**Experience:** 5+ years of hands-on experience on development using Python / ML models and libraries

**ML:**  Need ML engineers who can implement/design models related to image classification and clustering.  Hands on experience with

* Neural Nets( TF/PyTorch/ sklearn/scikit  with understanding of various types of neuralnets )
* supervised and unsupervised machine learning algorithms (like SVMs,  K-Means, kNN, decision trees, Genetic Algorithm)

**Image Processing:** Needs hands-on experience with OpenCV or any equivalent image library.

* Sound understanding of noise filters transforms, contours, image segementation and templates.
* understanding of DevOps and background of C/C++ will be an ideal fit.

**NLP**:  Python NLP engineer with sound knowledge and hands-on experience of:

* Spacy and Rasa
* NeuralNets
* Machine Learning Models (text mining, classification and clustering )
* Experience with  Language translation models are preferable

Job Brief

("Python" and ("deep learning" or "NLP" and ("image processing" or "computer vision" or "tesseract" or "openCV" or "Open CV")))

Refine it to : (("Machine learning" or "ML Algorithm" or "Machine learning Algorithm"

**Top 3 Skills**

Top Skills: Java and or Python, ML / ML Algorithms, DL, NLP, Image Processing

Good to Have : Computer Vision, Redis, Elastic search, Kibana, Django/Flask, API development

Role: Machine Learning Engineer who can come up with lot of maturity in managing and owing the components (part of projects) from Scratch.

Project: This work is coming related to the innovation lab of HSBC. The POC is completed. Now the budgets are approved, and the project must be started to process the data which comes in the form of PDF, Images etc.

No of positions: 2

Project name : OCR (Optical Character Recognition)

Deep Learning on CNN/RNN for text recognition from image, Python 3.x, boosting and classification algorithms, NLP.

Good to have knowledge of : In memory databases like Redis, Elastic search, Kibana, Django/Flask, API development

Agile Knowledge

Shift: General shift / UK shift

Why is the Position Open?

Role: Machine Learning Engineer who can come up with lot of maturity in managing and owing the components (part of projects) from Scratch.

Project: This work is coming related to the innovation lab of HSBC. The POC is completed. Now the budgets are approved, and the project must be started to process the data which comes in the form of PDF, Images etc.

This is part of Digital Transformation under WSIT - Business Services.

W.R.T this team and project, the EVP is that the resource will handle the entire module and develop the project from scratch. Also, this is a ML project, the candidate will get to do lot more research since this OCR (Optical Character Recognition) project is used to process the data saved in the form or PDF, images or other formats and structure it into 1 common format.

Employee Value Proposition

HSBC is the only Financial institute which is investing so much in IT transformation. They are completely transforming the existing legacy systems to new systems.

Now there is also a division called “Innovation Lab” which is more of a R&D division of HSBC and develops new products to optimize the performance of HSBC towards its stakeholders.

Develop new products for HSBC internal use.

W.R.T this team and project, the EVP is that the resource will handle the entire module and develop the project from scratch. Also, this is a ML project, the candidate will get to do lot more research since this OCR projected is used to process the data saved in the form or PDF, images or other formats and structure it into 1 common format.

Is the best Financial Institute to be a part of since there is no difference between FTC & FTE. Everyone working in the team get the same challenging work, same trainings etc. to ensure that the product is performing well.

Every candidate is an individual contributor and takes ownership of their work.

Candidates will get a chance to work on agile and Devops environment.

HSBC is following IT matured model and not typical banking process.

Once candidate onboards , they gets 2-3 weeks training about the project and process of HSBC.

Candidates will get to solve complex business challenges and sensitive systems and will get a chance to work on large data size.

HSBC has fearless work culture where they will get a chance to work free hand under a fearless culture.

Business Challenge this Hire Helps Solve and Business Impact if the Role is Filled/Not Filled

The business challenge the team or the resource will solve is they are building a pattern to read the documents via image, pdf, text and automate it so that as a part of digitilaztion the business can have the clear bifuraction of the KYC and investment data.

The business / stakeholders will take necssary decision based on these data and reports on their client base and investment plans / options / how can the application support much more users in the digital world.

This project is same as OCR in MOT ;

Work Environment (Including Culture of Hiring Manager, Team, and Company) and WH&S (if applicable)

Culture of HSBC is always same with each team / manager. They look for resources with low ego,

Self-critical, who has ownership quality, who takes accountability of their deliverables, dynamic in nature and ready to work on any new tools / technologies as per the project needs.

They look for people who are open for feedbacks, open to learn and who think out of box.

The team is more Flexible and Free hand. The resource can own the module and use the best way to deliver the bug less product. The team is more experimental and innovative. The resources should be more proactive and open to learn.

Qualifications and Experience Required

People from good ML project background, Strong Java or Python developer who has done some POC with ML or some certification and have that skill and knowledge to work independently.

Experience Range : 2-4 years

Performance Expectations and Measurements

On project delivery and behavior.

Learnability

Accountability

Ownership & Proactive approach

The performance is evaluated based on the work and behavior.

Also, the resource should be self-learner, proactive & energetic.

