

# Project Report

<b>Qualification Name</b>	Professional Diploma in Data Science
<b>Module Name</b>	WSQ - Data Science Modelling Project (SF)

<b>Student name</b>	<b>Assessor name</b>	
Kartini Binte Sabtu	Toh Sze Chow Andrew	
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23April2025	24May2025	26/May2025

<b>Project title</b>	<b>Data Science Modelling Project</b>
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<b>Learner declaration</b>	
I certify that the work submitted for this assignment is my own and research sources are fully acknowledged.	
	
Student signature:	Date: 25May2025

Email me : tini.sk@gmail.com

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## Document Version History

Version Number	Effective Date of release	Details	Author
1.0	15 Nov 2024	Initial Creation	Ismayil Siyad
1.1	27 April 2025	Contents update	Kartini Binte Sabtu

## 1. Project Background

**ABC** Bank is a US based financial institutions operating in the United States. The bank offers a variety of financing solutions for small businesses, insurance, credit card, mutual fund investments, fixed deposits and loans for retail customers. On top of savings accounts with competitive interest rates, the bank provides easy access to funds on a range of digital banking tools. Such as link savings account to online and mobile banking to manage customer money on the go. With 24/7 customer support.

Customers can open multiple accounts, with basic account minimum balance from \$100. ABC Bank offers multi-factor authentication and data encryption. The option for customer to enable notifications for unusual activity. As security, the bank routinely updates security protocols to protect customer's accounts and personal information. Mobile banking allows for reset passwords on the login page.

A secure online banking for international transfers. With fees and exchange rates varies depend on destination and amount. Besides account access, transaction history, and fund transfers are offered in the app. It also features bill payments, investment tracking and quick customer support. Both on iOS and Android, secure and easy to use.

This project is part of enhancing ABC Bank's security and customer engagement. With proprietary software suite through Azure technologies. This includes developing a Fraud Detection model, Loan Predictor, Customer Segmentation, sentiment analysis, OCR for documents, and an FAQ chatbot. Fortify security with image recognition, optimize efficiency on email reviews responses. Aim is to create a customer-centric banking experience without compromising on security.

Apply modelling techniques for fraud detection, loan prediction, and customer segmentation. Also, image classification and automated question/answering chatbot with AI-driven tools. Using the Azure AI proprietary platform with Machine learning and deep learning applications. Samples of the activities are then evaluated. With outcomes scalable for operation which ensure models address security and customer engagement effectively.

## 2. Project Objective

Enhance Customer Service

- Automate responses with Chatbot for automated question/answering.
- Provide quick and consistent support with loans application/approval using AI-driven solutions.
- Fraud detection. This aims to identify features and model to detect fraud a valuable insight that can be used to suggest

#### Improve Operational Efficiency

- Streamline email processing and task allocation using text analytics.
- Enable faster issue resolution with automated insights.
- Text analysis of customer reviews. This aims to understand customer sentiment, identify areas of improvement, and respond to customer feedback more effectively.

#### Strengthen Security

- Implement AI-powered image analysis and monitoring systems.
- Proactively detect and respond to potential threats.
- Image classification for vehicle identification. This classification will help automate identification of weapons and suspicious persons.

#### Empower Decision-Making

- Provide actionable insights through data-driven AI models.
- Enable staff to focus on complex, value-added tasks.

### 3. Project Specifications

**D**ata management and Azure's cloud-based tools are required for this project.

- i. Github folders with datasets in png, csv and text formats for each activity are provided.
- ii. Azure's Technical environment on DP100 Lab access to Azure Blob Storage and Azure AI Service Resource workspace, Azure AI Vision, Azure Custom Vision, Azure Language Service Resource and the Azure chatbot and language analysis.
- iii. Project Report as pre-defined template, Postman API and Excel power query editor to transform Json files.

## 4. Project Tasks

### 4a. Activity 1

#### Project Planning and Management

ABC Bank aims to improve their service to customers at the same time improving their bottom. This comes in some form of profitability while juggling operation security and other risk assessment.

Several challenges can arise during the data science process, including data quality and availability, bias in data and algorithms, model overfitting and underfitting, model interpretability, and privacy and ethical considerations.

Detect fraudulent patterns in data which has information about credit card transactions

- Identify fraudulent credit card transaction

Predict the credit risks of different customers based on their financial records

- Predicting credit risk with logistic regression

Segment customers of the banks based on certain factors using the K-means clustering algorithm

- customer segmentation with K-Means clustering

Sentiment Analysis on customer emails

- Study and analyze the sentiments behind the messages in customer emails

#### User Persona Details

These details key users involved in the project, their roles, and the goals they aim to achieve. It also addresses their specific information needs and the challenges they may face during the project.

##### Audience:

- Retail and Corporate banking for loans approval

- Public relations, Wealth premium banker for email response and image classification

- Retail banking, treasury and security for image analysis

**Role:** Middle and upper management with authority to implement the services

**Goals:** Scalability at production

1. **Goal 1:** The documentations are accurate, actionable and in natural language to ensure clarity and traceability.

2. **Goal 2:** Evaluation will identify conflicts, inconsistencies, or gaps. Evaluation criteria, such as performance metrics or business impact address.

### Project Plan

Milestones and presentation for each of the Mentoring Session. To perform screenshots for all the tasks in project specification.

- Screenshots of the created Azure AI Service Resource setup, created in the Azure portal.
- Screenshots of the Azure AI Vision with the ABC bank dataset images.
- Screenshot of the Azure Custom Vision Project setup, created in the Azure Custom Vision portal.
- Screenshot of images, tagging with different banking products categories and training the model.
- Screenshot of the Azure Language Service Resource setup, created in the Azure Language Studio to analyze reviews.
- Screenshots of the Azure Language service setup, created to analyze text and create customer automated question/answering Chatbot.
- Screenshots of the HTML pages and REST API using Postman App, to send and review the response for trained models.
- Summary evaluation of usefulness of this be a service and improvements.
- Performance comparison between the tools applied and model performances.

This section provides an overview of the project plan, combining the timeline, key tasks, and resource allocation

Milestone	Task Name	Description	Start Date	End Date	Owner	Priority (MoSCoW) (Must-Have, Should-Have, Could-Have, Won't-Have)	Status
<b>Milestone 2</b>  <b>Vision Language Studio</b>	Task 6	Design and implement Azure AI Vision services image insights for marketing with API	24/04/2025	25/04/2025	Kartini Sabtu	Explore images to uncover insights and prepare for AI-Vision services for image insights	Completed
	Task 7	Utilize Azure AI Vision services for face image analysis	25/04/2025	26/04/2025	Kartini Sabtu	Explore images and prepare for AI-vision services for face image analysis	Completed

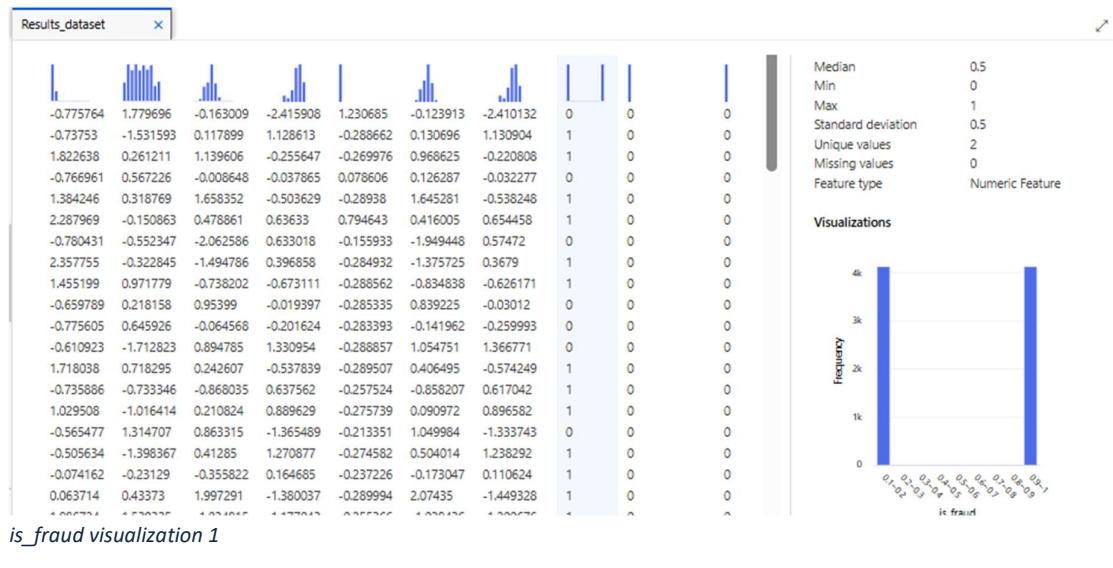
	Task 8	Implement an Optical Character Recognition (OCR) system, extract text from handwritten documents	27/04/2025	28/04/2025	Kartini Sabtu	Explore data to uncover insights and prepare for extracting text from handwritten documents	Completed
	Task 9	Design and implement image classification system for security with API	28/04/2025	29/04/2025	Kartini Sabtu	Explore use of AI-vision studio for image classification to optimize security	Completed
<b>Milestone 1</b>  <b>Data Science on Azure</b>	Task 1	Project Planning and Management	23/04/2025	09/05/2025	Kartini Sabtu	Formulate a project proposal	Completed
	Task 2	Develop a fraud detection model	29/04/2025	02/05/2025	Kartini Sabtu	Aggregate and clean data from diverse sources	Completed
	Task 3	Develop a loan predictor model	30/04/2025	01/05/2025	Kartini Sabtu	Explore data to uncover insights and prepare for machine learning	Completed
	Task 4	Design a customer segmentation model	01/05/2025	03/05/2025	Kartini Sabtu	Explore data to uncover insights and prepare for automated ML	Completed
	Task 5	Perform text classification	04/05/2025	06/05/2025	Kartini Sabtu	Explore data to uncover insights and prepare for deep learning	Completed
	Task 10	Implement Language service cognitive for text analytics on customer reviews emails	11/05/2025	13/05/2025	Kartini Sabtu	Explore data to implement analytics with Language service on customer reviews emails	Completed
	Task 11	Develop Language Service for customer automated question/answering	15/05/2025	17/05/2025	Kartini Sabtu	Explore Language Question Answering solution	Completed
	Task 12	Design and implement a FAQ chatbot	18/05/2025	20/05/2025	Kartini Sabtu	Use conversational language to create Chatbot	Completed

