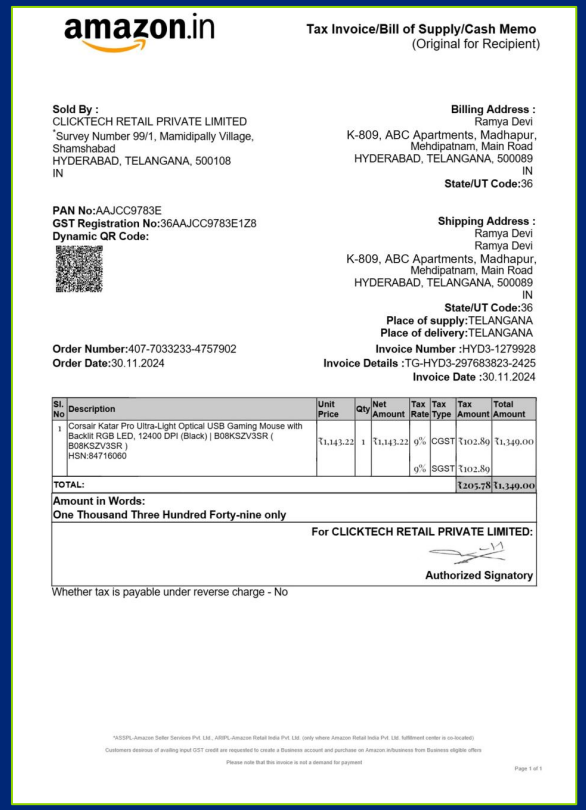
Project

OpenAI API | GPT | Vision Models | MongoDB | LangChain | FastAPI

Intelligent Document Processing with OpenAI GPT & LangChain

OpenAI API | GPT | Vision Models | MongoDB | LangChain | FastAPI

Project



amazon.in

Tax Invoice/Bill of Supply/Cash Memo
(Original for Recipient)

Sold By :
CLICKTECH RETAIL PRIVATE LIMITED
Survey Number 99/1, Mamidipally Village, Shamshabad
HYDERABAD, TELANGANA, 500108
IN

Billing Address :
Ramya Devi
K-809, ABC Apartments, Madhapur, Mehdipatnam, Main Road
HYDERABAD, TELANGANA, 500089
IN
State/UT Code:36

PAN No:AAJCC9783E
GST Registration No:36AAJCC9783E1Z8
Dynamic QR Code:

Shipping Address :
Ramya Devi
Ramya Devi
K-809, ABC Apartments, Madhapur, Mehdipatnam, Main Road
HYDERABAD, TELANGANA, 500089
IN
State/UT Code:36
Place of supply:TELANGANA
Place of delivery:TELANGANA

Order Number:407-7033233-4757902
Order Date:30.11.2024

Invoice Number :HYD3-1279928
Invoice Details :TG-HYD3-297683823-2425
Invoice Date :30.11.2024

Sl. No	Description	Unit Price	Qty	Net Amount	Tax Rate	Tax Type	Tax Amount	Total Amount
1	Corsair Katar Pro Ultra-Light Optical USB Gaming Mouse with Backlit RGB LED, 12400 DPI (Black) | B08KSZV3SR (B08KSZV3SR) HSN:84716060	₹1,143.22	1	₹1,143.22	9%	CGST	₹102.89	₹1,349.00
					9%	SGST	₹102.89	
TOTAL:							₹205.78	₹1,349.00

Amount in Words:
One Thousand Three Hundred Forty-nine only

For CLICKTECH RETAIL PRIVATE LIMITED:

Authorized Signatory

Whether tax is payable under reverse charge - No

ACE
The helpful place.

Thank You for Shopping at
Ace Hardware of Navarre
8188 Navarre Pkwy, Navarre, FL 32566
Phone: (850) 939-9800

11/14/2024, 5:46:31 PM

Reg: 2 ACE Rewards # : 1928777
Customer: J Manchester: Since 2011

# 2489540 DeWalt 20V MAX Cordless Brushed 2 Tool Kit	$219.99
# 2029735 DeWalt Maxfit Screwdriver Bit Set 30 pc	$19.98
# CLDBVG COKE 20oz	$1.99
Subtotal	$241.97
Tax	$16.93
Total	$258.90
Card number	**** **** **** 3081
Card type	Debit
Card entry	Chip
Date/time	11/14/2024 5:46 PM
Reference #	628452892602462406850
Status	APPROVED

THANK YOU
HAVE A NICE DAY

RAFAEL ULATE
DIRECTOR OF ADMISSIONS
DEPARTMENT OF ELECTRICAL ENGINEERING

DAVID PACKARD ELECTRICAL ENGINEERING
350 SERRA MALL, ROOM 170
STANFORD UNIVERSITY
STANFORD, CALIFORNIA 94305-9505

TEL: (650) 725-9327
FAX: (650) 723- 1882
ulate@ee.stanford.edu

भारत सरकार
GOVERNMENT OF INDIA

NAME : XXXX
DOB : XXXX
GENDER : XXXX

4444 3333 6666 8888

आधार - भारतीय विशिष्ट पहचान प्राधिकरण

SBI भारतीय स्टेट बैंक
STATE BANK OF INDIA

पासबुक
PASS BOOK

yono SBI
किओस्क बैंक
KIOSK BANK

VEDICSKILL.