**Generic requirement** - Require self-motivated individuals who can use strong programming skills. We would expect the candidate to follow right programming practices at all times. Candidate should be able to self-learn and quickly apply it to the deliverables.

**Role 1** : Developers to build prod-ready models that will help with content extraction and classification from images and text based sources.

**Must have**;

Strong knowledge of Python and algorithms

Well versed with Image Processing  (OpenCV)

Understands tesseract or be able to build OCR based models

Hands-on experience with Images and pattern recognition for text extraction from images.

**Good to have**:

Understands CI/CD pipelines like Jenkins, ansible and DevOps

Experience with  ML frameworks like michelangelo, etc.

Experience in Django, flask or Tornado.

Hands-on experience with Spacy/RASA

**Role 2**: Developers to build machine learning based SaaS service for advanced content management solutions.

**Must Have**:

Strong experience in building Machine learning models

Feature engineering.

Hands-on or deep knowledge of neural networks

Basic knowledge of image processing

Strong knowledge of Python and algorithms

**Good to have**:

Hands-on experience with BERT,AL-BERT, etc

Understanding of Deep learning

Hands-on experience of NLP models

Hands-on experience of  computer vision models

Understands CI/CD pipelines like Jenkins, ansible.

Understands working in devops environment

**Probable Questions for Round 1 :**

Duration of each round: 1hour 30minutes

Mode of Interview: zoom meeting

Interviewer: viswanatha.srinivas.pothukuchi

Topics covered in the interview:

1) code for matrix

2) code for heap sory

Questions you were not able to answer: code for Matrix was not fully executed.

Duration of each round: 1 hour

Mode of Interview: Zoom Meeting

Interviewer:  Viswanatha Srinivas POTHUKUCHI

Topics covered in the interview:

1) Numpy Based Technical Round

2) Matrix Related Question

Duration of each round: 1 hour and 10 mins

Mode of Interview: Video Conferencing(Zoom).  
Interviewer: Viswanatha Srinivas POTHUKUCHI

Topics covered in the interview:

1) Profile Overview

2) Matrix based questions.

Duration of each round: 35 - 40 mins

Mode of Interview: Video Conferencing(Zoom).  
Interviewer: Viswanatha Srinivas POTHUKUCHI

Topics covered in the interview:

1) Profile Overview

2) Process followed in Your Company for developing and deploying a model.

3) Basic Machine Learning question and algorithms.

4) Overview of Projects completed in the past and questions in the past. Technology stack and Hardware used to accomplish the goal.

5) Details of the projects in Deep Learning and GANS.

Duration of each round: 1 hour and 10 mins

Mode of Interview: Video Conferencing(Zoom).  
Interviewer: Viswanatha Srinivas POTHUKUCHI

Topics covered in the interview:

1) Profile Overview

2) Matrix based questions.

Questions asked in the interview:

1. Write a function that accepts two parameters n,m, create a matrix of size n\*m. The (0,0) element should start with 1 and the next elements should be incremented by 1.

2. Write a function to generate a matrix of size n,m. The centermost elements should be 1, as me move towards the outer elements,   
the value should increment by 1.  
For example. For a 3x3 matrix [ [2,2,2], [2,1,2], [2,2,2], ]   
For 4x4 Matrix [ [2, 2, 2, 2], [2, 1, 1, 2], [2, 1, 1, 2], [2, 2, 2, 2], ]  
For 6x6 Matrix [ [3, 3, 3, 3 ,3, 3] [3, 2, 2, 2, 2, 3] [3, 2, 1, 1, 2, 3] [3, 2, 1, 1, 2, 3] [3, 2, 2, 2, 2 ,3] [3, 3, 3, 3, 3 ,3] ]

For 6x3 Matrix [ [2, 2, 2] [2, 1, 2] [2, 1, 2] [2, 1, 2] [2, 1, 2] [2, 2, 2] ]

Duration: 1

Mode of Interview: Zoom

Interviewer: Vishwanathan

Python Coding round: questions on matrix

1.Write a function that accepts two parameters N,M. To create a matrix of size N x M. The (0,0) element should start at 1 and the next elements should be incremented by one.

2. Write another function to accept the output generated from previous function, sort all the rows with odd indices in the descending order.  (list indices starts with 0)

3.Write a function to generate a matrix of size n,m. The centermost elements should be 1, as me move towards the outer elements, the value should increment by 1.

In one to one round the main focus was on my projects, details about my project, what I did and how I did.

Duration: 1

Mode of Interview: Zoom

Interviewer: Vishwanathan

Python Coding round: questions on matrix

1.Write a function that accepts two parameters N,M. To create a matrix of size N x M. The (0,0) element should start at 1 and the next elements should be incremented by one.

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3.Write a function to generate a matrix of size n,m. The centermost elements should be 1, as me move towards the outer elements, the value should increment by 1.

Questions:

1.

txt = 'welcome to python world'

Find the 1st and last occurrence of letter 'o'.

I wrote 1 program, she asked me to write better code if the string is huge and costly to iterate.