## 4b. Activity 2

### Develop a fraud detection model.

- Screenshot of the registered Tabular data asset

#### Fraud\_Dataset in ANNEXURE 5d dataset



### Explorative Data Analysis (EDA) about the fraud\_dataset.csv

#### Descriptive statistics

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8262 entries, 0 to 8261
Data columns (total 23 columns):
 #   Column           Non-Null Count  Dtype  
 --- 
 0   Unnamed: 0        8262 non-null    float64
 1   trans_date_trans_time 8262 non-null    object 
 2   cc_num            8262 non-null    float64
 3   merchant          8262 non-null    object 
 4   category          8262 non-null    object 
 5   amt               8262 non-null    float64
 6   first             8262 non-null    object 
 7   last              8262 non-null    object 
 8   gender            8262 non-null    object 
 9   street            8262 non-null    object 
 10  city              8262 non-null    object 
 11  state             8262 non-null    object 
 12  zip               8262 non-null    float64
 13  lat               8262 non-null    float64
 14  long              8262 non-null    float64
 15  city_pop          8262 non-null    float64
 16  job               8262 non-null    object 
 17  dob               8262 non-null    object 
 18  trans_num         8262 non-null    object 
 19  unix_time          8262 non-null    float64
 20  merch_lat          8262 non-null    float64
 21  merch_long         8262 non-null    float64
 22  is_fraud          8262 non-null    float64
dtypes: float64(11), object(12)
memory usage: 1.4+ MB
```

amt	
Mean	296.9802372
Standard Error	4.149530145
Median	87.5
Mode	21.78
Standard Deviation	377.1738018
Sample Variance	142260.0767
Kurtosis	5.250540242
Skewness	1.514164617
Range	5540.04
Minimum	1.01
Maximum	5541.05
Sum	2453650.72
Count	8262
Largest(1)	5541.05
Smallest(1)	1.01

1 df.tail()	
Unnamed:	e trans_date_trans_time cc_num merchant category int first last gender street ... lat long city_pop job dob trans_num unix_time merch_lat merch_long is_fraud
8257	282251.0 04-10-2020 22:28 4.880000e+18 fraud_Shaneh-Lehner personal_car 20 21 Ashley Cren F 6547 Walsh Plaza - Suite 691 30.2385 -90.8425 10076.0 Surveyor,rural practice 16-1977 50e2a98f88af8369d7ef54c8899b995a 1.380925e+09 31.103591 -90.545673 1.0
8258	205970.0 01-09-2020 05:24 1.800000e+14 fraud_Hocken-Luehwitz grocery_pos 289.49 Evan Santiago M 9552 Ford Ford Apt. 305 - 38.8590 -77.0097 20741.0 Histons buildings 14-1988 Inspector/conservation officer 221d7dc0ffeb884a7f973fe2ff85d 1.378019e+09 38.054349 -76.799112 1.0
8259	135590.0 07-08-2020 01:24 3.020000e+13 fraud_Shreiber-Berry shopping_pos 896.50 Theresa Powell F 478 Narsica Vista Suite 935 - 33.4044 -96.2238 4090.0 Sub 23-1977 0826e227950f54b5d524a0994a11bc52 1.375839e+09 33.653558 -66.236699 1.0
8260	40110.0 05-07-2020 12:54 4.090000e+18 fraud_Bogach-Wermann kids_pes 24.39 Jeffrey Vargas M 478 Alexander Mount - 34.3091 -78.3372 2290.0 Engineer,biomedical 07-1945 d7f74de59f2a71fffb3e2ed6995072 1.378029e+09 34.571652 -76.996408 0.0
8261	129306.0 04-08-2020 22:28 4.730000e+15 fraud_Kuphal-Bonatti misc_net 742.86 Mary Lewis F 118 Justin Extension - 30.8635 -87.7644 19090.0 Science writer 30-1929 745cf8d192c8f0257ad94edcd19d95 1.375655e+09 31.398897 -87.561314 1.0

5 rows × 23 columns

2 df.head()	
Unnamed:	e trans_date_trans_time cc_num merchant category int first last gender street ... lat long city_pop job dob trans_num unix_time merch_lat merch_long is_fraud
0	261407.0 25-09-2020 19:29 4.380000e+18 fraud_Baumbach-Hodkiewicz and Welsh shopping_pos 4.0 Thomas Jenkins M 93914 Gregory Ave - 37.7678 -121.1984 381459.0 Barista 03-1974 Bbd8a9e93c3c748ee7289e075de732d 1.380137e+09 37.989268 -122.115769 0.0
1	26231.0 30-09-2020 00:24 3.530000e+15 fraud_Bins-Rice get_transport 18.82 Lauren Moreno F 83719 Wilson Shore - 39.2240 -74.9942 \$26.0 Exercise physiologist 06-1940 ff7fbee1f917f1306f75159b8a2d 1.372552e+09 39.297454 -76.974855 1.0
2	65904.0 13-07-2020 22:48 3.540000e+15 fraud_Dutson, Green and Bashian shopping_pos 984.39 Christian Jones M 892 Solis Neck - 44.4477 -93.4525 5211.0 Chief Strategy Officer 27-1987 45af93ce096a441591eb51245794f 1.373756e+09 43.602685 -92.969891 1.0
3	65301.0 13-07-2020 19:37 3.510000e+15 fraud_Pacona-Bauch shopping_pos 7.72 Randy Murphy M 3356 Sarah Light - 38.5770 -90.5255 9269.0 Engineer, communications 26-2001 5e64d8ffcc2a47d5b585c71583b26018 1.373744e+09 39.274801 -90.459982 0.0
4	136025.0 08-08-2020 02:36 3.750000e+14 fraud_Bins, Balsterl and Beatty shopping_pos 819.05 Shannon Bell F 2918 David Spurs - 47.0999 -98.7270 346.0 Research officer, trade union 14-1976 d1680463b45aa927680sec76dc263054 1.375929e+09 47.079307 -97.195856 1.0

5 rows × 23 columns

3 df.info()	
Unnamed:	e trans_date_trans_time cc_num merchant category int first last gender street ... lat long city_pop job dob trans_num unix_time merch_lat merch_long is_fraud
count	8262.000000
unique	8262 8.242000e+03
top	NaN 690
freq	NaN 11

11 rows × 23 columns

4 df.info()	
Unnamed:	e trans_date_trans_time cc_num merchant category int first last gender street ... lat long city_pop job dob trans_num unix_time merch_lat merch_long is_fraud
count	8262.000000
unique	8262 8.242000e+03
top	NaN 690
freq	NaN 11

11 rows × 23 columns

5 df.describe()	
count	8262.000000
unique	NaN
top	NaN
freq	NaN
mean	4.415802e+17
std	8.6929-40489
min	16.000000
25%	82121.000000
50%	18343.800000
75%	23247.780000
max	209448.000000

11 rows × 23 columns

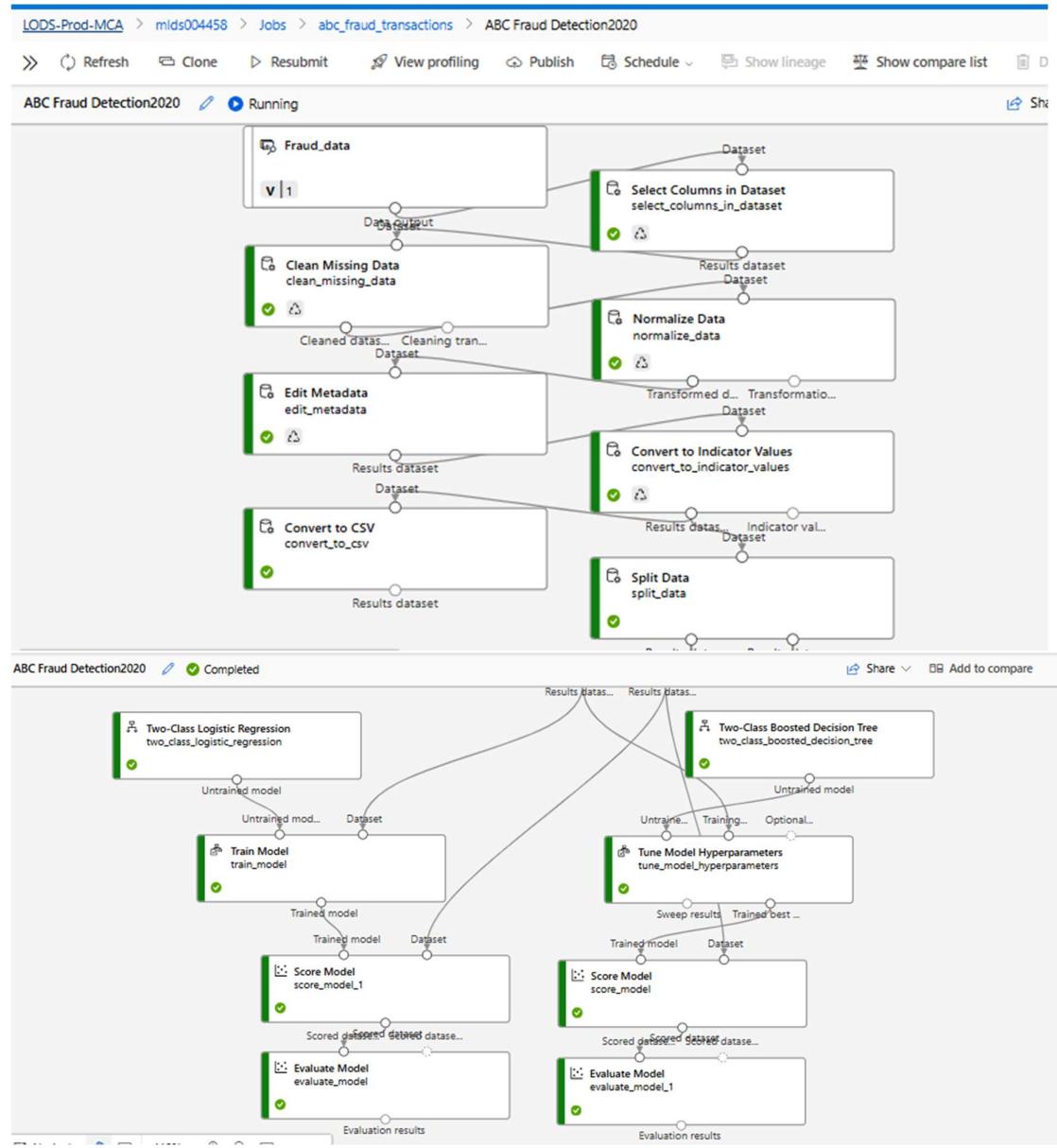
Column	Dtype
Unnamed: 0	float64
cc_num	float64
amt	float64
zip	float64
lat	float64
long	float64
city_pop	float64
unix_time	float64
merch_lat	float64
merch_long	float64
is_fraud	float64
trans_date_trans_time	object
merchant	object
category	object
first	object
last	object
gender	object
street	object
city	object
state	object
zip	object
lat	object
long	object
city_pop	object
job	object
dob	object
trans_num	object
unix_time	object
merch_lat	object
merch_long	object
is_fraud	object
trans_num	object
details	int64
details	int64

There are columns selected as features in this model. While others are removed for their less significant effect in the detection of fraud. Further explanation are offered below. Selected columns include merchant, category, gender, street, city, state and job as features category.

Deselected columns includes Unnamed, cc\_number, trans)date, first, last, dob and trans\_num. More support are given below for this selection choices. This Fraud Detection binary classification model are using the Dataset of ABC Bank Cardholders from June to October 2020.

Fraud_data		Version: 1 (latest)																																																																																																																																																																																																																																																																																																									
Details	Consumes	Explore	Models	Jobs																																																																																																																																																																																																																																																																																																							
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Number of columns: 23 Number of rows: 50 (of 8262)																																																																																																																																																																																																																																																																																																											
<table border="1"> <thead> <tr> <th>Unnamed...</th><th>trans_da...</th><th>cc_num</th><th>merchant</th><th>category</th><th>amt</th><th>first</th><th>last</th><th>gender</th><th>street</th><th>city</th><th>state</th><th>zip</th><th>lat</th><th>long</th><th>city_pop</th><th>job</th><th>dob</th><th>trans_num</th><th>unix_time</th><th>merch_lat</th><th>merch_l...</th><th>is_fraud</th></tr> </thead> <tbody> <tr><td>261407</td><td>2020 09 ...</td><td>4,580,000...</td><td>Fraud_Ban...</td><td>shopping...</td><td>4.4</td><td>Thomas</td><td>Jenkins</td><td>M</td><td>99914 Gr...</td><td>Oakland</td><td>CA</td><td>94619</td><td>37.788</td><td>-122.188</td><td>881459</td><td>Barista</td><td>1974 01 ...</td><td>8816089...</td><td>18801375...</td><td>37.989</td><td>122.116</td><td>0</td></tr> <tr><td>262311</td><td>2020 06 ...</td><td>1,510,000...</td><td>Fraud_Bin...</td><td>gas_trans...</td><td>18.82</td><td>Lauren</td><td>Moreno</td><td>F</td><td>83719 Wil...</td><td>Heskinville</td><td>NJ</td><td>8324</td><td>39.224</td><td>74.994</td><td>526</td><td>Exercise p...</td><td>1940 09 ...</td><td>4770001...</td><td>13725518...</td><td>39.297</td><td>74.975</td><td>1</td></tr> <tr><td>65904</td><td>2020 07 ...</td><td>1,540,000...</td><td>Fraud_Out...</td><td>shopping...</td><td>984.39</td><td>Christian</td><td>Johns</td><td>M</td><td>892 Soils ...</td><td>Lonsdale</td><td>MN</td><td>55046</td><td>44.448</td><td>95.425</td><td>5211</td><td>Chair Stra...</td><td>1967 01 ...</td><td>454M6Qo...</td><td>13717556...</td><td>43.608</td><td>92.97</td><td>1</td></tr> <tr><td>65301</td><td>2020 07 ...</td><td>1,510,000...</td><td>Fraud_Pac...</td><td>shopping...</td><td>7.72</td><td>Randy</td><td>Murphy</td><td>M</td><td>0598 Satu...</td><td>Bethles</td><td>MD</td><td>63021</td><td>38.577</td><td>90.526</td><td>9208</td><td>Engineer...</td><td>2007 07 ...</td><td>Seb4d9mc...</td><td>13717442...</td><td>93.275</td><td>90.46</td><td>0</td></tr> <tr><td>136025</td><td>2020 08 ...</td><td>1,755,000...</td><td>Fraud_Bin...</td><td>shopping...</td><td>819.05</td><td>Shannon</td><td>Bell</td><td>F</td><td>2918 Dov...</td><td>Georgato...</td><td>MN</td><td>66546</td><td>47.1</td><td>96.727</td><td>346</td><td>Research</td><td>1976 12 ...</td><td>G260846...</td><td>11795295...</td><td>47.079</td><td>97.196</td><td>1</td></tr> <tr><td>21721</td><td>2020 06 ...</td><td>1,580,000...</td><td>Fraud_Lab...</td><td>shopping...</td><td>1,159.89</td><td>Gregory</td><td>Wood</td><td>M</td><td>622 Robe...</td><td>Akron</td><td>OH</td><td>44307</td><td>41.07</td><td>81.549</td><td>272184</td><td>Call cent...</td><td>1964 01 ...</td><td>RankB0t...</td><td>13724575...</td><td>40.763</td><td>81.318</td><td>1</td></tr> <tr><td>32993</td><td>2020 07 ...</td><td>4,820,000...</td><td>Fraud_Tra...</td><td>misc_pos...</td><td>2.64</td><td>Christopher...</td><td>Farnell</td><td>M</td><td>97070 An...</td><td>Haines City</td><td>FL</td><td>33844</td><td>28.076</td><td>81.593</td><td>33804</td><td>Exercise p...</td><td>1991 01 ...</td><td>9274c59...</td><td>13727760...</td><td>28.61</td><td>82.379</td><td>0</td></tr> <tr><td>215499</td><td>2020 09 ...</td><td>341,000,000...</td><td>Fraud_Kin...</td><td>shopping...</td><td>1,186.21</td><td>Mario</td><td>Johns</td><td>M</td><td>62190 Mi...</td><td>Brisson</td><td>GA</td><td>39625</td><td>89.979</td><td>84.737</td><td>1461</td><td>Engineer...</td><td>1935 09 ...</td><td>c095646...</td><td>13781330...</td><td>31.558</td><td>85.183</td><td>1</td></tr> <tr><td>152858</td><td>2020 08 ...</td><td>1,580,000...</td><td>Fraud_Mar...</td><td>shopping...</td><td>845.81</td><td>Beth</td><td>Lambert</td><td>F</td><td>6447 Joh...</td><td>Rosevill</td><td>OK</td><td>73564</td><td>84.847</td><td>98.984</td><td>551</td><td>Amnesty ...</td><td>1970 09 ...</td><td>Mac4d84t...</td><td>13764331...</td><td>34.337</td><td>98.356</td><td>1</td></tr> <tr><td>52458</td><td>2020 07 ...</td><td>2,210,000...</td><td>Fraud_Hin...</td><td>grocery_n...</td><td>48.14</td><td>Thomas</td><td>Hale</td><td>M</td><td>949 Smit...</td><td>Czernovia</td><td>WI</td><td>53124</td><td>41.499</td><td>90.28</td><td>136</td><td>Occupant...</td><td>1964 11 ...</td><td>7054749...</td><td>13735565...</td><td>42.918</td><td>90.411</td><td>0</td></tr> <tr><td>61296</td><td>2020 07 ...</td><td>6,010,000...</td><td>Fraud_The...</td><td>kids_pets...</td><td>4.46</td><td>Kathryn</td><td>Smith</td><td>F</td><td>19838 To...</td><td>Rocky Mo...</td><td>MO</td><td>65072</td><td>88.291</td><td>92.706</td><td>1847</td><td>Tax inspe...</td><td>1968 10 ...</td><td>Na1636off...</td><td>13736556...</td><td>37.897</td><td>91.492</td><td>0</td></tr> <tr><td>112627</td><td>2020 07 ...</td><td>18,200,000...</td><td>Fraud_The...</td><td>entertain...</td><td>66.57</td><td>Jesse</td><td>Roberts</td><td>M</td><td>8415 Vau...</td><td>Acworth</td><td>NH</td><td>3601</td><td>41.196</td><td>72.3</td><td>477</td><td>Naval arr...</td><td>1968 04 ...</td><td>f2dbd02d...</td><td>13751941...</td><td>44.045</td><td>71.835</td><td>0</td></tr> </tbody> </table>	Unnamed...	trans_da...	cc_num	merchant	category	amt	first	last	gender	street	city	state	zip	lat	long	city_pop	job	dob	trans_num	unix_time	merch_lat	merch_l...	is_fraud	261407	2020 09 ...	4,580,000...	Fraud_Ban...	shopping...	4.4	Thomas	Jenkins	M	99914 Gr...	Oakland	CA	94619	37.788	-122.188	881459	Barista	1974 01 ...	8816089...	18801375...	37.989	122.116	0	262311	2020 06 ...	1,510,000...	Fraud_Bin...	gas_trans...	18.82	Lauren	Moreno	F	83719 Wil...	Heskinville	NJ	8324	39.224	74.994	526	Exercise p...	1940 09 ...	4770001...	13725518...	39.297	74.975	1	65904	2020 07 ...	1,540,000...	Fraud_Out...	shopping...	984.39	Christian	Johns	M	892 Soils ...	Lonsdale	MN	55046	44.448	95.425	5211	Chair Stra...	1967 01 ...	454M6Qo...	13717556...	43.608	92.97	1	65301	2020 07 ...	1,510,000...	Fraud_Pac...	shopping...	7.72	Randy	Murphy	M	0598 Satu...	Bethles	MD	63021	38.577	90.526	9208	Engineer...	2007 07 ...	Seb4d9mc...	13717442...	93.275	90.46	0	136025	2020 08 ...	1,755,000...	Fraud_Bin...	shopping...	819.05	Shannon	Bell	F	2918 Dov...	Georgato...	MN	66546	47.1	96.727	346	Research	1976 12 ...	G260846...	11795295...	47.079	97.196	1	21721	2020 06 ...	1,580,000...	Fraud_Lab...	shopping...	1,159.89	Gregory	Wood	M	622 Robe...	Akron	OH	44307	41.07	81.549	272184	Call cent...	1964 01 ...	RankB0t...	13724575...	40.763	81.318	1	32993	2020 07 ...	4,820,000...	Fraud_Tra...	misc_pos...	2.64	Christopher...	Farnell	M	97070 An...	Haines City	FL	33844	28.076	81.593	33804	Exercise p...	1991 01 ...	9274c59...	13727760...	28.61	82.379	0	215499	2020 09 ...	341,000,000...	Fraud_Kin...	shopping...	1,186.21	Mario	Johns	M	62190 Mi...	Brisson	GA	39625	89.979	84.737	1461	Engineer...	1935 09 ...	c095646...	13781330...	31.558	85.183	1	152858	2020 08 ...	1,580,000...	Fraud_Mar...	shopping...	845.81	Beth	Lambert	F	6447 Joh...	Rosevill	OK	73564	84.847	98.984	551	Amnesty ...	1970 09 ...	Mac4d84t...	13764331...	34.337	98.356	1	52458	2020 07 ...	2,210,000...	Fraud_Hin...	grocery_n...	48.14	Thomas	Hale	M	949 Smit...	Czernovia	WI	53124	41.499	90.28	136	Occupant...	1964 11 ...	7054749...	13735565...	42.918	90.411	0	61296	2020 07 ...	6,010,000...	Fraud_The...	kids_pets...	4.46	Kathryn	Smith	F	19838 To...	Rocky Mo...	MO	65072	88.291	92.706	1847	Tax inspe...	1968 10 ...	Na1636off...	13736556...	37.897	91.492	0	112627	2020 07 ...	18,200,000...	Fraud_The...	entertain...	66.57	Jesse	Roberts	M	8415 Vau...	Acworth	NH	3601	41.196	72.3	477	Naval arr...	1968 04 ...	f2dbd02d...	13751941...	44.045	71.835	0
Unnamed...	trans_da...	cc_num	merchant	category	amt	first	last	gender	street	city	state	zip	lat	long	city_pop	job	dob	trans_num	unix_time	merch_lat	merch_l...	is_fraud																																																																																																																																																																																																																																																																																					
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- Screenshot of the Designer Pipeline

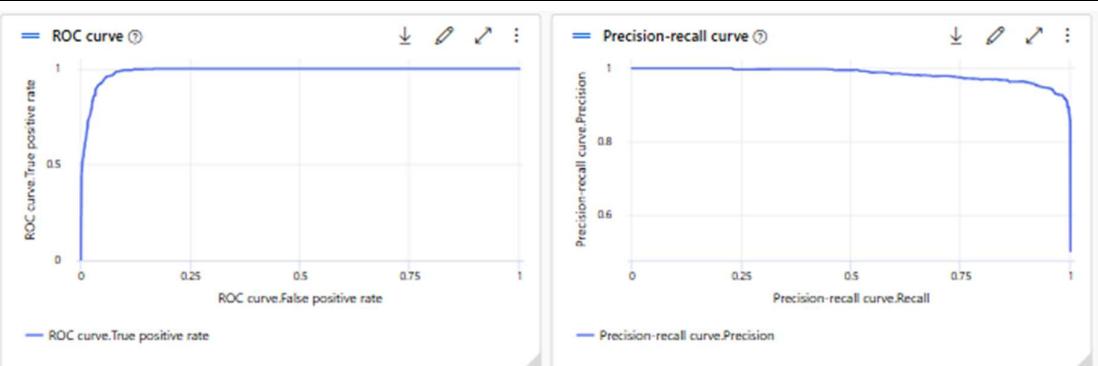


- Evaluation Results of the models

**A. Two Class Logistic Regression**

**B. Two Class Boosted Decision Tree**

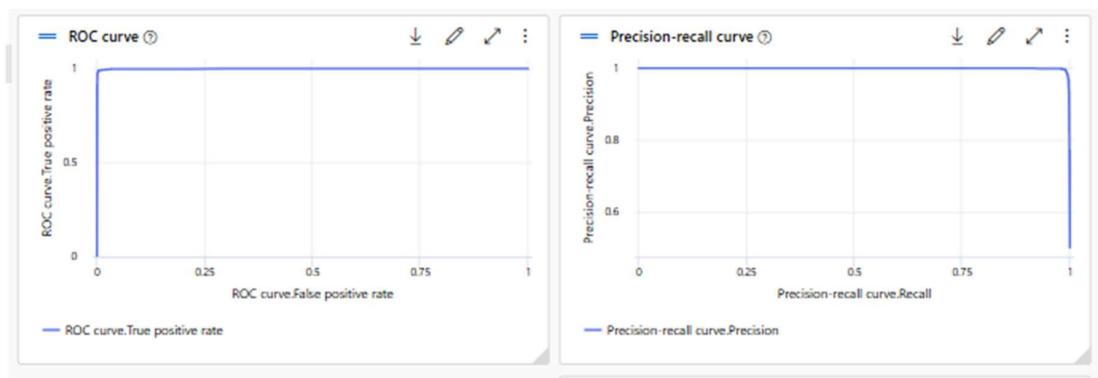
Two Class Logistic Regression	Two Class Boosted Decision Tree
Accuracy: 94.59%	Accuracy: 98.87%
AUC: 98.67%	AUC: 99.93%
F1 Score: 94.83%	F1 Score: 98.88%
Precision: 90.77%	Precision: 98.40%
Recall: 99.27%	Recall: 99.35%



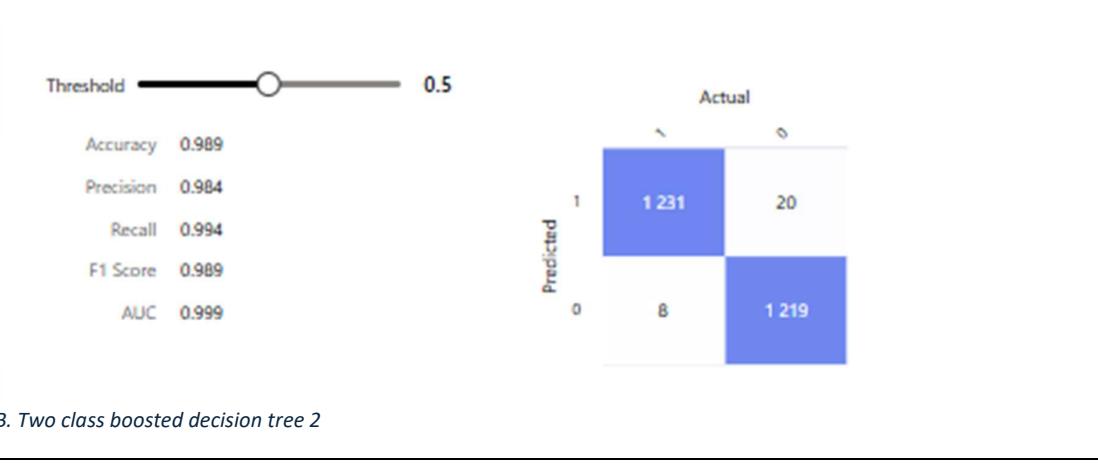
A. Two class logistic regression 1



A. Two class logistic regression 2



B. Two class boosted decision tree 1



B. Two class boosted decision tree 2

Initial preprocessing of data with EDA (Explorative Data Analysis) output shown below. Subsequent processing after preprocessing is to Implement Feature Engineering, Train Machine Learning Model using suitable binary classification algorithms and Evaluate Model Performance with metrics like recall, precision, F1-Score.

First finding is with location of detected fraud cases. There are 10% and 5% cases happening in New York and Texas respectively. This percentage is sum of amount that is compromised to the bank from the grand total. So we keep the columns that explains street, city and state.

Sum of amt	Column Labels	Value of Risk Top 12 State with 1 Fraud, 0 Non-fraud		
		0	1 Percentage Total	Grand Total
NY	0.72%	9.56%	10.28%	252,255
TX	0.75%	4.70%	5.45%	133,701
KY	0.25%	4.23%	4.48%	109,911
AL	0.24%	4.00%	4.25%	104,224
WI	0.32%	3.95%	4.27%	104,890
MO	0.33%	3.79%	4.12%	101,180
GA	0.26%	3.56%	3.82%	93,807
NM	0.11%	3.37%	3.48%	85,327
PA	0.68%	3.27%	3.95%	96,839
MN	0.30%	3.25%	3.56%	87,311
IL	0.36%	2.85%	3.21%	78,754
VA	0.20%	2.53%	2.74%	67,110
<b>Grand Total</b>	<b>11.34%</b>	<b>88.66%</b>	<b>100.00%</b>	<b>2,453,651</b>

Second finding is on demographic of bank customer being Male or Female. Even though Female count for more incidence, the sum of amount is higher on the Male. So their gender as well as job is supposed to provide more insights.

Count of amt	Column Labels	Value of Risk between demographic Female to Male		
		Count of amount		
Row Labels	F	M	Grand Total	Column Labels
0	2,203	1,928	4,131	F 153,495 M 124,826 Grand Total 278,322
1	2,278	1,853	4,131	1,069,194 1,106,136 2,175,329
<b>Grand Total</b>	<b>4,481</b>	<b>3,781</b>	<b>8,262</b>	<b>1,222,689 1,230,962 2,453,651</b>

Third finding is the breakdown between 0-NO and 1-YES cases, by count they seem evenly spread. The value of risk with cases of fraud in amount is substantially higher. This require more insights about the category. Where shopping online shows to be leading at 40%.

Row Labels	Count of amt	Value of Risk between 1 Fraud, 0 Non-fraud	
		Count of amount	Sum of amount
0	4,131		278,321
1	4,131		2,175,329
<b>Grand Total</b>	<b>8,262</b>		<b>2,453,651</b>

	Value of Risk by category with 1 Fraud, 0 Non-fraud			
	Sum of amount			
Sum of amt	Column Labels			
Row Labels	0	1	Grand Total	Grand Total
entertainment	0.73%	2.65%	3.38%	83,018
food_dining	0.60%	0.61%	1.20%	29,558
gas_transport	1.00%	0.14%	1.14%	27,857
grocery_net	0.28%	0.03%	0.31%	7,665
grocery_pos	1.99%	11.43%	13.42%	329,334
health_fitness	0.63%	0.10%	0.73%	17,931
home	0.95%	1.28%	2.22%	54,585
kids_pets	0.95%	0.11%	1.07%	26,172
misc_net	0.57%	16.28%	16.85%	413,529
misc_pos	0.54%	1.47%	2.01%	49,273
personal_care	0.57%	0.14%	0.71%	17,543
shopping_net	1.28%	39.34%	40.63%	996,865
shopping_pos	0.92%	15.04%	15.96%	391,684
travel	0.33%	0.02%	0.35%	8,635
<b>Grand Total</b>	<b>11.34%</b>	<b>88.66%</b>	<b>100.00%</b>	<b>2,453,651</b>

Fourth finding is by age demographics of customer. Between 65 – 79 years old takes on larger fraud amount compared to the group in 35 – 50 years old.

Fraud cases average	1	
>80 Years old	514	224620/437
65 - 79 Years old	595	352767/593
51 - 64 Years old	548	681674/1243
35 - 50 Years old	490	645196/1317
20 - 34 Years old	501	271073/541

Value of Risk by age demographics 1 Fraud, 0 Non-fraud							
	Count of amount		Sum of amount				
Ages	0	1	Grand Total	Ages			
>80 Years old	351	437	788	>80 Years old	20,480	224,620	245,100
65 - 79 Years old	627	593	1,220	65 - 79 Years old	36,733	352,767	389,500
51 - 64 Years old	981	1,243	2,224	51 - 64 Years old	62,733	681,674	744,407
35 - 50 Years old	1,475	1,317	2,792	35 - 50 Years old	106,803	645,196	751,999
20 - 34 Years old	697	541	1,238	20 - 34 Years old	51,572	271,073	322,645
	4,131	4,131	8,262		278321.5	2175329.22	2,453,651

Explanations				
<p>The existing monitoring systems, needs to keep up with sophistication of fraudulent tactics that bank faces in identifying cases. These datasets are from last quarters of five months operation in 2020, where online transactions are spill over from Work from home. As elderly customer shows a higher percentage of users to be fraud prone. Then ABC Bank can introduce relationship program to build trust and improve customer confidence.</p>				
<p>This model is suitable for the bank to put in production. From the metrics evaluations, these are categorical features that is important in assessment as part of the bank fraud detection. More steps can be introduced for safety of the organization. A journey of customer segmentation being one of them. Once implemented categorize customers into distinct groups</p>				

based on shared characteristics, which supports personalized service delivery and targeted marketing efforts. ABC Bank broader insights will capture nuance patterns in customer behavior. All are part of grouping within customer data that could drive strategic business decisions.

Thus, optimizing its marketing, product offerings, and customer engagement.

e & oe

### 4c. Activity 3

#### Develop a loan predictor model in Azure.

- Screenshot of the registered Tabular data asset

**Microsoft.MachineLearningServices | Overview**

Your deployment is complete

Deployment name: Microsoft.MachineLearningServ... Start time: 5/14/2025, 5:56:43 PM  
Subscription: MOC Subscription-1d05077708 Correlation ID: fede9683-5e32-44fe-87ad-0981c7f9f523  
Resource group: mlds004458

**Deployment details**

Resource	Type	Status	Operation details
mlds004458	Microsoft.MachineLearni...	OK	<a href="#">Operation details</a>
mlds0044588902650822	Microsoft.Insights/comp...	OK	<a href="#">Operation details</a>
mlds0044585391851702	Microsoft.OperationalIns...	OK	<a href="#">Operation details</a>
mlds0044580759647794	Microsoft.KeyVault/vaults	OK	<a href="#">Operation details</a>
mlds0044588576773624	Microsoft.Storage/storage...	OK	<a href="#">Operation details</a>

**Next steps**

Work with your models in Azure Machine Learning Studio

The Azure Machine Learning studio is a web app where you can build, train, test, and deploy ML models. Learn how to start working or learn more about the Azure Machine Learning studio?

**Compute**

The "Kubernetes clusters" tab is now where you can access previous versions of "Inference clusters" (also known as "AKS clusters") and "attached Kubernetes" compute types all using those types. Learn more about Kubernetes clusters.

**Compute instances**   **Compute clusters**   **Kubernetes clusters**   **Attached computes**   **Serverless instances**

Choose from a selection of CPU or GPU Instances preconfigured with popular tools such as VS Code, JupyterLab, Jupyter, and RStudio, ML packages, deep learning frameworks, and more.

**+ New**   **Refresh**   **Start**   **Stop**   **Restart**   **Schedule and idle shutdown**   **Delete**   **Reset view**

**Search**

Name	State	Idle shutdown	Applications
instance mlds004458	Running	1 hour	JupyterLab Jupyter VS Code (Web)

LODS-Prod-MCA > mlds004458 > Data > Loan

**Loan** Version: 1 (latest)

Details Consume Explore Models Jobs

Profile: This is the quick profile generated by the top 10,000 rows. Please generate profile to view the schema and summary statistics for full data.

Refresh Generate profile

Preview Profile

Number of columns: 36 Number of rows: First 50

Applica...	Age	Annual...	CreditS...	Employ...	Educati...	Experi...	LoanA...	LoanD...	Marital...	Numbe...	Home...	Monthl...	CreditC...	Numbe...	Numbe...
2018-04...	37	44000	539	Employed	High Sc...	13	28714	60	Married	3	Rent	457	0.414	3	1
2018-10...	50	22787	627	Employed	High Sc...	25	20061	60	Married	0	Own	328	0.356	3	1
2018-12...	48	15248	515	Employed	High Sc...	27	19403	36	Married	0	Mortgage	212	0.163	3	1
2019-02...	40	81906	456	Employed	High Sc...	18	76598	36	Married	0	Mortgage	447	0.457	3	1
2019-10...	31	33605	558	Employed	High Sc...	9	26551	36	Married	5	Rent	410	0.319	3	1
2021-07...	26	96075	581	Employed	High Sc...	4	38708	36	Married	1	Rent	900	0.321	3	1
2022-09...	58	49493	639	Employed	High Sc...	18	31671	72	Married	1	Rent	425	0.386	3	1
2023-10...	37	18182	583	Employed	High Sc...	18	21201	72	Married	2	Rent	562	0.249	3	1
2024-08...	52	70016	574	Employed	High Sc...	30	20323	120	Married	2	Mortgage	434	0.085	3	1

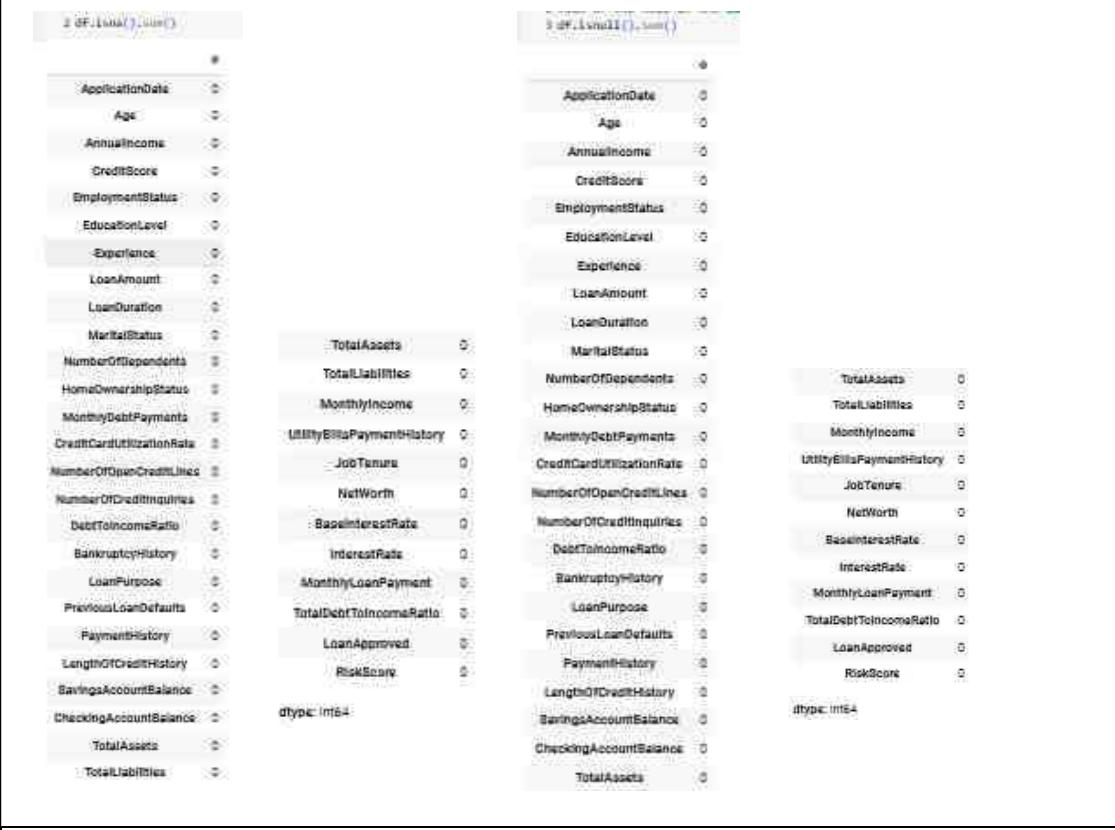
```
2 df.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 20000 entries, 0 to 19999
Data columns (total 36 columns):
 #   Column           Non-Null Count  Dtype  
--- 
 0   ApplicationDate  20000 non-null   object 
 1   Age              20000 non-null   int64  
 2   AnnualIncome     20000 non-null   int64  
 3   CreditScore      20000 non-null   int64  
 4   EmploymentStatus 20000 non-null   object 
 5   EducationLevel   20000 non-null   object 
 6   Experience       20000 non-null   int64  
 7   LoanAmount        20000 non-null   int64  
 8   LoanDuration      20000 non-null   int64  
 9   MaritalStatus     20000 non-null   object 
 10  NumberOfDependents 20000 non-null   int64  
 11  HomeOwnershipStatus 20000 non-null   object 
 12  MonthlyDebtPayments 20000 non-null   int64  
 13  CreditCardUtilizationRate 20000 non-null   float64
 14  NumberOfOpenCreditLines 20000 non-null   int64  
 15  NumberOfCreditInquiries 20000 non-null   int64  
 16  DebtToIncomeRatio 20000 non-null   float64
 17  BankruptcyHistory 20000 non-null   int64  
 18  LoanPurpose       20000 non-null   object 
 19  PreviousLoanDefaults 20000 non-null   int64  
 20  PaymentHistory    20000 non-null   int64  
 21  LengthOfCreditHistory 20000 non-null   int64  
 22  SavingsAccountBalance 20000 non-null   int64  
 23  CheckingAccountBalance 20000 non-null   int64  
 24  TotalAssets        20000 non-null   int64  
 25  TotalLiabilities   20000 non-null   int64  
 26  MonthlyIncome      20000 non-null   float64
 27  UtilityBillsPaymentHistory 20000 non-null   float64
 28  JobTenure          20000 non-null   int64  
 29  NetWorth           20000 non-null   int64  
 30  BaseInterestRate   20000 non-null   float64
 31  InterestRate        20000 non-null   float64
 32  MonthlyLoanPayment 20000 non-null   float64
 33  TotalDebtToIncomeRatio 20000 non-null   float64
 34  LoanApproved        20000 non-null   int64  
 35  RiskScore           20000 non-null   float64
dtypes: float64(9), int64(21), object(6)
memory usage: 5.5+ MB
```

**Figure Data Information**

**Explorative Data Analysis (EDA) about the Loan.csv dataset**

Figure Null and NA



df_head()																					
	ApplicationDate	Age	AnnualIncome	CreditScore	EmploymentStatus	EducationLevel	Experience	LoanAmount	LoanDuration	MaritalStatus	...	MonthlyIncome	UtilityBillsPaymentHistory	Debtors	NetWorth	BasisInterestRate	InterestRate	MonthlyLoanPayment	TotalDebtToIncomeRatio	LoanApproved	RiskScore
0	2019-01-01	48	35942	617	Employed	Master	22	13162	48	Married	...	3200.000000	0.524972	11	136928	0.199482	0.227990	410.85902	0.181077	0	49.0
1	2019-01-30	38	37705	620	Employed	Associate	18	26048	42	Single	...	3200.000000	0.508112	2	43609	0.207048	0.212077	794.04320	0.250882	0	82.0
2	2019-01-03	47	40724	570	Employed	Bachelor	25	17627	36	Married	...	2200.666667	0.572747	6	8202	0.217927	0.212548	664.06888	0.462197	0	82.0
3	2019-01-04	58	60504	548	Employed	High School	34	37938	94	Single	...	6787.000000	0.504155	8	99482	0.203599	0.200911	1047.80400	0.212086	0	54.0
4	2019-01-05	37	102314	594	Employed	Associate	17	9184	36	Married	...	8608.333333	0.541969	8	227019	0.197184	0.179992	3551.79140	0.272012	1	36.0

Rows: 26 Columns: 21

Figure Data Head

df_all()																					
	ApplicationDate	Age	AnnualIncome	CreditScore	EmploymentStatus	EducationLevel	Experience	LoanAmount	LoanDuration	MaritalStatus	...	MonthlyIncome	UtilityBillsPaymentHistory	Debtors	NetWorth	BasisInterestRate	InterestRate	MonthlyLoanPayment	TotalDebtToIncomeRatio	LoanApproved	RiskScore
0	2019-01-05	44	38180	847	Request	High School	19	24831	38	Married	...	2814.000000	0.530417	1	48837	0.214420	0.194875	498.54771	0.402711	0	48.0
1	2019-01-30	36	37705	620	Employed	Associate	18	26048	42	Single	...	3200.000000	0.508112	2	43609	0.207048	0.212077	794.04320	0.250882	0	82.0
2	2019-01-03	47	40724	570	Employed	Bachelor	25	17627	36	Married	...	2200.666667	0.572747	6	8202	0.217927	0.212548	664.06888	0.462197	0	82.0
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Rows: 26 Columns: 21

Figure Data Tail

df_all() [tail]																					
	ApplicationDate	Age	AnnualIncome	CreditScore	EmploymentStatus	EducationLevel	Experience	LoanAmount	LoanDuration	MaritalStatus	...	MonthlyIncome	UtilityBillsPaymentHistory	Debtors	NetWorth	BasisInterestRate	InterestRate	MonthlyLoanPayment	TotalDebtToIncomeRatio	LoanApproved	RiskScore
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Rows: 26 Columns: 21

Figure Data Statistical summary

1 rows x 26 columns

Figure Descriptive Statistic		Figure Value of Risk		
<b>LoanAmount</b>		Value of Risk between 1 Approved, 0 Declined		
Mean	24882.8678			
Standard Error	94.94620596			
Median	21914.5			
Mode	14075			
Standard Deviation	13427.42122			
Sample Variance	180295640.5			
Kurtosis	6.768543977			
Skewness	1.833687792			
Range	181058			
Minimum	3674			
Maximum	184732			
Sum	497657356			
Count	20000			
Largest(1)	184732			
Smallest(1)	3674			
Confidence Level(98.0%)	220.8956097			

- Screenshot of the best model performance of Loan Approval Prediction model

**Job : shy\_beans\_bwrwks445g (BEST)**

**Model : cyan\_cheetah\_(2)**

The screenshot shows the DataRobot interface for the 'shy\_beans\_bwrwks445g' job. The top navigation bar includes 'Create job', 'Refresh', 'Export', 'Cancel', 'Delete', 'View options', 'Dashboard view', and a 'Filter' button. Below the search bar, there's a list of jobs with columns for 'Display name (1 visualized)', 'Parent job name', 'Status', 'Created on', 'Duration', and a star icon for duration. The 'shy\_beans\_bwrwks445g' job is highlighted as 'Best' and is completed. The bottom section shows the 'Data transformation (preview)' tab of the job details, which includes a flowchart illustrating the data preprocessing steps. The flowchart starts with 'data\_source - 35 col' and branches into three main categories: 'DateTime', 'Numeric', and 'Categorical'. 'DateTime' leads to 'AddCatImputer-StringCast-DateTimeTransformer'. 'Numeric' leads to 'MeanImputer'. 'Categorical' leads to 'StringCast-CharGramCountVectorizer' and 'ModeCatImputer-StringCast-LabelEncoder'. All three paths converge into a single 'MaxAbsScaler' step, which then feeds into a 'LightGBMClassifier'.

**cyan\_cheetah\_srrhh29bw**

Overview Model Metrics Responsible AI (preview) Data transformation (preview)

Refresh Deploy Download Explain model View generated

### Model summary

Algorithm name: MaxAbsScaler, LightGBM

Hyperparameters: [View hyperparameters](#)

Accuracy: 0.99950 [View all other metrics](#)

Sampling: 100.00 % [?](#)

Registered models: No registration yet

Deploy status: No deployment yet

**cyan\_cheetah\_srrhh29bw**

Overview Model Metrics Responsible AI (preview) Data transformation (preview) Test results (preview) Outputs + logs Images Child jobs Code Monitoring

Refresh Cancel Create custom chart View as... Current view: Local Edit view

Select metrics	accuracy	AUC_macro	F1_score_macro	recall_score_macro	average_precision_MACRO	precision_score_macro	matthews_correlation
	0.9995	0.9999945	0.9993122	0.9989540	0.9999905	0.9995	0.9986254
	balanced_accuracy	AUC_micro	F1_score_weighted	norm_macro_recall	average_precision_MICRO	precision_score_micro	log_loss
	0.9989540	0.9999970	0.9994998	0.9979079	0.9999945	0.9996717	0.002121019
	AUC_weighted	F1_score_micro	average_precision_WEIGHTED	precision_score_weighted			
	0.9999945	0.9995	0.9999970	0.9995003			

### Metrics

Accuracy	99.95%
AUC macro	100.00%
AUC micro	100.00%
AUC weighted	100.00%
Average precision score macro	100.00%
Average precision score micro	100.00%
Average Precision score weighted	100.00%
Balanced accuracy	99.90%
F1 score macro	99.93%
F1 score micro	99.95%
F1 score weighted	99.95%
Log loss	0.21%
Matthews correlation	99.86%
Norm macro recall	99.79%
Precision score macro	99.97%
Precision score micro	99.95%
Precision score weighted	99.95%
Recall score macro	99.90%
Recall score micro	99.95%
Recall score weighted	99.95%
Weighted accuracy	99.98%

### Visualization of the model metrics

**cyan\_cheetah\_srrhh29bw**

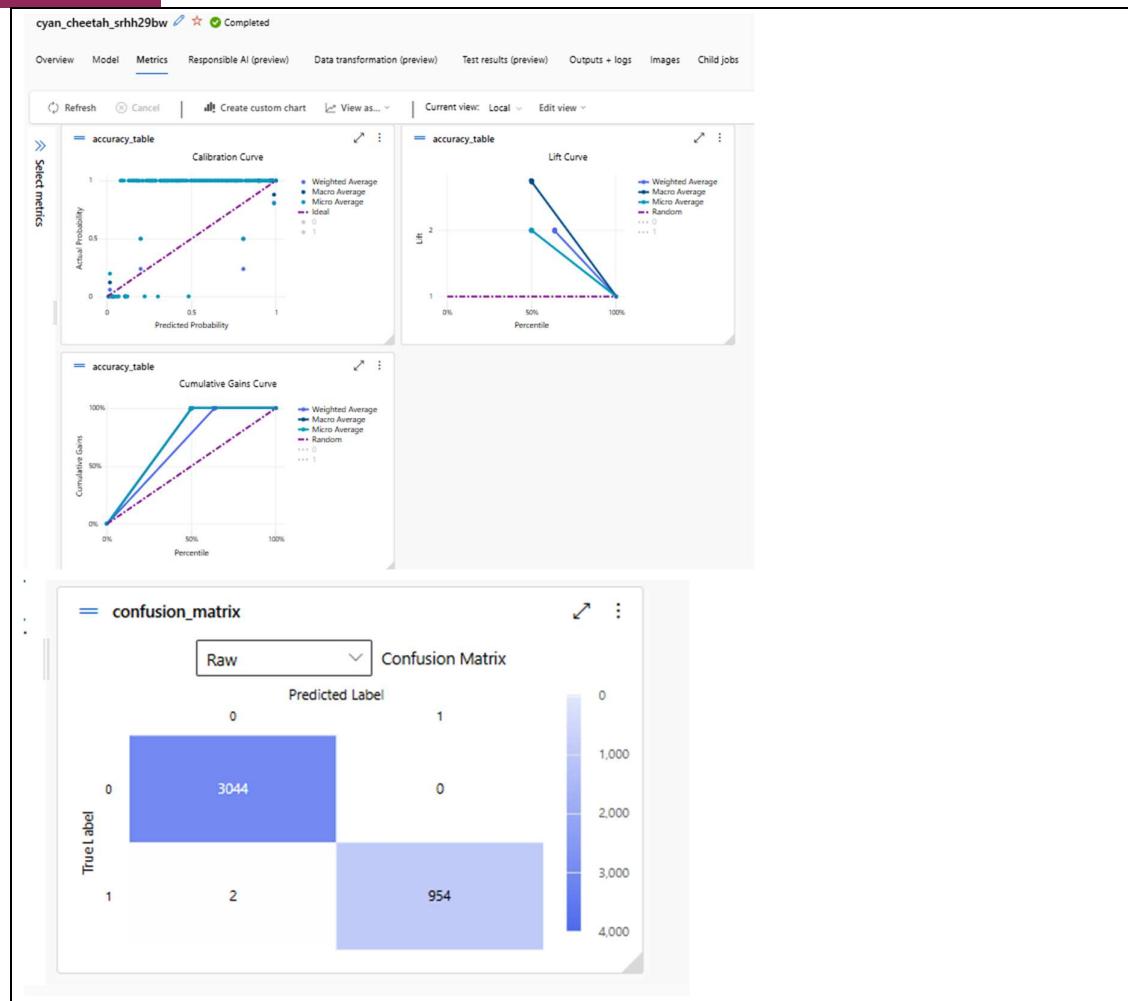
Overview Model Metrics Responsible AI (preview) Data transformation (preview) Test results (preview) Outputs + logs Images Child jobs

Refresh Cancel Create custom chart View as... Current view: Local Edit view

**accuracy\_table** Precision-Recall

**accuracy\_table** ROC

Select metrics



## Explanations

Financial institutions are subjected to fiduciary duty for safekeeping of customers assets. ABC Bank is not an exception at maintaining a base asset to meet regular banking commitments. This allows for excess to be reinvested to generate income for the banking business. The initial EDA of the Loan dataset indicates mean loan amount at \$25,000 for the 20,000 customers in these few months of operation data. Below is the breakdown of <5,000 loan approval from the total loan available. The ABC bank is conservative with their credit analysis.

If the analysis model has been serving the business well, automating the process is the next milestone to increase performance. Azure Automated Machine Learning is capable of creating this model to keep up with the business. Circumstances will change in this fast-paced global environment. Maintaining liquidity in the business and controlling cashflow movement is very dynamic for banking environment. Which is why a fast and reliable model needs to be ready on a fly.

Value of Risk between 1 Approved, 0 Declined			
Row Labels	Count of LoanAmount	Count of LoanAmount	Sum of LoanAmount
0	76.10%	15,220	406,145,645
1	23.90%	4,780	91,511,711
<b>Grand Total</b>	<b>100.00%</b>	<b>20,000</b>	<b>497,657,356</b>

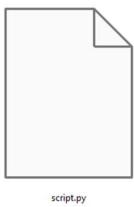
Statistically, the ABC Bank consumer loan market is to service the age group between 35 – 50 and 18 - 34 years old. From this group of applicants, the bank limits approval at 3k cases. Which means if they spend less time at processing and more time in finding better quality customers. The turnover will improve respectively.

Value of Loan by age demographics 1 Approved, 0 Declined			
Ages	Count of amount		Sum of amount
	0	1	Grand Total
>80 Years old	5	3	8
65 - 79 Years old	255	116	371
51 - 64 Years old	2,248	1,001	3,249
35 - 50 Years old	7,100	2,542	9,642
18 - 34 Years old	5,612	1,118	6,730
	15,220	4,780	20,000

Ages	0	1	Grand Total
>80 Years old	175,677	54,947	230,624
65 - 79 Years old	6,807,351	2,250,255	9,057,606
51 - 64 Years old	60,908,169	19,572,762	80,480,931
35 - 50 Years old	190,545,560	49,335,265	239,880,825
18 - 34 Years old	147,708,888	20,298,482	168,007,370
	406,145,645	91,511,711	497,657,356

Areas of improvements on the results to maintain accuracy and reliable performance. ABC Bank can generate new model with latest dataset information at the frequency of twice daily or when a new loan application is required. That way they have taken into account possible risk to the business. Models can easily be ingested into their online portal for quick in principal approval.



script.py



script\_run\_notebook

e &amp; oe

#### User Persona Details

Improving the speed of in-principal approval help sales and operations to operate more efficiently. With an automated model from Azure, the personnel in charge have better control of their work and the guidelines about the customer profile.

The ABC Bank still needs to put in place compliance system to have check and balance. Even quick sales marketing campaign can be created to meet short term target.

#### 4d. Activity 4

##### Design a customer segmentation model

- Screenshot of the registered Tabular data asset

The screenshot shows the Microsoft Machine Learning Services Overview page for deployment 'mlds004458'. It indicates that the deployment is complete. The 'Deployment details' table lists several resources, all in 'OK' status:

Resource	Type	Status	Operation details
mlds004458	MicrosoftMachineLearn...	OK	Operation details
mlds004458399529833	MicrosoftInsights/co...	OK	Operation details
mlds004458194691792	MicrosoftOperational...	OK	Operation details
mlds004458972394879	MicrosoftKeyVault/v...	OK	Operation details
mlds004458890990416	MicrosoftStorage/stor...	OK	Operation details

The 'Essentials' section provides links to Studio web URL, Application Insights, and MLflow tracking URI.

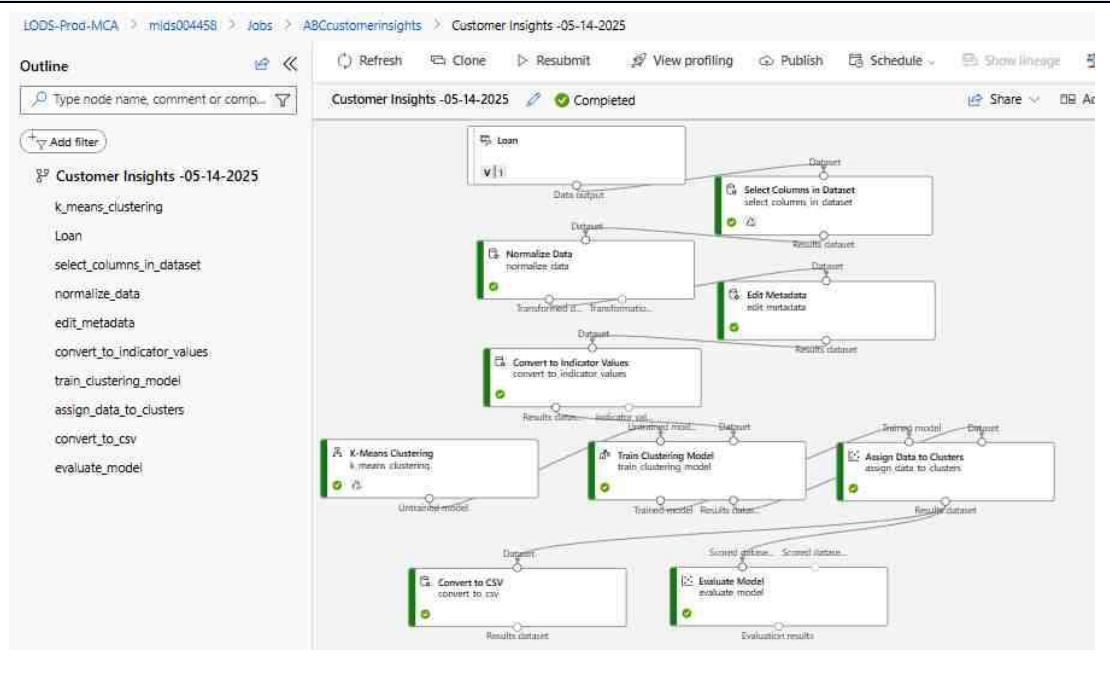
The 'Compute' tab shows a single instance named 'instance004458' which is 'Running'. It has applications like JupyterLab, Jupyter, and VS Code (Web) attached.

The 'Data' tab displays the 'Loan' dataset. It shows 36 columns and the first 50 rows. A preview table is shown below:

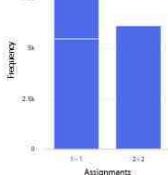
Applica...	Age	Annual...	CreditS...	Employ...	Educati...	Experie...	LoanA...	LoanD...	Marital...	Numbe...	Home...	Monthl...	CreditC...	Numbe...	Numbe...	DebtTo...
2018-04...	37	44000	539	Employed	High Sc...	13	28714	60	Married	3	Rent	457	0.414	3	1	0.2
2018-10...	50	22787	627	Employed	High Sc...	25	20061	60	Married	0	Own	326	0.356	3	1	0.218
2018-12...	48	15248	515	Employed	High Sc...	27	19403	36	Married	0	Mortgage	212	0.163	3	1	0.455
2019-02...	40	81906	456	Employed	High Sc...	18	78598	36	Married	0	Mortgage	447	0.457	3	1	0.46
2019-10...	31	33605	558	Employed	High Sc...	9	26551	36	Married	5	Rent	410	0.319	3	1	0.298
2021-07...	26	96075	581	Employed	High Sc...	4	38708	36	Married	1	Rent	900	0.321	3	1	0.519
2022-09...	38	49493	639	Employed	High Sc...	18	31671	72	Married	1	Rent	425	0.386	3	1	0.368
2023-10...	37	18183	583	Employed	High Sc...	18	51581	72	Married	2	Rent	565	0.346	3	1	0.537

### • Screenshot of the Designer Pipeline



### • Evaluation Results of the clustering model



<p><b>Assignments</b></p> <p><b>Statistics</b></p> <p>Mean: 7 Median: 7 Min: 7 Max: 7 Standard deviation: 0 Unique values: 3 Missing values: 0 Feature type: Categorical Score</p> <p><b>Visualizations</b></p> 	<p><b>Customer Insights -05-14-2025</b> <span style="color: green;">Completed</span></p> <p><b>Evaluation_results</b></p> <p>Profile: This is the quick profile generated by the top 10,000 rows. Please generate profile to view the schema and summary stats.</p> <p>Rows: 4 Columns: 5</p> <table border="1"> <thead> <tr> <th>Result Description</th> <th>Average Distance to Other Center</th> <th>Average Distance to Cluster Center</th> <th>Number of Points</th> <th>Maximal Distance to Cluster Center</th> </tr> </thead> <tbody> <tr> <td>Evaluation For Cluster No.0</td> <td>2.04988</td> <td>1.75174</td> <td>5485</td> <td>2.896239</td> </tr> <tr> <td>Evaluation For Cluster No.1</td> <td>2.229216</td> <td>1.949432</td> <td>8387</td> <td>2.928779</td> </tr> <tr> <td>Evaluation For Cluster No.2</td> <td>2.195172</td> <td>1.810519</td> <td>6128</td> <td>2.888116</td> </tr> <tr> <td>Combined Evaluation</td> <td>2.169602</td> <td>1.852652</td> <td>20000</td> <td>2.928779</td> </tr> </tbody> </table>	Result Description	Average Distance to Other Center	Average Distance to Cluster Center	Number of Points	Maximal Distance to Cluster Center	Evaluation For Cluster No.0	2.04988	1.75174	5485	2.896239	Evaluation For Cluster No.1	2.229216	1.949432	8387	2.928779	Evaluation For Cluster No.2	2.195172	1.810519	6128	2.888116	Combined Evaluation	2.169602	1.852652	20000	2.928779																																																	
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<p><i>Sample of Json Assign cluster2</i></p>	<table border="1"> <thead> <tr> <th>Cluster assignment2</th> <th>Value</th> </tr> </thead> <tbody> <tr><td>Age</td><td>-0.236835317</td></tr> <tr><td>AnnualIncome</td><td>-0.375750558</td></tr> <tr><td>CreditScore</td><td>-0.639507942</td></tr> <tr><td>Experience</td><td>-0.3996579</td></tr> <tr><td>LoanAmount</td><td>0.285328651</td></tr> <tr><td>LoanDuration</td><td>0.240956134</td></tr> <tr><td>NumberOfDependents</td><td>1.069545126</td></tr> <tr><td>MonthlyDebtPayments</td><td>0.01125689</td></tr> <tr><td>CreditCardUtilizationRate</td><td>0.799814052</td></tr> <tr><td>NumberOfOpenCreditLines</td><td>-0.013449549</td></tr> <tr><td>NumberOfCreditInquiries</td><td>0.007092628</td></tr> <tr><td>DebtToIncomeRatio</td><td>-0.535186861</td></tr> <tr><td>PaymentHistory</td><td>-2.829679971</td></tr> <tr><td>LengthOfCreditHistory</td><td>1.677472861</td></tr> <tr><td>SavingsAccountBalance</td><td>0.140194818</td></tr> <tr><td>CheckingAccountBalance</td><td>0.515046194</td></tr> <tr><td>TotalAssets</td><td>1.939152141</td></tr> <tr><td>TotalLiabilities</td><td>-0.144642647</td></tr> <tr><td>MonthlyIncome</td><td>-0.371599734</td></tr> <tr><td>UtilityBillsPaymentHistory</td><td>1.214403788</td></tr> <tr><td>JobTenure</td><td>1.340047959</td></tr> <tr><td>NetWorth</td><td>1.946246413</td></tr> <tr><td>BaseInterestRate</td><td>0.70658457</td></tr> <tr><td>InterestRate</td><td>0.119981885</td></tr> <tr><td>MonthlyLoanPayment</td><td>-0.116508512</td></tr> <tr><td>TotalDebtToIncomeRatio</td><td>-0.148590234</td></tr> <tr><td>EmploymentStatus-Employed</td><td>1</td></tr> <tr><td>EducationLevel-High School</td><td>1</td></tr> <tr><td>MaritalStatus-Married</td><td>1</td></tr> <tr><td>HomeOwnershipStatus-Mortgage</td><td>0</td></tr> <tr><td>BankruptcyHistory-0</td><td>1</td></tr> <tr><td>LoanPurpose-Home</td><td>1</td></tr> <tr><td>PreviousLoanDefaults-0</td><td>1</td></tr> <tr><td>DistancesToClusterCenter no.0</td><td>2.089915692</td></tr> <tr><td>DistancesToClusterCenter no.1</td><td>2.08780964</td></tr> <tr><td>DistancesToClusterCenter no.2</td><td>1.611014053</td></tr> </tbody> </table>	Cluster assignment2	Value	Age	-0.236835317	AnnualIncome	-0.375750558	CreditScore	-0.639507942	Experience	-0.3996579	LoanAmount	0.285328651	LoanDuration	0.240956134	NumberOfDependents	1.069545126	MonthlyDebtPayments	0.01125689	CreditCardUtilizationRate	0.799814052	NumberOfOpenCreditLines	-0.013449549	NumberOfCreditInquiries	0.007092628	DebtToIncomeRatio	-0.535186861	PaymentHistory	-2.829679971	LengthOfCreditHistory	1.677472861	SavingsAccountBalance	0.140194818	CheckingAccountBalance	0.515046194	TotalAssets	1.939152141	TotalLiabilities	-0.144642647	MonthlyIncome	-0.371599734	UtilityBillsPaymentHistory	1.214403788	JobTenure	1.340047959	NetWorth	1.946246413	BaseInterestRate	0.70658457	InterestRate	0.119981885	MonthlyLoanPayment	-0.116508512	TotalDebtToIncomeRatio	-0.148590234	EmploymentStatus-Employed	1	EducationLevel-High School	1	MaritalStatus-Married	1	HomeOwnershipStatus-Mortgage	0	BankruptcyHistory-0	1	LoanPurpose-Home	1	PreviousLoanDefaults-0	1	DistancesToClusterCenter no.0	2.089915692	DistancesToClusterCenter no.1	2.08780964	DistancesToClusterCenter no.2	1.611014053
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*Sample of Json Assign cluster0*

Cluster assignment0	Value
Age	0.709611129
AnnualIncome	-1.088318503
CreditScore	-1.110132325
Experience	0.837467876
LoanAmount	-0.408120421
LoanDuration	-0.732112555
NumberOfDependents	-1.094503824
MonthlyDebtPayments	-1.007447366
CreditCardUtilizationRate	-0.769383471
NumberOfOpenCreditLines	-0.013449549
NumberOfCreditInquiries	0.007092628
DebtToIncomeRatio	1.057185437
PaymentHistory	-0.200927671
LengthOfCreditHistory	1.677472861
SavingsAccountBalance	-0.166706803
CheckingAccountBalance	-0.663848949
TotalAssets	-0.550141477
TotalLiabilities	0.079376954
MonthlyIncome	-1.098389513
UtilityBillsPaymentHistory	0.724860145
JobTenure	-0.448262327
NetWorth	-0.56750322
BaseInterestRate	0.219068935
InterestRate	-0.804391607
MonthlyLoanPayment	-0.274856849
TotalDebtToIncomeRatio	0.991895891
EmploymentStatus-Employed	1
EducationLevel-High School	1
MaritalStatus-Married	1
HomeOwnershipStatus-Mortgage	1
BankruptcyHistory-0	1
LoanPurpose-Home	1
PreviousLoanDefaults-0	1
DistancesToClusterCenter no.0	1.511998243
DistancesToClusterCenter no.1	2.100078485
DistancesToClusterCenter no.2	1.87867721

Distribution of customers for each row in the assignment 0, 1 & 2

Row Labels	Count of rows assigned to clusters with 1 being highest		
	DistancesToClusterCenter no.0	DistancesToClusterCenter no.1	DistancesToClusterCenter no.2
Assignment 0	5,485	5,485	5,485
Assignment 1	8,387	8,387	8,387
Assignment 2	6,128	6,128	6,128
<b>Grand Total</b>	<b>20,000</b>	<b>20,000</b>	<b>20,000</b>

