

BTP Presentation

Backend Development

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Tools & Technologies:

- Programming Language: C# & Python
- Postman - a API testing tool
- Microsoft - a cloud service provider :
 1. Azure Functions
 2. Azure CosmosDB
 3. Azure Blob storage
- SonarQube - a static code analysis tool
- Microsoft Vision API - a cognitive service
- Other tools: Visual Studio, VS Code & git

Monolens

1) Information Extraction : This service is useful to extract information from documents like Aadhar, PAN, DL, VoterId, Passport etc.

Body Cookies Headers (6) Test Results

Pretty

Raw

Preview

Visualize

Text



```
1  {
2    "Data": {
3      "Name": "RAHUL GUPTA",
4      "FathersName": "SURESH GUPTA",
5      "DOB": "23/11/1974",
6      "PAN": "ABCDE1234F",
7      "RecognisedFormat": "PAN"
8    },
9    "Status": {
10     "StatusCode": "R1",
11     "DisplayMessagae": "Success",
12     "RefNumber": "92a5ccf4-5163-4661-815d-f7bf18dac2aa",
13     "MessageTitle": "Success",
14     "Result": "Pass"
15   }
16 }
```



Monolens

- 2) Aadhar Masking :

Masks Aadhar number from Aadhar images for security & privacy reasons.



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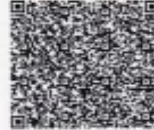
નોંધણીની ઓળખ / Enrollment No.: 2709/34014/01877

To
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19/07/2013
101822334



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તમારો આધાર નંબર / Your Aadhaar No. :

7867 7856 1539

મારો આધાર, મારી ઓળખ



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મહેતા ઈશાન
Mehta Ishan
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Existing System & Its Flaws

- 1) Existing system consists both C# & python code.
It is hosted on VM(Virtual Machine) which runs 24x7.
- 2) It needs to get running all python files at the beginning of execution for each request.
- 3) Code quality is not up to the mark. There are lot of code-smells and duplication.

My work: 1)

Refactor and restructure code such that it is highly cohesive and loosely coupled.

Azure Function



Pre-Processing:

- Validation of Customer
- Validation of the image format (png,jpg,pdf,tiff) and size (Dimension)
- Check that it is of allowed Document type (Aadhar, DL, Passport etc.)
- Convert images to jpg format if not as it is only format supported by Vision cognitive API.

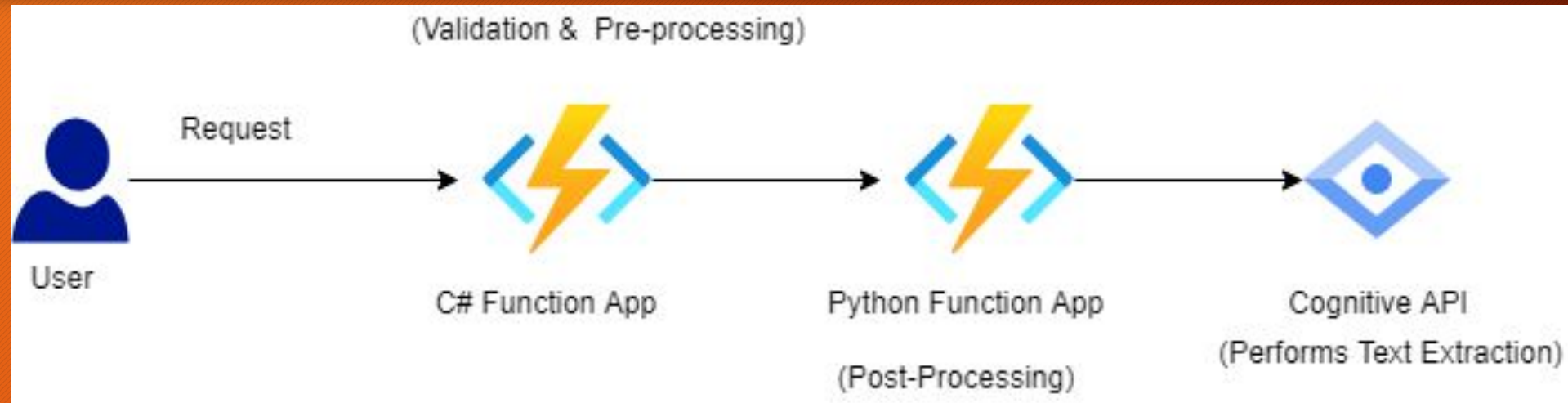
Post-Processing:

- Post-processing is performed in python code after response is received from Cognitive API.
- Cognitive API will return list of words that it has extracted from image and the vertices of its bounding box.