Invoice

amazon.in

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Order Number:407-7033233-4757902
Order Date:30.11.2024

Invoice Number :HYD3-1279928
Invoice Details :TG-HYD3-297683823-2425
Invoice Date :30.11.2024

Sl. No	Description	Unit Price	Qty	Net Amount	Tax Rate	Tax Type	Tax Amount	Total Amount
1	Corsair Katar Pro Ultra-Light Optical USB Gaming Mouse with Backlit RGB LED, 12400 DPI (Black) | B08KSZV3SR (B08KSZV3SR) HSN:84716060	₹1,143.22	1	₹1,143.22	9%	CGST	₹102.89	₹1,349.00
					9%	SGST	₹102.89	
TOTAL:							₹205.78	₹1,349.00

Amount in Words:
One Thousand Three Hundred Forty-nine only

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Authorized Signatory

Whether tax is payable under reverse charge - No

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Customers desirous of availing input GST credit are requested to create a Business account and purchase on Amazon.in/business from Business eligible offers
Please note that this invoice is not a demand for payment

Page 1 of 1

Receipt

ACE
The helpful place.

Thank You for Shopping at
Ace Hardware of Navarre
8188 Navarre Pkwy, Navarre, FL 32566
Phone: (850) 939-9800

11/14/2024, 5:46:31 PM

Reg: 2 ACE Rewards # : 1928777
Customer: J Manchester: Since 2011

2489540 DeWalt 20V MAX $219.99
Cordless Brushed 2 Tool Kit
2029735 DeWalt Maxfit $19.98
Screwdriver Bit Set 30 pc
CLDBVG COKE 20oz $1.99

Subtotal $241.97
Tax $16.93

Total $258.90

Card number **** **** **** 3081
Card type Debit
Card entry Chip
Date/time 11/14/2024 5:46 PM
Reference # 628452892602462406850
Status APPROVED

THANK YOU
HAVE A NICE DAY

Business Card

Government ID Cards

Bank Documents

VEDICSKILL.

Documents

In this course we will focus on two documents

Invoice

amazon.in

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(Original for Recipient)

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CLICKTECH RETAIL PRIVATE LIMITED
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Billing Address :
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PAN No:AAJCC9783E
GST Registration No:36AAJCC9783E1Z8
Dynamic QR Code:

Shipping Address :
Ramya Devi
Ramya Devi
K-809, ABC Apartments, Madhapur, Mehdipatnam, Main Road
HYDERABAD, TELANGANA, 500089
IN
State/UT Code:36
Place of supply:TELANGANA
Place of delivery:TELANGANA

Order Number:407-7033233-4757902
Order Date:30.11.2024

Invoice Number :HYD3-1279928
Invoice Details :TG-HYD3-297683823-2425
Invoice Date :30.11.2024

Sl. No	Description	Unit Price	Qty	Net Amount	Tax Rate	Tax Type	Tax Amount	Total Amount
1	Corsair Katar Pro Ultra-Light Optical USB Gaming Mouse with Backlit RGB LED, 12400 DPI (Black) | B08KSZV3SR (B08KSZV3SR) HSN:84716060	₹1,143.22	1	₹1,143.22	9%	CGST	₹102.89	₹1,349.00
					9%	SGST	₹102.89	
TOTAL:							₹205.78	₹1,349.00

Amount in Words:
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Authorized Signatory