### Explanations

This is an unsupervised machine learning algorithm used in grouping data points having similar characteristics. The cluster output allocates one data to only one cluster. In soft decision clustering, the result provides the likelihood of data points to be in each set. In ABC Bank the 20,000-loan customer are clustered into points 0, 1 & 2.

This customer analysis identified the clustering place higher loan approval for assignment 1. With 8% from the overall 18% loan approval amount to \$37,915K. Second in line is assignment 2 at 6% with amount of \$27,516K. It will also be useful to identify what makes up customers in assignment 0 with lowest loan approval and loan amount. As this could be a risk area to avoid or bias in decision making.

Statistically higher loan approval are allocated to cluster 1					
Sum of LoanAmount	Clusters				
Row Labels	0	1	2	Grand Total	
Rejected Loan	109837006	171,792,815	124,515,824	406,145,645	
Loan Approved	\$ 26,080,544	\$ 37,915,296	\$ 27,515,871	\$ 91,511,711	
<b>Grand Total</b>	<b>\$ 135,917,550</b>	<b>\$ 209,708,111</b>	<b>\$ 152,031,695</b>	<b>\$ 497,657,356</b>	
Row Labels	0	1	2	Grand Total	
Rejected Loan	22.07%	34.52%	25.02%	81.61%	
Loan Approved	5.24%	7.62%	5.53%	18.39%	
<b>Grand Total</b>	<b>27.31%</b>	<b>42.14%</b>	<b>30.55%</b>	<b>100.00%</b>	
Row Labels	0	1	2	Grand Total	
Rejected Loan	4,103	6,415	4,702	15,220	
Loan Approved	1,382	1,972	1,426	4,780	
<b>Grand Total</b>	<b>5,485</b>	<b>8,387</b>	<b>6,128</b>	<b>20,000</b>	

Areas of the results in assignment 1 & 2, analyzed with drill down data to show here demographic based on age and income. This shows higher rate of Approval are in ranges for ages in the 42, 40, 41, 47, 48, so forth.

Sum of LoanAmount Age groups sorted	Clusters with loan Approved are sorted by age and annual income demographic				
	0	1	2	Grand Total	
42	\$ 1,193,924	\$ 1,891,704	\$ 878,798	\$ 3,964,426	
40	\$ 1,158,285	\$ 1,243,982	\$ 1,347,176	\$ 3,749,443	
41	\$ 1,222,214	\$ 1,510,711	\$ 834,728	\$ 3,567,653	
47	\$ 985,752	\$ 1,712,995	\$ 787,367	\$ 3,486,114	
48	\$ 1,153,650	\$ 1,350,178	\$ 946,096	\$ 3,449,924	
44	\$ 1,113,083	\$ 1,258,114	\$ 975,583	\$ 3,346,780	
43	\$ 769,609	\$ 1,485,077	\$ 1,088,482	\$ 3,343,168	
39	\$ 778,740	\$ 1,219,285	\$ 1,118,941	\$ 3,116,966	
45	\$ 823,888	\$ 1,233,754	\$ 1,040,432	\$ 3,098,074	
37	\$ 960,173	\$ 1,269,400	\$ 721,097	\$ 2,950,670	
49	\$ 728,126	\$ 1,202,369	\$ 932,656	\$ 2,863,151	
46	\$ 849,609	\$ 1,170,634	\$ 735,196	\$ 2,755,439	
51	\$ 757,345	\$ 1,015,490	\$ 936,105	\$ 2,708,940	
38	\$ 764,955	\$ 874,469	\$ 958,671	\$ 2,598,095	
35	\$ 634,615	\$ 1,330,162	\$ 521,032	\$ 2,485,809	
32	\$ 583,393	\$ 957,795	\$ 839,744	\$ 2,380,932	
33	\$ 549,586	\$ 1,052,319	\$ 765,101	\$ 2,367,006	

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### User Persona Details

Marketing with product development is able to create better fit for the appropriate customer profiling using this clustering algorithm.

Credit department may want to explore giving credit for the other age group if the volume is substantial for the business. At the same time being aware of the higher risk and set better assessment to their credit conditions.

## 4e. Activity 5

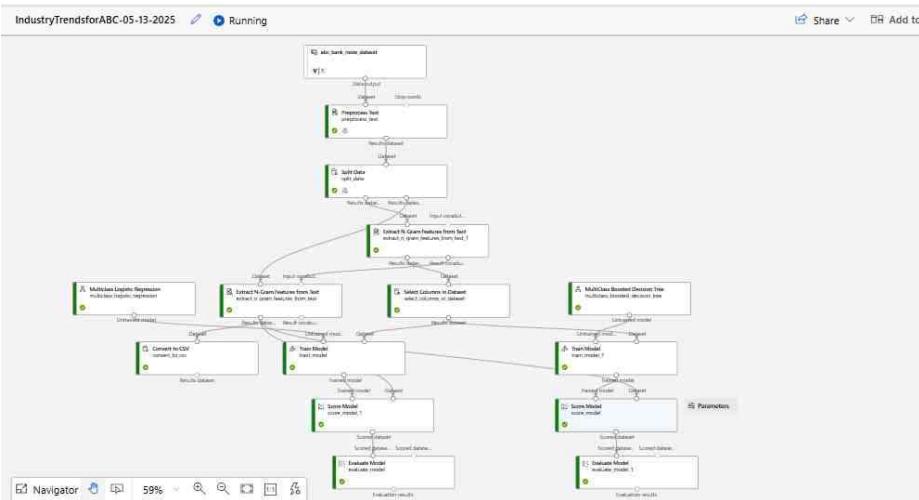
### Perform text classification for Industry trend and manage public perception

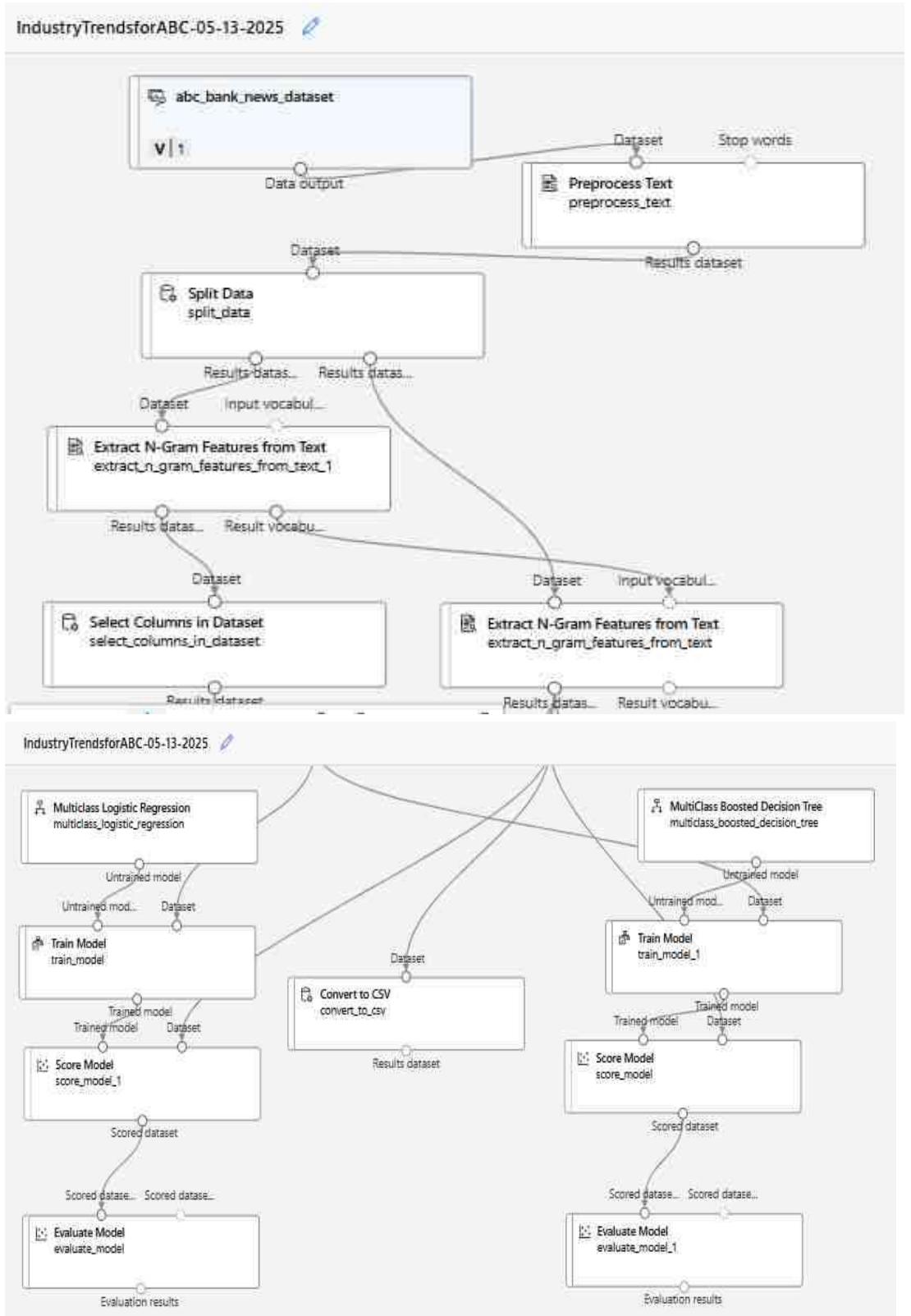
- Screenshot of the registered Tabular data asset

#### Extract of dataset in Annexure image e.5.0

The screenshot shows the Microsoft MachineLearningServices | Overview page in the Azure portal. A green checkmark indicates that the deployment is complete. Deployment details show six resources of type Microsoft.MachineLearningDeployment, all in OK status. Below this, a preview of the abc\_bank\_news\_dataset is shown, displaying two columns: category and news. The news column contains several rows of text, such as "Customers are increasingly focused on mortgage when considering their options for home loan..." and "Analysts expect refinancing options to play a crucial role in shaping the future of home loan off...".

- Screenshot of the Designer Pipeline





- Evaluation Results of the model

### Multiclass Logistic Regression

**evaluate\_model** Completed

Overview Metrics Images Child jobs Outputs + logs Code Monitoring

Refresh Create custom chart View as... Current view: Local Edit view

	Macro_Precision	Macro_Recall	Micro_Precision	Micro_Recall	Overall_Accuracy
Scored_dataset	1	1	1	1	1

**Scored\_dataset**

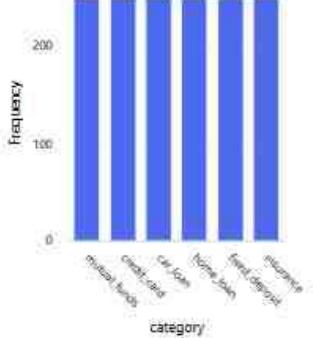
Rows: 1,500 Columns: 703

category	news	Preprocessed news	Preprocessed news. [evolve_systematic]	Preprocessed news. [plan_impact]	Preprocessed news. [benefit_significant]	Preproc [evolve]
mutual_fund	Customers are increasingly focused on market-linked returns when considering their options for mutual funds. Recent developments in credit card interest rates have caught the attention of many analysts, especially within the Analysts expect car	customer increasingly focus market link returns consider pron-option mutual fund product    accord recent report debt recent development credit card interest rate catch attention analyst especially context credit card    Analysts expect car	increasingly focus market link returns consider pron-option mutual fund product    accord recent report debt recent development credit card interest rate catch attention analyst especially context credit card    Analysts expect car	0	0	0
credit_card	market-linked returns when considering their options for mutual funds. Recent developments in credit card interest rates have caught the attention of many analysts, especially within the Analysts expect car	market-linked returns when considering their options for mutual funds. Recent developments in credit card interest rates have caught the attention of many analysts, especially within the Analysts expect car	market-linked returns when considering their options for mutual funds. Recent developments in credit card interest rates have caught the attention of many analysts, especially within the Analysts expect car	0	0	0

#### Statistics

Mean	-
Median	-
Min	-
Max	-
Standard deviation	-
Unique values	6
Missing values	0
Feature type	String Label

#### Visualizations



### MultiClass Boosted Decision Tree

**evaluate\_model\_1** Completed

Overview Metrics Images Child jobs Outputs + logs Code Monitoring

Refresh Create custom chart View as... Current view: Local Edit view

	Macro_Precision	Macro_Recall	Micro_Precision	Micro_Recall	Overall_Accuracy
Scored_dataset	1	1	1	1	1

**Scored\_dataset**

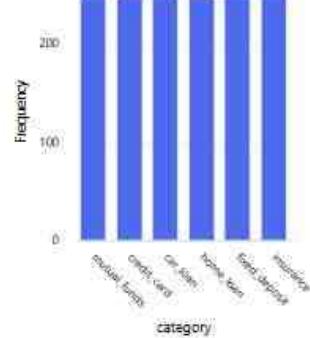
Rows: 1,500 Columns: 703

category	news	Preprocessed news	Preprocessed news. [evolve_systematic]	Preprocessed news. [plan_impact]	Preprocessed news. [benefit_significant]	Preproc [evolve]
mutual_fund	Customers are increasingly focused on market-linked returns when considering their options for mutual funds. Recent developments in credit card interest rates have caught the attention of many analysts, especially within the Analysts expect car	customer increasingly focus market link returns consider pron-option mutual fund product    accord recent report debt recent development credit card interest rate catch attention analyst especially context credit card    Analysts expect car	increasingly focus market link returns consider pron-option mutual fund product    accord recent report debt recent development credit card interest rate catch attention analyst especially context credit card    Analysts expect car	0	0	0
credit_card	market-linked returns when considering their options for mutual funds. Recent developments in credit card interest rates have caught the attention of many analysts, especially within the Analysts expect car	market-linked returns when considering their options for mutual funds. Recent developments in credit card interest rates have caught the attention of many analysts, especially within the Analysts expect car	market-linked returns when considering their options for mutual funds. Recent developments in credit card interest rates have caught the attention of many analysts, especially within the Analysts expect car	0	0	0

#### Statistics

Mean	-
Median	-
Min	-
Max	-
Standard deviation	-
Unique values	6
Missing values	0
Feature type	String Label

#### Visualizations



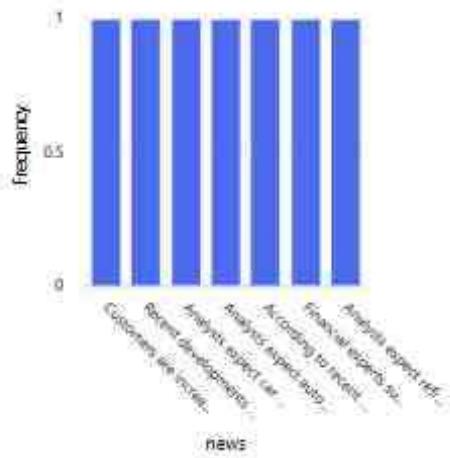
### Explanations

This service uses TF-IDF which is term frequency-inverse document frequency as a statistical measure that evaluate the importance of a word in a document relative to a collection of documents (corpus). This combines two components the frequently a word appears and how unique or rare a word is across the corpus. This process includes converting text features into the numerical feature with feature extracting module n-gram from the text data. Then training the model. So, common words across many documents receive lower scores, while rare words receive higher scores. This ranks documents based on relevance to a user's query.

#### Statistics

Mean	-
Median	-
Min	-
Max	-
Standard deviation	-
Unique values	1500
Missing values	0
Feature type	String Feature

#### Visualizations



Results from two models identify consistently that there are 1,500 unique features for the 6 category types. File from Json support this output with 3 samples tabulated below. These features with highest percentage show higher frequency of use. And they are found in different categories as well. Hence the list is focus on each one of the categories.

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### User Persona Details

This list works for both marketing and security. They can be use as keywords for SEO and product development campaigns. For security and operations, the features assist in improving services that is customer focus. For instance, to explain in more details about the investments or loan premiums and lock in periods.

category: mutual_funds	Value
Preprocessed news.[fund]	47.04%
Preprocessed news.[mutual]	41.16%
Preprocessed news.[mutual_fund]	41.16%
Preprocessed news.[link]	16.31%
Preprocessed news.[link_return]	16.31%
Preprocessed news.[market_link]	16.31%
Preprocessed news.[investment_plan]	16.26%
Preprocessed news.[plan]	16.26%
Preprocessed news.[systematic]	16.26%
Preprocessed news.[systematic_investment]	16.26%
Preprocessed news.[focus_market]	13.57%
Preprocessed news.[trend_market]	13.57%
Preprocessed news.[return]	13.16%
Preprocessed news.[report_debt]	12.95%
Preprocessed news.[development_systematic]	12.06%
Preprocessed news.[expect_systematic]	12.06%
Preprocessed news.[plan_catch]	12.06%
Preprocessed news.[plan_play]	12.06%
Preprocessed news.[return_consider]	10.62%
Preprocessed news.[return_financial]	10.62%
Preprocessed news.[fund_significan]	10.51%
Preprocessed news.[investment]	10.47%
Preprocessed news.[evolve_mutual]	10.11%
Preprocessed news.[market]	8.88%
Preprocessed news.[debt]	8.57%
Preprocessed news.[debt_fund]	8.57%
Preprocessed news.[fund_investment]	8.32%
Preprocessed news.[investment_impact]	7.90%
Preprocessed news.[affect_mutual]	5.88%
Preprocessed news.[context_mutual]	5.88%
Preprocessed news.[decision_mutual]	5.88%
Preprocessed news.[fund_industry]	5.88%
Preprocessed news.[fund_offering]	5.88%
Preprocessed news.[fund_product]	5.88%
Preprocessed news.[fund_sector]	5.88%
Preprocessed news.[future_mutual]	5.88%
Preprocessed news.[option_mutual]	5.88%
Preprocessed news.[strategy_mutual]	5.88%
Preprocessed news.[focus]	0.56%
Preprocessed news.[increasingly_focus]	0.56%

category: credit_card	Value
Preprocessed news.[card]	51.48%
Preprocessed news.[credit]	51.48%
Preprocessed news.[credit_card]	51.48%
Preprocessed news.[emi]	12.90%
Preprocessed news.[emi_credit]	12.90%
Preprocessed news.[card_interest]	12.86%
Preprocessed news.[interest_rate]	12.86%
Preprocessed news.[usage_significan]	10.31%
Preprocessed news.[evolve_cashback]	10.05%
Preprocessed news.[offer_impact]	10.05%
Preprocessed news.[focus_emi]	9.60%
Preprocessed news.[trend_emi]	9.60%
Preprocessed news.[card_consider]	8.04%
Preprocessed news.[card_financial]	8.04%
Preprocessed news.[interest]	7.40%
Preprocessed news.[rate_catch]	7.29%
Preprocessed news.[rate_play]	7.29%
Preprocessed news.[rate]	7.27%
Preprocessed news.[cashback]	6.58%
Preprocessed news.[cashback_offer]	6.58%
Preprocessed news.[offer]	6.58%
Preprocessed news.[card_usage]	6.43%
Preprocessed news.[usage]	6.43%
Preprocessed news.[report_credit]	6.33%
Preprocessed news.[development_credit]	6.25%
Preprocessed news.[expect_credit]	6.25%
Preprocessed news.[affect_credit]	4.68%
Preprocessed news.[card_industry]	4.68%
Preprocessed news.[card_offering]	4.68%
Preprocessed news.[card_product]	4.68%
Preprocessed news.[card_sector]	4.68%
Preprocessed news.[context_credit]	4.68%
Preprocessed news.[decision_credit]	4.68%
Preprocessed news.[future_credit]	4.68%
Preprocessed news.[option_credit]	4.68%
Preprocessed news.[strategy_credit]	4.68%
Preprocessed news.[focus]	0.44%
Preprocessed news.[increasingly_focus]	0.44%

category: car_loan	Value
Preprocessed news.[deal_impact]	13.59%
Preprocessed news.[approval_catch]	13.21%
Preprocessed news.[approval_play]	13.21%
Preprocessed news.[report_second]	12.38%
Preprocessed news.[focus_automobile]	12.20%
Preprocessed news.[market_consider]	12.20%
Preprocessed news.[market_financial]	12.20%
Preprocessed news.[trend_automobile]	12.20%
Preprocessed news.[evolve_auto]	11.87%
Preprocessed news.[development_car]	10.47%
Preprocessed news.[expect_car]	10.47%
Preprocessed news.[financing_significan]	10.12%
Preprocessed news.[auto_loan]	8.44%
Preprocessed news.[deal]	8.44%
Preprocessed news.[loan_deal]	8.44%
Preprocessed news.[approval]	16.76%
Preprocessed news.[loan_approval]	16.76%
Preprocessed news.[automobile]	16.13%
Preprocessed news.[automobile_market]	16.13%
Preprocessed news.[car_financing]	7.97%
Preprocessed news.[hand]	7.97%
Preprocessed news.[hand_car]	7.97%
Preprocessed news.[second]	7.97%
Preprocessed news.[second_hand]	7.97%
Preprocessed news.[auto]	6.82%
Preprocessed news.[financing]	6.67%
Preprocessed news.[affect_car]	5.95%
Preprocessed news.[car]	53.52%
Preprocessed news.[car_loan]	47.57%
Preprocessed news.[context_car]	5.95%
Preprocessed news.[decision_car]	5.95%
Preprocessed news.[future_car]	5.95%
Preprocessed news.[option_car]	5.95%
Preprocessed news.[strategy_car]	5.95%
Preprocessed news.[market]	8.98%
Preprocessed news.[loan]	32.81%
Preprocessed news.[loan_industry]	3.65%
Preprocessed news.[loan_offering]	3.65%
Preprocessed news.[loan_product]	3.65%
Preprocessed news.[loan_sector]	3.65%
Preprocessed news.[focus]	0.56%
Preprocessed news.[increasingly_focus]	0.56%

## 4f. Activity 6

### Design and implement Azure AI Vision services image insights for marketing with API.

- Created Resource: Azure AI Service Resource Setup, screenshot of the Azure AI service resource created in the Azure portal.

The screenshot shows the Azure portal's 'Overview' page for the 'abc-visionlas004458' service. The left sidebar lists various service management options like Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Resource Management, Keys and Endpoint, Pricing tier, Networking, Identity, Cost analysis, Properties, Locks, Security, Monitoring, Automation, and Help. The main content area displays the 'Essentials' section with the following details:

Resource group ( <a href="#">move</a> )	API Kind
<a href="#">ResourceGroup1</a>	CognitiveServices
Status	Pricing tier
Active	Standard
Location	Endpoint
East US	<a href="https://abc-visionlas004458.cognitiveservices.azure.com/">https://abc-visionlas004458.cognitiveservices.azure.com/</a>
Subscription ( <a href="#">move</a> )	Manage keys
<a href="#">MOC Subscription-fd50504968</a>	<a href="#">Click here to manage keys</a>
Subscription ID	Autoscale
bacb8a81-dfee-4172-aab7-faf45ac1d61c	Disabled
Tags ( <a href="#">edit</a> )	
<a href="#">Add tags</a>	

Below the essentials, there are links for Get Started, Decision, Language, Speech, Vision, and Document Intelligence. A callout box at the bottom right encourages building intelligent apps using a comprehensive family of AI services and cognitive APIs, mentioning the Azure AI services multi-service resource which combines various services from Decision, Language, Speech, Vision, and Applied AI into a single key and endpoint.

The screenshot shows the 'Azure AI | Vision Studio' interface. The top navigation bar includes 'Vision Studio', 'My resources', and 'abc-visionlas004458'. The main content area shows the 'Datasets in this resource' section. The sidebar on the left lists 'abc-visionlas004458' and its sub-options: 'Datasets' (which is selected) and 'Custom models'. The main pane displays a large orange icon of an open box with three blue spheres inside, representing datasets. At the bottom of the main pane, there are buttons for '+ Add new dataset', 'Refresh', 'Delete', and 'Learn more about customizing models'.

**Azure AI | Vision Studio**

Try Azure AI Content Understanding in AI Foundry  
Turn unstructured documents, images, video, and audio into structured data with the new Generative AI-powered Content Understanding service, built by the same team that created the Vision service. [Learn more](#)

Vision Studio

### Get started with Vision

Recent resources I've worked on

Resource name	Last Updated
abc-visionas004458	2024-01-29 10:41 AM

[View all resources](#)

[Learning about Video analysis features from Azure AI Vision, using models like DAVINCI and Phi-3.0. Sign up for more information at \[this link\]\(#\).](#)

Featured   Optical character recognition   Spatial analysis   Face   Image analysis

Search photos with image retrieval

Discover specific moments within your photo album. For example, you can search for a particular person, place, event, or object across all your photos.

Try it out

Add dense captions to images

Generate human-readable captions for all important objects detected in your image.

Try it out

Add caption to images

Generate a human-readable sentence that describes the content of an image.

Try it out

Detect common objects in images

Recognize the location of objects of interest in an image and assign them a label.

Try it out

Extract common tags from images

Use an AI model to automatically recognize and extract labels for an image.

Try it out

Create smart cropped images

Use a cropped image that only shows the interesting area of a larger image.

Try it out

**Azure AI | Vision Studio**

Try Azure AI Content Understanding in AI Foundry  
Turn unstructured documents, images, video, and audio into structured data with the new Generative AI-powered Content Understanding service, built by the same team that created the Vision service. [Learn more](#)

Vision Studio > Add dense captions to images

### Add dense captions to images

Generate human-readable captions for all important objects detected in your image.

Platforms: Cloud

[View documentation](#) [View SDK reference](#) [Use the REST API](#) [View supported languages](#) [View samples on GitHub](#)

**Try it out**

I acknowledge that this demo will incur usage to resource abc-visionas004458 in my Azure account. [Choose a different resource](#)

Use one of your own files or choose from a sample below.

Drag and drop a file here  
or  
Browse for a file.  
Take a photo

Detected attributes   JSON

Select a sample image

Select a sample image from the options above to get started!

- Vision studio screenshot of the Azure AI services done on the images.

**Enlarged images in Annexure f.6.0**



img1



img2



img3



img4



img5



img6



img7



img8



img9



img10



img11



img12



img13



img14



img15

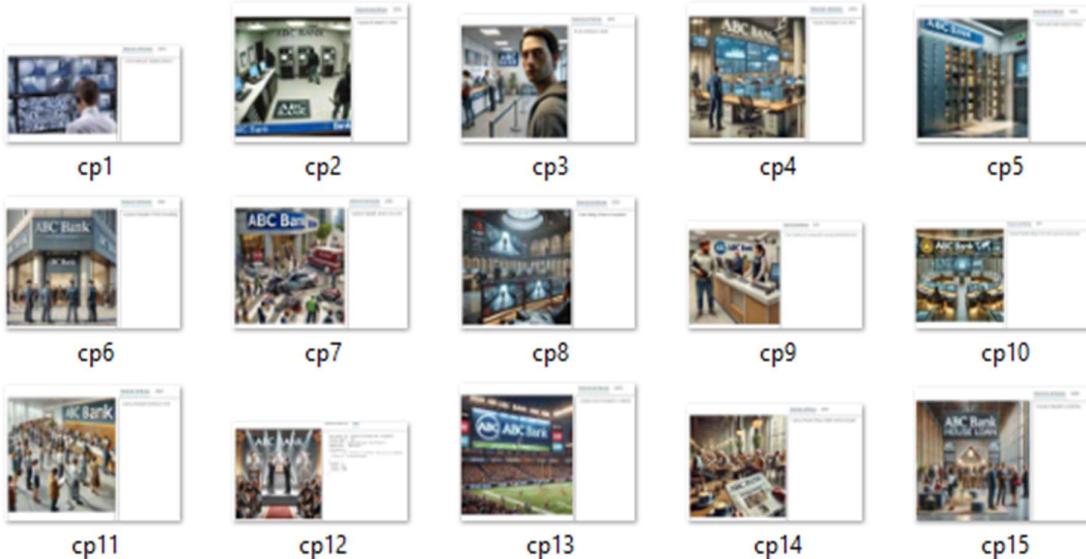
- Analyzed Image and Analysis results

For this task the section is divided into the following categories

- 6.1 Generate captions for activities in branch offices
- 6.2 Dense captioning for detailed activities
- 6.3 Tagging images for branch offices
- 6.4 Object detection for activities
- 6.5 Vision analysis through API.
- 6.6 Customizing object detection.

- 6.1 Generate captions for activities in branch offices

**Enlarged images in Annexure f.6.0**



Name	Value.caption text	Value.confidence	True/False	Accuracy
img1.jpg	a man looking at multiple monitors	73.28%	T	100%
img2.jpg	a group of people in a bank	74.79%	T	50%
img3.jpg	a man standing in a bank	77.68%	T	50%
img4.jpg	a group of people in an office	87.51%	T	100%
img5.jpg	a bank vault with stacks of money	64.65%	T	100%
img6.jpg	a group of people in front of a building	80.95%	T	80%
img7.jpg	a group of people around a car crash	74.74%	T	80%
img8.jpg	a man sitting in front of computers	71.14%	T	80%
img9.jpg	a man standing at a counter with a woman standing behind him	72.34%	T	50%

img10.jpg	a group of people sitting at desks with screens and a large screen	68.39%	T	80%
img11.jpg	a group of people standing in a line	83.94%	T	50%
img12.jpg	a man receiving a certificate from a man at a podium	72.87%	T	80%
img13.jpg	a large crowd of people in a stadium	71.47%	T	80%
img14.jpg	a group of people sitting at tables reading newspaper	78.03%	T	80%
img15.jpg	a group of people in a building	81.95%	T	80%
.				

- 6.2 Dense captioning for detailed activities

**Enlarged images in Annexure f.6.0**

Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
the back of a man wearing a white shirt	84.34%	T	100%
a man wearing headphones	81.88%	T	accurate descriptions
a close up of a headphone	78.82%	T	
a man wearing a headset	73.99%	T	
a man looking at multiple monitors	73.28%	T	
a man wearing a headset looking at a screen	71.13%	T	100% of captions are relevant to purpose of security
a man looking at a computer screen	69.07%	T	
a screenshot of a video camera	64.42%	T	
a group of images of a room	62.81%	T	
a screen shot of a room	60.54%	T	
.			

Detected attributes JSON



A man looking at multiple monitors  
A man wearing a headset looking at a screen  
A man looking at a computer screen  
A man wearing a headset  
A screen shot of a room  
A screenshot of a video camera  
The back of a man wearing a white shirt  
A close up of a headphone  
A group of images of a room  
A man wearing headphones

**Detected attributes** JSON



A group of people in a bank  
A man in a black jacket  
A person holding a sword  
A keyboard on a table  
A close-up of a logo  
A close up of a logo  
A small computer on a shelf  
A close up of a television  
A blurry image of a television  
A close up of a screen

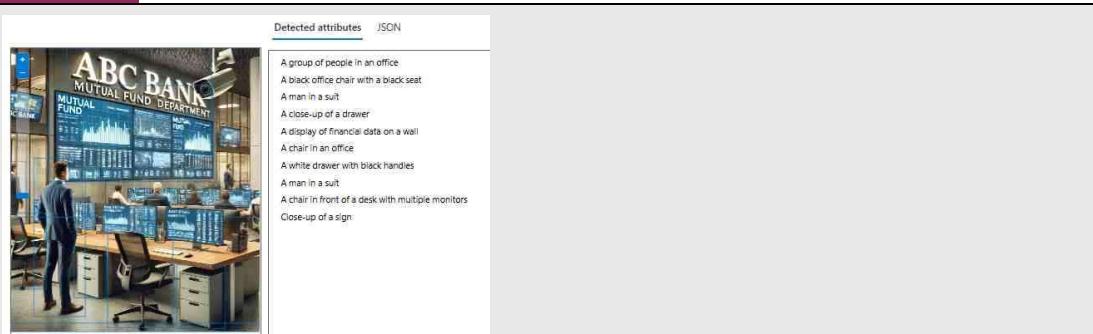
Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a close-up of a logo	77.95%	T	100% accurate descriptions
a close up of a logo	77.41%	T	
a close up of a television	75.73%	T	
a group of people in a bank	74.79%	T	
a keyboard on a table	73.62%	T	
a close up of a screen	73.44%	T	
a person holding a sword	73.20%	T	
a blurry image of a television	71.95%	T	
a man in a black jacket	65.25%	T	
a small computer on a shelf	63.87%	T	70% of captions are too general to use for security. Yet specific for marketing

**Detected attributes** JSON

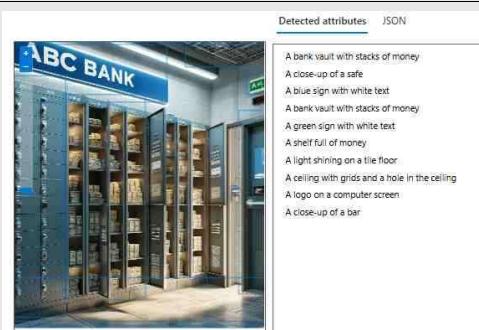


A man standing in a bank  
A man looking at the camera  
A person in blue jeans  
A blurry image of a person standing at a desk  
A plant in a pot  
A close-up of a sign  
A blurry image of a man in a suit  
A blurry image of a person's arm  
A group of people standing in a line  
A metal pole with a sign on it

Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a blurry image of a man in a suit	85.18%	T	100% accurate descriptions
a blurry image of a person's arm	83.38%	T	
a plant in a pot	79.03%	T	
a man standing in a bank	77.68%	T	
a close-up of a sign	76.86%	T	
a blurry image of a person standing at a desk	75.15%	T	
a group of people standing in a line	74.59%	T	
a man looking at the camera	71.59%	T	
a person in blue jeans	66.34%	T	
a metal pole with a sign on it	64.88%	T	70% of captions are too general to use for security. Yet specific for marketing

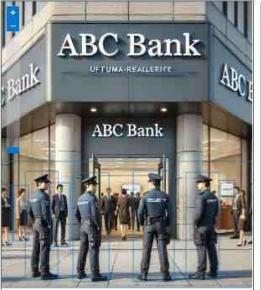


Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a group of people in an office	87.51%	T	100% accurate descriptions
a man in a suit	81.52%	T	
close-up of a sign	80.77%	T	
a close-up of a drawer	79.99%	T	
a man in a suit	79.55%	T	
a white drawer with black handles	76.82%	T	
a chair in front of a desk with multiple monitors	72.59%	T	
a chair in an office	68.36%	T	
a black office chair with a black seat	65.30%	T	
a display of financial data on a wall	63.03%	T	



Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a blue sign with white text	78.18%	T	100% accurate descriptions
a close-up of a safe	77.37%	T	
a green sign with white text	77.28%	T	
a close-up of a bar	76.57%	T	
a light shining on a tile floor	70.17%	T	
a logo on a computer screen	69.94%	F	
a shelf full of money	66.59%	T	
a bank vault with stacks of money	64.85%	T	
a bank vault with stacks of money	64.66%	T	
a ceiling with grids and a hole in the ceiling	63.90%	F	

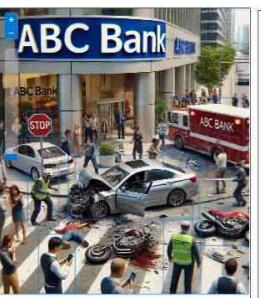
**Detected attributes** [JSON](#)



A group of people in front of a building  
A man in a uniform  
A back view of a police officer  
A person in a uniform  
A person in a police uniform  
A white square sign with black text  
A person in a suit  
A blurry image of a person's body  
A group of people in uniform  
A blurry image of a woman

Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a blurry image of a woman	82.86%	F	100% accurate descriptions
a group of people in front of a building	80.95%	T	
a back view of a police officer	79.64%	T	
a blurry image of a person's body	75.67%	T	
a person in a suit	75.46%	T	
a person in a police uniform	73.55%	T	
a group of people in uniform	71.90%	T	
a man in a uniform	66.79%	T	
a white square sign with black text	66.36%	F	
a person in a uniform	63.63%	T	

**Detected attributes** [JSON](#)



A group of people around a car crash  
A red and white ambulance  
A close-up of a stop sign  
A man wearing a safety vest  
A person wearing a safety vest  
A motorcycle accident on the road  
A plant in a pot  
A car with a broken door  
A white car with a damaged tail end  
A man holding a phone

Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a close-up of a stop sign	90.12%	T	100% accurate descriptions
a person wearing a safety vest	81.23%	T	
a plant in a pot	80.90%	T	
a red and white ambulance	79.97%	F	
a man wearing a safety vest	76.40%	T	
a group of people around a car crash	74.74%	T	
a man holding a phone	74.08%	T	
a white car with a damaged tail end	72.07%	F	
a motorcycle accident on the road	66.60%	T	
a car with a broken door	65.28%	T	



Detected attributes JSON  
 A man sitting in front of computers.  
 A man in a suit  
 A close up of a phone  
 A hand on a keyboard  
 A tv with a man walking on it  
 A man using a computer  
 A screen shot of a television  
 A red circle with a symbol in it  
 A blurry hand holding a keyboard  
 A close-up of a warning sign

Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a hand on a keyboard	86.36%	T	100% accurate descriptions
a close-up of a warning sign	84.75%	T	
a close up of a phone	83.17%	T	
a blurry hand holding a keyboard	72.00%	T	
a man sitting in front of computers	71.14%	T	
a man in a suit	70.29%	T	
a tv with a man walking on it	68.69%	T	
a red circle with a symbol in it	67.75%	T	
a man using a computer	65.80%	T	
a screen shot of a television	64.81%	T	70% of captions are too general to use for security. Yet specific for marketing



Detected attributes JSON  
 A man standing at a counter with a woman standing behind him.  
 A person holding a gun  
 A woman in a vest and tie standing next to a man:  
 A keyboard on a table  
 A man in a suit  
 A blue circle with white letters  
 A close-up of a sign  
 A brown object on a white background  
 A person holding an umbrella and a camera  
 A pair of feet in black shoes

Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a blue circle with white letters	90.34%	T	100% accurate descriptions
a man in a suit	87.60%	T	
a person holding a gun	82.42%	T	
a close-up of a sign	78.11%	T	
a person holding an umbrella and a camera	76.95%	F	
a woman in a vest and tie standing next to a man	72.63%	T	
a man standing at a counter with a woman standing behind him	72.34%	F	
a brown object on a white background	70.53%	T	
a keyboard on a table	70.26%	T	
a pair of feet in black shoes	66.48%	T	70% of captions are uncertain to use for security. Activity of persons are inaccurate.



Detected attributes	JSON
A group of people sitting at desks with screens and a large screen	
A gold letter in a circle	
A close up of a motorcycle	
A close-up of a chair	
A person sitting in a chair	
A close-up of a lock	
A blurry image of a keyboard	
A person sitting at a desk with multiple screens	
A map of the world	
A man sitting at a desk looking at a computer screen	

Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a close-up of a lock	84.35%	T	100% accurate descriptions
a map of the world	82.83%	T	
a person sitting in a chair	82.01%	T	
a close-up of a chair	80.00%	T	
a gold letter in a circle	78.70%	T	
a man sitting at a desk looking at a computer screen	76.65%	T	
a blurry image of a keyboard	76.37%	T	
a close up of a motorcycle	71.91%	F	
a group of people sitting at desks with screens and a large screen	68.39%	T	
a person sitting at a desk with multiple screens	67.98%	T	



Detected attributes	JSON
A group of people standing in a line	
A man in a brown coat holding a paper	
A woman wearing a dress	
A close up of a woman's skirt	
A person holding a piece of paper	
A man in a white shirt	
A close-up of a sign	
A person in a white shirt	
A group of people standing in a line	
A person with her hand in her pocket	

Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a close-up of a sign	87.20%	T	100% accurate descriptions
a group of people standing in a line	83.94%	T	
a person holding a piece of paper	83.67%	T	
a group of people standing in a line	79.81%	T	
a close up of a woman's skirt	76.01%	T	
a man in a white shirt	74.35%	T	
a man in a brown coat holding a paper	72.50%	T	
a person with her hand in her pocket	69.88%	T	
a person in a white shirt	69.65%	T	
a woman wearing a dress	66.95%	T	



Detected attributes JSON  
 A man receiving a certificate from a man at a podium  
 A statue of a man holding a stick  
 A person holding a framed certificate  
 A close-up of a man holding a plaque  
 A close-up of a red surface  
 A close-up of a couple of men holding a framed picture  
 A man holding a plaque with a man in front of him  
 A black sign with white letters  
 A close-up of a man in a suit clapping  
 A man in a suit and tie

Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a man in a suit and tie	81.99%	T	90% accurate description  70% of captions are too general to use for security. Yet specific for marketing
a statue of a man holding a stick	81.00%	F	
a close-up of a red surface	79.17%	F	
a close-up of a man in a suit clapping	77.23%	T	
a close-up of a man holding a plaque	75.79%	T	
a man receiving a certificate from a man at a podium	72.87%	T	
a close-up of a couple of men holding a framed picture	71.29%	T	
a black sign with white letters	68.87%	T	
a person holding a framed certificate	68.14%	T	
a man holding a plaque with a man in front of him	66.75%	T	



Detected attributes JSON  
 A large crowd of people in a stadium  
 A large screen with a football player running on it  
 A blurry image of a football player running  
 A football game with referee and crowd  
 A football player running on a field  
 A lit up sign on a building  
 A crowd of people in a stadium  
 A blurry image of a logo  
 A large crowd of people watching a football game  
 A close up of a logo

Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a blurry image of a football player running	83.98%	T	100% accurate descriptions  100% of captions are relevant for security and marketing
a close up of a logo	79.55%	T	
a crowd of people in a stadium	78.94%	T	
a football player running on a field	77.27%	T	
a large crowd of people watching a football game	76.53%	T	
a blurry image of a logo	75.19%	T	
a large crowd of people in a stadium	71.47%	T	
a large screen with a football player running on it	70.27%	T	
a lit up sign on a building	67.29%	T	
a football game with referee and crowd	57.82%	T	



Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a close-up of a newspaper	89.67%	T	100% accurate descriptions
a blurry image of a person sitting at a table	84.27%	T	
a blurry image of a chair	80.04%	T	
a man reading a newspaper	78.36%	T	90% of captions are useful for security and marketing
a group of people sitting at tables reading newspaper	78.03%	T	
a cup of coffee with foam in it	77.61%	T	
a glass of water on a table	75.29%	T	
a glass of brown liquid	72.96%	T	
a cup of coffee with a white foam in it	72.91%	T	
a newspaper with a newspaper on it	62.88%	T	



Value.dense caption text	Value.confidence	TRUE/FALSE	Accuracy
a man in a suit	83.57%	T	100% accurate descriptions
a plant in a pot	82.58%	T	
a group of people in a lobby	81.97%	T	
a person carrying a red purse	76.04%	T	70% of captions are too general to use for security. Yet specific for marketing
a window with a cross	75.08%	T	
a person carrying a red bag	74.72%	T	
a sign with white text	71.66%	T	
a person in a suit	71.56%	T	
a woman in a black skirt	69.88%	T	
a grey round object on a carpet	65.32%	T	

- 6.3 Tagging images for branch offices

#### Enlarged images in Annexure f.6.0



[Detected attributes](#) [JSON](#)

clothing (98.98%)  
person (97.48%)  
man (91.70%)  
computer (90.12%)  
indoor (84.93%)

Figure1	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	clothing	98.08%	T
tagsResult	person	97.46%	T
tagsResult	man	91.70%	T
tagsResult	computer	90.12%	T
tagsResult	indoor	84.93%	T



[Detected attributes](#) [JSON](#)

text (99.35%)  
indoor (98.02%)  
computer (97.84%)  
clothing (97.10%)  
person (88.73%)  
man (67.33%)  
floor (84.76%)  
wall (75.82%)  
people (58.82%)

Figure2	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	text	99.35%	T
tagsResult	indoor	98.03%	T
tagsResult	computer	97.84%	T
tagsResult	clothing	97.10%	T
tagsResult	person	88.13%	T
tagsResult	man	87.59%	T
tagsResult	floor	84.76%	T
tagsResult	wall	79.87%	T
tagsResult	people	58.82%	T



Detected attributes JSON

clothing (98.87%)  
person (98.00%)  
human face (96.71%)  
indoor (95.98%)  
jeans (95.10%)  
footwear (89.64%)  
man (87.26%)  
wall (85.96%)  
standing (77.34%)

Figure3	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	clothing	99.87%	T
tagsResult	person	99.49%	T
tagsResult	human face	96.73%	T
tagsResult	indoor	93.96%	T
tagsResult	jeans	93.10%	T
tagsResult	footwear	89.64%	T
tagsResult	man	87.26%	T
tagsResult	wall	85.96%	T
tagsResult	standing	77.34%	T



Detected attributes JSON

text (98.87%)  
furniture (98.05%)  
indoor (96.61%)  
computer (95.80%)  
clothing (95.59%)  
office building (94.32%)  
man (93.17%)  
table (90.49%)  
computer monitor (88.84%)  
chair (87.00%)  
office chair (86.47%)  
person (82.88%)  
desk (82.87%)  
door (78.40%)  
furniture (82.28%)

Figure4	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	text	99.87%	T
tagsResult	furniture	98.05%	T
tagsResult	indoor	96.61%	T
tagsResult	computer	95.80%	T
tagsResult	clothing	95.59%	T
tagsResult	office building	94.32%	T
tagsResult	man	93.17%	T
tagsResult	table	90.49%	T
tagsResult	computer monitor	88.84%	T
tagsResult	chair	87.00%	T

tagsResult	office chair	86.47%	T
tagsResult	person	82.86%	T
tagsResult	desk	82.67%	T
tagsResult	floor	78.40%	T
tagsResult	office	62.08%	T
<hr/>			
<p style="text-align: center;">Detected attributes: JSON</p>  <pre> text (98.00%) indoor (80.03%) door (65.44%) ground (60.70%) </pre>			
<hr/>			
<b>Figure5</b>	<b>Value.values.name</b>	<b>Value.values.confidence</b>	<b>TRUE/FALSE</b>
tagsResult	text	98.00%	T
tagsResult	indoor	80.03%	T
tagsResult	door	65.44%	T
tagsResult	ground	60.70%	T
<hr/>			
<p style="text-align: center;">Detected attributes: JSON</p>  <pre> clothing (99.54%) building (99.49%) man (99.37%) footwear (97.35%) text (95.60%) outdoor (94.80%) person (93.93%) trousers (89.93%) people (81.59%) officer (71.67%) standing (69.04%) street (61.80%) city (58.41%) shop (57.02%) </pre>			
<hr/>			
<b>Figure6</b>	<b>Value.values.name</b>	<b>Value.values.confidence</b>	<b>TRUE/FALSE</b>
tagsResult	clothing	99.54%	T
tagsResult	building	99.49%	T
tagsResult	man	99.37%	T
tagsResult	footwear	97.35%	T
tagsResult	text	95.60%	T
tagsResult	outdoor	94.80%	T
tagsResult	person	93.93%	T

tagsResult	trousers	89.93%	T																																																																
tagsResult	people	81.99%	T																																																																
tagsResult	officer	71.67%	T																																																																
tagsResult	standing	69.04%	T																																																																
tagsResult	street	61.80%	T																																																																
tagsResult	city	58.41%	T																																																																
tagsResult	shop	57.02%	T																																																																
<hr/>																																																																			
<table border="1"> <thead> <tr> <th>Detected attributes</th> <th>JSON</th> </tr> </thead> <tbody> <tr> <td>  </td> <td> <ul style="list-style-type: none"> <li>vehicle (99.53%)</li> <li>land vehicle (99.23%)</li> <li>car (98.35%)</li> <li>wheel (98.12%)</li> <li>outdoor (96.21%)</li> <li>text (95.47%)</li> <li>building (93.23%)</li> <li>footwear (94.00%)</li> <li>person (87.62%)</li> <li>clothing (86.17%)</li> <li>traffic (84.33%)</li> <li>people (76.83%)</li> <li>street (70.51%)</li> <li>city (67.68%)</li> <li>parked (54.29%)</li> </ul> </td> </tr> </tbody> </table>				Detected attributes	JSON		<ul style="list-style-type: none"> <li>vehicle (99.53%)</li> <li>land vehicle (99.23%)</li> <li>car (98.35%)</li> <li>wheel (98.12%)</li> <li>outdoor (96.21%)</li> <li>text (95.47%)</li> <li>building (93.23%)</li> <li>footwear (94.00%)</li> <li>person (87.62%)</li> <li>clothing (86.17%)</li> <li>traffic (84.33%)</li> <li>people (76.83%)</li> <li>street (70.51%)</li> <li>city (67.68%)</li> <li>parked (54.29%)</li> </ul>																																																												
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<table border="1"> <thead> <tr> <th>Figure7</th> <th>Value.values.name</th> <th>Value.values.confidence</th> <th>TRUE/FALSE</th> </tr> </thead> <tbody> <tr> <td>tagsResult</td><td>vehicle</td><td>99.53%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>land vehicle</td><td>99.23%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>car</td><td>98.35%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>wheel</td><td>98.12%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>outdoor</td><td>96.21%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>text</td><td>95.47%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>building</td><td>95.23%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>footwear</td><td>94.00%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>person</td><td>87.62%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>clothing</td><td>86.17%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>traffic</td><td>84.33%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>people</td><td>76.83%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>street</td><td>70.51%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>city</td><td>67.68%</td><td>T</td></tr> <tr> <td>tagsResult</td><td>parked</td><td>54.29%</td><td>T</td></tr> </tbody> </table>				Figure7	Value.values.name	Value.values.confidence	TRUE/FALSE	tagsResult	vehicle	99.53%	T	tagsResult	land vehicle	99.23%	T	tagsResult	car	98.35%	T	tagsResult	wheel	98.12%	T	tagsResult	outdoor	96.21%	T	tagsResult	text	95.47%	T	tagsResult	building	95.23%	T	tagsResult	footwear	94.00%	T	tagsResult	person	87.62%	T	tagsResult	clothing	86.17%	T	tagsResult	traffic	84.33%	T	tagsResult	people	76.83%	T	tagsResult	street	70.51%	T	tagsResult	city	67.68%	T	tagsResult	parked	54.29%	T
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Detected attributes JSON

text (96.51%)  
clothing (94.54%)  
indoor (94.37%)  
man (94.04%)  
person (82.07%)

Figure8	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	text	96.51%	T
tagsResult	clothing	94.54%	T
tagsResult	indoor	94.37%	T
tagsResult	man	94.04%	T
tagsResult	person	82.07%	T



Detected attributes JSON

clothing (99.82%)  
computer (99.09%)  
person (98.83%)  
indoor (98.48%)  
desk (96.49%)  
office building (95.50%)  
text (92.24%)  
wall (90.62%)  
job (90.48%)  
man (89.15%)  
laptop (88.93%)  
personal computer (87.80%)  
employment (86.16%)  
furniture (84.37%)  
standing (77.25%)  
people (63.40%)  
floor (62.12%)  
office (41.14%)

Figure9	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	clothing	99.82%	T
tagsResult	computer	99.09%	T
tagsResult	person	98.83%	T
tagsResult	indoor	98.48%	T
tagsResult	desk	96.49%	T
tagsResult	office building	95.50%	T
tagsResult	text	92.24%	T
tagsResult	wall	90.62%	T
tagsResult	job	90.48%	T
tagsResult	man	89.15%	T
tagsResult	laptop	88.93%	T

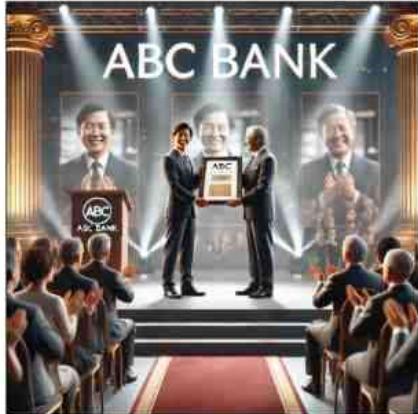
tagsResult	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	personal computer	87.80%	T
tagsResult	employment	86.16%	T
tagsResult	furniture	84.37%	T
tagsResult	standing	72.25%	T
tagsResult	people	63.40%	T
tagsResult	floor	62.12%	T
tagsResult	office	41.14%	T
.			
<div style="display: flex; justify-content: space-between;"> <span>Detected attributes</span> <span>JSON</span> </div> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>furniture (98.41%)            chair (97.26%)            table (96.43%)            indoor (96.01%)            text (94.88%)            coffee table (85.11%)            floor (77.35%)            library (67.33%)            room (62.73%)</p> </div> </div>			
Figure10	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	furniture	98.41%	T
tagsResult	chair	97.26%	T
tagsResult	table	96.43%	T
tagsResult	indoor	96.01%	T
tagsResult	text	94.88%	T
tagsResult	coffee table	85.11%	F
tagsResult	floor	77.35%	T
tagsResult	library	67.33%	F
tagsResult	room	62.73%	T
.			



[Detected attributes](#) [JSON](#)

clothing (99.77%)  
 footwear (98.54%)  
 person (98.27%)  
 man (96.14%)  
 people (95.54%)  
 indoor (94.13%)  
 group (90.46%)  
 cleanliness (85.35%)  
 standing (74.66%)  
 floor (70.06%)  
 crowd (67.07%)  
 line (64.25%)

Figure11	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	clothing	99.77%	T
tagsResult	footwear	98.54%	T
tagsResult	person	98.27%	T
tagsResult	man	96.14%	T
tagsResult	people	95.54%	T
tagsResult	indoor	94.13%	T
tagsResult	group	90.46%	T
tagsResult	cleanliness	85.35%	T
tagsResult	standing	74.66%	T
tagsResult	floor	70.06%	T
tagsResult	crowd	67.07%	T
tagsResult	line	64.25%	T



[Detected attributes](#) [JSON](#)

clothing (99.85%)  
 man (99.27%)  
 suit (98.47%)  
 person (98.06%)  
 indoor (95.06%)  
 footwear (94.15%)  
 carpet (85.46%)  
 woman (85.27%)  
 people (84.26%)  
 wall (77.74%)  
 group (69.75%)

Figure12	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	clothing	99.85%	T
tagsResult	man	99.27%	T
tagsResult	suit	98.47%	T
tagsResult	person	98.06%	T
tagsResult	indoor	95.06%	T

tagsResult	footwear	94.15%	T
tagsResult	carpet	85.46%	T
tagsResult	woman	85.27%	T
tagsResult	people	84.26%	T
tagsResult	wall	77.74%	T
tagsResult	group	69.75%	T
.	.	.	.
		<b>Detected attributes</b> <a href="#">JSON</a> <ul style="list-style-type: none"> <li>sport venue (98.10%)</li> <li>arena (97.52%)</li> <li>player (95.19%)</li> <li>artificial turf (93.69%)</li> <li>fan (93.45%)</li> <li>person (92.79%)</li> <li>team sport (91.79%)</li> <li>ball game (89.40%)</li> <li>text (88.74%)</li> <li>game (88.48%)</li> <li>scoreboard (87.97%)</li> <li>outdoor (87.80%)</li> <li>multi-sport event (85.68%)</li> <li>grass (81.43%)</li> <li>stadium (77.77%)</li> <li>people (76.92%)</li> <li>group (71.72%)</li> <li>crowd (60.54%)</li> </ul>	
Figure13	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	sport venue	98.10%	T
tagsResult	arena	97.52%	T
tagsResult	player	95.19%	T
tagsResult	artificial turf	93.69%	T
tagsResult	fan	93.45%	T
tagsResult	person	92.79%	T
tagsResult	team sport	91.79%	T
tagsResult	ball game	89.40%	T
tagsResult	text	88.74%	T
tagsResult	game	88.48%	T
tagsResult	scoreboard	87.97%	T
tagsResult	outdoor	87.80%	T
tagsResult	multi-sport event	85.68%	T
tagsResult	grass	81.43%	T
tagsResult	stadium	77.77%	T
tagsResult	people	76.92%	T
tagsResult	group	71.72%	T
tagsResult	crowd	60.54%	T
.	.	.	.



Detected attributes    [JSON](#)

