confidence: 0.5526530742645264)
 Symbol: ത (confidence: 0.3571419417858124)
 Symbol: നി (confidence: 0.4355924725532532)
 Symbol: ഭ (confidence: 0.6862847805023193)
 Symbol: ഷ (confidence: 0.731593132019043)
Word text: താൻ (confidence: 0.3733048439025879)
 Symbol: താ (confidence: 0.17956486344337463)
 Symbol: ന (confidence: 0.5670447945594788)

In [62]:

```
for page in result.full_text_annotation.pages:
    print(page.property.detected_languages)
```

```
[language_code: "ml"
confidence: 1
]
```

In [63]:

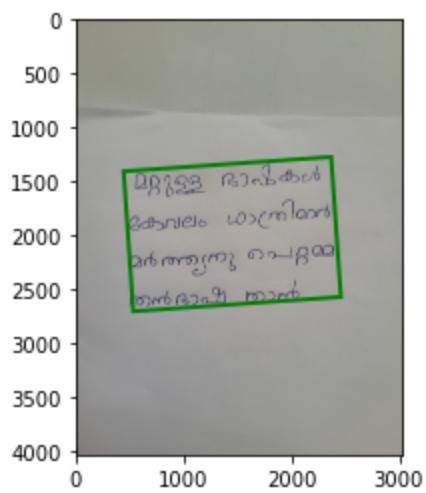
```
print("WORDS DETECTED FROM IMAGE:")
for words in result.text_annotations:
    print(words.description)
```

WORDS DETECTED FROM IMAGE:

മറുള്ള ഭോഷകൾ
കേവലം ധാതിമാർ
മർത്ത്യനു പെറ്റം
തന്റഭാഷ താൻ
മറുള്ള
ഭോഷകൾ
കേവലം
ധാതിമാർ
മർത്ത്യനു
പെറ്റം
തന്റഭാഷ
താൻ

In [64]:

```
annotate(result)
```



Project Done by [Athul Jomon](#)