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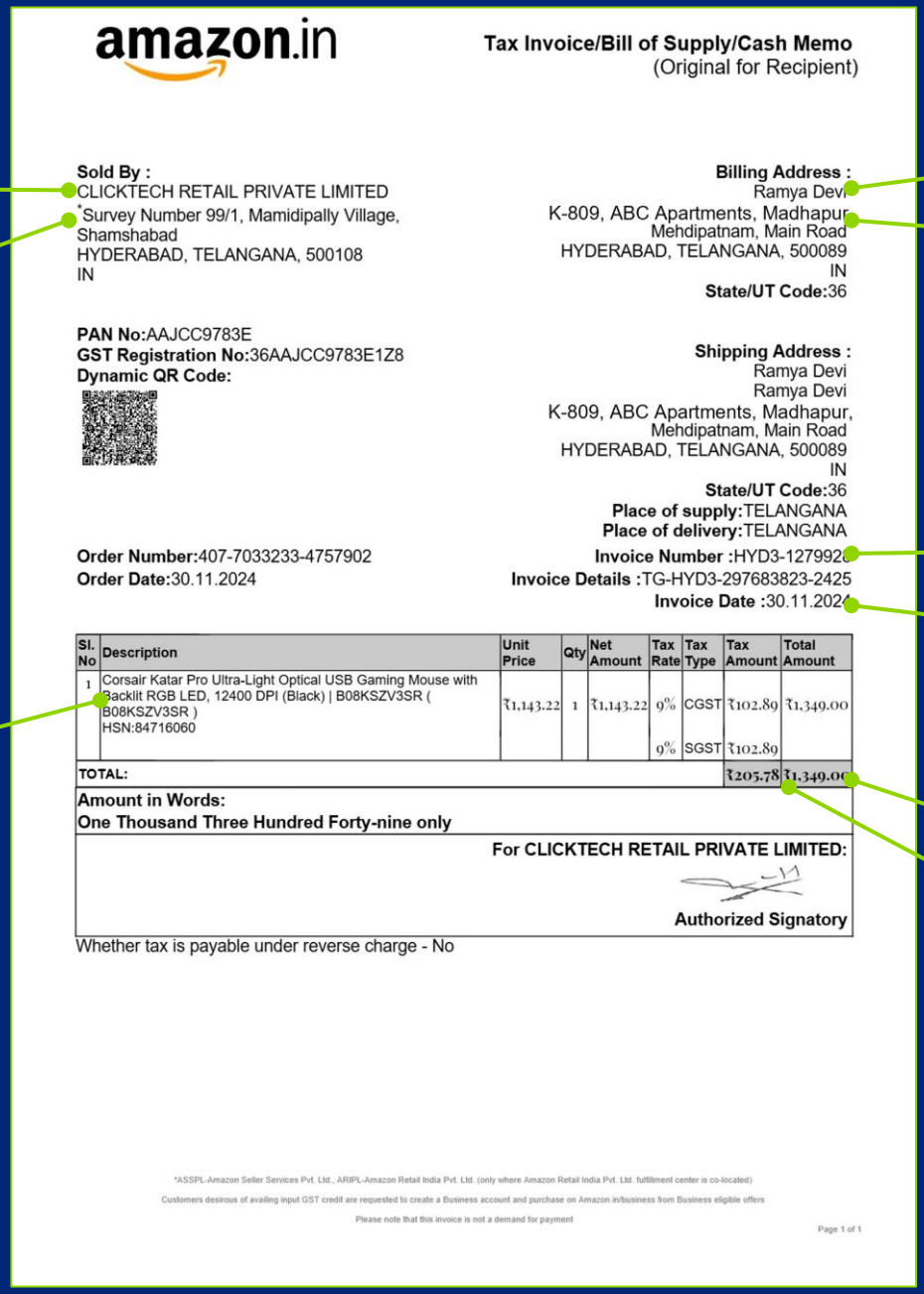
Page 1 of 1

Business Card



amazon.in

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CLICKTECH RETAIL PRIVATE LIMITED
*Survey Number 99/1, Mamidipally Village, Shamshabad
HYDERABAD, TELANGANA, 500108
IN

PAN No:AAJCC9783E
GST Registration No:36AAJCC9783E1Z8
Dynamic QR Code:

Billing Address :
Ramya Devi
K-809, ABC Apartments, Madhapur
Mehdipatnam, Main Road
HYDERABAD, TELANGANA, 500089
IN
State/UT Code:36

Shipping Address :
Ramya Devi
Ramya Devi
K-809, ABC Apartments, Madhapur,
Mehdipatnam, Main Road
HYDERABAD, TELANGANA, 500089
IN
State/UT Code:36
Place of supply:TELANGANA
Place of delivery:TELANGANA

Order Number:407-7033233-4757902
Order Date:30.11.2024

Invoice Number :HYD3-127992
Invoice Details :TG-HYD3-297683823-2425
Invoice Date :30.11.2024

Sl. No	Description	Unit Price	Qty	Net Amount	Tax Rate	Tax Type	Tax Amount	Total Amount
1	Corsair Katar Pro Ultra-Light Optical USB Gaming Mouse with Backlit RGB LED, 12400 DPI (Black) | B08KSZV3SR (B08KSZV3SR) HSN:84716060	₹1,143.22	1	₹1,143.22	9%	CGST	₹102.89	₹1,349.00
					9%	SGST	₹102.89	
TOTAL:							₹205.78	₹1,349.00

Amount in Words:
One Thousand Three Hundred Forty-nine only

For CLICKTECH RETAIL PRIVATE LIMITED:

Authorized Signatory

Whether tax is payable under reverse charge - No

*ASSPL-Amazon Seller Services Pvt. Ltd., ARIPL-Amazon Retail India Pvt. Ltd. (only where Amazon Retail India Pvt. Ltd. fulfillment center is co-located)
Customers desirous of availing input GST credit are requested to create a Business account and purchase on Amazon.in/business from Business eligible offers
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Page 1 of 1