```
-tableware (93.71%)
-table (93.01%)
-indoor (92.88%)
-man (91.59%)
-furniture (91.06%)
-newspaper (90.83%)
-clothing (90.04%)
-coffee cup (89.20%)
-saucer (87.58%)
-book (85.87%)
-person (85.60%)
-coffee (84.99%)
-people (82.85%)
-sitting (79.05%)
-text (66.35%)
-reading (62.22%)
-cafe (44.39%)
```

Figure14	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	tableware	93.71%	T
tagsResult	table	93.01%	T
tagsResult	indoor	92.88%	T
tagsResult	man	91.59%	T
tagsResult	furniture	91.06%	T
tagsResult	newspaper	90.83%	T
tagsResult	clothing	90.04%	T
tagsResult	coffee cup	89.20%	T
tagsResult	saucer	87.58%	T
tagsResult	book	85.87%	T
tagsResult	person	85.60%	T
tagsResult	coffee	84.99%	T
tagsResult	people	82.85%	T
tagsResult	sitting	79.05%	T
tagsResult	text	66.35%	T
tagsResult	reading	62.22%	T
tagsResult	cafe	44.39%	T
.			

Detected attributes: JSON

clothing (92.89%)  
footwear (99.70%)  
man (98.87%)  
person (98.46%)  
building (96.02%)  
Jeans (95.48%)  
people (95.24%)  
woman (95.82%)  
furniture (94.76%)  
coffee table (85.17%)  
text (84.89%)  
group (81.92%)  
ground (71.21%)  
indoor (70.55%)  
standing (69.57%)  
outdoor (57.71%)  
floor (56.73%)

Figure15	Value.values.name	Value.values.confidence	TRUE/FALSE
tagsResult	clothing	99.89%	T
tagsResult	footwear	99.70%	T
tagsResult	man	98.87%	T
tagsResult	person	98.46%	T
tagsResult	building	98.02%	T
tagsResult	jeans	96.48%	T
tagsResult	people	96.24%	T
tagsResult	woman	95.68%	T
tagsResult	furniture	94.76%	T
tagsResult	coffee table	85.17%	T
tagsResult	text	84.89%	T
tagsResult	group	81.92%	T
tagsResult	ground	71.21%	T
tagsResult	indoor	70.55%	T
tagsResult	standing	69.57%	T
tagsResult	outdoor	57.71%	F
tagsResult	floor	56.73%	T
.			

- 6.4 Object detection for activities

Enlarged images in Annexure f.6.0

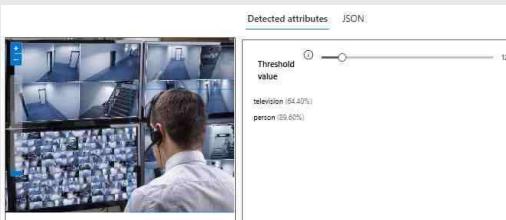


Figure1	Value.values.tags.name	Value.values.tags.confidence	TRUE/FALSE
objectsResult	person	89.60%	T
objectsResult	television	64.40%	T

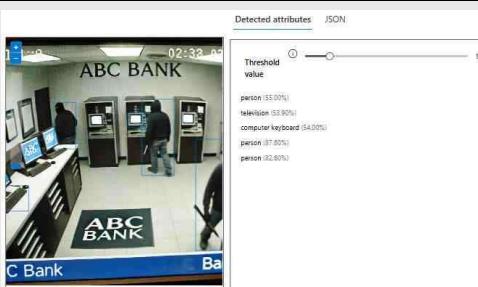
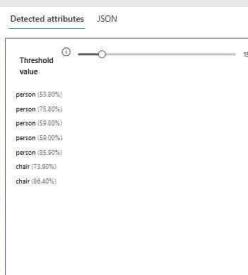


Figure2	Value.values.tags.name	Value.values.tags.confidence	TRUE/FALSE
objectsResult	person	87.60%	T
objectsResult	person	82.60%	T
objectsResult	person	55.00%	T
objectsResult	computer keyboard	54.00%	T
objectsResult	television	53.90%	T



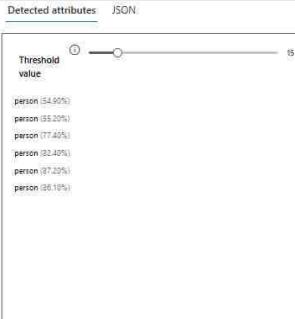
Figure3	Value.values.tags.name	Value.values.tags.confidence	TRUE/FALSE
objectsResult	person	89.70%	T
objectsResult	person	84.80%	T
objectsResult	person	79.20%	T
objectsResult	person	63.40%	T
objectsResult	potted plant	57.90%	T

**Figure4****Value.values.tags.name****Value.values.tags.confidence****TRUE/FALSE**

objectsResult	chair	86.40%	T
objectsResult	person	85.90%	T
objectsResult	person	75.80%	T
objectsResult	chair	73.90%	T
objectsResult	person	59.80%	T
objectsResult	person	59.00%	T
objectsResult	person	53.80%	T

**Figure5****Value.values****TRUE/FALSE**

objectsResult	NA	F
---------------	----	---

**Figure6****Value.values.tags.name****Value.values.tags.confidence****TRUE/FALSE**

objectsResult	person	87.20%	T
objectsResult	person	86.10%	T
objectsResult	person	82.40%	T
objectsResult	person	77.40%	T
objectsResult	person	55.20%	T
objectsResult	person	54.90%	T



**Figure7** Value.values.tags.name Value.values.tags.confidence TRUE/FALSE

objectsResult	person	87.40%	T
objectsResult	Land vehicle	84.70%	T
objectsResult	motorcycle	67.90%	T
objectsResult	person	67.10%	T
objectsResult	person	64.70%	T
objectsResult	car	63.60%	T
objectsResult	person	63.20%	T
objectsResult	car	61.70%	T
objectsResult	person	58.00%	T
objectsResult	person	54.70%	T
objectsResult	Land vehicle	50.40%	T



**Figure8** Value.values.tags.name Value.values.tags.confidence TRUE/FALSE

objectsResult	person	79.30%	T
objectsResult	person	76.10%	T
objectsResult	television	72.50%	T
objectsResult	person	66.20%	T
objectsResult	person	59.80%	T
objectsResult	display	52.50%	T



Figure9	Value.values.tags.name	Value.values.tags.confidence	TRUE/FALSE
objectsResult	person	90.60%	T
objectsResult	person	85.00%	T
objectsResult	person	80.50%	T
objectsResult	television	72.30%	T



Figure10	Value.values.tags.name	Value.values.tags.confidence	TRUE/FALSE
objectsResult	chair	79.10%	T
objectsResult	chair	74.30%	T
objectsResult	chair	63.30%	T



Figure11	Value.values.tags.name	Value.values.tags.confidence	TRUE/FALSE
objectsResult	person	78.80%	T
objectsResult	person	77.00%	T
objectsResult	person	75.40%	T
objectsResult	person	74.90%	T
objectsResult	person	71.80%	T
objectsResult	person	62.80%	T
objectsResult	person	59.60%	T
objectsResult	person	58.90%	T

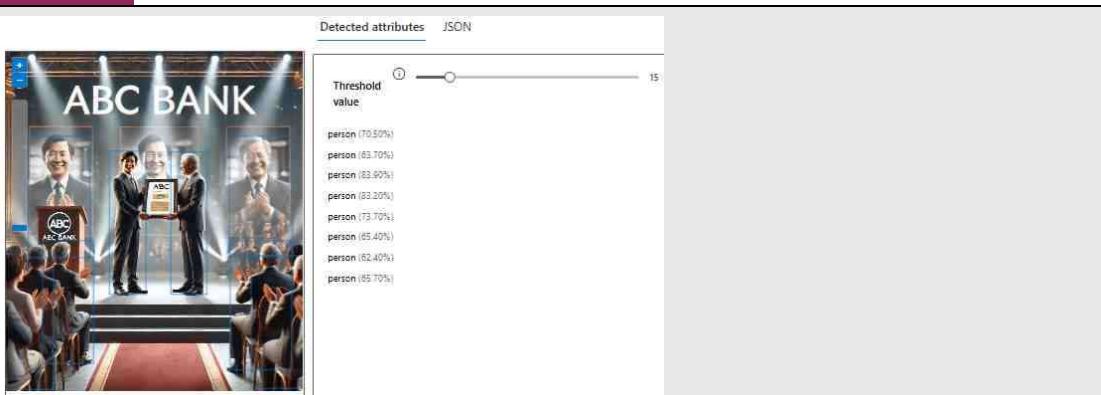


Figure12 Value.values.tags.name Value.values.tags.confidence TRUE/FALSE

objectsResult	person	83.90%	T
objectsResult	person	83.20%	T
objectsResult	person	73.70%	T
objectsResult	person	70.50%	T
objectsResult	person	65.70%	T
objectsResult	person	65.40%	T
objectsResult	person	63.70%	T
objectsResult	person	62.40%	T

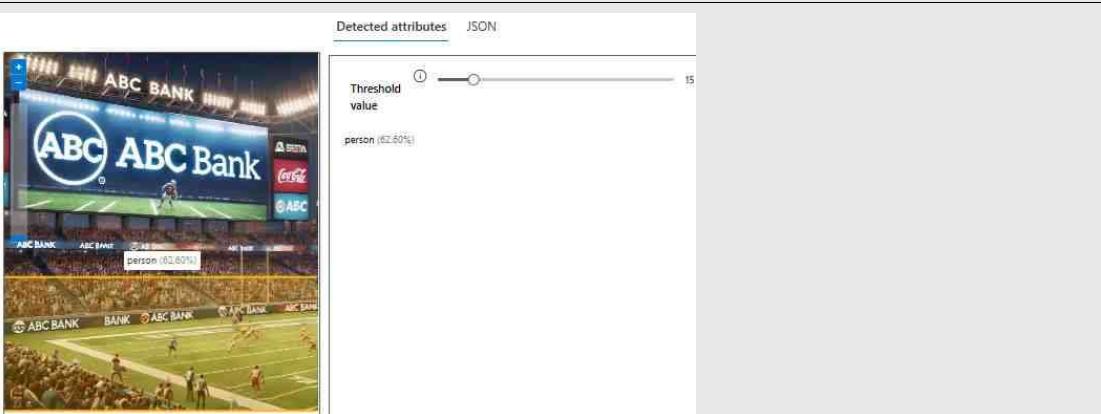


Figure13 Value.values.tags.name Value.values.tags.confidence TRUE/FALSE

objectsResult	person	62.60%	T
---------------	--------	--------	---

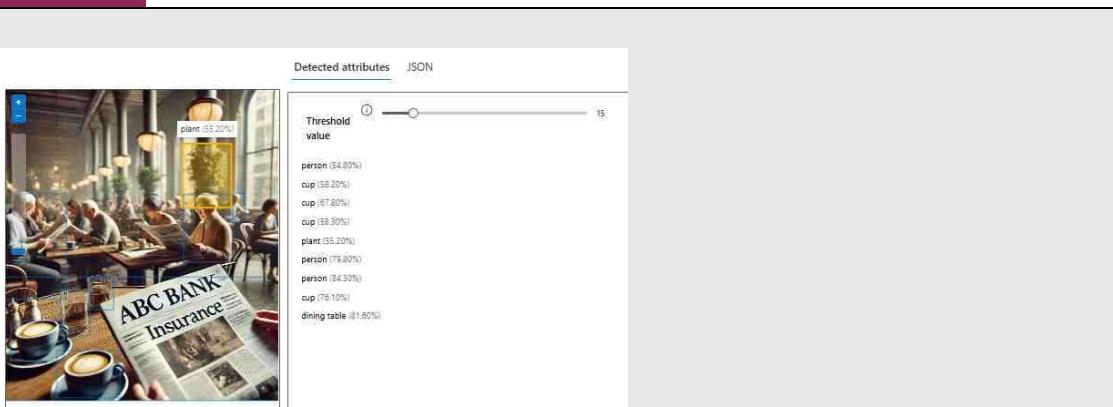
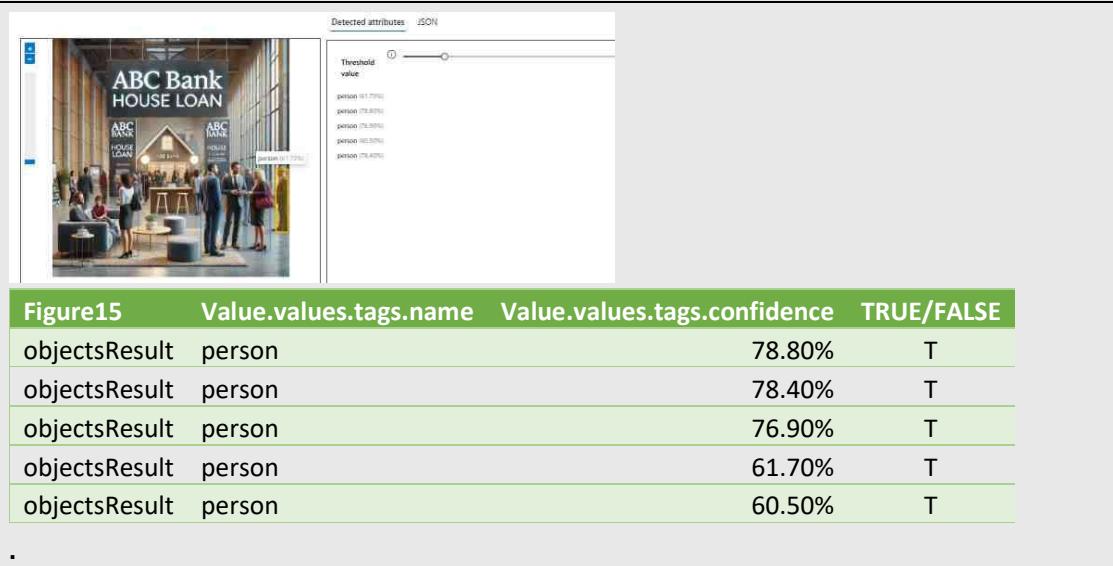
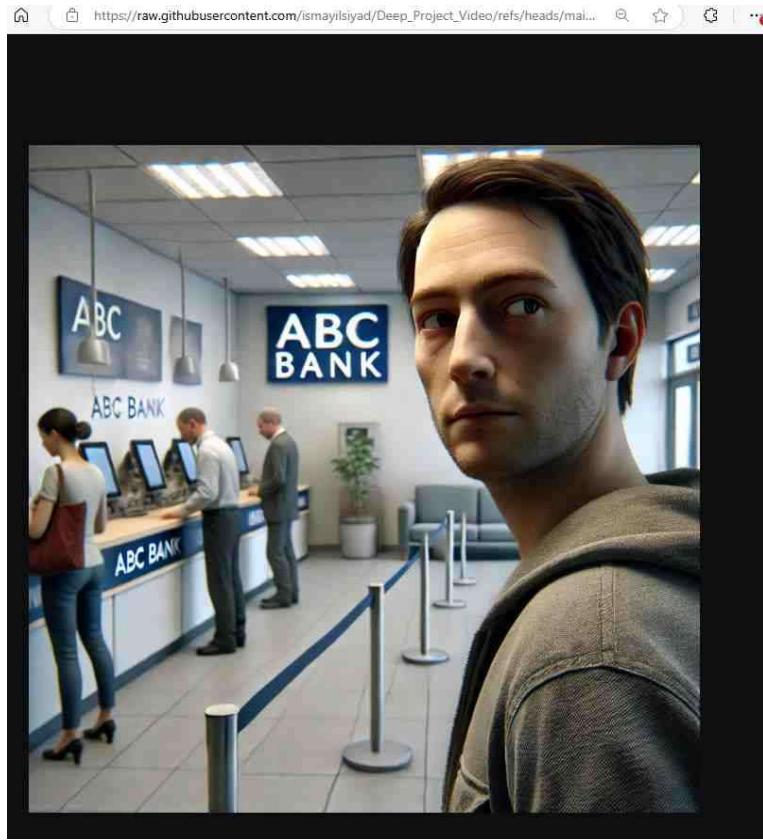


Figure14	Value.values.tags.name	Value.values.tags.confidence	TRUE/FALSE
objectsResult	person	84.30%	T
objectsResult	dining table	81.60%	T
objectsResult	person	79.80%	T
objectsResult	cup	76.10%	T
objectsResult	cup	67.80%	T
objectsResult	cup	58.30%	T
objectsResult	cup	58.20%	T
objectsResult	plant	55.20%	T
objectsResult	person	54.80%	T



- 6.5 Vision analysis through API
- Enlarged images in Annexure f.6.0**
- JSON file in Annexure 9. f.6.0