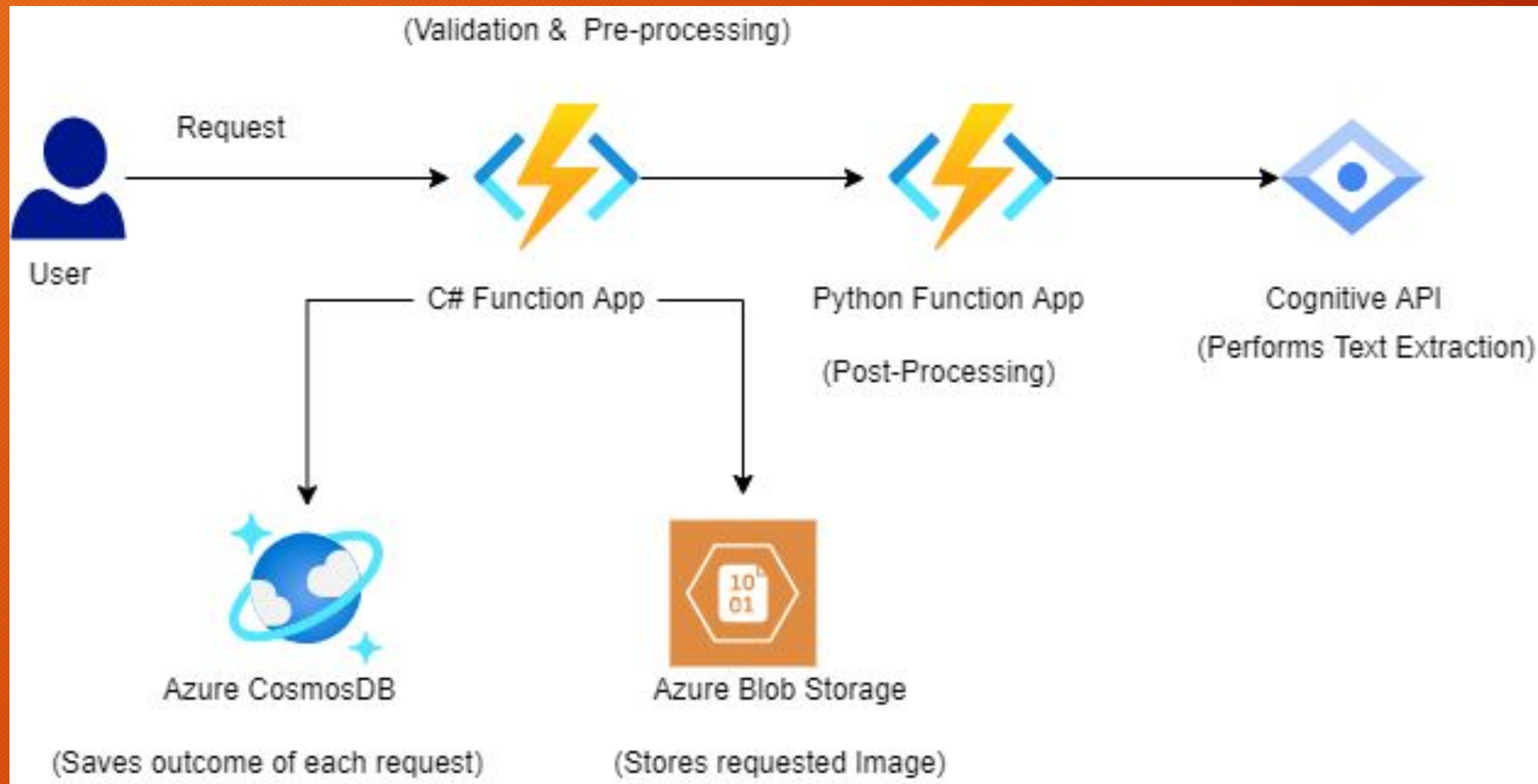


- Python code contains a logic for sorting these words in the sense that it resembles to the format of original image.
- Then we identify the key-words & extract information that is present in its proximity.

Execution Flow



2) Adding Azure CosmosDB tables & Blob storage



3) Added NACH Feature:

- NACH is National Automated Clearing House document.
- It is important document just like Aadhar, PAN, Passport etc.
- NACH form is used by customers to give the money-collection agency the right to debit his account at certain frequency.