Seller Name

Seller Address

Buyer Name

Buyer Name

Invoice Number

Invoice Date

Items / Description

Total Amount

Currency

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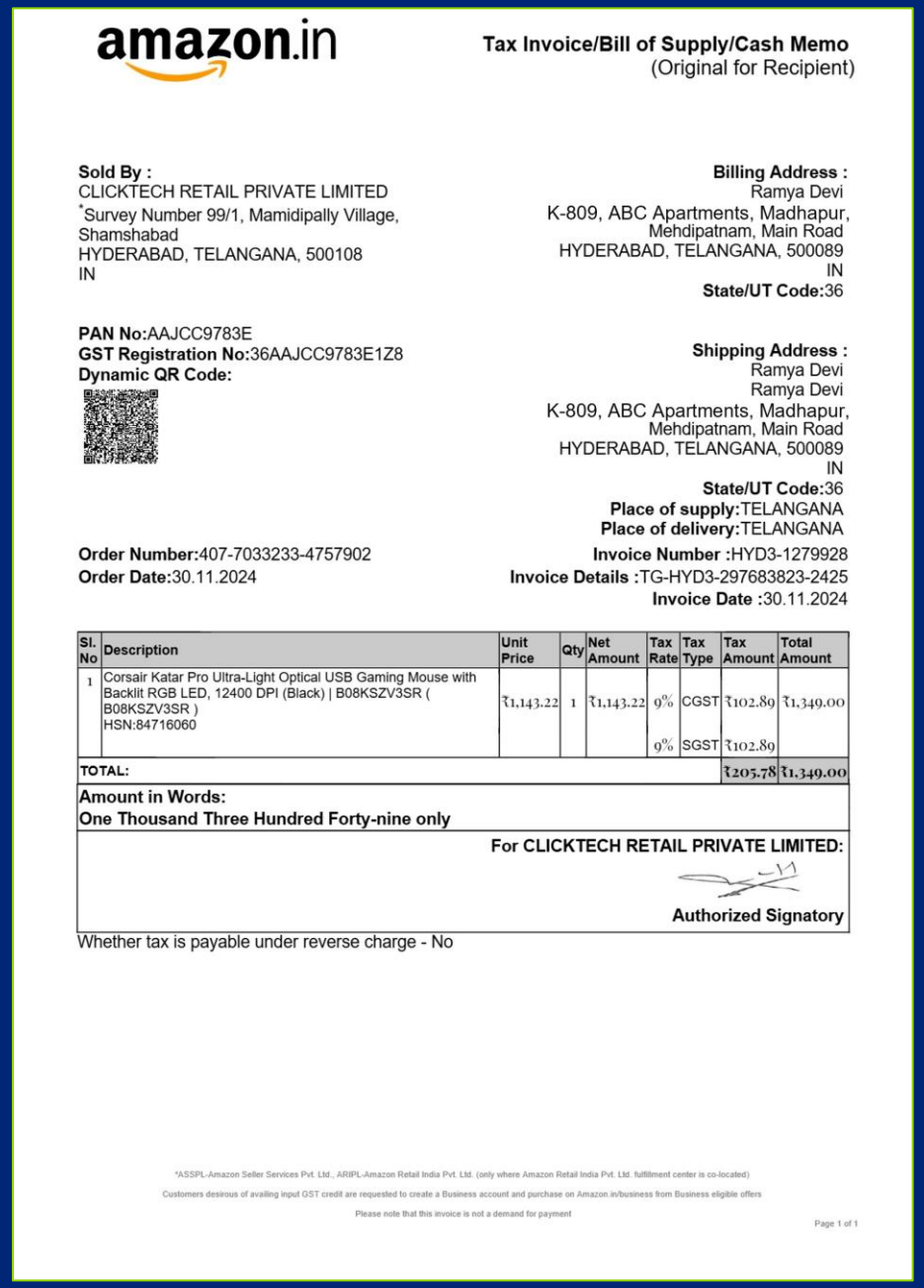

amazon.in

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HYDERABAD, TELANGANA, 500089
IN
State/UT Code:36
Place of supply:TELANGANA
Place of delivery:TELANGANA

Order Number:407-7033233-4757902
Order Date:30.11.2024

Invoice Number :HYD3-1279928
Invoice Details :TG-HYD3-297683823-2425
Invoice Date :30.11.2024

Sl. No	Description	Unit Price	Qty	Net Amount	Tax Rate	Tax Type	Tax Amount	Total Amount
1	Corsair Katar Pro Ultra-Light Optical USB Gaming Mouse with Backlit RGB LED, 12400 DPI (Black) | B08KSZV3SR (B08KSZV3SR) HSN:84716060	₹1,143.22	1	₹1,143.22	9%	CGST	₹102.89	₹1,349.00
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TOTAL:							₹205.78	₹1,349.00