```
https://abc-visionlas004458.cognitiveservices.azure.com/computervision/imageanalysis/analyze?api-version=2024-02-01&fe... Save Share
POST https://abc-visionlas004458.cognitiveservices.azure.com/computervision/imageanalysis/analyze?api-version=2024-02-01... Send
Params Authorization Headers (1) Body Scripts Settings Cookies
none form-data x-www-form-urlencoded raw binary GraphQL JSON Beautify
1 | { "url": "https://raw.githubusercontent.com/ismayilisiyad/Deep_Project_Video/main/Img9.jpg" }
Body Cookies Headers (14) Test Results
Body JSON Preview Visualize
1 | {
2 |   "modelVersion": "2023-10-01",
3 |   "captionResult": [
4 |     {
5 |       "text": "a man standing in a bank",
6 |       "confidence": 0.7767656244812012
7 |     },
8 |     {
9 |       "denseCaptionResult": [
10 |         {
11 |           "text": "a man standing in a bank",
12 |           "confidence": 0.7767656244812012,
13 |           "boundingBox": {
14 |             "x1": 0,
15 |             "y1": 0,
16 |             "x2": 1024,
17 |             "y2": 1024
18 |           },
19 |           {
20 |             "text": "a man looking at the camera",
21 |             "confidence": 0.7159049351095885,
22 |             "boundingBox": {
23 |               "x1": 544,
24 |               "y1": 0,
25 |               "x2": 460,
26 |               "y2": 1001
27 |             }
28 |           },
29 |           {
30 |             "text": "a person in blue jeans",
31 |             "confidence": 0.6634305887886047,
32 |             "boundingBox": {
33 |               "x1": 0,
34 |               "y1": 399,
35 |               "x2": 196
36 |             }
37 |           }
38 |         ]
39 |       }
40 |     ]
41 |   }
42 | }
```

Postman output	Value.text	Value.confidence
captionResult	a man standing in a bank	77.68%
denseCaptionsResult	a man standing in a bank	77.68%
denseCaptionsResult	a man looking at the camera	71.59%
denseCaptionsResult	a person in blue jeans	66.34%
denseCaptionsResult	a blurry image of a person standing at a desk	75.15%
denseCaptionsResult	a plant in a pot	79.03%
denseCaptionsResult	a close-up of a sign	76.86%
denseCaptionsResult	a blurry image of a man in a suit	85.18%
denseCaptionsResult	a blurry image of a person's arm	83.38%
denseCaptionsResult	a group of people standing in a line	74.57%
denseCaptionsResult	a metal pole with a sign on it	64.92%
tagsResult	clothing	99.87%
tagsResult	person	99.49%
tagsResult	human face	96.73%
tagsResult	indoor	93.96%
tagsResult	jeans	93.10%
tagsResult	footwear	89.64%
tagsResult	man	87.26%
tagsResult	wall	85.96%
tagsResult	standing	77.34%
objectsResult	potted plant	57.90%
objectsResult	person	79.20%
objectsResult	person	63.40%
objectsResult	person	84.80%
objectsResult	person	89.70%
peopleResult		94.70%
peopleResult		94.13%
peopleResult		87.56%
peopleResult		85.93%
peopleResult		0.22%
peopleResult		0.15%
peopleResult		0.15%
peopleResult		0.13%

- 6.6 Customizing object detection

With capabilities of the API as demonstrated in above section 6.5. All the features of Vision analysis showcase in a single image are summarized for Figure image3. The results from features of single caption generation, dense captioning, tagging of images, and object detections are listed in one document. This is convenient for output extraction and linking to other system from the JSON file.

This image caption generation offers real time descriptions to images that are collected from various facilities. Along with dense captioning to indicate the environment in the image. Tagging identifies the physical presence and general layout in the space. And object detection makes a physical count of them. There are shortcomings in the system that can be further trained. As all the features replaces the need for active human visual inspections. So, locations that is of low urgency and high traffic can be assign appropriate surveillance measures.

Besides for use of security, visuals descriptions are also a means to keep marketing informed of their publication materials that are published. The tractions from viewers and effectiveness of their campaigns.

#### Explanations

This service in Azure is the image recognition with text description algorithm. It is designed to analyze the image area and provide descriptions. Be it with caption, dense captioning, tagging of images and object detections. The scanned image JSON files will indicate the scene, signage, living and decorative features. This system is also able to count and differentiate images from display terminals.

If the features are used to monitor marketing campaign and want machine to detect if the posters are changed or its positioning. This tool can do so automatically along with head count the number of eyeballs it captures. In any national level campaign event, more resources can be activated promptly if public response becomes overwhelming. The detection of potential security incidents faster is an indispensable tool when many branches are spread over many locations.

The goal is still to provide real-time insights that contribute to a safer banking environment. Areas of improvements on the results from the examples are in accuracy and score performance.

// e & oe

## 4g. Activity 7

### Utilize Azure AI Vision services for face images analysis.

- Created Resource and Vision Studio

Home > Microsoft.CognitiveServicesAllInOne-20250429090134 | Overview > ResourceGroup1 >

**abc-visionlas004458**   

**Overview**

**Essentials**

Resource group ( <a href="#">move</a> ) <a href="#">ResourceGroup1</a>	API Kind CognitiveServices
Status Active	Pricing tier Standard
Location East US	Endpoint <a href="https://abc-visionlas004458.cognitiveservices.azure.com/">https://abc-visionlas004458.cognitiveservices.azure.com/</a>
Subscription ( <a href="#">move</a> ) <a href="#">MOC Subscription-Id:50504968</a>	Manage keys <a href="#">Click here to manage keys</a>
Subscription ID bacb8a81-dfee-4172-aab7-faf45ac1d61c	Autoscale <a href="#">Disabled</a>
Tags ( <a href="#">edit</a> ) <a href="#">Add tags</a>	

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Vision Studio

### Get started with Vision

Recent resources I've worked on

Resource name	Last Updated
<a href="#">abc-visionlas004458</a>	29/04/2025, 9:11:58 ±

[View all resources](#)

Coming soon: Video analytics features from Azure AI Vision, using models like GPT-4 Turbo and Phi-3-V. Sign up for more information at [aka.ms/video-analytics](#)

Featured [Optical character recognition](#) [Spatial analysis](#) [Face](#) [Image analysis](#)



**Detect faces in an image**

Detect the location of one or more human faces in images, along with attributes such as pose, face mask, and facial landmarks.

[Try it out](#)



**Liveness detection**

Ensures the authenticity of users by verifying that the face in front of the camera is real and currently present.

[Try it out](#)

- Vision studio screenshots

### Enlarged images in Annexure g.7.0



Figure FaceP1

people (1).jpg	
Faces identified	5
TRUE	5T
FALSE	0F
WithMask	0
NoMask	5
Accuracy	100%

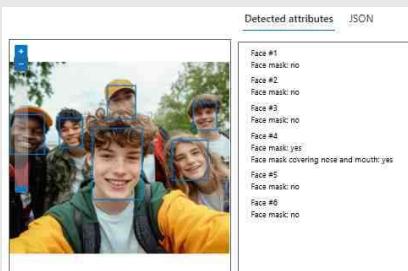


Figure FaceP2

people (2).jpg	
Faces identified	6
TRUE	6T
FALSE	0F
WithMask	0
NoMask	6
Accuracy	90%



Figure FaceP3

people (3).jpg	
Faces identified	2
TRUE	1T
FALSE	1F
WithMask	0
NoMask	1
Accuracy	90%

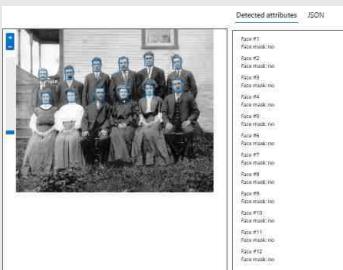


Figure FaceP4

people (4).jpg	
Faces identified	12
TRUE	12T
FALSE	0F
WithMask	0
NoMask	12
Accuracy	100%



Figure FaceP5

people (5).jpg

Faces identified	4
TRUE	4T
FALSE	0F
WithMask	0
NoMask	4
Accuracy	100%

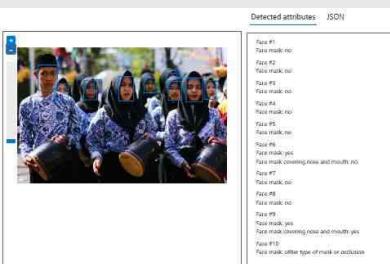


Figure FaceP6

people (6).jpg

Faces identified	10
TRUE	8T
FALSE	2F
WithMask	0
NoMask	8
Accuracy	90%



Figure FaceP7

people (7).jpg

Faces identified	3
TRUE	3T
FALSE	0F
WithMask	0
NoMask	3
Accuracy	100%



Figure FaceP8

people (8).jpg

Faces identified	3
TRUE	3T
FALSE	1F
WithMask	0
NoMask	4
Accuracy	90%



Figure FaceP9

people (9).jpg

Faces identified	11
TRUE	11T
FALSE	0F
WithMask	0
NoMask	11
Accuracy	90%



Figure FaceP10

people (10).jpg

Faces identified	2
TRUE	2T
FALSE	0F
WithMask	0
NoMask	2
Accuracy	100%

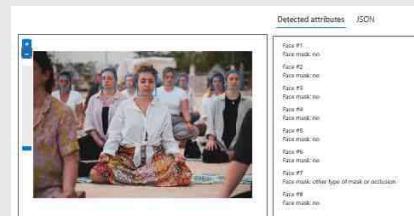


Figure FaceP11

people (11).jpg

Faces identified	8
TRUE	8T
FALSE	2F
WithMask	0
NoMask	8
Accuracy	90%



Figure FaceP12

people (12).jpg

Faces identified	4
TRUE	4T
FALSE	0F
WithMask	0
NoMask	4
Accuracy	100%



Figure FaceP13

people (13).jpg

Faces identified	3
TRUE	3T
FALSE	0F
WithMask	0
NoMask	3
Accuracy	100%

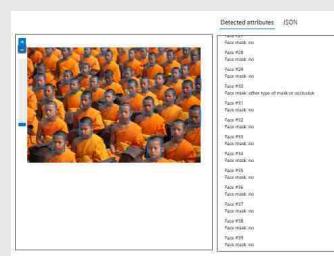


Figure FaceP14

people (14).jpg

Faces identified	39
TRUE	39T
FALSE	0F
WithMask	0
NoMask	39
Accuracy	100%



Figure FaceP15

people (15).jpg

Faces identified	3
TRUE	3T
FALSE	0F
WithMask	0
NoMask	3
Accuracy	100%



Figure FaceP16

people (16).jpg

Faces identified	2
TRUE	2T
FALSE	0F
WithMask	0
NoMask	2
Accuracy	100%



Figure FaceP17

people (17).jpg

Faces identified	2
TRUE	2T
FALSE	0T
WithMask	0
NoMask	2
Accuracy	100%



Figure FaceP18

people (18).jpg

Faces identified	3
TRUE	3T
FALSE	0F
WithMask	0
NoMask	3
Accuracy	100%

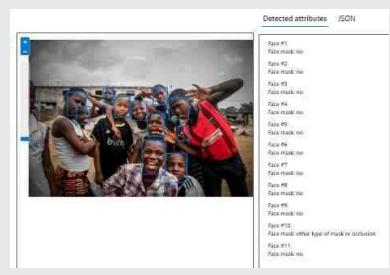


Figure FaceP19

people (19).jpg

Faces identified	11
TRUE	11T
FALSE	0F
WithMask	0
NoMask	11
Accuracy	90%



Figure FaceP20

people (20).jpg

Faces identified	1
TRUE	1T
FALSE	0F
WithMask	1
NoMask	0
Accuracy	100%

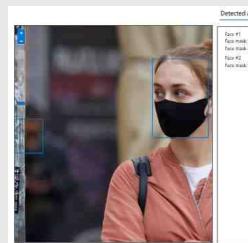


Figure FaceP21

people (21).jpg

Faces identified	2
TRUE	2T
FALSE	0F
WithMask	2
NoMask	0
Accuracy	100%



Figure FaceP22

people (22).jpg

Faces identified	4
TRUE	4T
FALSE	0F
WithMask	4
NoMask	0
Accuracy	90%

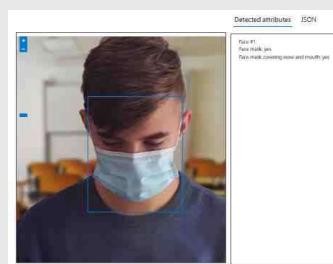


Figure FaceP23

people (23).jpg

Faces identified	1
TRUE	1T
FALSE	0F
WithMask	1
NoMask	0
Accuracy	100%

- Analyzed Face Images and Analysis results

Face Images	Attribute	Value	Accuracy
Faces identified	people (1).jpg	5	100%
Faces identified	people (2).jpg	6	90%
Faces identified	people (3).jpg	2	90%
Faces identified	people (4).jpg	12	100%
Faces identified	people (5).jpg	4	100%
Faces identified	people (6).jpg	10	90%
Faces identified	people (7).jpg	3	100%
Faces identified	people (8).jpg	3	90%
Faces identified	people (9).jpg	11	90%
Faces identified	people (10).jpg	2	100%
Faces identified	people (11).jpg	8	90%
Faces identified	people (12).jpg	4	100%
Faces identified	people (13).jpg	3	100%
Faces identified	people (14).jpg	39	100%
Faces identified	people (15).jpg	3	100%
Faces identified	people (16).jpg	2	100%
Faces identified	people (17).jpg	2	100%
Faces identified	people (18).jpg	3	100%
Faces identified	people (19).jpg	11	90%
Faces identified	people (20).jpg	1	100%
Faces identified	people (21).jpg	2	100%
Faces identified	people (22).jpg	4	90%
Faces identified	people (23).jpg	1	100%

## Explanations

JSON file in Annexure 9. g.7.0

This service in Azure is the face image recognition algorithm. It is designed to analyze the features of faces, The scanned image JSON files will indicate within the bounding boxes features of the model. Below is a script example from image P20 of a child. Notice how the measurements are recorded and labeled. This system recognize face from eye hole socket, nose and mouth position in proportion to the overall layout.



Face Image performance is accurate from the analysis provided for counting presence of faces or images with face features including heads with or without bodies. Which is why the analysis with 90% shows heads on its own. This tool is useful to automatically do a head count the number of heads in a premises at a given time. Its performance will also depend on the quality of images provided for analysis. Even faces at the background was recognized as a facial on a head in the crowd.