2.

id, name, salary

1,A,1000

2,B,2000

3,C,3000

4,D,4000

5,E,5000

This data needs to be stored in a file on the laptop and then read the data to print in salary, max salary and average salary.

3. Ever worked on Unix, and any knowledge regarding deployment.

Q1.Write a function to generate a matrix of size n,m.  
The centermost elements should be 1, as me move  
towards the outer elements,  
the value should increment by 1.  For example.  
  
For  a 3x3 matrix  
[  
[2,2,2],  
[2,1,2],  
[2,2,2],  
]  
For 4x4 Matrix  
[  
 [2, 2, 2, 2],  
 [2, 1, 1, 2],  
 [2, 1, 1, 2],  
 [2, 2, 2, 2],  
 ]  
For 6x6 Matrix  
[  
 [3, 3, 3, 3 ,3, 3]  
 [3, 2, 2, 2, 2, 3]  
 [3, 2, 1, 1, 2, 3]  
 [3, 2, 1, 1, 2, 3]  
 [3, 2, 2, 2, 2 ,3]  
 [3, 3, 3, 3, 3 ,3]  
]

Q2.Note: The matrix in the form of list of lists OR numpy Matrix is accepted  
    for all the following questions  
     
1.Write a function that accepts two parameters N,M.  
To create a matrix of size N x M. The (0,0) element should start at 1 and the next elements should be incremented by one.  
For example,  
if N =3, M=3.  Then the matrix that has to be generated will be:  
[[1,2,3],  
[4,5,6],  
[7,8,9] ].

Interviewer : Maitray Thacker

It went for about 50 minutes.

Ques:

1. Given a string, create a list with every character as an element of the list.

       Make it pythonic, a one liner code.

2. in = "this is a string"

    output = "this-is-a-string"

    Try to write a better 1 liner code using some inbuilt methods or list comprehension.

3. Given a string, remove all the duplicate characters from the string, eg: input = assessment, output should be = assessment

4. Do you have knowledge on server side or backend frameworks.

5. What are magic methods in python?

6. What methods need to be overridden in order to make our own iterator.

Interview was good and engaging, the interviewer was polite and understanding and made things easy to understand. Initially he asked about my work experience. Lastly i asked him about the role they are hiring for.

Overall it was a good learning experience.

1) Based on Matrix problem

For 4x4 Matrix [ [2, 2, 2, 2], [2, 1, 1, 2], [2, 1, 1, 2], [2, 2, 2, 2],

07-01-2020

Q1.Write a function to generate a matrix of size n,m.  
The centermost elements should be 1, as me move  
towards the outer elements,  
the value should increment by 1.  For example.   
  
For  a 3x3 matrix   
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[2,2,2],  
[2,1,2],  
[2,2,2],  
]  
For 4x4 Matrix  
[  
 [2, 2, 2, 2],  
 [2, 1, 1, 2],  
 [2, 1, 1, 2],  
 [2, 2, 2, 2],  
 ]  
For 6x6 Matrix  
[  
 [3, 3, 3, 3 ,3, 3]  
 [3, 2, 2, 2, 2, 3]  
 [3, 2, 1, 1, 2, 3]   
 [3, 2, 1, 1, 2, 3]  
 [3, 2, 2, 2, 2 ,3]   
 [3, 3, 3, 3, 3 ,3]   
]

Q2.Note: The matrix in the form of list of lists OR numpy Matrix is accepted   
    for all the following questions  
      
1.Write a function that accepts two parameters N,M.   
To create a matrix of size N x M. The (0,0) element should start at 1 and the next elements should be incremented by one.  
For example,  
if N =3, M=3.  Then the matrix that has to be generated will be:   
[[1,2,3],  
[4,5,6],  
[7,8,9] ].

8-01-2020

Normal Question python experience

As to implement predefine python function

Pandas question

DB joins

OOP

List Compression etc

Client: HSBC  
Interview date: 12/01/2021  
No of rounds of interview: 1  
Duration of each round: 1 HOUR  
Mode of Interview: zoom call  
Interviewer:   
Topics covered in the interview:   
1) Matrix based coding questions

There were 2 questions as below:

1. The matrix in the form of list of lists OR numpy Matrix is accepted for all the following questions

1.Write a function that accepts two parameters N,M. To create a matrix of size N x M. The (0,0) element should start at 1 and the next elements should be incremented by one.  
For example, if N =3, M=3.  Then the matrix that has to be generated will be:   
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2.Write a function to generate a matrix of size n,m. The centermost elements should be 1, as me move towards the outer elements, the value should increment by 1.  For example,

For  a 3x3 matrix   
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[2,2,2],  
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  [2, 2, 2, 2],  
  [2, 1, 1, 2],  
  [2, 1, 1, 2],  
  [2, 2, 2, 2],  
  ]  
For 6x6 Matrix  
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  [3, 3, 3, 3 ,3, 3]  
  [3, 2, 2, 2, 2, 3]  
  [3, 2, 1, 1, 2, 3]   
  [3, 2, 1, 1, 2, 3]  
  [3, 2, 2, 2, 2 ,3]   
  [3, 3, 3, 3, 3 ,3]

]