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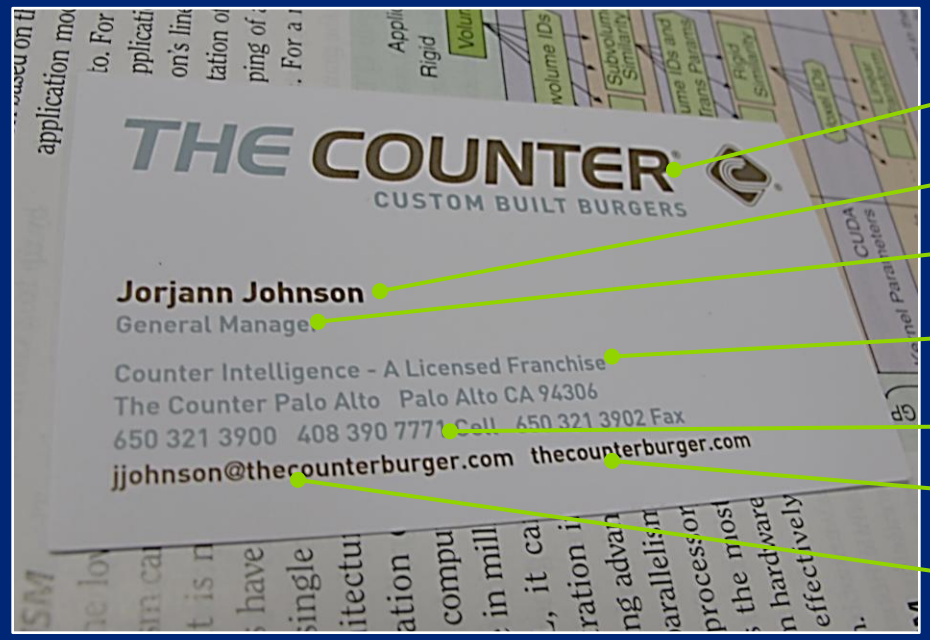
Page 1 of 1

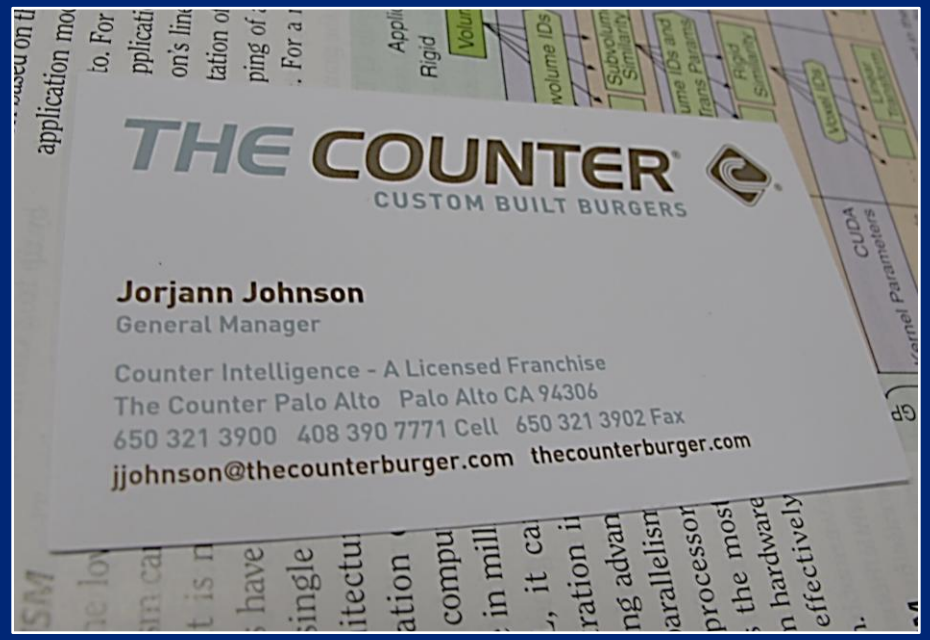
Output from OpenAI GPT Model

```
{
  "invoice_number": "HYD3-1279928",
  "invoice_date": "30.11.2024“
  "seller_name": "CLICKTECH RETAIL PRIVATE LIMITED“
  "buyer_name": "Ramya Devi",
  "seller_address": [
                    "SURVEY NUMBER 99/1, Mamidipally Village,
                     Shamshabad, HYDERABAD, TELANGANA,
                     500108,IN“
          ],
, "buyer_address": [
                    "K-809, ABC Apartments, Madhapur,
                     Mehdipatnam, Main Road, HYDERABAD,
                     TELANGANA, 500089, IN“
          ],
  "total_amount": "1349.00",
  "currency": "INR",
  "items": [
             {
               "item_number": "1",
               "description": [
              "Corsair Katar Pro Ultra-Light Optical USB
               Gaming Mouse with Backlit RGB LED, 12400 DPI
               (Black)“
          ],
   "quantity": "1",
   "item_amount": "1349.00“
          }
    ]
}
```