```
[  
 {  
   "recognitionModel": "recognition_01",  
   "faceRectangle": {  
     "width": 539,  
     "height": 657,  
     "left": 403,  
     "top": 126  
   },  
   "faceLandmarks": {  
     "pupilLeft": {  
       "x": 550,  
       "y": 403.8  
     },  
     "pupilRight": {  
       "x": 809.2,  
       "y": 417.8  
     },  
   },  
 }
```

**User Persona Details**

Marketing, operation and security:

For ABC Bank to manage sustainable operations of multiple branches in different locations, one immediate concern is about adequate allocation of resources. At times events will draw in large crowds to the premises that pose security issues. With more manpower resources this also incur higher backend services to upkeep security compliance and integrity. This face image recognition algorithm function as an added scanner to existing security camera features for the bank.

ABC Bank can enhance branch security with AI-driven face detection solutions. Azure Vision Studio enables real-time monitoring of customer activity, helping security teams ensure a safe and responsive environment. These are some ways the solution helps the bank.

- Use of face recognition systems in bank activities
- Recognize potential security incidents
- Provide actionable insights about persons to security personnel for prompt responses

Role and goal:

The guidelines for banking secrecy are still upheld. This tool is to assist the bank retail management identify overcrowding in premises. With this information, security or additional personnel can be activated to the scene. For instance, at a kiosk location when faces identified exceeded a reasonable number, the enforcement patrol gets activated.

Even though officers are given face credentials identifiers like access card. This face image identification can identify the ratio of personnel to customer ratio for an event to be executed more effectively. Otherwise missed opportunity will only increases marketing cost when prospect in person presence is not given attention.

For monitoring of secured facilities like banking customer safe and physical assets storage. This face image identification can keep records of activities. Besides the person count, it also detects if customers are being poached by unethical personnel on duty. The image footage is useful for securing the bank integrity position.

Although this service is constrained to only capture facial features, personal data regulation requires proper storage and accountability on its application. The image detection service would be adequate in some circumstances. For instance, to manage movement detection and if accuracy of faces credentials is not demanded.

// e & oe

## 4h. Activity 8

**Implement an Optical Character Recognition (OCR) system to extract text from handwritten documents.**

- Created Resource

The screenshot shows the Azure AI services multi-service account 'abc-visionlas004458'. The main page displays resource details such as Resource group (ResourceGroup1), Status (Active), Location (East US), Subscription ID (bac18a81-dfee-4172-aab7-fa45ac1d61c), and Endpoint (https://abc-visionlas004458.cognitiveservices...). It also shows API Kind (CognitiveServices), Pricing tier (Standard), and Autoscale (Disabled). Below the details, there's a summary card with the heading 'Build intelligent apps using a comprehensive family of AI services and cognitive APIs'. The card describes the service as combining various services from Decision, Language, Speech, Vision, and Applied AI into a single key and endpoint. It highlights the ability to see, hear, speak, understand, and make decisions. A 'Learn More' button is present at the bottom of the card.

The screenshot shows the 'Try Azure AI Content Understanding in AI Foundry' interface. It features a banner with the text 'Turn unstructured documents, images, video, and audio into structured data with the new Generative AI-powered Content Understanding service.' and a 'Visit AI Foundry' button. Below the banner, there's a section titled 'Get started with Vision' with a sub-section 'Recent resources I've worked on'. It lists a recent resource named 'abc-visionlas004458' last updated on 29/04/2023, 8:11:58 am. There's also a 'View all resources' button. At the bottom, there are tabs for 'Featured', 'Optical character recognition' (which is selected), 'Spatial analysis', 'Face', and 'Image analysis'. A callout box for 'Extract text from images' is shown, stating 'Extract printed and handwritten-style text from images and documents for supported languages.' with a 'Try it out' button.

- Vision studio screenshot

#### Enlarged images in Annexure h.8.0



- Analysed OCR Images and Analysis results

#### Enlarged images in Annexure h.8.0

 <small>Detected attributes JSON</small>	<b>Value.words.confidenc</b> <b>Value.words.text</b> <b>e</b> CHEMIN PRIVÉ PASSAGE INTERDIT
Accuracy 100%	
 <small>Selected entities - 30.0</small>	<b>Value.words.confidenc</b> <b>Value.words.text</b> <b>e</b> make things happen
Accuracy 100%	

Detected attributes	JSON	Value.text	e.words.text	s.confidence
English: How much is this?	English: How much is this?	English:	99.30%	
Dutch: Hoeveel is dit?	Dutch: Hoeveel is dit?	How	99.40%	
French: combien est-ce que ça coûte?	French: combien est ce que ça coûte?	much	99.30%	
German: Wie viel ist das?	German: Wie viel ist das?	is	99.80%	
Italian: Quanto costa questo?	Italian: Quanto costa questo?	this?	99.30%	
Portuguese: Quanto é isso? Quanto custa?	Portuguese: Quanto é isso? Quanto custa?	Dutch:	99.30%	
Spanish: ¿cuánto cuesta esto?	Spanish: ¿cuánto cuesta esto?	Hoeveel	99.40%	
		is	99.90%	
		dit?	99.10%	
		French:	99.40%	
		combien	99.50%	
		est-ce	99.40%	
		que	99.90%	
		ca	30.30%	
		coute?	36.60%	
		German:	99.60%	
		Wie	99.40%	
		viel	98.90%	
		ist	99.90%	
		das?	99.10%	
		Italian:	99.10%	
		Quanto	99.50%	
		costa	99.30%	
		questo?	99.30%	
		Portuguese:	99.30%	
		Quanto é isso? Quanto custa?	Portuguese:	
		Quanto	99.40%	
		é	77.70%	
		issó?	99.30%	
		Quanto	99.60%	
		custa?	99.10%	
		Spanish:	100.00%	
		¿	100.00%	
		cuánto	99.80%	
		cuesta	99.30%	
		esto?	98.20%	

Accuracy 100%

Detected attributes	JSON	Value.text	Value.words.text	.confidence
THEY FOUGHT TOGETHER AS BROTHERS-IN-ARMS. THEY DIED TOGETHER AND NOW THEY SLEEP SIDE BY SIDE TO THEM WE HAVE A SOLEMN OBLIGATION ADMIRAL CHESTER W. NIMITZ	THEY FOUGHT TOGETHER AS BROTHERS-IN-ARMS. THEY DIED TOGETHER AND NOW THEY SLEEP SIDE BY SIDE TO THEM WE HAVE A SOLEMN OBLIGATION ADMIRAL CHESTER W. NIMITZ	THEY	FOUGHT	99.10%
		TOGETHER	TOGETHER	99.40%
		AS	AS	99.30%
		BROTHERS-IN-ARMS.	BROTHERS-IN-ARMS.	99.70%
		THEY DIED	THEY	95.40%
		DIED	DIED	99.10%
		TOGETHER	TOGETHER	99.30%
		AND	AND	99.80%
		NOW	NOW	99.00%
		THEY	THEY	97.30%
		SLEEP	SLEEP	99.30%
		SIDE	SIDE	99.20%
		BY	BY	99.20%
		SIDE.	SIDE.	93.70%
		TO	TO	99.90%
		THEM	THEM	99.20%
		WE	WE	99.80%
		HAVE	HAVE	98.70%
		A	A	95.90%
		SOLEMN	SOLEMN	99.40%
		OBLIGATION	OBLIGATION	95.70%
		ADMIRAL	ADMIRAL	99.10%
		CHESTER	CHESTER	99.20%
		W.	W.	93.70%
		NIMITZ	NIMITZ	99.30%

Accuracy 100%

 <p>Detected attributes: JSON What's NEXT</p>	<table border="1"> <thead> <tr> <th colspan="2">Value.words.confidence</th> </tr> <tr> <th>Value.words.text</th><th>e</th></tr> </thead> <tbody> <tr> <td>What's</td><td>89.40%</td></tr> <tr> <td>NEXT</td><td>98.40%</td></tr> </tbody> </table> <p>Accuracy 100%</p>	Value.words.confidence		Value.words.text	e	What's	89.40%	NEXT	98.40%																																																									
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Detected attributes JSON		
Value.text	Value.words.text	words.confidence
Einkauf	Einkauf	99.50%
Berkauf !		
Butter		
BBQ		
Gemuse		
Aepfel		
-Tomatensoße		
1		
2		
3		
4		
5		
Snack's ; BBQ	BBQ	95.80%
JSON	JSON	91.80%
Butter	Butter	91.80%
2	2	91.20%
Gemuse	Gemuse	91.10%
Gemuse	Gemuse	91.00%
1	1	84.50%
Snack's ; BBQ	Snack's	81.60%
Tomatensauce	Tomatensauce	80.50%
ES	ES	77.70%
Tomatensauce	Tomatensauce	73.70%
Snack's 1 389	Snack's	73.10%
m	m	66.60%
Butter	Butter	63.70%
Snack's ; BBQ	;	61.90%
Snack's 1 389	389	59.60%
Zeptel	Zeptel	57.70%
-----	-----	50.70%
- Aepfel	Aepfel	43.70%
Einkauf !	Einkauf	40.30%
Einkauf !	!	37.90%
Snack's 1 389	1	23.70%
- Aepfel	-	15.80%

Accuracy 100%

Detected attributes JSON		
Value.text	Value.words.text	ds.confidence
awaiting for	for	99.70%
2	2	99.60%
4	4	99.50%
CV B	B	99.50%
R	R	99.40%
9	9	99.40%
à	à	99.40%
A	A	99.30%
I	I	99.00%
A Message	Message	98.90%
7	7	98.90%
A Message	A	98.50%
awaiting for	awaiting	98.10%
1	1	97.50%
N	N	97.50%
*	*	96.40%
F	F	95.90%
T	T	95.40%
5	5	95.20%
8	8	94.90%
3	3	91.70%
E5	E5	89.50%
.	.	88.10%
Sym	Sym	86.90%
0 0:	0	84.90%
@	@	83.70%
1 ,	,	83.60%
WE	WE	83.20%
U	U	82.70%
GH	GH	78.60%
-	-	77.90%
6	6	77.70%
CV B	CV	77.40%
you!	you!	73.80%
Ctrl	Ctrl	72.10%
&	&	70.80%
7	7	68.80%
S	S	61.20%
Y	Y	59.50%
0 0:	0:	29.30%
1 ,	1	23.60%
IM	IM	19.40%

Accuracy 100%

	<p>Detected attributes JSON</p> <table border="1"> <thead> <tr> <th colspan="3">Value.text :.words.text .confidence</th> </tr> </thead> <tbody> <tr><td>you must be the change</td><td>you</td><td>99.20%</td></tr> <tr><td>you must be the change</td><td>must</td><td>99.20%</td></tr> <tr><td>you must be the change</td><td>be</td><td>99.20%</td></tr> <tr><td>you must be the change</td><td>the</td><td>99.50%</td></tr> <tr><td>you must be the change</td><td>change</td><td>96.50%</td></tr> <tr><td>you want to see in the world!</td><td>you</td><td>99.30%</td></tr> <tr><td>you want to see in the world!</td><td>want</td><td>99.00%</td></tr> <tr><td>you want to see in the world!</td><td>to</td><td>99.50%</td></tr> <tr><td>you want to see in the world!</td><td>see</td><td>99.30%</td></tr> <tr><td>you want to see in the world!</td><td>in</td><td>99.60%</td></tr> <tr><td>you want to see in the world!</td><td>the</td><td>99.50%</td></tr> <tr><td>you want to see in the world!</td><td>world!</td><td>92.40%</td></tr> </tbody> </table>	Value.text :.words.text .confidence			you must be the change	you	99.20%	you must be the change	must	99.20%	you must be the change	be	99.20%	you must be the change	the	99.50%	you must be the change	change	96.50%	you want to see in the world!	you	99.30%	you want to see in the world!	want	99.00%	you want to see in the world!	to	99.50%	you want to see in the world!	see	99.30%	you want to see in the world!	in	99.60%	you want to see in the world!	the	99.50%	you want to see in the world!	world!	92.40%						
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HERZEN BESITZT,	HERZEN	99.50%																																												
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KANN MAN DURCH	KANN	98.90%																																												
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DEN TOD NICHT	TOD	99.80%																																												
DEN TOD NICHT	NICHT	99.50%																																												
VERLIEREN.	VERLIEREN.	99.30%																																												

Detected attributes JSON		
		Value.text /value.words.text confidence
FRAGILE	FRAGILE	99.40%
RED HOT	RED	99.80%
RED HOT	HOT	99.80%
KEEP REFRIGERATED	KEEP	98.90%
KEEP REFRIGERATED	REFRIGERATED	99.30%
HANDLE	HANDLE	99.30%
RUSH	RUSH	98.90%
WITH CARE	WITH	99.20%
WITH CARE	CARE	99.20%
DO NOT FREEZE	DO	99.80%
DO NOT FREEZE	NOT	98.90%
DO NOT FREEZE	FREEZE	99.40%
URGENT	URGENT	99.30%
hold for	hold	98.90%
hold for	for	98.90%
URGENT	URGENT	99.40%
packing	packing	99.60%
Q.C. approval	Q.C.	95.90%
Q.C. approval	approval	99.40%
list	list	98.80%
URGENT	URGENT	99.10%
ENCLOSED	ENCLOSED	99.40%
CAUTION	CAUTION	99.10%
PLEASE	PLEASE	99.30%
iStock	iStock	95.00%
HANDLE WITH CARE Credit: belterz	HANDLE	99.30%
HANDLE WITH CARE Credit: belterz	WITH	98.30%
HANDLE WITH CARE Credit: belterz	CARE	99.30%
HANDLE WITH CARE Credit: belterz	Credit:	98.90%
HANDLE WITH CARE Credit: belterz	belterz	99.30%
RED HOT	RED	99.80%
RED HOT	HOT	99.80%
DO NOT DROP	DO	99.80%
DO NOT DROP	NOT	99.40%
DO NOT DROP	DROP	98.90%
RUSH	RUSH	98.90%
** THANK YOU **	*	97.10%
** THANK YOU **	*	98.00%
** THANK YOU **	THANK	99.40%
** THANK YOU **	YOU	99.90%
** THANK YOU **	*	95.50%
** THANK YOU **	*	99.40%
THIS SIDE UP	THIS	99.10%
THIS SIDE UP	SIDE	99.10%
THIS SIDE UP	UP	99.80%
168336302	168336302	99.40%

Accuracy 100%

Detected attributes JSON		
		Value.text /value.words.text.confidence
PASSPORT	PASSPORT	99.30%
United States	United	99.30%
United States	States	98.90%
of America	of	99.70%
of America	America	99.40%

Accuracy 100%

Detected attributes	JSON	
	<p>Nutrition Facts Amount Per Serving: Serving size: 1 bar (40g) Serving Per Package: 4 Total Fat 13g Saturated Fat 1.5g Amount Per Serving: Trans Fat 0g calories 190 Cholesterol 0mg calories from Fat 110 Sodium 20mg nt Daily Values are based on Vitamin A 50% - VN calorie diet.</p>	
		Value.text.e.words.text .confidence
		Nutrition Facts Nutrition 99.30%
		Nutrition Facts Facts 99.60%
		Amount Per Serving Amount 99.30%
		Amount Per Serving Per 99.90%
		Amount Per Serving Serving 99.30%
		Serving size: 1 bar (40g) Serving 98.00%
		Serving size: 1 bar (40g) size: 99.40%
		Serving size: 1 bar (40g) 1 99.40%
		Serving size: 1 bar (40g) bar 99.70%
		Serving size: 1 bar (40g) (40g) 99.40%
		Serving Per Package: 4 Serving 99.40%
		Serving Per Package: 4 Per 99.90%
		Serving Per Package: 4 Package: 99.30%
		Serving Per Package: 4 4 99.60%
		Total Fat 13g Total 99.70%
		Total Fat 13g Fat 99.90%
		Total Fat 13g 13g 99.90%
		Saturated Fat 1.5g Saturated 99.30%
		Saturated Fat 1.5g Fat 99.30%
		Saturated Fat 1.5g 1.5g 99.30%
		Amount Per Serving Amount 99.30%
		Amount Per Serving Per 99.30%
		Amount Per Serving Serving 99.30%
		Trans Fat 0g Trans 99.40%
		Trans Fat 0g Fat 99.30%
		Trans Fat 0g 0g 96.20%
		alories 190 alories 29.30%
		alories 190 190 99.90%
		Cholesterol 0mg Cholesterol 99.30%
		Cholesterol 0mg 0mg 86.20%
		ories from Fat 110 ories 98.90%
		ories from Fat 110 from 99.30%
		ories from Fat 110 Fat 99.90%
		ories from Fat 110 110 99.00%
		Sodium 20mg Sodium 99.60%
		Sodium 20mg 20mg 99.30%
		nt Daily Values are based on nt 99.60%
		nt Daily Values are based on Daily 99.30%
		nt Daily Values are based on Values 99.40%
		nt Daily Values are based on are 99.30%
		nt Daily Values are based on based 99.60%
		nt Daily Values are based on on 99.80%
		Vitamin A 50% . VN Vitamin 93.50%
		Vitamin A 50% . VN A 97.00%
		Vitamin A 50% . VN 50% 83.30%
		Vitamin A 50% . VN . 37.50%
		Vitamin A 50% . VN VN 11.80%
		calorie diet. calorie 99.40%
		calorie diet. diet. 94.80%
		Accuracy 100%



The screenshot shows an OCR interface with two main sections. On the left, there is a photograph of a person from the waist up, wearing a blue t-shirt with the words "TODAY I WILL SHINE" printed on it in large, bold, yellow and white letters. On the right, there is a table titled "Detected attributes" with two tabs: "Detected attributes" (selected) and "JSON". The table has four columns: "value", "text", "ords", "text", and "confidence". The data is as follows:

value	text	ords	text	confidence
TODAY		TODAY		99.30%
I WILL	I			81.40%
I WILL		WILL		98.90%
SHINE	SHINE			99.50%

Below the table, the text "Accuracy 100%" is displayed.

### Explanations

This service in Azure is the image processing for OCR technology. It is designed to analyze the text from images, ensuring quick and accurate data digitalization. With traditional data entry being time-consuming and prone to human error. This technology starts image analysis once from the first capture. Thus, effectively use resources to process large volume of information from various sources. The automation of text extractions reduces manual data entry errors and improve processing time. It also archives periodically for future referencing.

OCR technology performance is accurate from the analysis provided using the dataset of ABC Bank. It also recognizes different language by offering the breakdown of texts. The images are not limited to typed or handwritten formatting, it can be taken directly from objects or off the wall in any alignment. This is usually the case when information is captured within time and space constrains. Even in dark background or limited lighted environment.

Results example shows 100% accuracy for Latin alphabets. This score performance may vary with different language characters. Depending on operations of ABC Bank, this OCR technology will have to be customized if geographic operations require them.

e & oe

### User Persona Details

**Role:** Additional data reviewers will be required depending on the value of transactions.

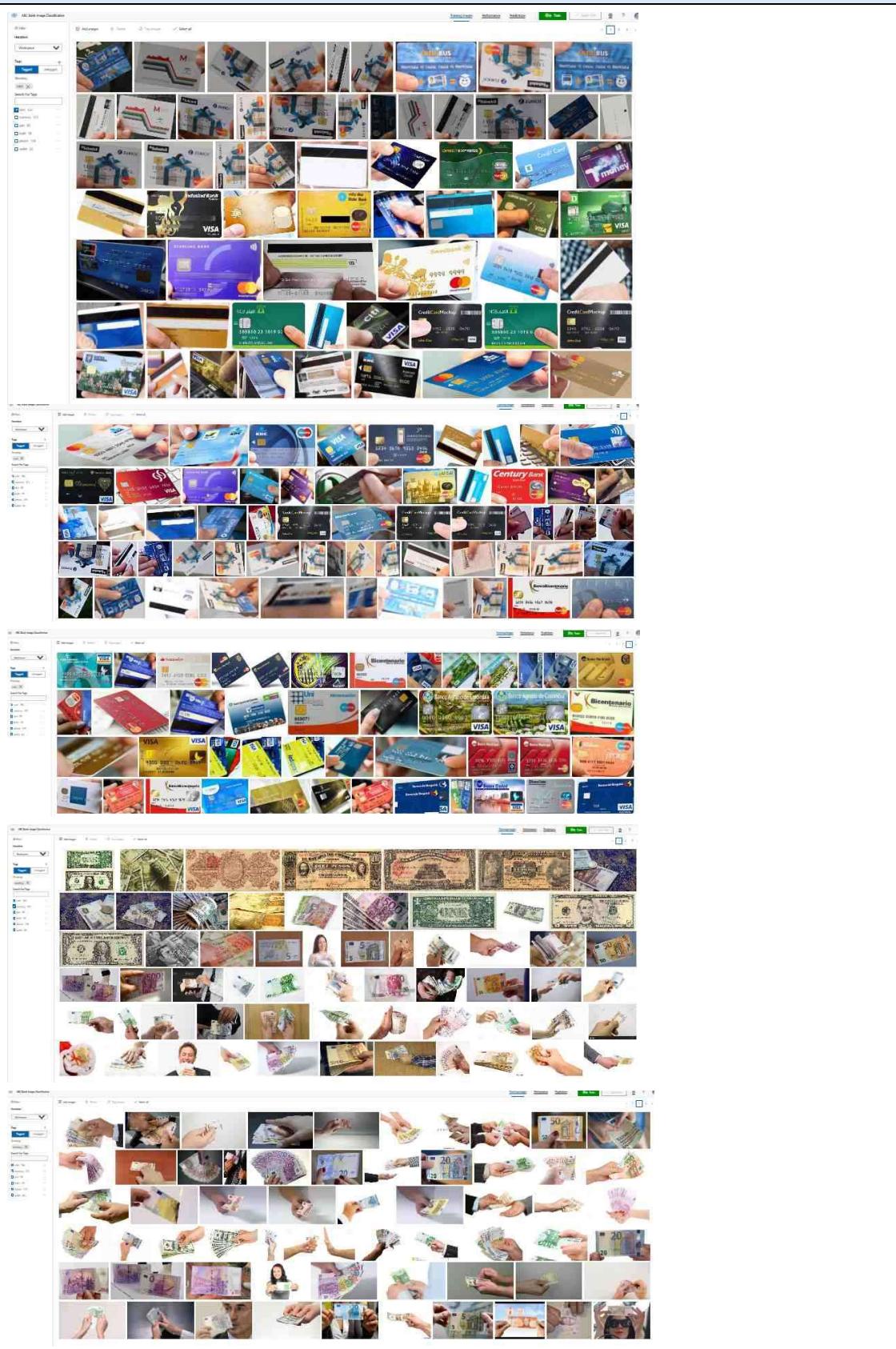
**Goals:** To optimize the first level of data entry processing time.

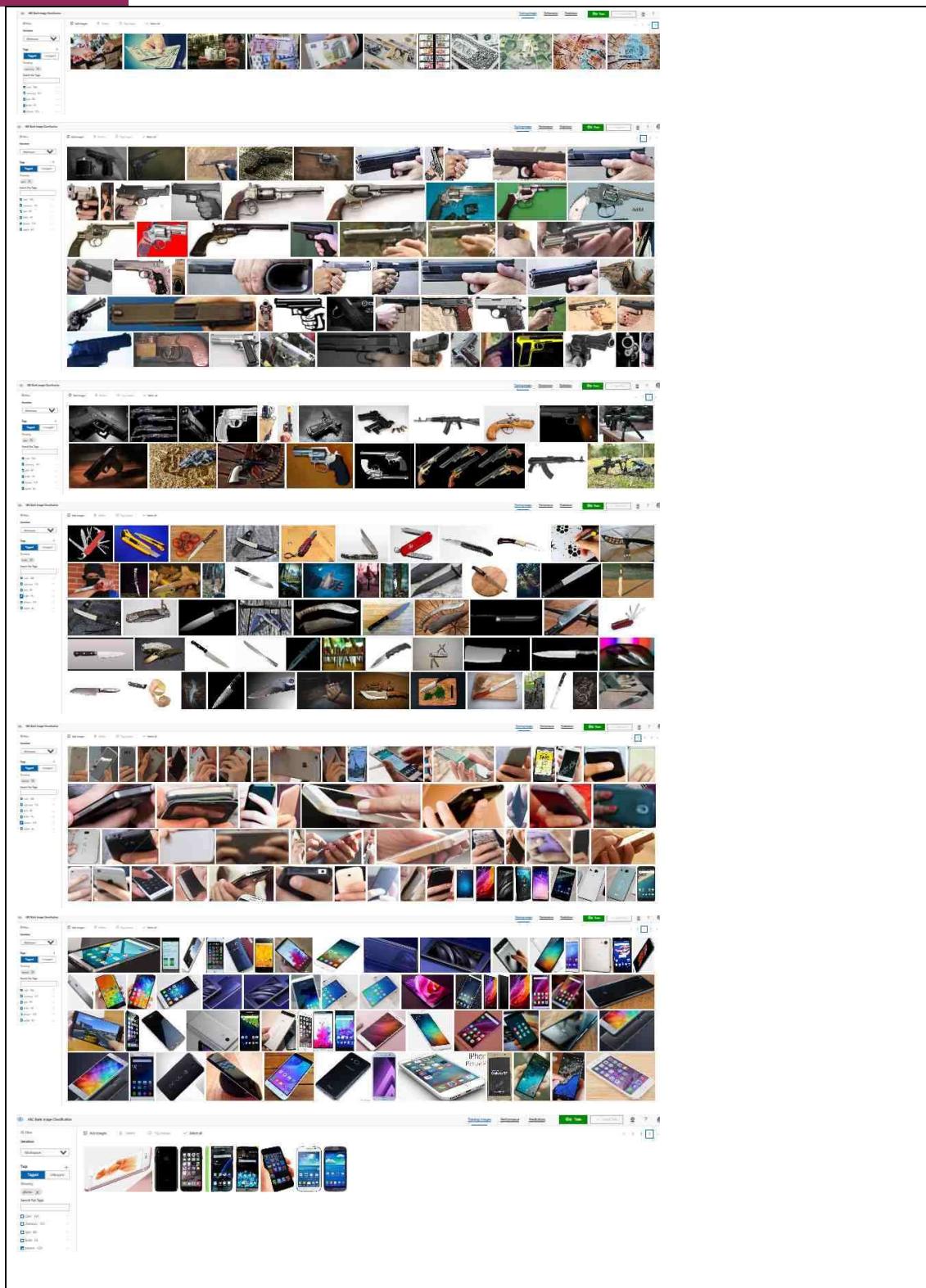
## 4i. Activity 9

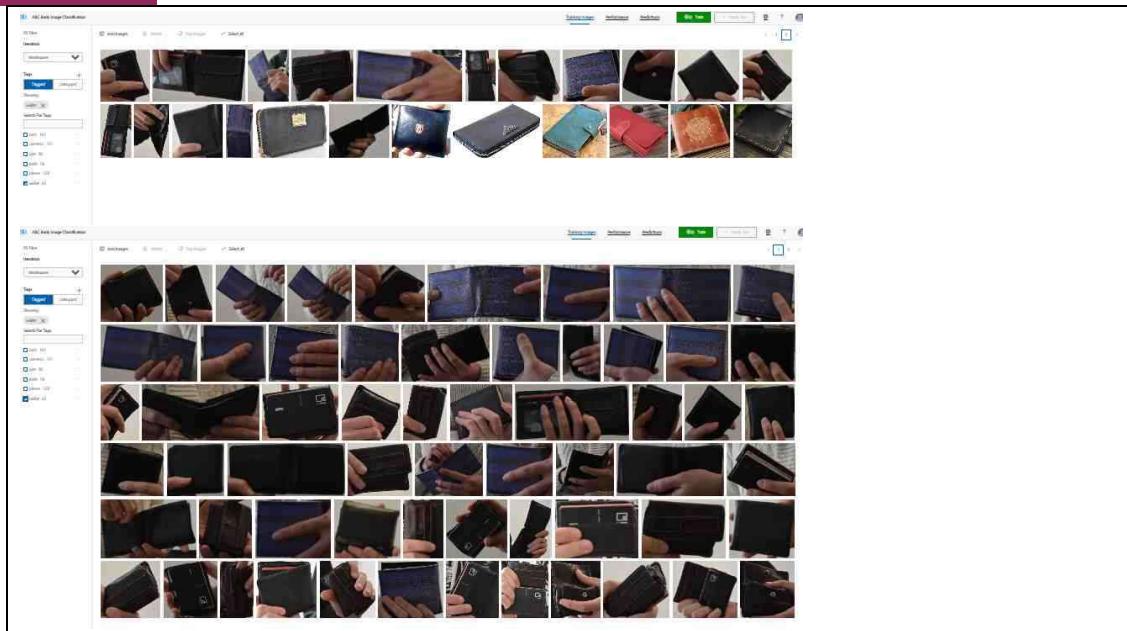
### Design and implement image classification system for security with API.

- Created Resource

- Custom vision portal screenshot







#### • Evaluation results of the model after training

##### Quick Test

Image URL

or



File formats accepted: jpg, png, bmp  
File size should not exceed: 4mb

Using model trained in

Iteration

Tag	Probability
currency	95.1%
card	4.5%
phone	0.1%
gun	0%
knife	0%
wallet	0%

## Quick Test



Image URL

 Enter Image URL

or

**Browse local files**

File formats accepted: jpg, png, bmp

File size should not exceed: 4mb

Using model trained in

Iteration

 Iteration 1 ▾

Tag	Probability
currency	99.8%
card	0.1%
phone	0%
knife	0%
gun	0%
wallet	0%

## Quick Test

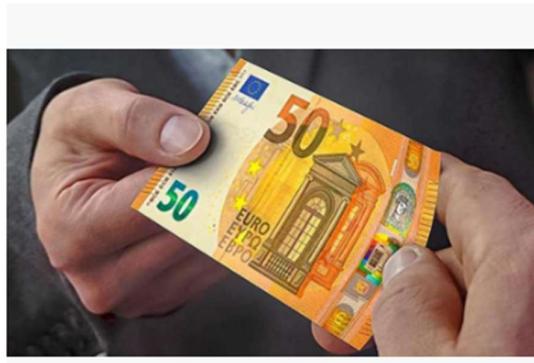


Image URL

 Enter Image URL

or

**Browse local files**

File formats accepted: jpg, png, bmp

File size should not exceed: 4mb

Using model trained in

Iteration

 Iteration 1 ▾

Tag	Probability
currency	98.7%
card	1.2%
gun	0%
phone	0%
knife	0%
wallet	0%

## Quick Test

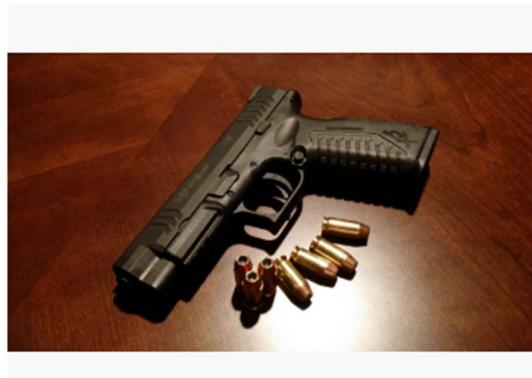


Image URL

 Enter Image URL

or

**Browse local files**File formats accepted: [jpg](#), [png](#), [bmp](#)File size should not exceed: [4mb](#)

Using model trained in

Iteration

 Iteration 1 ▾

Tag	Probability
gun	99.9%
knife	0%
phone	0%
card	0%
currency	0%
wallet	0%

## Quick Test



Image URL

 Enter Image URL

or

**Browse local files**File formats accepted: [jpg](#), [png](#), [bmp](#)File size should not exceed: [4mb](#)

Using model trained in

Iteration

 Iteration 1 ▾

Tag	Probability
knife	99.8%
phone	0.1%
gun	0%
wallet	0%
card	0%
currency	0%

## Quick Test



Image URL

 Enter Image URL

or

**Browse local files**

File formats accepted: jpg, png, bmp

File size should not exceed: 4mb

Using model trained in

Iteration

 Iteration 1 ▾

Tag	Probability
wallet	99.9%
currency	0%
knife	0%
phone	0%
card	0%
gun	0%

## Quick Test

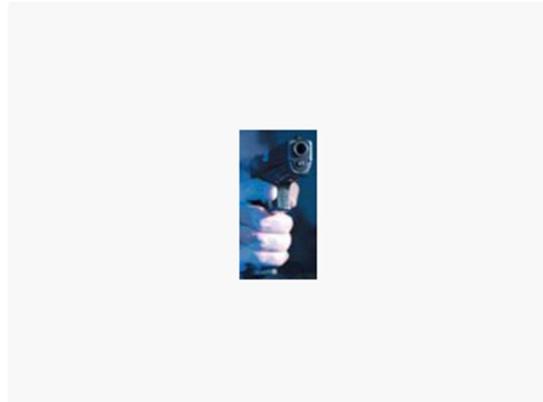


Image URL

 Enter Image URL

or

**Browse local files**

File formats accepted: jpg, png, bmp

File size should not exceed: 4mb

Using model trained in

Iteration

 Iteration 1 ▾

Tag	Probability
gun	83.8%
card	7.8%
phone	7.6%
wallet	0.3%
knife	0.1%
currency	0.1%

## Quick Test



Image URL

Enter Image URL



or

Browse local files

File formats accepted: jpg, png, bmp  
File size should not exceed: 4mb

Using model trained in

Iteration

Iteration 1 ▾

Tag	Probability
phone	99.9%
currency	0%
card	0%
knife	0%
gun	0%
wallet	0%

## Quick Test



Image URL

Enter Image URL



or

Browse local files

File formats accepted: jpg, png, bmp  
File size should not exceed: 4mb

Using model trained in

Iteration

Iteration 1 ▾

Tag	Probability
card	99.7%
currency	0.1%
phone	0%
gun	0%
wallet	0%
knife	0%

Quick Test

Image URL

or

**Browse local files**

File formats accepted: [jpg](#), [png](#), [bmp](#)  
File size should not exceed: [4mb](#)

Using model trained in

Iteration

Iteration 1 ▾

Tag	Probability
card	99.3%
phone	0.3%
currency	0.1%
wallet	0.1%
gun	0%
knife	0%

X Unpublish ⚙ Prediction URL 🗑 Delete ⬇ Export

## Iteration 1

Finished training on 29/04/2025, 5:00:53 pm using General [A2] domain  
Iteration id: 4a75b59d-c01c-4e5c-8d73-ddcb73054f70  
Classification type: Multiclass (Single tag per image)  
Published as: abcsecurity

Precision ⓘ

A donut chart with a purple border and a white center. The text "100.0%" is displayed in the center.

Recall ⓘ

A donut chart with a blue border and a white center. The text "96.9%" is displayed in the center.

AP ⓘ

A donut chart with a green border and a white center. The text "99.9%" is displayed in the center.

## Performance Per Tag

Tag	Precision	▲	Recall	A.P.	Image count	⚠
wallet	100.0%		100.0%	100.0%	83	<div style="width: 100%; height: 10px; background-color: #ccc;"></div>
phone	100.0%		92.3%	100.0%	129	<div style="width: 72.3%; height: 10px; background-color: #ccc;"></div>
knife	100.0%		100.0%	100.0%	59	<div style="width: 100%; height: 10px; background-color: #ccc;"></div>
gun	100.0%		93.8%	99.6%	80	<div style="width: 93.8%; height: 10px; background-color: #ccc;"></div>
currency	100.0%		100.0%	100.0%	131	<div style="width: 100%; height: 10px; background-color: #ccc;"></div>
card	100.0%		97.0%	99.9%	164	<div style="width: 97%; height: 10px; background-color: #ccc;"></div>

## • Tested results

ABC Bank Image Classification

Training Images Performance Predictions Train Quick Test ?

Filter Iteration: Iteration 1

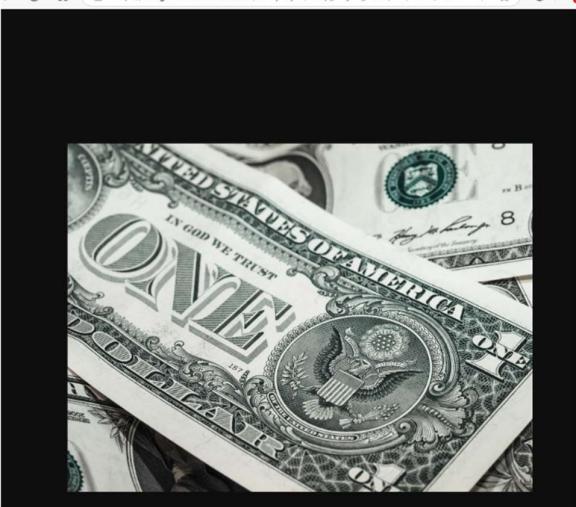
Tags: Showing: all predicted images Search For Tags:

Sort: Suggested (radio button selected), Newest, Oldest

Image grid:

- Phone (predicted: phone: 99.9%, currency: 0%, card: 0%, knife: 0%, gun: 0%)
- Credit Card (predicted: currency: 99.9%, phone: 0%, card: 0%, knife: 0%, gun: 0%)
- Knife (predicted: knife: 99.9%, currency: 0%, card: 0%, phone: 0%, gun: 0%)
- Gun (predicted: gun: 99.9%, currency: 0%, card: 0%, knife: 0%, phone: 0%)
- Smartphone (predicted: phone: 99.9%, currency: 0%, card: 0%, knife: 0%, gun: 0%)
- Credit Card (predicted: currency: 99.9%, phone: 0%, card: 0%, knife: 0%, gun: 0%)
- Hand holding money (predicted: currency: 99.9%, phone: 0%, card: 0%, knife: 0%, gun: 0%)
- Knife (predicted: knife: 99.9%, currency: 0%, card: 0%, phone: 0%, gun: 0%)
- Smartphone (predicted: phone: 99.9%, currency: 0%, card: 0%, knife: 0%, gun: 0%)

- API response from Postman



.tagName	:probability
currency	99.95%
knife	0.04%
phone	0.00%
wallet	0.00%
card	0.00%
gun	0.00%

POST https://abc--visionlas0 +

https://abc--visionlas004458.cognitiveservices.azure.com/customvision/v3.0/Prediction/b83db9cb-6639-4823-... Save Share

POST https://abc--visionlas004458.cognitiveservices.azure.com/customvision/v3.0/Prediction/b83db9cb-6639-4823-... Send

Params Authorization Headers (11) Body Scripts Settings Cookies Beautify

none form-data x-www-form-urlencoded raw binary GraphQL JSON

```
1 { "Url": "https://raw.githubusercontent.com/ismayilsiyad/Deep_Project_Video/refs/heads/main/bank-notes-941246_1280%20(1).jpg" }
```

Body Cookies Headers (9) Test Results 200 OK 1.29 s 1.13 KB