POST

http://localhost:7074/api/GetDocumentInfo

Params

Authorization

Headers (10)

Body ●

Pre-request Script

Te

Body

Cookies

Headers (4)

Test Results

Pretty

Raw

Preview

Visualize

Text ▾



```
1 {
2   "Data": {
3     "status": "Filled",
4     "RecognisedFormat": "NACH",
5     "Status": {
6       "Result": "Pass"
7     },
8     "START": "starttime 0.0",
9     "OVERALLTIMETAKENBYPYTHON": " 0.0049877166748046875"
10    "Date": "3 0 0 2 2 0 2 0",
11    "UMRN": "KAS 2 3 5 0 3 9 7",
12    "Sponsar Bank Code": "CITI000PIGW",
13    "Utility Code": "CITI000020000000037",
14    "BankAccountNo": "3923567800196",
15    "WithBank": "STATE BANK ",
16    "IFSC": " S B I N 3 9 0 2 6 2 0 ",
17    "MICR": "3 9 2 5 6 0 2 9 1",
18    "Amount": "TEN THOUSAND ONLY",
19    "Name": " ABINASH JAGADEY ",
20    "Email": "test @ gmail . com",
21    "MobileNo": "7809890650",
22    "Reference1": "REF39005921",
23    "Reference2": "SRT00396"
24  }
25 }
```

Photos - 4 Jpg.jpg



care HEALTH INSURANCE

UMRN KAS2350397 Date 30/02/2020

Sponsor Bank Code CITI000PIGW Utility Code CITI000020000000037

☒ Tick (✓)
☒ CREATE
☐ MODIFY
☐ CANCEL

I/We hereby authorize Care Health Insurance Limited to debit (tick✓) SB /CA /CC /SB-NRE /SB-NRO /Other

Bank a/c number 3923567800196

with Bank STATE BANK IFSC SBIN3902620 or MICR 392560291

an amount of Rupees TEN THOUSAND ONLY ₹ 10000

FREQUENCY ☐ Mthly ☐ Qtly ☐ H-Yrly ☐ Yrly ☒ As & when presented DEBIT TYPE ☐ Fixed Amount ☒ Maximum Amount

Reference 1 REF39005921 Phone No. 7809890650

Reference 2 SRT00396 Email ID test@gmail.com

I agree for the debit of mandate processing charges by the bank whom I am authorizing to debit my account as per the latest schedule of the charges of the bank.

PERIOD
From 02/06/1999
To 30/08/2020
Or ☒ Until Cancelled

1. ABINASH JAGADEY 3.

This is to confirm that the declaration has been carefully read, understood & made by me/us. I am authorizing the user entity/Corporate to debit my account. I have understood that I am authorized to cancel/amend this mandate by appropriately communicating the cancellation/amendment request to the user entity/Corporate or the bank where I have authorized the debit. (Formerly known as Reliance Health Insurance Company Limited)

Static Code Analysis & Performance Testing:

- 1) Fixed bugs, code-smells, duplications & security hot-spots using SonarQube and got clean report.
-> I was able to reduce code from ~7000 lines to ~1000 lines.
- 2) Tested both functionalities for 100 concurrent users using JMeter.
-> I received successful responses for all these requests & overall avg. performance is increased by ~15% in time.

Conclusion

- Prior to this internship, I did not have much experience with backend development. I learned new technologies and applied it successfully.
- This internship provided me the best opportunity to explore, learn and to solve problems by myself.
- I got the hands-on experience to understand software requirements, develop the code, implement it, debug & test it - which is complete software development cycle.
- Overall great learning & working experience.

References:

- 1) <https://docs.microsoft.com/en-us/azure/azure-functions/>
- 2) <https://docs.microsoft.com/en-us/azure/cosmosdb/introduction>
- 3) <https://docs.microsoft.com/enus/azure/storage/blobs/storage-blobs-introduction>
- 4) <https://docs.microsoft.com/en-us/azure/apimanagement/api-management-key-concepts>
- 5) <https://azure.microsoft.com/en-in/services/cognitiveservices/computer-vision/>
- 6) www.postman.com
- 7) <https://www.sonarqube.org/>
- 8) <https://www.udemy.com/course/complete-csharpmasterclass/>
- 9) <https://www.youtube.com/watch?v=GhQdlIFylQ8>
- 10) <https://www.pluralsight.com/courses/azure-functionsfundamental>



Thank You.