Business Card

- Company
- Name
- Designation/Title
- Address
- Phone Numbers
- Website
- Email



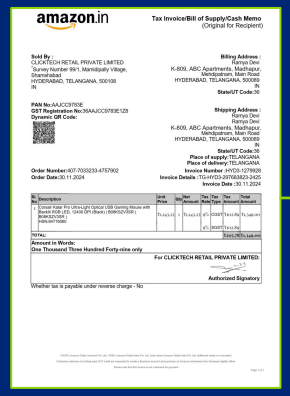
Business Card

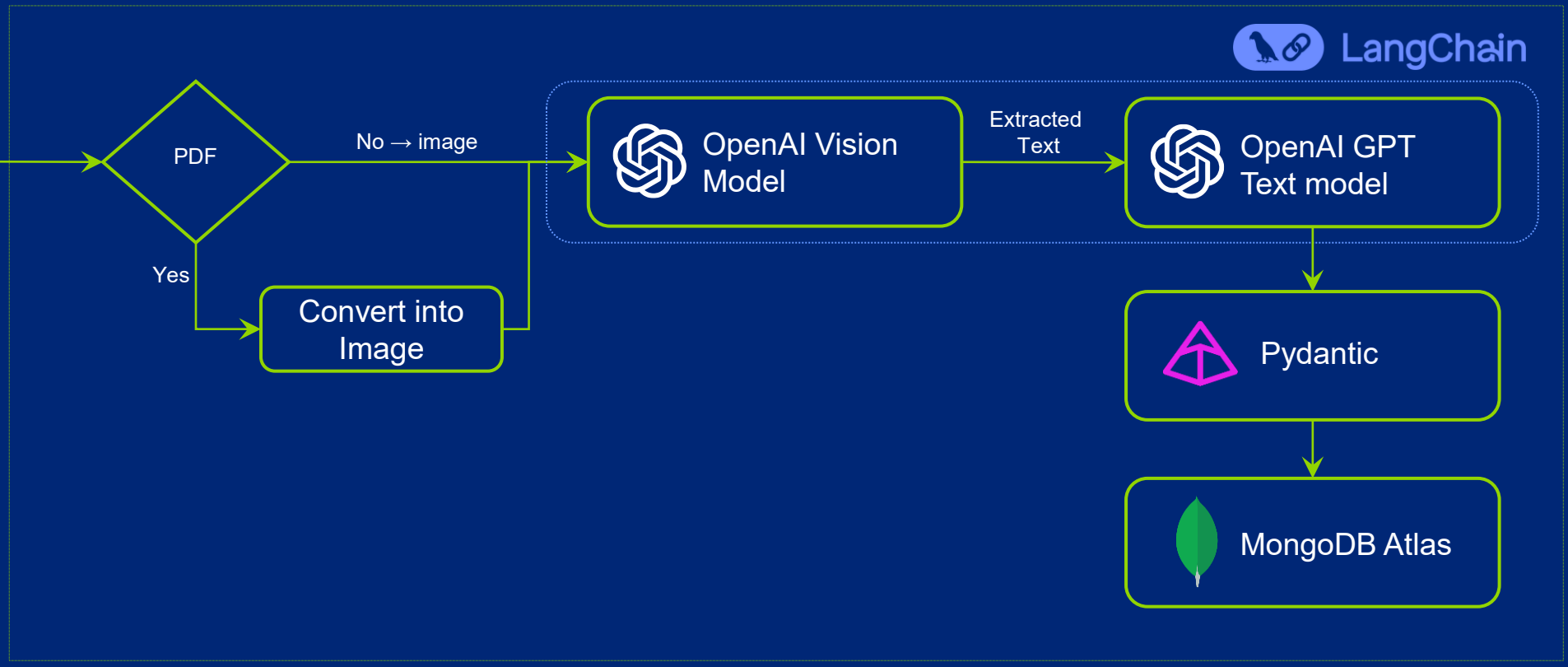

```
{
  "name": "Jorjann Johnson",
  "title": "General Manager",
  "company": "The Counter",
  "phone_numbers": [
      "650-321-3900",
      "408-390-7771",
      "650-321-3902"
   ],
 "emails": [
      "jjohnson@thecounterburger.com"
   ],
 "website": "thecounterburger.com“,
 "address": [
      "The Counter, Palo Alto, CA 94306“
   ],
}
```

Architecture

Intelligent Document Extraction with OpenAI GPT & LangChain

→ Python, OpenAI API, Langchain, MongoDB





VEDICSKILL.