```
1 {
2   "id": "a92afc14-19f9-419c-b239-c0d8875e8fa1",
3   "projectId": "b83db9cb-6639-4823-9b01-ae6f5373c7c6",
4   "iteration": "4a75b59d-c01c-4e5c-8d73-ddcb73054f70",
5   "created": "2025-04-29T09:21:11.996Z",
6   "predictions": [
7     {
8       "probability": 0.9995492,
9       "tagId": "e95137de-2a83-4689-9a81-0e23a49627b1",
10      "tagName": "currency"
11    },
12    {
13      "probability": 0.00037150577,
14      "tagId": "b11476ba-0868-47ff-9363-e16379b36a19",
15      "tagName": "knife"
16    },
17    {
18      "probability": 3.1973872E-05,
19      "tagId": "c6c48185-884e-4db4-88ac-4bcfa8cc57c9",
20      "tagName": "phone"
21    },
22    {
23      "probability": 2.94016E-05,
24      "tagId": "f170c985-1f7e-443d-8519-e678fa221e9a",
25      "tagName": "wallet"
26    },
27    {
28      "probability": 1.2866714E-05,
29      "tagId": "7a9d7524-9067-4765-b133-e8890f3dedc4",
30      "tagName": "card"
31    },
32    {
33      "probability": 5.064915E-06,
34      "tagId": "7aa70c69-4a72-4348-b8ed-16bb17d26d57",
35    }
36  ]
37}
```

### Explanations

This image classification starts the process with training the program with tagged images. Subsequently, it ensures accurate classification of items to identify potential security threats as one of their main uses. This automatically classify items in images. Which otherwise, with manual identification of specific objects in images in time-intensive and may lead to oversight.

Aim to improve real-time threat detection and security response times. Bank staff are assisted in monitoring and securing sensitive areas. For instance, in the tabular data below the Precision rate for A1 and A2 are at 100%. For context of bank safety, the Recall on A1 for critical objects as wallet, knife, currency and card are at 100% as well. These results are example of accuracy in the score performance.

Object	Image Cnt	General A2		General		General A1		General (Compact) S1		General (Compact)	
		Precision	Recall	Precision	Recall	Precision	Recall	Precision	Recall	Precision	Recall
wallet	59	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	88.20%	100.00%	91.70%
phone	80	100.00%	92.30%	100.00%	92.30%	100.00%	88.50%	100.00%	100.00%	100.00%	87.50%
knife	83	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	97.00%	94.40%	100.00%
gun	131	100.00%	93.80%	100.00%	93.80%	100.00%	93.80%	96.20%	96.20%	92.90%	100.00%
currency	129	100.00%	100.00%	96.30%	100.00%	100.00%	100.00%	93.80%	93.80%	91.70%	84.60%
card	164	100.00%	97.00%	94.10%	97.00%	100.00%	100.00%	92.30%	100.00%	85.70%	90.90%

### User Persona Details

With API features for this image classification. Any staff of the bank have access to verify objects quickly.

#### 4j. Activity 10

##### Implement Language service cognitive for text analytics on customer reviews emails.

- Created Resources in Language Studio

The screenshot shows the Azure AI Studio interface. At the top, it says "Your deployment is complete". Below that, it lists three resources: "attachSearchForCogni" (Deployment, OK), "mlds004458" (Microsoft CognitiveServices/acc, OK), and "mlds004458-aseejfgqr" (Search service, Created). To the right, there's a "Welcome to Language Studio" section with various features like Analyze sentiment and mine opinions, Detect language, and Custom text classification. Below these, there are three cards: "Analyze sentiment and mine opinions", "Detect language", and "Custom text classification".

**Select an Azure resource**

Azure directory: L0DS-Prod-MCA

Azure subscription: MOC Subscription-ld50619115

Resource type: Language

Resource name: mlds004458

Pricing tier: Free (F0)

Managed identity: Enabled

**Create a project**

Choose language setting: English

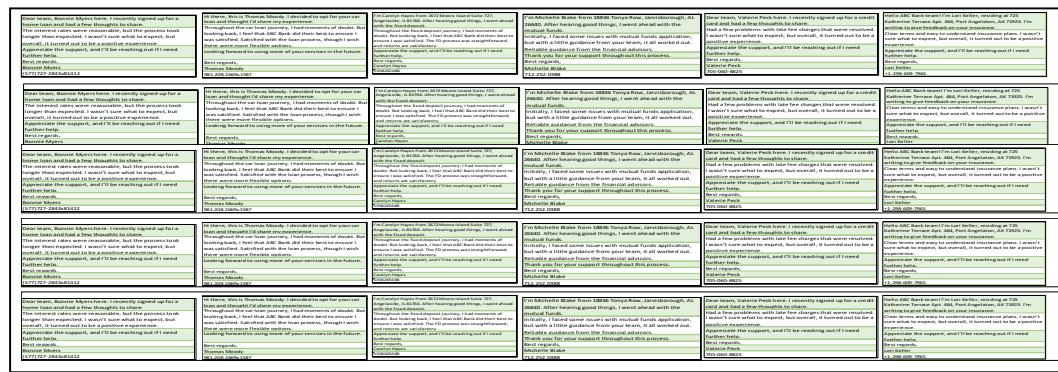
Enter basic information:

- Language resource: mlds004458
- Azure Search resource: mlds004458-aseejfgqr
- Project name: abcBankFAQ
- Description: ABC Comprehensive Frequently Asked Questions
- Source language: English
- Default answer when no response is returned: No answer found

Buttons: Back, Next, Create project, Cancel

- Language portal screenshots done on the emails.

### Enlarged images in Annexure j.10.0



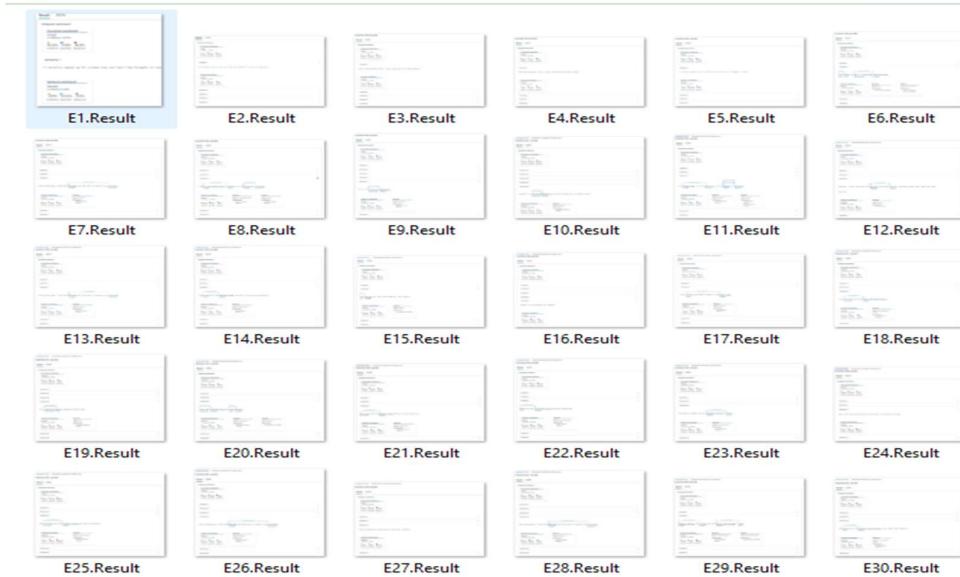
- Analyzed emails and Analysis results

For this task the section is divided into the following categories

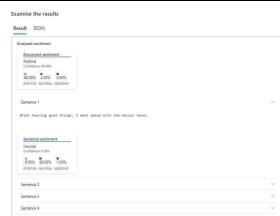
- 10.1 Sentiment classifications (positive, neutral, negative) with confidence scores
- 10.2 Key Phrase extraction highlight main pointers or frequent issues
- 10.3 Named Entity recognition to detect personal information
- 10.4 Personal Identifiable Information extraction

- 10.1 Sentiment classifications (positive, neutral, negative) with confidence scores

### Enlarged images in Annexure j.10.1



<p><b>Result: JSON</b></p> <p>Analyzed sentiment</p> <p>Document sentiment</p> <p>Mixed Confidence: 63.00%</p> <p>Sentence 1</p> <p>I recently signed up for a home loan and had a few thoughts to share.</p> <p>Sentence sentiment</p> <p>Neutral Confidence: 63.00%</p>	<h3>Sentiment 1</h3> <table border="1" data-bbox="262 487 1374 692"> <thead> <tr> <th colspan="3"><b>.sentiment .positive s.neutral negative</b></th> <th><b>Column1.text \$.sentiment</b></th> <th><b>Column1.targets.text s.sentiment</b></th> <th><b>umn1.assessments.text</b></th> </tr> </thead> <tbody> <tr> <td>neutral</td> <td>0%</td> <td>100%</td> <td>0% had a few thoughts to share.</td> <td></td> <td></td> </tr> <tr> <td>negative</td> <td>6%</td> <td>17%</td> <td>The interest rates were reasonable, but 76% the process took longer than expected.</td> <td>positive</td> <td>interest rates</td> </tr> <tr> <td>positive</td> <td>77%</td> <td>22%</td> <td>I wasn't sure what to expect, but overall, it 1% turned out to be a positive experience.</td> <td>positive</td> <td>experience</td> </tr> <tr> <td>positive</td> <td>98%</td> <td>2%</td> <td>Appreciate the support, and I'll be 0% reaching out if I need further help.</td> <td>positive</td> <td>support</td> </tr> </tbody> </table>	<b>.sentiment .positive s.neutral negative</b>			<b>Column1.text \$.sentiment</b>	<b>Column1.targets.text s.sentiment</b>	<b>umn1.assessments.text</b>	neutral	0%	100%	0% had a few thoughts to share.			negative	6%	17%	The interest rates were reasonable, but 76% the process took longer than expected.	positive	interest rates	positive	77%	22%	I wasn't sure what to expect, but overall, it 1% turned out to be a positive experience.	positive	experience	positive	98%	2%	Appreciate the support, and I'll be 0% reaching out if I need further help.	positive	support																								
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<p><b>Result: JSON</b></p> <p>Analyzed sentiment</p> <p>Document sentiment</p> <p>Mixed Confidence: 63.00%</p> <p>Sentence 1</p> <p>I decided to opt for your car loan and thought I'd share my experience.</p> <p>Sentence sentiment</p> <p>Neutral Confidence: 63.00%</p> <p>Sentence 2</p> <p>Sentence 3</p> <p>Sentence 4</p> <p>Sentence 5</p>	<h3>Sentiment 2</h3> <table border="1" data-bbox="262 958 1374 1205"> <thead> <tr> <th colspan="3"><b>.sentiment .positive s.neutral negative</b></th> <th><b>Column1.text \$.sentiment</b></th> <th><b>Column1.targets.text s.sentiment</b></th> <th><b>umn1.assessments.text</b></th> </tr> </thead> <tbody> <tr> <td>neutral</td> <td>0%</td> <td>99%</td> <td>0% thought I'd share my experience.</td> <td></td> <td></td> </tr> <tr> <td>negative</td> <td>0%</td> <td>47%</td> <td>Throughout the car loan journey, I had 52% moments of doubt.</td> <td></td> <td></td> </tr> <tr> <td>positive</td> <td>88%</td> <td>9%</td> <td>But looking back, I feel that ABC Bank did 3% their best to ensure I was satisfied.</td> <td>positive</td> <td>ABC Bank</td> </tr> <tr> <td>negative</td> <td>9%</td> <td>23%</td> <td>Satisfied with the loan process, though I 68% wish there were more flexible options.</td> <td>positive</td> <td>loan process</td> </tr> <tr> <td>positive</td> <td>57%</td> <td>42%</td> <td>Looking forward to using more of your services in the future.</td> <td></td> <td></td> </tr> </tbody> </table>	<b>.sentiment .positive s.neutral negative</b>			<b>Column1.text \$.sentiment</b>	<b>Column1.targets.text s.sentiment</b>	<b>umn1.assessments.text</b>	neutral	0%	99%	0% thought I'd share my experience.			negative	0%	47%	Throughout the car loan journey, I had 52% moments of doubt.			positive	88%	9%	But looking back, I feel that ABC Bank did 3% their best to ensure I was satisfied.	positive	ABC Bank	negative	9%	23%	Satisfied with the loan process, though I 68% wish there were more flexible options.	positive	loan process	positive	57%	42%	Looking forward to using more of your services in the future.																				
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negative	9%	23%	Satisfied with the loan process, though I 68% wish there were more flexible options.	positive	loan process																																																		
positive	57%	42%	Looking forward to using more of your services in the future.																																																				
<p><b>Result: JSON</b></p> <p>Analyzed sentiment</p> <p>Document sentiment</p> <p>Mixed Confidence: 63.00%</p> <p>Sentence 1</p> <p>After hearing good things, I went ahead with the fixed deposit.</p> <p>Sentence sentiment</p> <p>Neutral Confidence: 63.00%</p> <p>Sentence 2</p> <p>Sentence 3</p> <p>Sentence 4</p> <p>Sentence 5</p>	<h3>Sentiment 3</h3> <table border="1" data-bbox="262 1472 1374 1845"> <thead> <tr> <th colspan="3"><b>.sentiment .positive s.neutral negative</b></th> <th><b>Column1.sentences.text \$.sentiment</b></th> <th><b>.sentences.targets.text s.sentiment</b></th> <th><b>ences.assessments.text</b></th> </tr> </thead> <tbody> <tr> <td>neutral</td> <td>17%</td> <td>80%</td> <td>After hearing good things, I went ahead 3% with the fixed deposit.</td> <td></td> <td></td> </tr> <tr> <td>negative</td> <td>0%</td> <td>49%</td> <td>Throughout the fixed deposit journey, I 51% had moments of doubt.</td> <td></td> <td></td> </tr> <tr> <td>positive</td> <td>91%</td> <td>7%</td> <td>But looking back, I feel that ABC Bank did 3% their best to ensure I was satisfied.</td> <td>positive</td> <td>ABC Bank</td> </tr> <tr> <td>positive</td> <td>69%</td> <td>31%</td> <td>The FD process was straightforward, and 0% returns are satisfactory.</td> <td>positive</td> <td>FD process</td> </tr> <tr> <td>positive</td> <td>69%</td> <td>31%</td> <td>The FD process was straightforward, and 0% returns are satisfactory.</td> <td>positive</td> <td>FD process</td> </tr> <tr> <td>positive</td> <td>69%</td> <td>31%</td> <td>The FD process was straightforward, and 0% returns are satisfactory.</td> <td>positive</td> <td>returns</td> </tr> <tr> <td>positive</td> <td>69%</td> <td>31%</td> <td>The FD process was straightforward, and 0% returns are satisfactory.</td> <td>positive</td> <td>returns</td> </tr> <tr> <td>positive</td> <td>98%</td> <td>2%</td> <td>Appreciate the support, and I'll be 0% reaching out if I need further help.</td> <td>positive</td> <td>support</td> </tr> </tbody> </table>	<b>.sentiment .positive s.neutral negative</b>			<b>Column1.sentences.text \$.sentiment</b>	<b>.sentences.targets.text s.sentiment</b>	<b>ences.assessments.text</b>	neutral	17%	80%	After hearing good things, I went ahead 3% with the fixed deposit.			negative	0%	49%	Throughout the fixed deposit journey, I 51% had moments of doubt.			positive	91%	7%	But looking back, I feel that ABC Bank did 3% their best to ensure I was satisfied.	positive	ABC Bank	positive	69%	31%	The FD process was straightforward, and 0% returns are satisfactory.	positive	FD process	positive	69%	31%	The FD process was straightforward, and 0% returns are satisfactory.	positive	FD process	positive	69%	31%	The FD process was straightforward, and 0% returns are satisfactory.	positive	returns	positive	69%	31%	The FD process was straightforward, and 0% returns are satisfactory.	positive	returns	positive	98%	2%	Appreciate the support, and I'll be 0% reaching out if I need further help.	positive	support
<b>.sentiment .positive s.neutral negative</b>			<b>Column1.sentences.text \$.sentiment</b>	<b>.sentences.targets.text s.sentiment</b>	<b>ences.assessments.text</b>																																																		
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negative	0%	49%	Throughout the fixed deposit journey, I 51% had moments of doubt.																																																				
positive	91%	7%	But looking back, I feel that ABC Bank did 3% their best to ensure I was satisfied.	positive	ABC Bank																																																		
positive	69%	31%	The FD process was straightforward, and 0% returns are satisfactory.	positive	FD process																																																		
positive	69%	31%	The FD process was straightforward, and 0% returns are satisfactory.	positive	FD process																																																		
positive	69%	31%	The FD process was straightforward, and 0% returns are satisfactory.	positive	returns																																																		
positive	69%	31%	The FD process was straightforward, and 0% returns are satisfactory.	positive	returns																																																		
positive	98%	2%	Appreciate the support, and I'll be 0% reaching out if I need further help.	positive	support																																																		

**Sentiment 4**

Column1.sentences.text.s.sentiment..sentences.targets.text.s.sentiment.enes.assessments.text			
.sentiment..positive s.neutral negative			
neutral	6%	93%	1% with the mutual funds.
neutral	18%	82%	0% initially, I faced some issues with mutual funds application, but with a little guidance from your team, it all worked out.
positive	99%	1%	0% Reliable guidance from the financial advisors.
positive	98%	2%	0% Thank you for your support throughout this process.

**Sentiment 5**

Column1.sentences.text.s.sentiment..sentences.targets.text.s.sentiment.enes.assessments.text			
.sentiment..positive s.neutral negative			
neutral	0%	100%	0% I recently signed up for a credit card and had a few thoughts to share.
negative	0%	0%	99% Had a few problems with late fee charges that were resolved.
positive	78%	21%	1% I wasn't sure what to expect, but overall, it turned out to be a positive experience.
positive	98%	2%	0% Appreciate the support, and I'll be reaching out if I need further help.

**Sentiment 6**

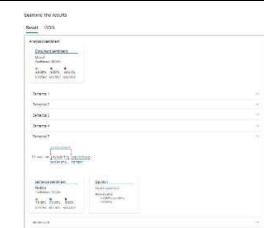
Column1.sentences.text.s.sentiment..sentences.targets.text.s.sentiment.enes.assessments.text			
.sentiment..positive s.neutral negative			
neutral	0%	100%	0% I'm writing to give feedback on your insurance.
positive	96%	4%	0% Clear terms and easy to understand insurance plans.
positive	96%	4%	0% Clear terms and easy to understand insurance plans.
positive	96%	4%	0% Clear terms and easy to understand insurance plans.
positive	96%	4%	0% Clear terms and easy to understand insurance plans.
positive	68%	31%	1% I wasn't sure what to expect, but overall, it turned out to be a positive experience.
positive	98%	2%	0% Appreciate the support, and I'll be reaching out if I need further help.

**Sentiment 7**

				Column1.sentences.text:s.sentiment:s.sentences.targets.text:s.sentiment:s.assessments.text			
				I'm writing to give feedback on your home			
neutral	0%	100%	0%	loan.			
neutral	0%	58%	42%	Throughout the home loan journey, I had moments of doubt.			
positive	84%	11%	5%	Their best to ensure I was satisfied.	positive	ABC Bank	positive
positive	100%	0%	0%	I found the process seamless and the staff very helpful!	positive	process	positive
positive	100%	0%	0%	I found the process seamless and the staff very helpful!	positive	process	positive
positive	100%	0%	0%	I found the process seamless and the staff very helpful!	positive	staff	positive
positive	100%	0%	0%	I found the process seamless and the staff very helpful!	positive	staff	positive
positive	57%	42%	0%	Looking forward to using more of your services in the future.			

**Sentiment 8**

				Column1.text:s.sentiment	Column1.targets.text:s.sentiment	Column1.assessments.text
				I recently availed the car loan from ABC		
neutral	0%	99%	0%	Bank.		
neutral	6%	93%	0%	I wanted to share some thoughts.		
positive	100%	0%	0%	The car loan application was smooth, and the service was excellent.	positive	car loan application
positive	100%	0%	0%	The car loan application was smooth, and the service was excellent.	positive	car loan application
positive	100%	0%	0%	The car loan application was smooth, and the service was excellent.	positive	service
positive	100%	0%	0%	The car loan application was smooth, and the service was excellent.	positive	service
positive	82%	17%	1%	I wasn't sure what to expect, but overall, it turned out to be a positive experience.	positive	experience
positive	100%	0%	0%	Thanks for the guidance and support!		



## Sentiment 9

Column1.sentences.text:s.sentiment:s.sentences.targets.text:s.sentiment:s.assessments.text			
.sentiment	.positive	.neutral	.negative
neutral	0%	99%	0%
neutral	7%	93%	0%
neutral	0%	98%	2%
negative	0%	0%	100%
positive	73%	27%	0%
positive	100%	0%	0%

I recently availed the fixed deposit from ABC Bank.

I wanted to share some thoughts.

One thing that stood out to me was the fixed deposit application process.

Not too happy with the customer service response time for queries.

It was an insightful experience.

Thanks for the guidance and support!



## Sentiment 10

Column1.sentences.text:s.sentiment:s.sentences.targets.text:s.sentiment:s.assessments.text			
.sentiment	.positive	.neutral	.negative
neutral	1%	99%	0%
neutral	5%	95%	0%
neutral	34%	66%	0%
neutral	34%	66%	0%
neutral	34%	66%	0%
neutral	34%	66%	0%
negative	4%	6%	89%
positive	86%	13%	0%

I recently availed the mutual funds from ABC Bank.

I wanted to share some thoughts.

Mutual fund options are average, but returns have been decent.

Mutual fund options are average, but returns have been decent.

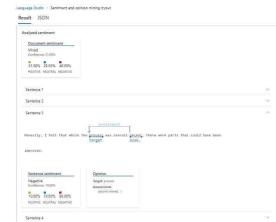
Mutual fund options are average, but returns have been decent.

Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

**Sentiment 11**

.sentiment .positive s.neutral negative				Column1.sentences.text:s.sentiment .sentences.targets.text:s.sentiment ences.assessments.text			
neutral 0% 100% 0% had a few thoughts to share.				I recently signed up for a credit card and			
neutral	0%	96%	4%	One thing that stood out to me was the credit card application process.	positive	credit card application process	positive
positive	98%	2%	0%	The credit limit was quite generous, and the rewards are worth it.	positive	credit limit	positive
positive	98%	2%	0%	The credit limit was quite generous, and the rewards are worth it.	positive	credit limit	positive
positive	98%	2%	0%	The credit limit was quite generous, and the rewards are worth it.	positive	credit limit	positive
positive	98%	2%	0%	The credit limit was quite generous, and the rewards are worth it.	positive	rewards	positive
positive	98%	2%	0%	The credit limit was quite generous, and the rewards are worth it.	positive	rewards	positive
positive	98%	2%	0%	The credit limit was quite generous, and the rewards are worth it.	positive	rewards	positive
positive	69%	31%	0%	It was an insightful experience.	positive	experience	positive
positive	100%	0%	0%	Thanks for the guidance and support!			

**Sentiment 12**

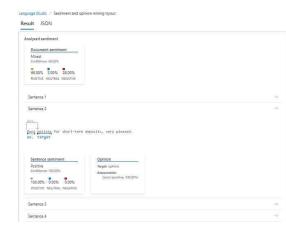
.sentiment .positive s.neutral negative				Column1.text:s.sentiment	Column1.targets.text:s.sentiment umn1.assessments.text
neutral 0% 100% 0% had a few thoughts to share.				I recently signed up for a insurance and	
neutral	0%	88%	12%	Premium rates could be lower for the value offered.	
negative	10%	10%	80%	Honestly, I felt that while the process was overall decent, there were parts that could have been improved.	positive
positive	52%	48%	0%	Looking forward to using more of your services in the future.	process
					mixed
					decent

**Sentiment 13**

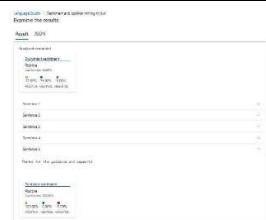
				Column1.text.s.sentiment	Column1.targets.text.s.sentiment	Column1.assessments.text
neutral	0%	100%	0%	I recently signed up for a home loan and had a few thoughts to share.		
neutral	0%	66%	34%	Throughout the home loan journey, I had moments of doubt.		
positive	87%	10%	3%	But looking back, I feel that ABC Bank did their best to ensure I was satisfied.	positive	ABC Bank
negative	0%	0%	100%	The documentation process was overwhelming, and I faced delays.	negative	documentation process
negative	0%	0%	100%	The documentation process was overwhelming, and I faced delays.	negative	documentation process
positive	98%	2%	0%	Appreciate the support, and I'll be reaching out if I need further help.	positive	support

**Sentiment 14**

				Column1.text.s.sentiment	Column1.targets.text.s.sentiment	Column1.assessments.text
neutral	0%	99%	1%	I decided to opt for your car loan and thought I'd share my experience.		
neutral	0%	97%	2%	One thing that stood out to me was the car loan application process.		
positive	96%	3%	1%	Had issues with the repayment terms initially, but resolved eventually.	negative	repayment terms
positive	69%	31%	0%	It was an insightful experience.	positive	experience
positive	86%	13%	0%	Overall, I'd recommend ABC Bank to friends looking for a reliable option.	positive	ABC Bank

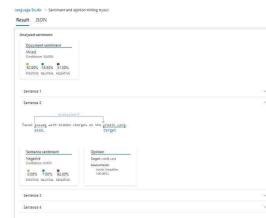
**Sentiment 15**

				Column1.text.s.sentiment	Column1.targets.text.s.sentiment	Column1.assessments.text
neutral	23%	73%	4%	After hearing good things, I went ahead with the fixed deposit.		
positive	100%	0%	0%	Good options for short-term deposits, very pleased.	positive	options
negative	5%	10%	85%	Honestly, I felt that while the process was overall decent, there were parts that could have been improved.	positive	process
positive	100%	0%	0%	Thanks for the guidance and support!		



## Sentiment 16

.sentiment .positive s.neutral negative				Column1.text.s.sentiment	Column1.targets.text.s.sentiment	umn1.assessments.text	
neutral 7% 93% 1% with the mutual funds.				After hearing good things, I went ahead			
neutral 0% 99% 0% mutual funds application process.				One thing that stood out to me was the			
positive 46% 44% 9% are subject to high fluctuations.				Good range of mutual funds, but returns			
positive 69% 30% 0% it was an insightful experience.				positive mutual funds positive Good			
positive 100% 0% 0% Thanks for the guidance and support!				positive experience positive insightful			



## Sentiment 17

.sentiment .positive s.neutral negative				Column1.text.s.sentiment	Column1.targets.text.s.sentiment	umn1.assessments.text	
neutral 0% 99% 1% I decided to opt for your credit card and thought I'd share my experience.				I decided to opt for your credit card and			
negative 0% 7% 92% Faced issues with hidden charges on the credit card.				negative credit card negative issues			
positive 74% 25% 1% I wasn't sure what to expect, but overall, it turned out to be a positive experience.				positive experience positive positive			
positive 76% 23% 1% Overall, I'd recommend ABC Bank to friends looking for a reliable option.				positive ABC Bank positive recommend			



## Sentiment 18

.sentiment .positive s.neutral negative				Column1.text.s.sentiment	Column1.targets.text.s.sentiment	umn1.assessments.text	
neutral 0% 100% 0% I'm writing to give feedback on your insurance.				I'm writing to give feedback on your			
neutral 19% 80% 1% Initially, I faced some issues with insurance application, but with a little guidance from your team, it all worked out.				positive process positive satisfied			
positive 100% 0% 0% Very satisfied with the claim settlement process.				claim settlement			
positive 84% 16% 0% Overall, I'd recommend ABC Bank to friends looking for a reliable option.				positive ABC Bank positive recommend			



## Sentiment 19

.sentiment .positive s.neutral negative			Column1.text:s.sentiment	Column1.targets.text:s.sentiment	umn1.assessments.text
neutral	0%	99%	0% Bank.		
neutral	6%	94%	0% I wanted to share some thoughts.		
neutral	0%	99%	1% One thing that stood out to me was the home loan application process.		
positive	84%	15%	1% Very competitive rates compared to other banks.	positive	rates
positive	71%	29%	0% It was an insightful experience.	positive	experience
neutral	49%	51%	0% Looking forward to using more of your services in the future.		



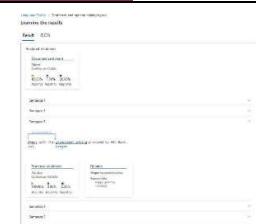
## Sentiment 20

.sentiment .positive s.neutral negative			Column1.text:s.sentiment	Column1.targets.text:s.sentiment	umn1.assessments.text
neutral	0%	100%	0% I recently signed up for a car loan and had a few thoughts to share.		
neutral	0%	98%	2% One thing that stood out to me was the car loan application process.		
positive	98%	2%	0% Affordable interest rates and clear process.	positive	interest rates
positive	98%	2%	0% Affordable interest rates and clear process.	positive	interest rates
positive	98%	2%	0% Affordable interest rates and clear process.	positive	process
positive	98%	2%	0% Affordable interest rates and clear process.	positive	process
positive	66%	34%	0% It was an insightful experience.	positive	experience
positive	100%	0%	0% Thanks for the guidance and support!		



## Sentiment 21

.sentiment .positive s.neutral negative			Column1.text:s.sentiment	Column1.targets.text:s.sentiment	umn1.assessments.text
neutral	1%	99%	0% I'm writing to give feedback on your fixed deposit.		
neutral	31%	69%	0% Initially, I faced some issues with fixed deposit application, but with a little guidance from your team, it all worked out.		
positive	100%	0%	0% Impressed with the interest rates offered on fixed deposits.	positive	interest rates
positive	79%	21%	0% Overall, I'd recommend ABC Bank to friends looking for a reliable option.	positive	ABC Bank



Sentiment 22

.sentiment .positive s.neutral negative				Column1.text \$sentiment	Column1.targets.text \$s.sentiment	Column1.assessments.text
neutral	1%	99%	0%	I recently availed the mutual funds from ABC Bank.		
neutral	6%	93%	0%	I wanted to share some thoughts.		
positive	100%	0%	0%	Happy with the investment advice provided by ABC Bank.	positive	investment advice
negative	3%	6%	90%	Honestly, I felt that while the process was overall decent, there were parts that could have been improved.	positive	process
positive	86%	13%	0%	Overall, I'd recommend ABC Bank to friends looking for a reliable option.	positive	ABC Bank
					positive	recommend



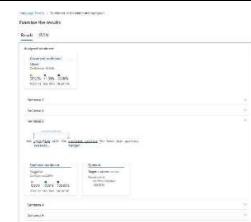
Sentiment 23

.sentiment .positive s.neutral negative				Column1.text \$sentiment	Column1.targets.text \$s.sentiment	Column1.assessments.text
neutral	0%	100%	0%	I'm writing to give feedback on your credit card.		
neutral	26%	74%	0%	Initially, I faced some issues with credit card application, but with a little guidance from your team, it all worked out.		
positive	100%	0%	0%	Very easy to apply, and the customer service is prompt.	positive	customer service
positive	97%	3%	0%	Appreciate the support, and I'll be reaching out if I need further help.	positive	support
					positive	Appreciate



Sentiment 24

.sentiment .positive s.neutral negative				Column1.text mn1.targets	Column1.assessments
neutral	0%	100%	0%	I recently signed up for a insurance and had a few thoughts to share.	
neutral	21%	78%	1%	Initially, I faced some issues with insurance application, but with a little guidance from your team, it all worked out.	
neutral	4%	76%	20%	Had issues with policy details initially, but sorted out later.	
positive	50%	50%	0%	Looking forward to using more of your services in the future.	



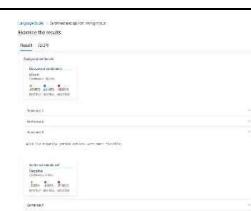
## Sentiment 25

.sentiment .positive s.neutral negative				Column1.sentences.text.s.sentiment.sentences.targets.text.s.sentiment.s.assessments.text			
neutral 0% 100% 0%				I'm writing to give feedback on your home loan.			
neutral 0% 98% 2%				One thing that stood out to me was the home loan application process.			
negative 0%	0%	100%	Not satisfied with the customer service for home loan queries.	negative	customer service	negative	satisfied
positive 70%	30%	0%	It was an insightful experience.	positive	experience	positive	insightful
positive 98% 2% 0%				Appreciate the support, and I'll be reaching out if I need further help.			
positive 98%	2%	0%	Appreciate the support, and I'll be reaching out if I need further help.	positive	support	positive	Appreciate



## Sentiment 26

.sentiment .positive s.neutral negative				Column1.text.s.sentiment	Column1.targets.text.s.sentiment	Column1.assessments.text	
neutral 1% 99% 1%				I recently availed the car loan from ABC Bank.			
neutral 5% 95% 0%				I wanted to share some thoughts.			
neutral 0% 51% 49%				Throughout the car loan journey, I had moments of doubt.			
positive 91% 7% 2%				But looking back, I feel that ABC Bank did their best to ensure I was satisfied.			
positive 50% 16% 34%				Quick approval, but the rates could be better.			
positive 56% 44% 0%				Looking forward to using more of your services in the future.			



## Sentiment 27

.sentiment .positive s.neutral negative				Column1.text.mn1.targets	Column1.assessments
neutral 1% 99% 0%				I recently signed up for a fixed deposit and had a few thoughts to share.	
neutral 26% 74% 1%				Initially, I faced some issues with fixed deposit application, but with a little guidance from your team, it all worked out.	
negative 0% 3% 97%				Wish the maturity period options were more flexible.	
positive 60% 40% 0%				Looking forward to using more of your services in the future.	



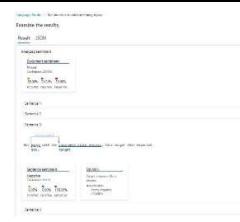
## Sentiment 28

. .sentiment .positive s.neutral negative				Column1.text:s.sentiment	Column1.targets.text:s.sentiment	umn1.assessments.text
neutral	1%	99%	0%	I recently availed the mutual funds from ABC Bank.		
neutral	6%	94%	0%	I wanted to share some thoughts.		
neutral	0%	56%	44%	Throughout the mutual funds journey, I had moments of doubt.		
positive	87%	9%	4%	But looking back, I feel that ABC Bank did their best to ensure I was satisfied.	positive	ABC Bank
negative	1%	8%	92%	Not much transparency in fund performance updates.	positive	satisfied
positive	100%	0%	0%	Thanks for the guidance and support!		



## Sentiment 29

. .sentiment .positive s.neutral negative				Column1.text:s.sentiment	Column1.targets.text:s.sentiment	umn1.assessments.text
neutral	31%	68%	2%	After hearing good things, I went ahead with the credit card.		
positive	93%	7%	0%	Cashback options are limited, but the credit card service is good.	negative	Cashback options
positive	93%	7%	0%	Cashback options are limited, but the credit card service is good.	negative	Cashback options
positive	93%	7%	0%	Cashback options are limited, but the credit card service is good.	positive	credit card service
positive	93%	7%	0%	Cashback options are limited, but the credit card service is good.	positive	credit card service
negative	1%	6%	93%	Honestly, I felt that while the process was overall decent, there were parts that could have been improved.	positive	process
positive	98%	2%	0%	Appreciate the support, and I'll be reaching out if I need further help.	positive	support
					positive	Appreciate



## Sentiment 30

. .sentiment .positive s.neutral negative				Column1.text:s.sentiment	Column1.targets.text:s.sentiment	umn1.assessments.text
neutral	13%	86%	1%	After hearing good things, I went ahead with the insurance.		
neutral	25%	74%	0%	Initially, I faced some issues with insurance application, but with a little guidance from your team, it all worked out.		
negative	0%	0%	100%	Not happy with the insurance claim process, took longer than expected.	negative	insurance claim process
positive	57%	43%	0%	Looking forward to using more of your services in the future.	negative	happy

- 10.2 Key Phrase extraction highlight main pointers or frequent issues

Enlarged images in Annexure j.10.2



Language Studio > Key phrases tryout  
Examine the results  
Result JSON

**Key phrases**  
home loan, interest rates, positive experience, thoughts, process, support, help

Original text

I recently signed up for a **home loan** and had a few **thoughts** to share.  
**key ph...**

The **interest rates** were reasonable, but the **process** took longer than expected. I wasn't sure what to expect, but overall, it turned out to be a **positive experience**.  
**key phrase**

Appreciate the **support**, and I'll be reaching out if I need further **help**.  
**key ph...**

### Column1

help  
home loan  
interest rates  
positive experience  
process  
support  
thoughts

### Key phrase 1

Language Studio > Key phrases tryout  
Examine the results  
Result JSON

**Key phrases**  
car loan journey, loan process, ABC Bank, flexible options, experience, moments, doubt, services, future

Original text

I decided to opt for your car loan and thought I'd share my **experience**.  
**key ph...**

Throughout the **car loan journey**, I had **moments** of **doubt**. But looking back, I feel that **ABC Bank** did their best to ensure I was satisfied. Satisfied with the **loan process**, though I wish there were more **flexible options**.  
**key phrase**

Looking forward to using more of your **services** in the **future**.  
**key ph...**

### Column1

ABC Bank  
car loan journey  
doubt  
experience  
flexible options  
future  
loan process  
moments  
services

### Key phrase 2

Language Studio > Key phrases tryout  
Examine the results  
Result JSON

**Key phrases**  
fixed deposit journey, good things, ABC Bank, FD process, moments, doubt, returns, support, help

Original text

After hearing **good things**, I went ahead with the **fixed deposit**.  
**key phrase**

Throughout the **fixed deposit journey**, I had **moments** of **doubt**. But looking back, I feel that **ABC Bank** did their best to ensure I was satisfied. The **FD process** was straightforward, and **returns** are satisfactory.  
**key phrase**

Appreciate the **support**, and I'll be reaching out if I need further **help**.  
**key ph...**

### Column1

ABC Bank  
FD process  
doubt  
fixed deposit journey  
good things  
help  
moments  
returns  
support

### Key phrase 3

Language Studio > Key phrases tryout  
Examine the results

Result: JSON

**Key phrases:**  
mutual funds application, good things, little guidance, Reliable guidance, financial advisors, issues, team, support, process

**Original text:**

After hearing good things, I went ahead with the mutual funds.  
Initially, I faced some issues with mutual funds application, but with a little guidance from your team, it all worked out. Reliable guidance from the financial advisors, team, support throughout this process.

Thank you for your support throughout this process.

**Key phrase 4**

## Column1

Reliable guidance  
financial advisors  
good things  
issues  
little guidance  
mutual funds application  
process  
support  
team

Language Studio > Key phrases tryout  
Examine the results

Result: JSON

**Key phrases:**  
late fee charges, credit card, positive experience, thoughts, problems, support, help

**Original text:**

I recently signed up for a credit card and had a few thoughts to share.  
Had a few problems with late fee charges that were resolved. I wasn't sure what to expect, but overall, it turned out to be a positive experience.  
Appreciate the support, and I'll be reaching out if I need further help.

**Key phrase 5**

## Column1

credit card  
help  
late fee charges  
positive experience  
problems  
support  
thoughts

Language Studio > Key phrases tryout  
Examine the results

Result: JSON

**Key phrases:**  
Clear terms, positive experience, insurance plans, feedback, support, help

**Original text:**

I'm writing to give feedback on your insurance.  
Clear terms and easy to understand insurance plans. I wasn't sure what to expect, but overall, it turned out to be a positive experience.  
Appreciate the support, and I'll be reaching out if I need further help.

**Key phrase 6**

## Column1

Clear terms  
feedback  
help  
insurance plans  
positive experience  
support

Language Studio > Key phrases tryout  
Examine the results

Result: JSON

**Key phrases:**  
home loan journey, ABC Bank, feedback, moments, doubt, process, staff, services, future

**Original text:**

I'm writing to give feedback on my home loan.  
Throughout the home loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. I found the process seamless and the staff very helpful.  
Looking forward to using more of your services in the future.

**Key phrase 7**

## Column1

ABC Bank  
doubt  
feedback  
future  
home loan journey  
moments  
process  
services  
staff

Language Studio > Key phrases tryout  
Examine the results

Result JSON

**Key phrases:**  
car loan application: ABC Bank, positive experience, thoughts, service, guidance, support

Original text

I recently availed the car loan from **ABC Bank**. I wanted to share some **thoughts**.  
**key ph.** **key ph.**

The **car loan application** was smooth, and the **service** was excellent. I wasn't sure what to expect.  
**key phrase** **key ph.**

but overall, it turned out to be a **positive experience**.  
**key phrase**

Thanks for the **guidance** and **support**!  
**key ph.** **key ph.**

**Key phrase 8**

**Column1**

ABC Bank  
car loan application  
guidance  
positive experience  
service  
support  
thoughts

Language Studio > Key phrases tryout  
Examine the results

Result JSON

**Key phrases:**  
customer service response time, fixed deposit application process, ABC Bank, One thing, insightful experience, thought, queries, guidance, support

Original text

I recently availed the fixed deposit from **ABC Bank**. I wanted to share some **thoughts**.  
**key ph.** **key ph.**

**One thing** that stood out to me was the **fixed deposit application process**. Not too happy with the  
**key phrase** **key phrase**

customer service response time for queries. It was an **insightful experience**.  
**key phrase** **key ph.** **key phrase**

Thanks for the **guidance** and **support**!  
**key ph.** **key ph.**

**Key phrase 9**

**Column1**

ABC Bank  
One thing  
customer service response time  
fixed deposit application process  
guidance  
insightful experience  
queries  
support  
thoughts

Language Studio > Key phrases tryout  
Examine the results

Result JSON

**Key phrases:**  
Mutual fund options, mutual funds, ABC Bank, reliable option, thoughts, returns, process, parts, friends

Original text

I recently availed the **mutual funds** from **ABC Bank**. I wanted to share some **thoughts**.  
**key phrase** **key ph.** **key ph.**

Mutual fund options are average, but returns have been decent. Honestly, I felt that while the  
**key phrase** **key ph.**

process was overall decent, there were **parts** that could have been improved.  
**key ph.**

Overall, I'd recommend ABC Bank to **friends** looking for a **reliable option**.  
**key ph.** **key phrase**

**Key phrase 10**

**Column1**

ABC Bank  
Mutual fund options  
friends  
mutual funds  
parts  
process  
reliable option  
returns  
thoughts

Language Studio > Key phrases tryout  
Examine the results

Result JSON

**Key phrases:**  
credit card application process, credit limit, One thing, insightful experience, thought, rewards, guidance, support

Original text

I recently signed up for a credit card and had a **few thoughts** to share.  
**key ph.**

**One thing** that stood out to me was the **credit card application process**. The **credit limit** was quite  
**key ph.** **key ph.**

generous, and the **rewards** are worth it. It was an **insightful experience**.  
**key ph.** **key phrase**

Thanks for the **guidance** and **support**!  
**key ph.** **key ph.**

**Key phrase 11**

**Column1**

One thing  
credit card application process  
credit limit  
guidance  
insightful experience  
rewards  
support  
thoughts

Language Studio > Key phrases tryout  
Examine the results

**Result JSON**

Key phrases	Premium rates, insurance, thoughts, value, process, parts, services, future
-------------	---

Original text

I recently signed up for a insurance and had a few thoughts to share.  
Premium rates could be lower for the value offered. Honestly, I feel that while the process was overall decent, there were parts that could have been improved.  
Looking forward to using more of your services in the future.

**Key phrase 12**

Column1
Premium rates
future
insurance
parts
process
services
thoughts
value

Language Studio > Key phrase tryout  
Examine the results

**Result JSON**

Key phrases	home loan journey, ABC Bank, documentation process, thoughts, moments, doubt, delays, support, help
-------------	---

Original text

I recently signed up for a home loan and had a few thoughts to share.  
Throughout the home loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. The documentation process was overwhelming, and I faced delays.  
Appreciate the support, and I'll be reaching out if I need further help.

**Key phrase 13**

Column1
ABC Bank
delays
documentation process
doubt
help
home loan journey
moments
support
thoughts

Language Studio > Key phrase tryout  
Examine the results

**Result JSON**

Key phrases	car loan application process, One thing, repayment terms, ABC Bank, reliable option, insightful experience, issues, friends
-------------	---

Original text

I decided to opt for your car loan and thought I'd share my experience.  
One thing that stood out to me was the car loan application process. Had issues with the repayment terms initially, but resolved eventually. It was an insightful experience. Overall, I'd recommend ABC Bank to friends looking for a reliable option.

**Key phrase 14**

Column1
ABC Bank
One thing
car loan application process
friends
insightful experience
issues
reliable option
repayment terms

Language Studio > Key phrases tryout  
Examine the results

**Result JSON**

Key phrases	good things, fixed deposit, Good options, short-term deposits, process, parts, guidance, support
-------------	--

Original text

After hearing good things, I went ahead with the fixed deposit.  
Good options for short-term deposits, very pleased. Honestly, I feel that while the process was overall decent, there were parts that could have been improved.  
Thanks for the guidance and support!

**Key phrase 15**

Column1
Good options
fixed deposit
good things
guidance
parts
process
short-term deposits
support

<p>Language Studio &gt; Key phrases tryout Examine the results Result JSON</p> <p><b>Key phrases</b> mutual funds application process; good things; One thing; Good range; high fluctuations; insightful experience; returns; guidance; support</p> <p><b>Original text</b></p> <p>After hearing <b>good things</b>, I went ahead with the mutual funds. <b>key phrase</b></p> <p><b>One thing</b> that stood out to me was the <b>mutual funds application process</b>. <b>Good range</b> of mutual funds, <b>key ph..</b> <b>key phrase</b> <b>key phrase</b></p> <p>but returns are subject to <b>high fluctuations</b>. It was an <b>insightful experience</b>. <b>key ph..</b> <b>key phrase</b> <b>key phrase</b></p> <p>Thanks for the <b>guidance</b> and <b>support!</b> <b>key ph..</b> <b>key ph..</b></p> <p><b>Key phrase 16</b></p>	<table border="1"> <thead> <tr> <th>Column1</th> </tr> </thead> <tbody> <tr><td>Good range</td></tr> <tr><td>One thing</td></tr> <tr><td>good things</td></tr> <tr><td>guidance</td></tr> <tr><td>high fluctuations</td></tr> <tr><td>insightful experience</td></tr> <tr><td>mutual funds application process</td></tr> <tr><td>returns</td></tr> <tr><td>support</td></tr> </tbody> </table>	Column1	Good range	One thing	good things	guidance	high fluctuations	insightful experience	mutual funds application process	returns	support
Column1											
Good range											
One thing											
good things											
guidance											
high fluctuations											
insightful experience											
mutual funds application process											
returns											
support											
<p>Language Studio &gt; Key phrases tryout Examine the results Result JSON</p> <p><b>Key phrases</b> credit card; hidden charges; ABC Bank; reliable option; positive; experience; issues; friends</p> <p><b>Original text</b></p> <p>I decided to opt for your <b>credit card</b> and thought I'd share my experience. <b>key phrase</b></p> <p>Faced <b>issues</b> with <b>hidden charges</b> on the credit card. I wasn't sure what to expect, but overall, it turned out to be a <b>positive experience</b>. <b>key ph..</b> <b>key phrase</b></p> <p>Overall, I'd recommend <b>ABC Bank</b> to <b>friends</b> looking for a <b>reliable option</b>. <b>key ph..</b> <b>key ph..</b> <b>key phrase</b></p> <p><b>Key phrase 17</b></p>	<table border="1"> <thead> <tr> <th>Column1</th> </tr> </thead> <tbody> <tr><td>ABC Bank</td></tr> <tr><td>credit card</td></tr> <tr><td>friends</td></tr> <tr><td>hidden charges</td></tr> <tr><td>issues</td></tr> <tr><td>positive experience</td></tr> <tr><td>reliable option</td></tr> </tbody> </table>	Column1	ABC Bank	credit card	friends	hidden charges	issues	positive experience	reliable option		
Column1											
ABC Bank											
credit card											
friends											
hidden charges											
issues											
positive experience											
reliable option											
<p>Language Studio &gt; Key phrases tryout Examine the results Result JSON</p> <p><b>Key phrases</b> claim settlement process; little guidance; ABC Bank; reliable option; insurance application; feedback; issues; team; friends</p> <p><b>Original text</b></p> <p>I'm writing to give <b>feedback</b> on your insurance. <b>key ph..</b></p> <p>Initially, I faced some <b>issues</b> with <b>insurance application</b>, but with a <b>little guidance</b> from you, <b>key ph..</b> <b>key phrase</b> <b>key phrase</b></p> <p><b>team</b>, it all worked out. Very satisfied with the <b>claim settlement process</b>. <b>key ph..</b> <b>key phrase</b></p> <p>Overall, I'd recommend <b>ABC Bank</b> to <b>friends</b> looking for a <b>reliable option</b>. <b>key ph..</b> <b>key ph..</b> <b>key phrase</b></p> <p><b>Key phrase 18</b></p>	<table border="1"> <thead> <tr> <th>Column1</th> </tr> </thead> <tbody> <tr><td>ABC Bank</td></tr> <tr><td>claim settlement process</td></tr> <tr><td>feedback</td></tr> <tr><td>friends</td></tr> <tr><td>insurance application</td></tr> <tr><td>issues</td></tr> <tr><td>little guidance</td></tr> <tr><td>reliable option</td></tr> <tr><td>team</td></tr> </tbody> </table>	Column1	ABC Bank	claim settlement process	feedback	friends	insurance application	issues	little guidance	reliable option	team
Column1											
ABC Bank											
claim settlement process											
feedback											
friends											
insurance application											
issues											
little guidance											
reliable option											
team											
<p>Language Studio &gt; Key phrases tryout Examine the results Result JSON</p> <p><b>Key phrases</b> home loan application process; ABC Bank; One thing; competitive rates; other banks; insightful experience; thoughts; services; future</p> <p><b>Original text</b></p> <p>I recently availed the home loan from <b>ABC Bank</b>. I wanted to share some <b>thoughts</b>. <b>key ph..</b> <b>key ph..</b></p> <p><b>One thing</b> that stood out to me was the <b>home loan application process</b>. Very <b>competitive rates</b>. <b>key ph..</b> <b>key phrase</b> <b>key phrase</b></p> <p>compared to <b>other banks</b>, it was an <b>insightful experience</b>. <b>key ph..</b> <b>key phrase</b></p> <p>looking forward to using more of your <b>services</b> in the <b>future</b>. <b>key ph..</b> <b>key ..</b></p> <p><b>Key phrase 19</b></p>	<table border="1"> <thead> <tr> <th>Column1</th> </tr> </thead> <tbody> <tr><td>ABC Bank</td></tr> <tr><td>One thing</td></tr> <tr><td>competitive rates</td></tr> <tr><td>future</td></tr> <tr><td>home loan application process</td></tr> <tr><td>insightful experience</td></tr> <tr><td>other banks</td></tr> <tr><td>services</td></tr> <tr><td>thoughts</td></tr> </tbody> </table>	Column1	ABC Bank	One thing	competitive rates	future	home loan application process	insightful experience	other banks	services	thoughts
Column1											
ABC Bank											
One thing											
competitive rates											
future											
home loan application process											
insightful experience											
other banks											
services											
thoughts											

Language Studio > Key phrases tryout  
Examine the results

Result JSON

Key phrases:  
car loan application process, Affordable interest rates, clear process  
One thing, insightful experience, thoughts, guidance, support

Original text

I recently signed up for a car loan and had a few **thoughts** to share.  
**key ph...**

**One thing** that stood out to me was the **car loan application process**. **Affordable interest rates** and **clear process** were key phrases.  
**guidance**, **insightful experience**, **support**, and **thoughts** were also key phrases.

Thanks for the **guidance** and **support**!  
**key ph...** **key ph...**

**Key phrase 20**

Column1
Affordable interest rates
One thing
car loan application process
clear process
guidance
insightful experience
support
thoughts

Language Studio > Key phrases tryout  
Examine the results

Result JSON

Key phrases:  
fixed deposit application, fixed deposits, little guidance, interest rates, ABC Bank, reliable option, feedback, issues, team, friends

Original text

I'm writing to give **feedback** on your fixed deposit.  
**key ph...**

Initially, I faced some **issues** with **fixed deposit application**, but with a **little guidance** from your **team**, it all worked out. Impressed with the **interest rates** offered on **fixed deposits**.  
**key ph...**

Overall, I'd recommend **ABC Bank** to **friends** looking for a **reliable option**.  
**key ph...** **key ph...**

**Key phrase 21**

Column1
ABC Bank
feedback
fixed deposit application
fixed deposits
friends
interest rates
issues
little guidance
reliable option
team

Language Studio > Key phrases tryout  
Examine the results

Result JSON

Key phrases:  
mutual funds, ABC Bank, investment advice, reliable option, thoughts, process, parts, friends

Original text

I recently availed the **mutual funds** from **ABC Bank**. I wanted to share some **thoughts**.  
**key ph...** **key ph...** **key ph...**

Happy with the **investment advice** provided by ABC Bank. Honestly, I felt that while the **process** was overall decent, there were **parts** that could have been improved.  
**key ph...**

Overall, I'd recommend ABC Bank to **friends** looking for a **reliable option**.  
**key ph...**

**Key phrase 22**

Column1
ABC Bank
friends
investment advice
mutual funds
parts
process
reliable option
thoughts

Language Studio > Key phrases tryout  
Examine the results

Result JSON

Key phrases:  
credit card application, little guidance, customer service, feedback, issues, team, support, help

Original text

I'm writing to give **feedback** on your credit card.  
**key ph...**

Initially, I faced some **issues** with **credit card application**, but with a **little guidance** from your **team**, it all worked out. Very easy to apply, and the **customer service** is prompt.  
**key ph...**

Appreciate the **support**, and I'll be reaching out if I need further **help**.  
**key ph...**

**Key phrase 23**

Column1
credit card application
customer service
feedback
help
issues
little guidance
support
team

<p>Language Studio &gt; Key phrases tryout Examine the results</p> <p><b>Result</b> JSON</p> <p><b>Key phrases:</b> little guidance, policy details, insurance application, thoughts, issues, team, services, future</p> <p><b>Original text:</b> I recently signed up for a insurance and had a few <b>thoughts</b> to share. <b>Key ph...</b> Initially, I faced some <b>issues</b> with <b>insurance application</b>, but with a <b>little guidance</b> from your <b>team</b>, it all worked out. Had issues with <b>policy details</b> initially, but sorted out later. <b>Key...</b> Looking forward to using more of your <b>services</b> in the <b>future</b>. <b>Key ph...</b> <b>Key ...</b></p> <p><b>Key phrase 24</b></p>	<p><b>Column1</b></p> <table border="1"> <tr><td>future</td></tr> <tr><td>insurance application</td></tr> <tr><td>issues</td></tr> <tr><td>little guidance</td></tr> <tr><td>policy details</td></tr> <tr><td>services</td></tr> <tr><td>team</td></tr> <tr><td>thoughts</td></tr> </table>	future	insurance application	issues	little guidance	policy details	services	team	thoughts	
future										
insurance application										
issues										
little guidance										
policy details										
services										
team										
thoughts										
<p>Language Studio &gt; Key phrases tryout Examine the results</p> <p><b>Result</b> JSON</p> <p><b>Key phrases:</b> home loan application process, home loan queries, One thing, customer service, insightful experience, feedback, support, help</p> <p><b>Original text:</b> I'm writing to give <b>feedback</b> on your home loan. <b>Key ph...</b> <b>One thing</b> that stood out to me was the <b>home loan application process</b>. Not satisfied with the <b>customer service</b> for <b>home loan queries</b>. It was an <b>insightful experience</b>. Appreciate the <b>support</b>, and I'll be reaching out if I need further <b>help</b>. <b>Key ...</b></p> <p><b>Key phrase 25</b></p>	<p><b>Column1</b></p> <table border="1"> <tr><td>One thing</td></tr> <tr><td>customer service</td></tr> <tr><td>feedback</td></tr> <tr><td>help</td></tr> <tr><td>home loan application proc</td></tr> <tr><td>home loan queries</td></tr> <tr><td>insightful experience</td></tr> <tr><td>support</td></tr> </table>	One thing	customer service	feedback	help	home loan application proc	home loan queries	insightful experience	support	
One thing										
customer service										
feedback										
help										
home loan application proc										
home loan queries										
insightful experience										
support										
<p>Language Studio &gt; Key phrases tryout Examine the results</p> <p><b>Result</b> JSON</p> <p><b>Key phrases:</b> car loan journey, ABC Bank, Quick approval, thoughts, moments, doubt, rates, services, future</p> <p><b>Original text:</b> I recently availed the car loan from <b>ABC Bank</b>. I wanted to share some <b>thoughts</b>. <b>Key ph...</b> Throughout the <b>car loan journey</b>, I had <b>moments</b> of <b>doubt</b>. But looking back, I feel that <b>ABC Bank</b> did their best to ensure I was <b>satisfied</b>. <b>Quick approval</b>, but the <b>rates</b> could be better. <b>Key phrase ...</b> Looking forward to using more of your <b>services</b> in the <b>future</b>. <b>Key ph...</b> <b>Key ...</b></p> <p><b>Key phrase 26</b></p>	<p><b>Column1</b></p> <table border="1"> <tr><td>ABC Bank</td></tr> <tr><td>Quick approval</td></tr> <tr><td>car loan journey</td></tr> <tr><td>doubt</td></tr> <tr><td>future</td></tr> <tr><td>moments</td></tr> <tr><td>rates</td></tr> <tr><td>services</td></tr> <tr><td>thoughts</td></tr> </table>	ABC Bank	Quick approval	car loan journey	doubt	future	moments	rates	services	thoughts
ABC Bank										
Quick approval										
car loan journey										
doubt										
future										
moments										
rates										
services										
thoughts										
<p>Language Studio &gt; Key phrases tryout Examine the results</p> <p><b>Result</b> JSON</p> <p><b>Key phrases:</b> maturity period options, fixed deposit application, little guidance, thoughts, issues, team, services, future</p> <p><b>Original text:</b> I recently signed up for a fixed deposit and had a few <b>thoughts</b> to share. <b>Key ph...</b> Initially, I faced some <b>issues</b> with <b>fixed deposit application</b>, but with a <b>little guidance</b> from your <b>team</b>, it all worked out. Wish the <b>maturity period options</b> were more flexible. <b>Key ...</b> looking forward to using more of your <b>services</b> in the <b>future</b>. <b>Key ph...</b> <b>Key ...</b></p> <p><b>Key phrase 27</b></p>	<p><b>Column1</b></p> <table border="1"> <tr><td>fixed deposit application</td></tr> <tr><td>future</td></tr> <tr><td>issues</td></tr> <tr><td>little guidance</td></tr> <tr><td>maturity period options</td></tr> <tr><td>services</td></tr> <tr><td>team</td></tr> <tr><td>thoughts</td></tr> </table>	fixed deposit application	future	issues	little guidance	maturity period options	services	team	thoughts	
fixed deposit application										
future										
issues										
little guidance										
maturity period options										
services										
team										
thoughts										

Language Studio > Key phrases tryout  
Examine the results

Result JSON

**Key phrases**  
maturity period options; fixed deposit application; little guidance; thoughts; issues; team; services; future

Original text

I recently signed up for a fixed deposit and had a few **thoughts** to share.  
**Key ph..**

Initially, I faced some **issues** with **fixed deposit application**, but with a **little guidance** from your **team**... **key phrase** **key phrase**  
**team**... it all worked out. Wish the **maturity period options** were more flexible.  
**key phrase**

looking forward to using more of your **services** in the **future**.  
**key ph..** **key ..**

**Key phrase 28**

Column1
ABC Bank
doubt
fund performance updates
guidance
moments
mutual funds journey
support
thoughts
transparency

Language Studio > Key phrases tryout  
Examine the results

Result JSON

**Key phrases**  
credit card service; good things; Cashback options; process; parts; support; help

Original text

After hearing **good things**, I went ahead with the credit card.  
**Key phrase**

**Cashback options** are limited, but the **credit card service** is good. Honestly, I felt that while the **process** was overall decent, there were **parts** that could have been improved.  
**Key ph..** **key ..**

Appreciate the **support**, and I'll be reaching out if I need further **help**.  
**key ph..**

**Key phrase 29**

Column1
Cashback options
credit card service
good things
help
parts
process
support

Language Studio > Key phrases tryout  
Examine the results

Result JSON

**Key phrases**  
insurance claim process; good things; insurance application; little guidance; issues; team; services; future

Original text

After hearing **good things**, I went ahead with the insurance.  
**Key phrase**

Initially, I faced some **issues** with **insurance application**, but with a **little guidance** from your **team**... **key phrase** **key phrase**  
**team**... it all worked out. Not happy with the **insurance claim process**, took longer than expected.  
**key ph..** **key ..**

looking forward to using more of your **services** in the **future**.  
**key ph..** **key ..**

**Key phrase 30**

Column1
future
good things
insurance application
insurance claim process
issues
little guidance
services
team

- 10.3 Named Entity recognition to detect personal information

**Enlarged images in Annexure j.10.3**



Language Studio -> Named entities tryout  
Examine the results

Result: JSON

Named entities identified			
Person	Event	Person	PhoneNumber
Entity value: Bonnie Myers Confidence: 100.00%	Entity value: process Confidence: 52.00%	Entity value: Bonnie Myers Confidence: 99.00%	Entity value: (577)727-2843x81412 Confidence: 40.00%

Show cards: On Sort Filter

Original text:

Dear Isaac, Bonnie Myers here. I recently signed up for a home loan and had a few thoughts to share.  
The interest rates were reasonable, but the process took longer than expected. I wasn't sure what to expect, but overall, it turned out to be a positive experience.  
Appreciate the support, and I'll be reaching out if I need further help.  
Best regards,  
Bonnie Myers  
Person  
(577)727-2843x81412  
PhoneNumber

NamedEntity 1

Column1.category	Column1.text	Column1.tenceScore
Person	Bonnie Myers	100%
Person	Bonnie Myers	99%
PhoneNumber	(577)727-2843x81412	80%
Event	process	52%

Language Studio - Named entities type: Examine the results

**Result: JSON**

Named entities identified:

<b>Person</b> Entity value: Thomas Moody Confidence: 100.00%	<b>Product</b> Entity value: car Confidence: 82.00%	<b>Event</b> Entity value: car loan journey Confidence: 75.00%	<b>Organization</b> Entity value: ABC Bank Confidence: 100.00%
<b>Skill</b> Entity value: loan process Confidence: 71.00%	<b>Task</b> Entity value: services Confidence: 87.00%	<b>Person</b> Entity value: Thomas Moody Confidence: 100.00%	<b>PhoneNumber</b> Entity value: 981.208.2669x1587 Confidence: 93.00%

Original text:

Hi there, this is Thomas Moody. I decided to opt for your car loan and thought I'd share my experience.

Throughout the car loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. Satisfied with the loan process, though I wish there were more skill.

Flexible options.

Looking forward to using more of your services in the future.

Best regards,

Thomas Moody  
Person  
981.208.2669x1587  
PhoneNumber

NamedEntity 2

Column1.category	Column1.text	Column1.tencleScore
Organization	ABC Bank	100%
Person	Thomas Moody	100%
Person	Thomas Moody	100%
Product	car	97%
Skill	services	97%
PhoneNumber	981.208.2669x1587	80%
Event	car loan journey	75%
Skill	loan process	71%

Language Studio - Named entities type: Examine the results

**Result: JSON**

Named entities identified:

<b>Person</b> Entity value: Carolyn Hayes Confidence: 100.00%	<b>Address</b> Entity value: 2672 Moore Island Suite 727, Angelaside, IL 81766 Confidence: 98.00%	<b>Event</b> Entity value: fixed Confidence: 82.00%	<b>Event</b> Entity value: journey Confidence: 73.00%
<b>Organization</b> Entity value: ABC Bank Confidence: 100.00%	<b>Event</b> Entity value: FD process Confidence: 82.00%	<b>Person</b> Entity value: Carolyn Hayes Confidence: 100.00%	<b>PhoneNumber</b> Entity value: 5358265688 Confidence: 80.00%

Original text:

I'm Carolyn Hayes from 2672 Moore Island Suite 727, Angelaside, IL 81766. After hearing good things, I went ahead with the fixed deposit.