Next | Development

Folder Structure

Create the folder structure for our project

Folder Structure

```
document_ai/
│
├── main_notebook.ipynb
│
├── config/
│   └── settings.py
│
├── models/
│   └── invoice_model.py
│
├── prompts/
│   └── invoice_prompt.py
│
├── services/
│   ├── file_handler.py
│   ├── vision_service.py
│   ├── extraction_service.py
│   ├── validation_service.py
│   └── storage_service.py
│
└── db/
    └── mongodb.py
```

File handling

Handling image and pdf

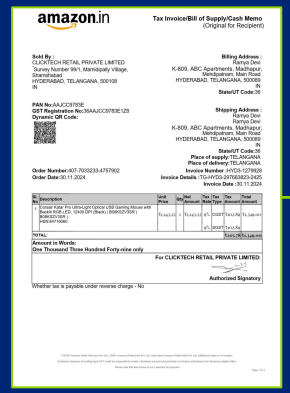
File Handling

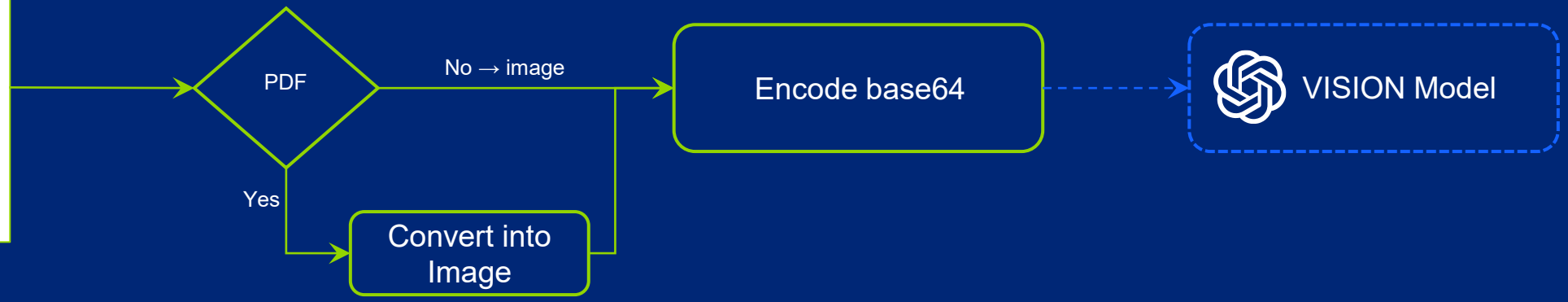
`file_handler.py`

Two type of documents

→ **PDF**

→ **Image (PNG, JPG, JPEG)**





Step - 1 Step - 2

File Handling

Dependency libraries

Handle PDF

- PyMuPDF

```
pip install pymupdf
      or
poetry add pymupdf
```

Handle Image

- PIL

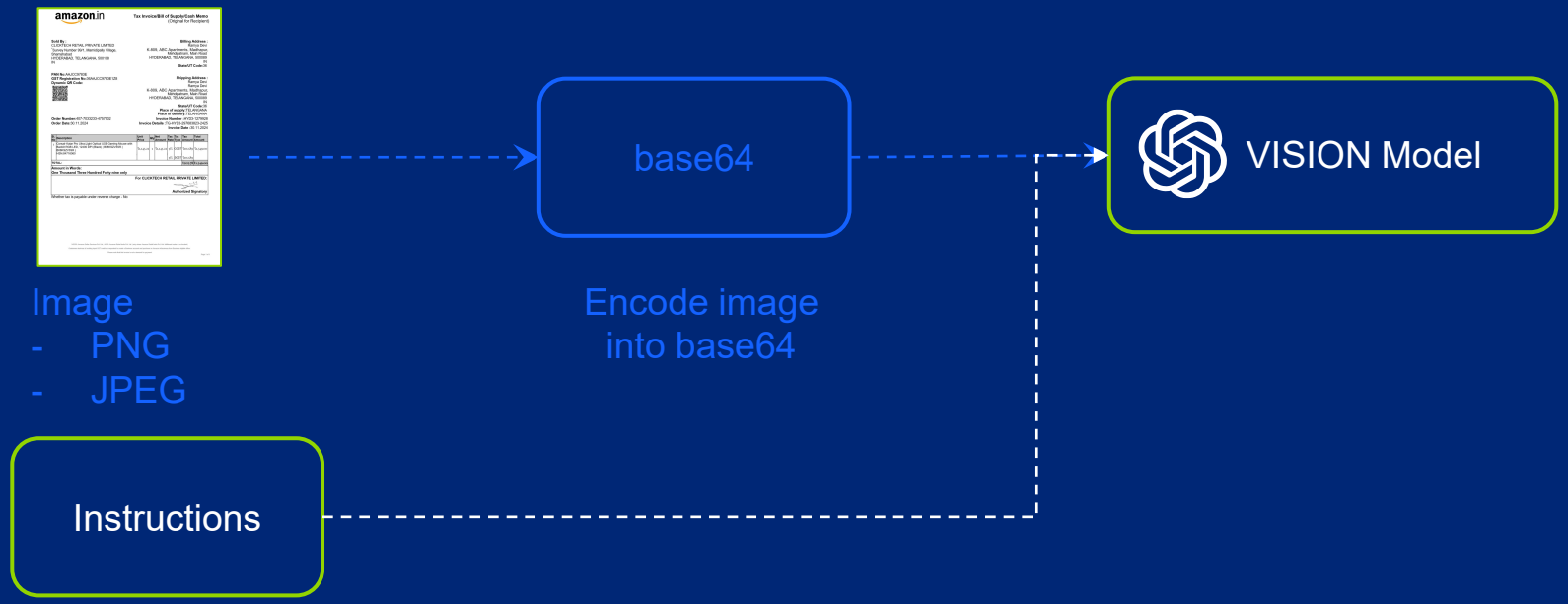
Vision Service

Build LLM framework handle image as input

Vision Model

`vision_service.py`

→ Build function for vision model



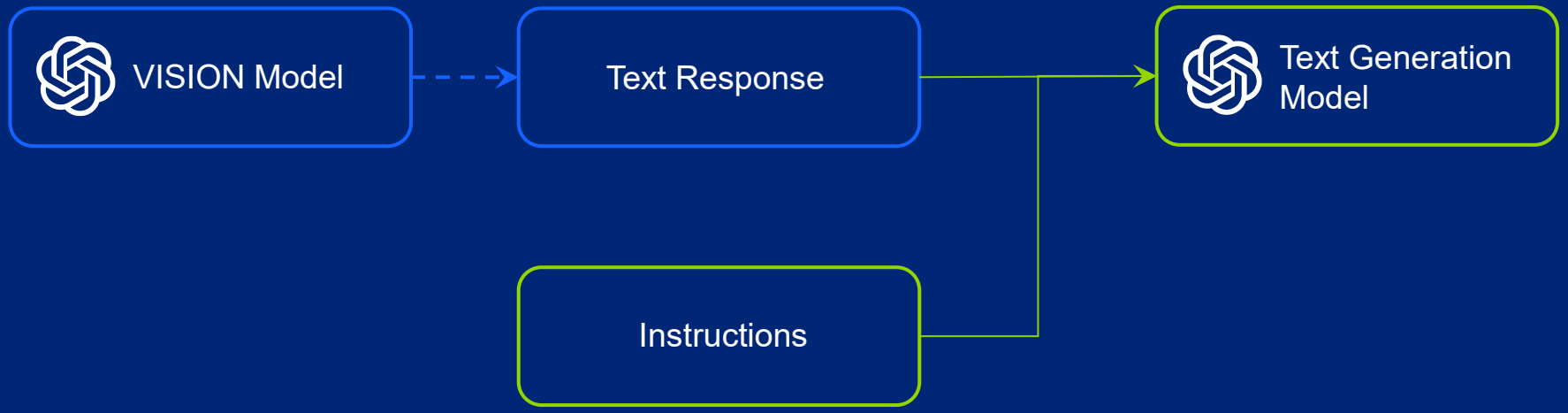
Extraction Service

Create Prompt to get entities from the text

Extraction Model

`extraction_serivce.py`

→ Extract entitles from the extracted text



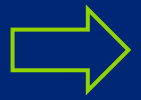
Validation Service

Create Prompt to get entities from the text

Pydantic Data Validation

LLM Output

```
data = {
 "invoice_number": "422160369",
 "buyer": "ATTN: Data Science Anywhere",
 "seller": "Amazon Internet Services Private Ltd.",
 "invoice_date": "2020-04-03",
 "items": [
           {
                     "description": "Charges",
                     "quantity": "",
                     "price": "764.30",
                     "total": "764.30"
           },
           {
                     "description": "GST",
                     "quantity": "",
                     "price": "137.94",
                     "total": "137.94"
           }
          ],
 "subtotal": "764.30",
 "tax": "137.94",
 "total": "902.24“
}
```



Pydantic Model Dump

```
data = {
 'invoice_number': '422160369’,
 'buyer': 'ATTN: Data Science Anywhere’,
 'seller': 'Amazon Internet Services Private Ltd.’,
 'invoice_date': datetime.date(2020, 4, 3),
 'items’: [
           {
                     'description': 'Charges’,
                     'quantity': None,
                     'price': 764.3,
                     'total': 764.3
           },
           {
                    'description': 'GST’,
                    'quantity': None,
                    'price': 137.94,
                    'total': 137.94
           }
           ],
 'subtotal': 764.3,
 'tax': 137.94,
 ‘total’: 902.24
}
```

Storage Service

Store data in MongoDB