Throughout the fixed deposit journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. The FD process was straightforward, and returns are satisfactory.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Carolyn Hayes  
Person  
5358265688  
PhoneNumber

NamedEntity 3

Column1.category	Column1.text	Column1.tencleScore
Address	2672 Moore Island Suite 727, Angelaside, IL 81766	100%
Organization	ABC Bank	100%
Person	Carolyn Hayes	100%
Person	Carolyn Hayes	100%
Event	FD process	92%
PhoneNumber	5358265688	80%
Event	journey	73%
Event	fixed	62%

Language Studio > Named entities layout  
Examine the results  
Result: JSON

Named entities identified

Person	Address	Skill	PersonType
Entity value: Michelle Blake Confidence: 100.0%	Entity value: 18836 Tonya Row, Jarvisborough, AL 26640 Confidence: 100.0%	Entity value: funds Confidence: 0.0%	Entity value: team Confidence: 100.0%

Show cards  On

Original text

I'm [Michelle Blake](#) from [18836 Tonya Row, Jarvisborough, AL 26640](#). After hearing good things, I went [to you](#) for some guidance.

Initially, I [faced](#) some issues with mutual [funds](#) application, but with a little guidance from your [team](#), it all worked out. Reliable guidance from the [financial advisor](#).

Thank you for your support throughout this process.

Best regards,

[Michelle Blake](#)  
Person  
[712.252.0388](#)  
PhoneNumber

NamedEntity 4

Column1.category	Column1.text	Column1.licenseScore
Address	18836 Tonya Row, Jarvisborough, AL 26640	100%
Person	Michelle Blake	100%
Person	Michelle Blake	99%
PersonType	financial advisors	81%
PhoneNumber	712.252.0388	80%
PersonType	team	74%
Skill	funds	65%

Language Studio > Named entities layout  
Examine the results  
Result: JSON

Named entities identified

Person	Date/Time	Product	Person
Entity value: Valerie Peck Confidence: 95.0%	Entity value: Monday Confidence: 60.0%	Entity value: credit card Confidence: 76.0%	Entity value: Valerie Peck Confidence: 97.0%

Show cards  On

Original text

Dear team, [Valerie Peck](#) here. I recently signed up for a [credit card](#) and had a few thoughts to share.

Had a few problems with late fee charges that were resolved. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

[Valerie Peck](#)  
Person  
[712.252.0388](#)  
PhoneNumber

NamedEntity 5

Column1.category	Column1.text	Column1.licenseScore
Address	18836 Tonya Row, Jarvisborough, AL 26640	100%
Person	Michelle Blake	100%
Person	Michelle Blake	99%
PersonType	financial advisors	81%
PhoneNumber	712.252.0388	80%
PersonType	team	74%
Skill	funds	65%

Language Studio - Named entities type1  
Examine the results

Result JSON

Named entities identified

Show cards: On | 11 | Sort: ▾ | Filter: ⚙

Organization	Person	Address	Skill
ABC Bank	Lori Keller	725 Katherine Terrace Apt. 464, Port Angelaton, AK 71923	writing
			confidence: 100.0%

Skill	Person	PhoneNumber
insurance plans	Lori Keller	+1-298-609-7965
confidence: 98.0%		confidence: 100.0%
		confidence: 98.0%

Original text:

Hello ABC Bank team! I'm Lori Keller, residing at 725 Katherine Terrace Apt. 464, Port Angelaton, AK 71923. I'm writing to give feedback on our insurance.

**72523**: I'm writing to give feedback on our insurance.

Clear terms and easy to understand insurance plans. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Lori Keller  
Person  
+1-298-609-7965  
PhoneNumber

NamedEntity 6

Column1.category	Column1.text	Column1.confidenceScore
Address	725 Katherine Terrace Apt. 464, Port Angelaton, AK 71923	100%
Person	Lori Keller	100%
Organization	ABC Bank	100%
Person	Lori Keller	100%
Skill	insurance plans	98%
Skill	writing	89%
PhoneNumber	+1-298-609-7965	80%

Language Studio - Named entities type1  
Examine the results

Result JSON

Named entities identified

Show cards: On | 11 | Sort: ▾ | Filter: ⚙

Organization	Person	Address	Skill
ABC Bank	Lori Keller	725 Katherine Terrace Apt. 464, Port Angelaton, AK 71923	writing
			confidence: 100.0%

Skill	Person	PersonType	Skill
writing	Lori Keller	Customer	writing
confidence: 98.0%			confidence: 98.0%
			confidence: 98.0%

Original text:

Hello ABC Bank team! I'm Lori Keller, residing at 725 Katherine Terrace Apt. 464, Port Angelaton, AK 71923. I'm writing to give feedback on our insurance.

**72523**: I'm writing to give feedback on our insurance.

Clear terms and easy to understand insurance plans. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Lori Keller  
Person  
+1-298-609-7965  
PhoneNumber

NamedEntity 7

Column1.category	Column1.text	Column1.confidenceScore
Organization	ABC Bank	100%
Person	Colleen Taylor	100%
Person	Colleen Taylor	100%
Organization	ABC Bank	100%
Address	Unit 9995 Box 3930, DPO AE 00721	99%
PersonType	staff	98%
Skill	services	97%
Skill	writing	84%
Quantity	582	80%
Quantity	001	80%
Quantity	246	80%
Event	home loan journey	65%

Language Studio > Named entities report  
Examine the results

Result: JSON

Named entities identified

Person	Entity value: David Adkins Confidence: 100.0%	DateTime	Entity value: recently Confidence: 97.0%	Product	Entity value: car Confidence: 84.0%	Organization	Entity value: ABC Bank Confidence: 100.0%
Product	Entity value: car Confidence: 84.0%	Person	Entity value: David Adkins Confidence: 100.0%	Quantity	Entity value: 039 Confidence: 97.0%	Quantity	Entity value: 039 Confidence: 80.0%
Quantity	Entity value: 039 Confidence: 80.0%	Number	Entity value: 2416 Confidence: 97.0%	Number	Entity value: 514 Confidence: 80.0%	Number	Entity value: One Confidence: 80.0%

Original text:

My name is David Adkins, and I recently availed the car loan from ABC Bank. I wanted to share some thoughts.

The loan application was smooth, and the service was excellent. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Thanks for the guidance and support!

Best regards,

David Adkins  
Person  
246 010 2011  
E-mail

NamedEntity 8

Column1.category	Column1.text	Column1.licenseScore
Person	David Adkins	100%
Organization	ABC Bank	100%
Person	David Adkins	100%
DateTime	recently	93%
Product	car	84%
Quantity	039	80%
Quantity	2416	80%
Quantity	514	80%
Product	car	60%

Language Studio > Named entities report  
Examine the results

Result: JSON

Named entities identified

Person	Entity value: Amy Clarke Confidence: 100.0%	DateTime	Entity value: recently Confidence: 97.0%	Organization	Entity value: ABC Bank Confidence: 100.0%
PersonType	Entity value: customer Confidence: 77.0%	Person	Entity value: Amy Clarke Confidence: 100.0%	PhoneNumber	Entity value: 035-610-2812x45085 Confidence: 80.0%
Person	Entity value: customer Confidence: 77.0%	Person	Entity value: Amy Clarke Confidence: 100.0%	PhoneNumber	Entity value: 035-610-2812x45085 Confidence: 80.0%

Original text:

My name is Amy Clarke, and I recently availed the fixed deposit from ABC Bank. I wanted to share some thoughts.

The thing that stood out to me was the fixed deposit application process. Not too happy with the customer service response time for queries. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Amy Clarke  
Person  
035-610-2812x45085  
PhoneNumber

NamedEntity 9

Column1.category	Column1.text	Column1.licenseScore
Organization	ABC Bank	100%
Person	Amy Clarke	100%
Person	Amy Clarke	100%
DateTime	recently	87%
PhoneNumber	035-610-2812x45085	80%
Quantity	One	80%
PersonType	customer	77%

Language Studio - Named entities output:  
Examine the results

Result: JSON

Named entities identified			
Person	Date/Time	Organization	Organization
Entity value: Randy Ritter Confidence: 99.99%	Entity value: recently Confidence: 99.99%	Entity value: ABC Bank Confidence: 99.99%	Entity value: ABC Bank Confidence: 99.99%
PersonType	Person	PhoneNumber	
Entity value: friends Confidence: 99.99%	Entity value: Randy Ritter Confidence: 99.99%	Entity value: (946)519-8528x56751 Confidence: 99.99%	

Original text:

My name is Randy Ritter, and I recently availed the mutual funds from ABC Bank. I wanted to share some thoughts. Mutual fund options are average, but returns have been decent. Honestly, I feel that while the process was overall decent, there were parts that could have been improved. Overall, I'd recommend ABC Bank to friends, looking for a reliable option.

Best regards,  
Randy Ritter  
Person  
(946)519-8528x56751  
PhoneNumber

NamedEntity 10

Column1.category	Column1.text	Column1.lenceScore
Organization	ABC Bank	100%
Person	Randy Ritter	100%
Organization	ABC Bank	100%
Person	Randy Ritter	100%
PersonType	friends	96%
PhoneNumber	(946)519-8528x56751	80%
DateTime	recently	66%

Language Studio - Named entities output:  
Examine the results

Result: JSON

Named entities identified			
Person	Date/Time	Product	Quantity
Entity value: Angela Sanchez Confidence: 99.99%	Entity value: recently Confidence: 99.99%	Entity value: credit card Confidence: 99.99%	Entity value: One Confidence: 99.99%
Skill	Event	Person	PhoneNumber
Entity value: credit Confidence: 99.99%	Entity value: application process Confidence: 99.99%	Entity value: Angela Sanchez Confidence: 99.99%	Entity value: (007)548.0812x879 Confidence: 99.99%

Original text:

Dear team, Angela Sanchez here. I recently signed up for a credit card and had a few thoughts to share. One thing that stood out to me was the credit card application process. The credit limit was quite generous, and the rewards are worth it. It was an insightful experience.

Thanks for the guidance and support!

Best regards,  
Angela Sanchez  
Person  
(007)548.0812x879  
PhoneNumber

NamedEntity 11

Column1.category	Column1.text	Column1.lenceScore
Person	Angela Sanchez	100%
Person	Angela Sanchez	100%
PhoneNumber	007.548.0812x879	80%
Quantity	One	80%
Product	credit card	79%
DateTime	recently	60%
Skill	credit	57%
Event	application process	55%

Language Studio > Named entities type

Examine the results

Result JSON

Named entities identified

Show cards: On Sort Filter

Person	Skill	Person	Quantity
Entity value: Cory Moore Confidence: 98.00%	Entity value: services Confidence: 97.00%	Entity value: Cory Moore Confidence: 100.00%	Entity value: 001 Confidence: 80.00%
Quantity	Quantity	Quantity	
Entity value: 360 Confidence: 80.00%	Entity value: 857 Confidence: 80.00%	Entity value: 847 Confidence: 80.00%	

Original text

Dear Team, Cory Moore here. I recently signed up for a insurance and had a few thoughts to share.

Person

Premium rates could be lower for the value offered. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

looking forward to using more of your services in the future.

NA11

Best regards,

Cory Moore  
Person  
855-123-4567

Q1 Q2 Q3 Q4

NamedEntity 12

Column1.category	Column1.text	Column1.lenceScore
Person	Cory Moore	100%
Person	Cory Moore	98%
Skill	services	97%
Quantity	857	80%
Quantity	8347	80%
Quantity	001	80%
Quantity	360	80%

Language Studio > Named entities type

Examine the results

Result JSON

Named entities identified

Show cards: On Sort Filter

Person	Event	Organization	Event
Entity value: Christopher Chan Confidence: 100.00%	Entity value: home loan journey Confidence: 95.00%	Entity value: ABC Bank Confidence: 100.00%	Entity value: documentation process Confidence: 76.00%
Person	PhoneNumber		
Entity value: Christopher Chan Confidence: 100.00%	Entity value: 356-120-2825 Confidence: 80.00%		

Original text

Dear team, Christopher Chan here. I recently signed up for a home loan and had a few thoughts to share.

Person

Throughout the home loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. The documentation process was overwhelming, and I need events.

details.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Christopher Chan  
Person  
356-120-2825

NamedEntity 13

Column1.category	Column1.text	Column1.lenceScore
Organization	ABC Bank	100%
Person	Christopher Chan	100%
Person	Christopher Chan	100%
PhoneNumber	356-120-2825	80%
Event	documentation process	78%
Event	home loan journey	65%

Language Studio > Named entities tryout  
Examine the results

Result JSON

Named entities identified			
Person	Entity value: Mark Figueroa Confidence: 100.00%	Product	Entity value: car Confidence: 97.00%
Organization	Entity value: ABC Bank Confidence: 100.00%	Quantity	Entity value: One Confidence: 90.00%
PersonType	Entity value: friends Confidence: 98.00%	Person	Entity value: Mark Figueroa Confidence: 100.00%
		PhoneNumber	Entity value: 530-224-6429x9405 Confidence: 94.00%

Original text

Hi there, this is **Mark Figueroa**. I decided to opt for your **car** loan and thought I'd share my **experience**.

The thing that stood out to me was the **loan application process**. Not issues with the repayment **terms** initially, but resolved eventually. It was an insightful experience.

Overall, I'd recommend **MC-Bank** to **friends** looking for a reliable option.

Best regards,  
**Mark Figueroa**  
Person  
530-224-6429x9405  
PhoneNumber

NamedEntity 14

Column1.category	Column1.text	Column1.tlenceScore
Person	Mark Figueroa	100%
Organization	ABC Bank	100%
Person	Mark Figueroa	100%
Product	car	97%
PersonType	friends	96%
Product	car	94%
PhoneNumber	530-224-6429x9405	80%
Quantity	One	80%

Language Studio > Named entities tryout  
Examine the results

Result JSON

Named entities identified			
Person	Entity value: Britney Rodriguez Confidence: 100.00%	Address	Entity value: 63000 Colin Cove, Tanyatown, KY 03848 Confidence: 100.00%
Person	Entity value: Britney Rodriguez Confidence: 100.00%	Person	Entity value: Britney Rodriguez Confidence: 100.00%
		PhoneNumber	Entity value: 943.929.9636x37395 Confidence: 80.00%

Original text

I'm **Brittney Rodriguez** from **63000 Colin Cove, Tanyatown, KY 03848**. After hearing good things, I went ahead with the fixed deposit.

Good options for short-term deposits, very pleased. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Thanks for the guidance and support!

Best regards,  
**Brittney Rodriguez**  
Person  
943.929.9636x37395  
PhoneNumber

NamedEntity 15

Column1.category	Column1.text	Column1.tlenceScore
Person	Brittney Rodriguez	100%
Address	63000 Colin Cove, Tanyatown, KY 03848	100%
Person	Brittney Rodriguez	100%
PhoneNumber	943.929.9636x37395	80%

Language Studio > Named entities tryout  
Examine the results

Result JSON

Named entities identified

Person	Entry value Michelle Richards Confidence 100.0%	Address	Entry value 081 Khan Radial Suite 301, Davidhaven, TN 38887 20027, Germanna, TN 38887 Confidence 100.0%	Quantity	Entry value One Confidence 80.0%	Person	Entry value Michelle Richards Confidence 100.0%
--------	--	---------	--	----------	-------------------------------------	--------	--

PhoneNumber

Entry value (283) 802-4467x9609 Confidence 80.0%
---

Original text

I'm Michelle Richards. From 081 Khan Radial Suite 301, Davidhaven, TN 38887. After hearing good things, I went ahead with the mutual funds.

The one thing that stood out to me was the mutual funds application process. Good range of mutual funds, but returns are subject to high fluctuations. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Michelle Richards  
Person  
(283) 802-4467x9609  
PhoneNumber

**NamedEntity 16**

**Column1.category****Column1.textlenceScore**

Person	Michelle Richards	100%
Address	081 Khan Radial Suite 301, Davidhaven, TN 38887	100%
Person	Michelle Richards	100%
PhoneNumber	283-802-4467x9609	80%
Quantity	One	80%

Language Studio > Named entities tryout  
Examine the results

Result JSON

Named entities identified

Person	Entry value James Rogers Confidence 100.0%	Product	Entry value credit card Confidence 70.0%	Product	Entry value credit card Confidence 60.0%	Organization	Entry value ABC Bank Confidence 90.0%
--------	---	---------	---	---------	---	--------------	--

PersonType

Entry value friends Confidence 96.0%
---

Person

Entry value James Rogers Confidence 100.0%
---

Quantity

Entry value 297 Confidence 80.0%
-------------------------------------

Quantity

Entry value 164 Confidence 80.0%
-------------------------------------

Original text

Hi there, this is James Rogers. I decided to opt for your credit card and thought I'd share my experience.

Faced issues with hidden charges on the credit card. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Best regards,

James Rogers  
Person  
(207) 555-0244x5675  
Q: Q:

**NamedEntity 17**

**Column1.category****Column1.textlenceScore**

Organization	ABC Bank	100%
Person	James Rogers	100%
Person	James Rogers	100%
PersonType	friends	96%
Quantity	297	80%
Quantity	164	80%
Product	credit card	73%
Product	credit card	69%

Language Model - Named entities types  
Examine the results

Result JSON

Named entities identified

Show cards  On  Off  Sort  Filter

<b>Organization</b> Entity value ABC Bank Confidence: 100%	<b>Person</b> Entity value Carla Cross Confidence: 100%	<b>Address</b> Entity value 17294 Cain Square Apt. 429, North Timothy, VT 82344 Confidence: 100%	<b>Skill</b> Entity value writing Confidence: 100%
<b>Skill</b> Entity value insurance Confidence: 100%	<b>PersonType</b> Entity value friends Confidence: 100%	<b>Organization</b> Entity value ABC Bank Confidence: 100%	<b>PersonType</b> Entity value team Confidence: 100%
<b>Location</b> Entity value Carla Cross Confidence: 100%	<b>PhoneNumber</b> Entity value 883-307-9240x8052 Confidence: 100%		

Original text

Hello **ABC Bank**, I am the **Carla Cross**, residing at **17294 Cain Square Apt. 429, North Timothy, VT 82344**.  
**I am willing to give feedback** on your insurance.  
**Overall, I found some issues with** **insurance** application, but with a little guidance from your **agents**, it all worked out. Very satisfied with the claim settlement process.

Overall, I'd recommend **ABC Bank** to **friends** looking for a reliable option.  
**agent**, **team**.

Best regards,  
**Carla Cross**  
**Location**  
**PhoneNumber**

**NamedEntity 18**

Column1.category	Column1.text	Column1.confidenceScore
Address	17294 Cain Square Apt. 429, North Timothy, VT 82344	100%
Organization	ABC Bank	100%
Organization	ABC Bank	100%
Person	Carla Cross	100%
PersonType	friends	96%
Location	Carla Cross	93%
Skill	writing	89%
PhoneNumber	883-307-9240x8052	80%
Skill	insurance	61%
PersonType	team	59%

Language Studio > Named entities layout  
Examine the results

Result: JSON

Named entities identified

Person	Entity value: Alicia Eaton Confidence: 99.80%	Date/Time	Entity value: recently Confidence: 99.80%	Organization	Entity value: ABC Bank Confidence: 99.80%
Event	Entity value: application process Confidence: 99.80%	Location	Entity value: banks Confidence: 99.80%	Skill	Entity value: services Confidence: 99.80%
Quantity	Entity value: 445 Confidence: 99.80%	Quantity	Entity value: One Confidence: 99.80%	Person	Entity value: One Confidence: 99.80%

Original text

My name is Alicia Eaton, and I recently applied for the loan from ABC Bank. I wanted to share some thoughts:  
The thing that stood out to me was the how the application process. Very competitive rates compared to other bank. It was an insightful experience.  
Looking forward to using more of your services in the future.  
Sincerely,  
Alicia Eaton  
(445) 348-3483x3240

Best regards,

NamedEntity 19

Column1.category	Column1.text	Column1.englishScore
Organization	ABC Bank	100%
Person	Alicia Eaton	100%
Person	Alicia Eaton	100%
Skill	services	97%
DateTime	recently	90%
Location	banks	82%
Quantity	445	80%
Quantity	One	80%
Quantity	050	80%
Event	application process	45%

Language Studio > Named entities layout  
Examine the results

Result: JSON

Named entities identified

Person	Entity value: Jason Key Confidence: 99.80%	Product	Entity value: car Confidence: 99.80%	Quantity	Entity value: One Confidence: 99.80%
Person	Entity value: Jason Key Confidence: 100.00%	PhoneNumber	Entity value: 185.458.3483x13406 Confidence: 99.80%	Product	Entity value: car Confidence: 94.00%

Original text

Dear team, Jason Key here. I recently signed up for a car loan and had a few thoughts to share.  
The thing that stood out to me was the car loan application process. Affordable interest rates and clear process. It was an insightful experience.  
Thanks for the guidance and support!  
Best regards,

Jason Key  
Person  
185.458.3483x13406  
PhoneNumber

NamedEntity 20

Column1.category	Column1.text	Column1.englishScore
Person	Jason Key	100%
Person	Jason Key	99%
Product	car	95%
Product	car	94%
PhoneNumber	185.458.3483x13406	80%
Quantity	One	80%

Language Studio - Named entities tyout  
Examine the results  
Result: JSON

Named entities identified				
Organization	Person	Address	Skill	
Entity value ABC Bank Confidence 100.0%	Entity value Claudia Pace Confidence 100.0%	Entity value 2000 Wiley Street, Lake Antonio, MS Confidence 100.0%	Entity value deposit Confidence 100.0%	Show card  On Set  Filter
DomainType	Organization	PersonType	Person	
Entity value team Confidence 82.0%	Entity value ABC Bank Confidence 100.0%	Entity value friends Confidence 95.0%	Entity value Claudia Pace Confidence 100.0%	
PhoneNumber				
Entity value +1-225-607-2008 Confidence 80.0%				
Original text				
Hi, I'm John from ABC Banking, residing at 2000 Wiley Street, Lake Antonio, MS 45201. I'm a regular... Person				
writing to give feedback on your fixed deposit.				
Honestly, I faced some issues with fixed deposit application, but with a little guidance from your 				
It all worked out. Impressed with the interest rates offered on Fixed deposits. Also, I'd recommend  ABC Bank to friends looking for a reliable option. Person				
Overall, I'd recommend  ABC Bank to friends looking for a reliable option. Person				
Best regards,  John Jefferson Person				
234-438-2663x0579 Investor				

NamedEntity 21

Column1.category	Column1.text	Column1.lenceScore
	29655 Wiley Street, Lake Antonio, MS	
Address	82526	100%
Organization	ABC Bank	100%
Organization	ABC Bank	100%
Person	Claudia Pace	100%
Person	Claudia Pace	98%
PersonType	friends	96%
PersonType	team	82%
PhoneNumber	+1-225-607-2008	80%
Skill	deposit application	53%

Language Studio - Named entities tyout  
Examine the results  
Result: JSON

Named entities identified				
Person	DateTime	Organization	Skill	
Entity value John Jefferson Confidence 100.0%	Entity value recently Confidence 95.0%	Entity value ABC Bank Confidence 100.0%	Entity value investment Confidence 90.0%	Show card  On Set  Filter
DomainType	Organization	PersonType	Person	
Entity value team Confidence 100.0%	Entity value ABC Bank Confidence 100.0%	Entity value friends Confidence 90.0%	Entity value John Jefferson Confidence 100.0%	
PhoneNumber				
Entity value +1-234-438-2663x0579 Confidence 80.0%				
Original text				
My name is  John Jefferson and I recently visited the mutual funds from  ABC Bank. I wanted to share details.				
Some thoughts:				
Honestly, with the  investment device provided by  ABC Bank,  Honestly, I felt that while the process was 				
overall decent, there were parts that could have been improved.				
Overall, I'd recommend  ABC Bank to friends looking for a reliable option. Person				
Best regards,  John Jefferson Person				
234-438-2663x0579 Investor				

NamedEntity 22

Column1.category	Column1.text	Column1.lenceScore
Organization	ABC Bank	100%
Organization	ABC Bank	100%
Person	John Jefferson	100%
Person	John Jefferson	100%
Organization	ABC Bank	100%
Skill	investment	99%
PersonType	friends	96%
DateTime	recently	91%
PhoneNumber	234-438-2663x0579	80%

Language Studio > Named entities tryout  
Examine the results  
Result: JSON

Named entities identified

Organization	ABC Bank	Person	Ian Fuller Jr.
	Confidence: 100.00%		Confidence: 100.00%
PersonType	team	Skill	customer service
	Confidence: 59.00%		Confidence: 80.00%
Address	960 Sabrina Ways, South Carmenfort, NV 53344	Person	Ian Fuller Jr.
	Confidence: 100.00%		Confidence: 100.00%
Skill	credit card application	Person	Ian Fuller Jr.
	Confidence: 80.00%		Confidence: 100.00%
PhoneNumber	085.746.5807	Person	Ian Fuller Jr.
	Confidence: 100.00%		Confidence: 100.00%
PersonType	team	Skill	customer service
	Confidence: 59.00%		Confidence: 80.00%

Show cards: On | 17 items | Filter

Original text

Hi! I'm [REDACTED] from [REDACTED] residing at [REDACTED] 960 Sabrina Ways, South Carmenfort, NV 53344.  
I'm writing to give feedback on your credit card.  
Initially, I faced some issues with [REDACTED] application, but with a little guidance from your [REDACTED] team, it all worked out. Very easy to apply, and the [REDACTED] is great.  
Please let me know if you have any questions or need further help.  
Best regards,  
[REDACTED]  
[REDACTED]

*NamedEntity 23*

Column1.category	Column1.text	Column1.confidenceScore
Person	Ian Fuller Jr.	100%
Skill	customer service	100%
Address	960 Sabrina Ways, South Carmenfort, NV 53344	100%
Organization	ABC Bank	100%
Person	Ian Fuller Jr.	96%
Skill	credit card application	86%
PhoneNumber	085.746.5807	80%
PersonType	team	59%

Language Studio > Named entities tryout  
Examine the results  
Result: JSON

Named entities identified

Person	Nicole Wong	Skill	insurance
	Confidence: 100.00%		Confidence: 100.00%
Person	Nicole Wong	PersonType	team
	Confidence: 100.00%		Confidence: 100.00%
Quantity	183	Skill	services
	Confidence: 80.00%		Confidence: 97.00%
Quantity	593	PersonType	team
	Confidence: 80.00%		Confidence: 100.00%
Quantity	1	Skill	insurance
	Confidence: 80.00%		Confidence: 61.00%
Skill	insurance	PersonType	team
	Confidence: 61.00%		Confidence: 59.00%

Show cards: On | 17 items | Filter

Original text

Dear team, [REDACTED] here. I recently signed up for a insurance and had a few thoughts to share.  
Initially, I faced some issues with [REDACTED] application, but with a little guidance from your [REDACTED] team, it all worked out. Had issues with policy details initially, but sorted out later.  
Please let me know if you have any questions or need further help.  
Looking forward to using more of your [REDACTED] in the future.  
Best regards,  
[REDACTED]  
[REDACTED]

*NamedEntity 24*

Column1.category	Column1.text	Column1.confidenceScore
Person	Nicole Wong	100%
Person	Nicole Wong	100%
Skill	services	97%
Quantity	183	80%
Quantity	593	80%
Quantity	1	80%
Skill	insurance	61%
PersonType	team	59%

Language Studio - Named entity types  
Examine the results

Result JSON

Show cards On Sort Filter

Named entities identified	
<b>Organization</b>	ABC Bank Confidence 100%
<b>Person</b>	Lisa Elliott Confidence 100%
<b>Address</b>	396 Williams Square, Port Michaelmouth, RI 47417 Confidence 99%
<b>Skill</b>	customer service Confidence 97%
<b>Quantity</b>	One Confidence 95%
<b>Event</b>	application process Confidence 85%
<b>Location</b>	home Confidence 80%
<b>Person</b>	Lisa Elliott Confidence 80%
<b>PhoneNumber</b>	909-852-1348x102 Confidence 80%
<b>Date</b>	Entity value 1985-01-01 Confidence 80%

Original text

Hello ABC Bank team! I'm [Lisa Elliott](#), residing at [396 Williams Square, Port Michaelmouth, RI 47417](#).  
I'm writing to give feedback on your home loan.  
The [writing](#) thing that stood out to me was the home loan [application process](#). Not satisfied with the  
customer service for [home](#) loan queries. It was an insightful experience.  
Appreciate the support, and I'll be reaching out if I need further help.

Best regards,  
[Lisa Elliott](#)  
Person  
909-852-1348x102  
PhoneNumber

**NamedEntity 25**

Column1.category	Column1.text	Column1.tid	Column1.licenseScore
Person	Lisa Elliott		100%
Organization	ABC Bank		100%
Person	Lisa Elliott		99%
Address	396 Williams Square, Port Michaelmouth, RI 47417		97%
Skill	customer service		95%
Skill	writing		84%
PhoneNumber	909-852-1348x102		80%
Quantity	One		80%
Location	home		65%
Event	application process		45%

Language Studio | Named entities output  
Examine the results

Result JSON

Named entities identified

Service	Entity value Stephen Sanchez Confidence: 100%
DateTime	Entity value recently Confidence: 95%
Product	Entity value car Confidence: 95%
Organization	Entity value ABC Bank Confidence: 100%
Event	Entity value car journey Confidence: 75%
Organization	Entity value ABC Bank Confidence: 95%
Event	Entity value approval Confidence: 75%
Person	Entity value Stephen Sanchez Confidence: 100%
Quantity	Entity value 568 Confidence: 95%
Quantity	Entity value 001 Confidence: 95%
Quantity	Entity value 813 Confidence: 95%
Event	Entity value car loan journey Confidence: 95%
Product	Entity value car Confidence: 95%
Event	Entity value approval Confidence: 95%

Original text

My name is Stephen Sanchez, and I recently avoided the ABC Bank for car loan. I wanted to share some thoughts. Throughout the car loan process, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. Quick process, but the rates could be better.

Event

Looking forward to using more of your products in the future.

Best regards,

Lithan Surya  
Person  
+62 811-4879437  
Guru - G.

NamedEntity 26

Column1.category	Column1.text	Column1.text.lengthScore
Organization	ABC Bank	100%
Organization	ABC Bank	100%
Person	Stephen Sanchez	100%
Person	Stephen Sanchez	100%
Skill	services	97%
DateTime	recently	81%
Quantity	568	80%
Quantity	001	80%
Quantity	813	80%
Event	car loan journey	75%
Product	car	71%
Event	approval	67%

Language Studio | Named entities output  
Examine the results

Result JSON

Named entities identified

Person	Entity value Laura Lawson Confidence: 100%
Skill	Entity value deposit application Confidence: 95%
PersonType	Entity value team Confidence: 95%
Skill	Entity value services Confidence: 100%
Person	Entity value Laura Lawson Confidence: 100%
PhoneNumber	Entity value (538)493-2975 Confidence: 95%

Original text

Dear team, Laura Lawson here. I recently signed up for a fixed deposit and had a few thoughts to share. Initially, I faced some issues with fixed deposit application, but with a little guidance from your skill, team all worked out. Wish the maturity period options were more flexible.

PS: Looking forward to using more of your services in the future.

Best regards,

Laura Lawson  
Person  
(538)493-2975  
PhoneNumber

NamedEntity 27

Column1.category	Column1.text	Column1.text.lengthScore
Person	Laura Lawson	100%
Person	Laura Lawson	100%
Skill	services	97%
PersonType	team	82%
PhoneNumber	(538)493-2975	80%
Skill	deposit application	53%

Language Studio > Named entities layout  
Examine the results  
Result: JSON

Named entities identified:

	Person	DateTime	Organization	Event
Person	Entity value Lisa Medina Confidence 100%	Entity value recently Confidence 100%	Entity value ABC Bank Confidence 100%	Entity value mutual Confidence 100%
Event	Entity value journey Confidence 37%	Organization	Organization	Event
DateTime	Entity value ABC Bank Confidence 100%	Organization	Organization	Event
PhoneNumber	Entity value Lisa Medina Confidence 95%	PhoneNumber	PhoneNumber	Event

Show cards: On | LT Sort | Filter

Original text:

My name is Lisa Medina, and I recently avoided the actual funds from ABC Bank. I wanted to share some thoughts.

Throughout the ABC Bank process, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. Not much transparency in fund performance updates.

Thanks for the guidance and support!

Best regards,

Lisa Medina  
Person  
lisamedina2020@gmail.com

NamedEntity 28

Column1.category	Column1.text	Column1.text.length	Column1.text.confidenceScore
Organization	ABC Bank	10	100%
Organization	ABC Bank	10	100%
Person	Lisa Medina	10	100%
Person	Lisa Medina	10	100%
PhoneNumber	(092)560-1857x072	14	80%
DateTime	recently	8	67%
Skill	fund performance	14	56%
Event	mutual	7	50%
Event	journey	7	37%

Language Studio > Named entities layout  
Examine the results  
Result: JSON

Named entities identified:

	Person	Address	Product	Product
Person	Entity value Lynn Sanders Confidence 100%	Address	Entity value PSC 6193, Box 7143, APO AE 32136 Confidence 100%	Product
Person	Entity value Lynn Sanders Confidence 100%	PhoneNumber	Entity value 747-776-0229x2533 Confidence 100%	Product

Show cards: On | LT Sort | Filter

Original text:

I'm Lynn Sanders from PSC 6193, Box 7143, APO AE 32136. After hearing good things, I went ahead with the credit card product.

The credit card product

Checkback options are limited, but the credit card service is good. Honestly, I felt that while the credit card process was overall decent, there were parts that could have been improved.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Lynn Sanders  
Person  
747-776-0229x2533  
PhoneNumber

NamedEntity 29

Column1.category	Column1.text	Column1.text.length	Column1.text.confidenceScore
Person	Lynn Sanders	10	100%
Address	PSC 6193, Box 7143, APO AE 32136	14	100%
Person	Lynn Sanders	10	100%
PhoneNumber	747-776-0229x2533	14	80%
Product	credit card	10	80%
Product	credit card	10	59%

Language Studio - Named entity types

Examine the results

Result: JSON

Show card: On | 21 Sept | Filter

Entity	Entity value	Confidence
Person	Entity value James Skinner	Confidence: 100%
Address	Entity value 429 Kerry Locks, Jamesside, FL 85253	Confidence: 100%
Skill	Entity value insurance	Confidence: 100%
PersonType	Entity value team	Confidence: 100%
Skill	Entity value services	Confidence: 97%
Person	Entity value James Skinner	Confidence: 100%
Quantity	Entity value 7544	Confidence: 80%
Quantity	Entity value 775	Confidence: 80%
Quantity	Entity value 645	Confidence: 80%
Quantity	Entity value 001	Confidence: 80%
Skill	Entity value insurance	Confidence: 61%
PersonType	Entity value team	Confidence: 59%
Skill	Entity value insurance	Confidence: 53%

Original text

I've [been writing](#) from 429 Kerry Locks, Jamesside, FL 85253. After hearing good things, I went ahead and [signed up](#) with the insurance.

Naturally, I faced some issues with [insurance application](#), but with a little guidance from your [team](#).

[Keep it all worked out](#). Not happy with the [insurance claim process](#), took longer than expected.

Looking forward to using more of your [services](#) in the future.

Skilled

Best regards,

James Skinner

James Skinner

429-275-0011

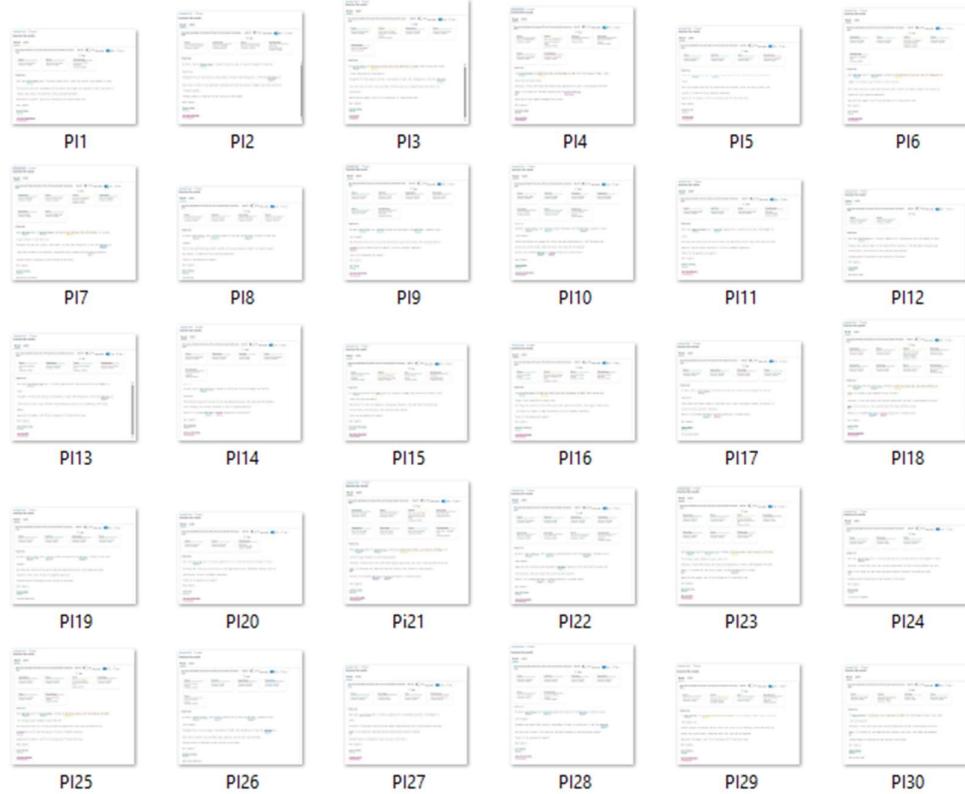
0-0-0-0-

**NamedEntity 30**

Column1.category	Column1.text	Column1.confidenceScore
Person	James Skinner	100%
Address	429 Kerry Locks, Jamesside, FL 85253	100%
Person	James Skinner	100%
Skill	services	97%
Quantity	7544	80%
Quantity	775	80%
Quantity	645	80%
Quantity	001	80%
Skill	insurance	61%
PersonType	team	59%
Skill	insurance	53%

- 10.4 Personal Identifiable Information extraction

Enlarged images in Annexure j.10.4



Column1.category	Column1.text	Column1.score
Person	Bonnie Myers	100%
Person	Bonnie Myers	99%
PhoneNumber	(577)727-2843x81412	80%

PII Personal Identifiable Information 1

Column1.category	Column1.text	Column1.score
Person	Thomas Moody	100%
Organization	ABC Bank	100%
Person	Thomas Moody	100%
PhoneNumber	981.208.2669x1587	80%

PII Personal Identifiable Information 2

Column1.category	Column1.text	Column1.score
Organization	ABC Bank	100%
Person	Carolyn Hayes	100%
Person	Carolyn Hayes	100%
Address	2672 Moore Island Suite 727, Angelaside, IL 81766	100%
PhoneNumber	5358265688	80%

PII Personal Identifiable Information 3

Column1.category	Column1.text	Column1.score
Address	18836 Tonya Row, Jarvisborough, AL 26640	100%
Person	Michelle Blake	100%
Person	Michelle Blake	99%
PersonType	financial advisors	81%
PhoneNumber	712.252.0388	80%
PersonType	team	74%

PII Personal Identifiable Information 4

Column1.category	Column1.text	Column1.score
Person	Valerie Peck	99%
Person	Valerie Peck	97%
PhoneNumber	705-060-8825	80%
Datetime	recently	60%

PII Personal Identifiable Information 5

Column1.category	Column1.text	Column1.confidenceScore
Address	725 Katherine Terrace Apt. 464, Port Angelaton, AK 71923	100%
Person	Lori Keller	100%
Organization	ABC Bank	100%
Person	Lori Keller	100%
PhoneNumber	+1-298-609-7965	80%

PII Personal Identifiable Information 6

Column1.category	Column1.text	Column1.confidenceScore
Person	Colleen Taylor	100%
Organization	ABC Bank	100%
Organization	ABC Bank	100%
Person	Colleen Taylor	100%
Address	Unit 9995 Box 3930, DPO AE 00721	99%
PersonType	staff	98%

PII Personal Identifiable Information 7

Column1.category	Column1.text	Column1.confidenceScore
Organization	ABC Bank	100%
Person	David Adkins	100%
Person	David Adkins	100%
DateTime	recently	93%

PII Personal Identifiable Information 8

Column1.category	Column1.text	Column1.confidenceScore
Organization	ABC Bank	100%
Person	Amy Clarke	100%
Person	Amy Clarke	100%
DateTime	recently	87%
PhoneNumber	035-610-2812x45085	80%
PersonType	customer	77%

PII Personal Identifiable Information 9

Column1.category	Column1.text	Column1.confidenceScore
Organization	ABC Bank	100%
Person	Randy Ritter	100%
Organization	ABC Bank	100%
Person	Randy Ritter	100%
PersonType	friends	96%
PhoneNumber	(946)519-8528x56751	80%
DateTime	recently	66%

PII Personal Identifiable Information 10

Column1.category	Column1.text	Column1.confidenceScore
Person	Angela Sanchez	100%
Person	Angela Sanchez	100%
PhoneNumber	007.548.0812x879	80%
DateTime	recently	60%

PII Personal Identifiable Information 11

Column1.category	Column1.text	Column1.confidenceScore
Person	Cory Moore	100%
Person	Cory Moore	98%

PII Personal Identifiable Information 12

Column1.category	Column1.text	Column1.confidenceScore
Person	Christopher Chan	100%
Organization	ABC Bank	100%
Person	Christopher Chan	100%
PhoneNumber	356-120-2825	80%

PII Personal Identifiable Information 13

Column1.category	Column1.text	Column1.confidenceScore
Person	Mark Figueroa	100%
Organization	ABC Bank	100%
Person	Mark Figueroa	100%
PersonType	friends	96%
PhoneNumber	530-224-6429x9405	80%

PII Personal Identifiable Information 14

Column1.category	Column1.text	Column1.confidenceScore
Person	Brittney Rodriguez	100%
Address	63000 Colin Cove, Tanyatown, KY 03848	100%
Person	Brittney Rodriguez	100%
PhoneNumber	943.929.9636x37395	80%

PII Personal Identifiable Information 15

Column1.category	Column1.text	Column1.confidenceScore
Person	Michelle Richards	100%
Address	081 Khan Radial Suite 301, Davidhaven, TN 38027	100%
Person	Michelle Richards	100%
PhoneNumber	283-802-4467x9609	80%

PII Personal Identifiable Information 16

Column1.category	Column1.text	Column1.confidenceScore
Person	James Rogers	100%
Organization	ABC Bank	100%
Person	James Rogers	100%
PersonType	friends	96%

PII Personal Identifiable Information 17

Column1.category	Column1.text	Column1.confidenceScore
Address	17294 Cain Square Apt. 429, North Timothy, VT 82344	100%
Organization	ABC Bank	100%
Organization	ABC Bank	100%
Person	Carla Cross	100%
PersonType	friends	96%
PhoneNumber	883-307-9240x8052	80%
Person	Carla Cross	63%
PersonType	team	59%

PII Personal Identifiable Information 18

Column1.category	Column1.text	Column1.confidenceScore
Organization	ABC Bank	100%
Person	Alicia Eaton	100%
Person	Alicia Eaton	100%
DateTime	recently	90%

PII Personal Identifiable Information 19

Column1.category	Column1.text	Column1.confidenceScore
Person	Jason Key	100%
Person	Jason Key	99%
PhoneNumber	185.458.3483x13406	80%

PII Personal Identifiable Information 20

Column1.category	Column1.text	Column1.confidenceScore
Address	29655 Wiley Street, Lake Antonio, MS 82526	100%
Organization	ABC Bank	100%
Organization	ABC Bank	100%
Person	Claudia Pace	100%
Person	Claudia Pace	98%
PersonType	friends	96%
PersonType	team	82%
PhoneNumber	+1-225-607-2008	80%

PII Personal Identifiable Information 21

Column1.category	Column1.text	Column1.confidenceScore
Organization	ABC Bank	100%
Organization	ABC Bank	100%
Person	John Jefferson	100%
Person	John Jefferson	100%
Organization	ABC Bank	100%
PersonType	friends	96%
DateTime	recently	91%
PhoneNumber	234-438-2663x0579	80%

PII Personal Identifiable Information 22

Column1.category	Column1.text	Column1.confidenceScore
Address	960 Sabrina Ways, South Carmenfort, NV 53344	100%
Person	Ian Fuller Jr.	100%
Organization	ABC Bank	100%
Person	Ian Fuller Jr.	96%
PersonType	customer	80%
PhoneNumber	085.746.5807	80%
PersonType	team	59%

PII Personal Identifiable Information 23

Column1.category	Column1.text	Column1.confidenceScore
Person	Nicole Wong	100%
Person	Nicole Wong	100%
PersonType	team	59%

PII Personal Identifiable Information 24

Column1.category	Column1.text	Column1.confidenceScore
Person	Lisa Elliott	100%
Organization	ABC Bank	100%
Person	Lisa Elliott	99%
Address	396 Williams Square, Port Michaelmouth, RI 47417	97%
PhoneNumber	909-852-1348x102	80%
PersonType	customer	75%

PII Personal Identifiable Information 25

Column1.category	Column1.text	Column1.confidenceScore
Organization	ABC Bank	100%
Person	Stephen Sanchez	100%
Organization	ABC Bank	100%
Person	Stephen Sanchez	100%
DateTime	recently	81%

PII Personal Identifiable Information 26

Column1.category	Column1.text	Column1.confidenceScore
Person	Laura Lawson	100%
Person	Laura Lawson	100%
PersonType	team	82%
PhoneNumber	(538)493-2975	80%

PII Personal Identifiable Information 27

Column1.category	Column1.text	Column1.confidenceScore
Organization	ABC Bank	100%
Person	Lisa Medina	100%
Organization	ABC Bank	100%
Person	Lisa Medina	100%
PhoneNumber	(092)560-1857x072	80%
DateTime	recently	67%

PII Personal Identifiable Information 28

Column1.category	Column1.text	Column1.confidenceScore
Person	Lynn Sanders	100%
Address	PSC 6193, Box 7143, APO AE 32136	100%
Person	Lynn Sanders	100%
PhoneNumber	747-776-0229x2533	80%

PII Personal Identifiable Information 29

Column1.category	Column1.text	Column1.confidenceScore
Person	James Skinner	100%
Address	429 Kerry Locks, Jamesside, FL 85253	100%
Person	James Skinner	100%
PersonType	team	59%

PII Personal Identifiable Information 30

### Explanations

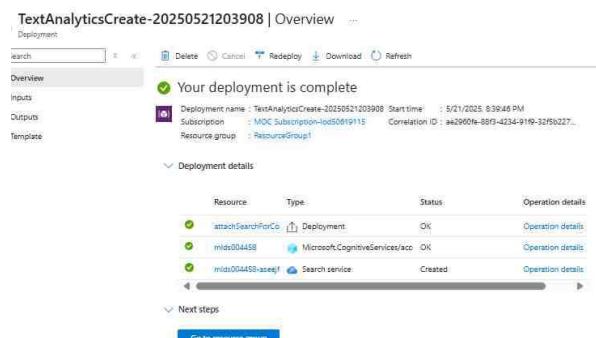
Each day numerous emails from customers are received. This information gives insights from their feedbacks when text analytics are managed automatically. Language studio provides categorizing of sentiments, identifying key phrases, and extracting relevant personal data. Instead of manual analysis of customer emails which can take up resources both man power and time. With automation it reduces inconsistency and quickly identify trending issues or common sentiments across a large volume of emails.

Some of these insights can be repurpose for other uses in the organizations. Such as marketing and product development. In last activity, the insights from this analysis are used to create utterance for chatbot. The goal is improving customer satisfaction and enhance service based on text analysis insights.

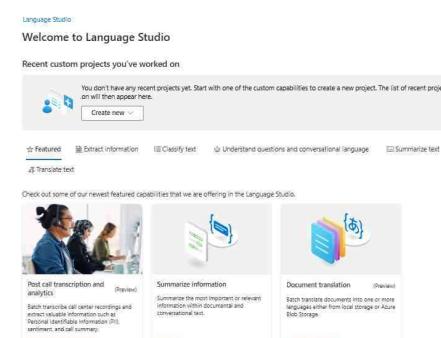
## 4k. Activity 11

### Develop Language Service for customer automated question/answering.

- Created Language Resource



The screenshot shows the 'TextAnalyticsCreate-2025052103908 | Overview' page in the Azure portal. It displays a green checkmark indicating the deployment is complete. The deployment details table shows three resources: 'mlds004458' (Deployment) is OK, 'mlds004458' (Microsoft.CognitiveServices/acc) is OK, and 'mlds004458-aseif' (Search service) is Created. A 'Next steps' button is visible at the bottom.



Welcome to Language Studio

Recent custom projects you've worked on

Check out some of our newest featured capabilities that we are offering in the Language Studio.

- Post-call transcription and analytics
- Summarize information
- Document translation

Language Studio

Select an Azure resource

Azure directory \*: LODS-Prod-MCA

Note: Switching directory will cause the page to refresh.

Azure subscription \*: MOC Subscription-lod50619115

Resource type \*: Language

Language or Azure Cognitive Services resources can be used for any capability except for translation, which requires a Translator resource

Resource name \*: mlids004458

Pricing tier: Free (F0)

Managed identity: Enabled

Create a new Language resource

Done Cancel

- Language portal screenshot

Try new features in Azure AI Studio  
Azure AI Language tools are coming to AI Studio. Check out Extract PII from conversation, Summarize for call center, and many other Language skills in AI Studio playground now.

**Create a project**

Choose language setting

Enter basic information

Review and finish

**Review and finish**

Review the configurations you set for your project in the previous steps.

Projects in multiple languages allowed?  
Yes

Language resource  
mids004458

Azure Search resource  
mids004458-aseefgqtwydgmr

Project name  
abcBankFAQ

Description  
ABC Comprehensive Frequently Asked Questions

Source language  
English

Default answer when no response is returned  
No answer found

Back    Next    **Create project**    Cancel

Try new features in Azure AI Studio  
Azure AI Language tools are coming to AI Studio. Check out Extract PII from conversation, Summarize for call center, and many other Language skills in AI Studio playground now.

Visit AI Studio

Language Studio > Custom question answering > - Manage sources

**Manage sources**

Add source    Edit name    Refresh URL    Delete

2 items in list

Source	Source name	Unstructured	Source type
qna_chitchat_Professional		No	file
ABC_Bank_FAQ.docx	abcFAQ	No	file

Back    Next    **Create project**    Cancel

## • Knowledge Base Screenshot

### ABC Bank - Comprehensive Frequently Asked Questions (FAQ)

- What are the benefits of having a savings account with ABC Bank?

ABC Bank's savings accounts offer competitive interest rates, ensuring your money grows steadily over time. Our accounts provide easy access to funds while also offering a range of digital banking tools for convenience. Additionally, our accounts are secure and insured, offering peace of mind. You can link your savings account to online and mobile banking to manage your money on the go. With 24/7 customer support, you can rest assured that help is always available.

- How can I apply for a home loan with ABC Bank?

Applying for a home loan at ABC Bank is a straightforward process. Follow these steps:

1. Determine the loan amount and term you need.
2. Gather documents, including ID, proof of income, and credit history.
3. Submit an application online or visit one of our branches.
4. Our loan officers will review your application and reach out for further details.

Upon approval, you can discuss terms and complete the final paperwork.

- What documents do I need to apply for a car loan at ABC Bank?

To apply for a car loan, you'll need identification (such as a driver's license), proof of income, details of the vehicle, and a credit report. The vehicle details should include the make, model, and year. Providing these documents helps us evaluate your eligibility and determine the best loan terms. If you're purchasing a used car, the car's inspection report may also be required. Once submitted, our team will guide you through the approval process.

- Does ABC Bank offer fixed deposit accounts?

Yes, ABC Bank offers fixed deposit accounts with attractive interest rates. These accounts are ideal for customers looking to lock in their funds for a specific term and receive guaranteed returns. You can choose from various term lengths, typically ranging from 1 month to 5 years. Our fixed deposit accounts offer higher interest rates than regular savings accounts, making them an excellent choice for long-term saving. Early withdrawal is possible but may incur penalties. Contact our bank representatives to discuss term options and rates.

- What is a mutual fund, and how does ABC Bank support mutual fund investments?

[Language Studio](#) > [Custom question answering](#) > abcBankFAQ - Edit knowledge base

The screenshot shows the 'Edit knowledge base' interface. On the left, there is a sidebar with 'Question answer pairs (2)' and 'Synonyms (0)'. Below this are buttons for adding (+), deleting (X), and editing (E). A search bar contains the text 'when was'. The main area displays two entries:

Question	Answers
When was ABC Bank founded?	<input type="checkbox"/> ABC Bank was founded in 1995. <span style="float: right;">0 1</span>
What's my job?	<input type="checkbox"/> I don't know you personally. <span style="float: right;">0 106</span>

On the right, the question 'When was ABC Bank founded?' is selected. It has a source link ('Source: ABC\_Bank\_FAQ.docx'), an edit button, and a 'Show context tree' button. Below it is an 'Answer' section with the text 'ABC Bank was founded in 1995.' and an 'Edit answer' button. There is also an 'Alternate questions (1)' section with a note about keeping them semantically dissimilar and a 'Add alternate question' button. Other sections include 'Follow up prompts (0)' and 'Metadata (1)'.

## • Test Results

The screenshot shows the Microsoft Language Studio interface. On the left, there's a sidebar with navigation links like 'Language Studio', 'Custom question answering', and 'abcBank'. The main area displays a list of 'Question answer pairs (191)'. A specific question is selected: 'When is ABC Bank founded?'. The response provided is 'ABC Bank was founded in 1995.' Below the response, there's a text input field with placeholder text 'Type your message and press enter'.

This screenshot shows another test result in Microsoft Language Studio. The question asked is 'What are the Loan types ABC bank is selling?'. The detailed response provided is as follows:

ABC Bank offers a variety of financing solutions for small businesses, including term loans, lines of credit, and equipment financing. Term loans provide a lump sum for large investments, while lines of credit offer flexible access to funds when needed. Equipment financing allows businesses to purchase or lease machinery essential for operations. Business loan terms and rates depend on factors such as credit history, business revenue, and loan purpose. Our small business specialists can assist in identifying the best solution for your unique business needs.

#### Explanations

This Azure Language Studio includes services for updating URL, corporate files and Chitchat features. In this chit chat the company FAQ Documents are uploaded into system Knowledge Base to reduce data entry. Customized questions and answers can be manually entered and saved.

This service is capable of managing and responding to a high volume of customer enquiry. A print out uploaded into the system gives a standard template for answering questions. Overall to reduce wait time and ensuring consistency in responses. If customer needs quick accurate answers, this service provides a scalable solution that can support increasing customer needs.

#### User Persona Details

As question-answering model can be extensive, this process in Azure is straight forward and simple to be implemented by Marketing, Treasury, HR or PR department. It can improve customer satisfaction by providing quick, accurate answers.

## 4l. Activity 12

### Design and implement a FAQ chatbot.

- Created Language Resource

The screenshot shows two main windows. The top window is titled "AnalyticsCreate-20250524143610 | Overview" and displays a green checkmark indicating the deployment is complete. It shows deployment details like name, subscription, and start time. The bottom window is titled "Language Studio" and shows the "Welcome to Language Studio" page. A modal dialog titled "Select an Azure resource" is open, prompting the user to choose an Azure directory (selected as "LODS-Prod-MCA"), an Azure subscription (selected as "MOC Subscription-lod50635173"), and a resource type (selected as "Language"). The "Create a new Language resource" button is visible at the bottom of the modal.

- Language portal screenshot

The screenshot shows the "Language Studio > Conversational Language Understanding projects > abcbank - Data labeling" screen. It displays a list of labeled utterances and entities for intents like "CheckBalance", "LoanStatus", and "TransferFunds". Below this, the "Schema definition" section is shown, allowing users to add intents and entities. The "Intents" tab is selected, showing a list of intents with their corresponding utterances and entity types. The "Entities" tab is also visible.

### • Intents, Entities, Utterances Screenshot

<b>CheckBalance:</b>	What's my current balance in the savings account? How much do I have in my fixed deposit account? Can you tell me my current account balance? Show me the balance in my savings account. What is the balance in my loan account? How much money do I have in my savings account?	What is the FD process for fixed deposit account? Show better returns for savings account. Can I use savings account for mutual funds application? Is my savings and fd balance insured with this bank? Do you accept short-term deposits for fd accounts? What better returns can your bank offer for my savings?
<b>TransferFunds:</b>	Transfer \$5000 from my savings to fixed deposit account. Move \$2000 to my current account from savings. Can you transfer \$300 to my savings account? Send \$1000 from my savings to loan account. Please transfer \$500 to my loan account from savings. Move funds to savings.	Please move fixed deposit to mutual funds account. Please transfer \$200 to my credit card account. Transfer amount to fd with premium rates. Is there hidden charges for transfer of funds? Move money to other bank account. How many methods of funds transfer?
<b>LoanStatus:</b>	What's the status of my loan application? Has my home loan been approved yet? When will I get an update on my loan status? Is my loan application under review? Can you tell me if my personal loan was approved? How's my car loan application going?	What types of interest rates do you have on loan? How to transfer car loan from other bank? When do you start late fee charges for loan? Can you check my credit limit for loans? Are there other types of loans, personal creditline or renovation loans? Can insurance be added to the loan application?

Language Studio > Conversational Language Understanding projects > abcbank - Schema definition

### Schema definition

Add intents and entities to your schema. Intents are tasks or actions the user wants to perform. Entities are terms relevant to the user's intent.

Intents Entities

+ Add ⚒ Edit entity components 🗑 Delete

	Entities ↑ ▾	Labeled in utter... ▾	Used in intents ▾
<input type="radio"/>	account_type	44	LoanStatus, TransferFunds, CheckBalance
<input type="radio"/>	amount	6	TransferFunds

Language Studio > Conversational Language Understanding projects > abcbank - Schema definition

### Schema definition

Add intents and entities to your schema. Intents are tasks or actions the user wants to perform. Entities are terms relevant to the user's intent.

Intents Entities

+ Add 🗑 Delete

	Labeled utterances ▾	Entities used with this intent ▾
<input type="radio"/>	CheckBalance	12
<input type="radio"/>	LoanStatus	12
<input type="radio"/>	None	0
<input type="radio"/>	TransferFunds	12

## • Training Results

Language Studio > Conversational Language Understanding projects > abcbank - Model performance > abcbank

abcbank

Overview Model Performance Test set details Dataset distribution Confusion matrix

Model Type

Status:  Trained successfully



F1 score:  85.71%  
Precision:  85.71%  
Recall:  85.71%

Finished training on: 5/24/2023, 3:42:17 PM  
Total training time: 0 hour(s), 12 minute(s), 0 second(s)

Training data splitting type: Percentage  
Number of training utterances: 29 (80.56%)  
Number of testing utterances: 7 (19.44%)

[Learn more about how to improve your model](#)



Guidance

To improve your model's performance, review these issues and follow any recommendations.

Language Studio > Conversational Language Understanding projects > abcbank - Model performance > abcbank

abcbank

Overview Model Performance Test set details Dataset distribution Confusion matrix

This is a snapshot of how your model performed during testing. The metrics here are static and tied to your model, so they won't update until you train again.

Model Type

Intent name ↑	Precision %	Recall %	F1 score	Training labels	Testing labels
CheckBalance	100.00	100.00	1	9	3
LoanStatus	100.00	50.00	0.667	10	2
None	0.00	0.00	0	-	-
TransferFunds	66.67	100.00	0.8	10	2

Language Studio > Conversational Language Understanding projects > abcbank - Model performance > abcbank

abcbank

Overview Model Performance Test set details Dataset distribution Confusion matrix

This is a snapshot of how your model performed during testing. The metrics here are static and tied to your model, so they won't update until you train again.

Model Type

Entity name ↑	Precision %	Recall %	F1 score	Training labels	Testing labels
account_type	58.33	77.78	0.667	35	9
amount	100.00	100.00	1	5	1

Language Studio > Conversational Language Understanding projects > abcbank - Model performance > abcbank

Overview Model Performance Test set details Dataset distribution Confusion matrix

A confusion matrix is an N x N matrix used for evaluating the performance of a extraction model, where N is the number of target entities. It shows how well the extraction model is performing and what kinds of errors it is making.

All correct predictions are located in the diagonal of the table and errors are values outside of the diagonal. Other numbers in the table are recommendations in the [Overview tab](#).

[Learn how to read a confusion matrix.](#)

Model Type Entities

Matrix view All values (selected) only errors only matches

Format of values Character Overlap Count

Cell colors: 0.0 1.7 3.5 5.2 7 8.69

		Labeled as			
		\$none	account_ty...	amount	
Predicted as	\$none	-	0.313	0	
	account_ty...	0.769	8.688	1	
amount	0	0	1		

Language Studio > Conversational Language Understanding projects > abcbank - Model performance > abcbank

Overview Model Performance Test set details Dataset distribution Confusion matrix

A confusion matrix is an N x N matrix used for evaluating the performance of a classification model, where N is the number of target intents. It shows how well the classification model is performing and what kinds of errors it is making.

All correct predictions are located in the diagonal of the table and errors are values outside of the diagonal. Other numbers in the table are recommendations in the [Overview tab](#).

[Learn how to read a confusion matrix.](#)

Model Type Intents

Matrix view All values (selected) only errors only matches

Format of values Raw Count

Cell colors: 0.0 0.6 1.2 1.8 2.4 3

		Labeled as				
		CheckBal...	LoanStatus	None	TransferFu...	
Predicted as	CheckBal...	3	0	0	0	
	LoanStatus	0	1	0	0	
None	0	0	0	0		
TransferFu...	0	1	0	2		

- Test Results

Language Studio > Conversational Language Understanding projects > abcbank - Testing deployments

Deployment name

AbcBank

Enter your own text, or upload a text document

what is the status for my car loan?

Result JSON

Intent

Top intent

LoanStatus

Confidence: 99.93%

Entities

account\_type

car loan

Confidence: 100.00%

Original text

what is the status for my car loan?  
account...

Name	Value
topIntent	LoanStatus
projectKind	Conversation
intents	[List]
entities	[List]
Column1.category	Column1.confidenceScore
LoanStatus	99.93%
CheckBalance	0.07%
TransferFunds	0.00%
None	0.00%

Test text:

What is the status for my car loan?

**Explanations**

Customer service automation solution includes responding to common queries, helping customers to quickly get information on account balances, fund transfers, and loan inquiries. In this chat bot utterances, additional entities are created from results in previous language models. The insights from email key phrases guide on the concerns that are most common from customers. This demonstrates how the language models subsequently get applied in chat bot designs and deployments as a use case.

With specific key phrases used in the chat utterance, this accurately interprets diverse customer language for specific requests. Although in this training there are insufficient samples, yet recognizing the intent ensure quick response times. Which allow the query to be directed to respective support department of loans processing rather than frontline department to initiate loan applications. Recognizing intents and entities accurately across a range of customer queries improves efficiency.

This building of conversational model to interpret various customer requests engages effectively both transactional retail operations and other higher value credit or treasury products offered by the bank. Training the model to recognize intents between checking balance/loan status versus the transaction action of funds transfers. are entities specific to banking.

**E&oe****User Persona Details**

With automation of transactional activities as digital funds transfer, security features are required to limit access to only authorized customer bank user. Two key authentication or passkey are tools that enforce security online. The chat bot model then functions as first level filter for inbound inquiries.

## 5 ANNEXURE

### a. Link: Learning on Demand\_ sign in

[https://learnondemandsystems2c.b2clogin.com/learnondemandsystems2c.onmicrosoft.com/b2c\\_1a\\_signup\\_signin\\_tms/oauth2/v2.0/authorize?client\\_id=c602a47c-ab93-480b-ac8d-cccf54c59797&redirect\\_uri=https%3A%2F%2Flms.learnondemand.net%2FAuthenticationProvider%2FOwinCallback&response\\_type=id\\_token&scope=openid%20profile%20email&state=OpenIdConnect.AuthenticationProperties%3DivL20ttogkfSiEz60M-cKu6Z\\_1WNfMNHQv4sbnfjeXomiEgiuoXNA\\_moM8Slcd3n7DS9Yucl2blp\\_KPKOYn\\_UTL0D7zdYmX6dGOc42BZg94JCmKPfc3rXhpkgCEKvu1iKd8PP1Ynl5bP9q6gdha8hMQM2Kl3RdgYaYzTdUG1wLyCbPvqAvJtPZy9EM1LDUrs8XH6riFefJhoWvqZw\\_BlsiB797xPOB8qlJH4yhMKKSh3R4McOINZVYYfaTowVuF9TdnLc\\_A\\_yAffi71GOMhGLG6NI-05KBkS0dlaEhjHG-rBRqc&response\\_mode=form\\_post&nonce=638751801215559643.NmRkNWNmNWltNzlwMi00YmFjLWFiZWYtNWRmZDVkYzc5YzFmNTQ5MjdjMjQtZmE4Zi00MzY4LWI2NTctODhkNWJjNjgzYzhm&ui=tms&x-client-SKU=ID\\_NET472&x-client-ver=7.0.3.0](https://learnondemandsystems2c.b2clogin.com/learnondemandsystems2c.onmicrosoft.com/b2c_1a_signup_signin_tms/oauth2/v2.0/authorize?client_id=c602a47c-ab93-480b-ac8d-cccf54c59797&redirect_uri=https%3A%2F%2Flms.learnondemand.net%2FAuthenticationProvider%2FOwinCallback&response_type=id_token&scope=openid%20profile%20email&state=OpenIdConnect.AuthenticationProperties%3DivL20ttogkfSiEz60M-cKu6Z_1WNfMNHQv4sbnfjeXomiEgiuoXNA_moM8Slcd3n7DS9Yucl2blp_KPKOYn_UTL0D7zdYmX6dGOc42BZg94JCmKPfc3rXhpkgCEKvu1iKd8PP1Ynl5bP9q6gdha8hMQM2Kl3RdgYaYzTdUG1wLyCbPvqAvJtPZy9EM1LDUrs8XH6riFefJhoWvqZw_BlsiB797xPOB8qlJH4yhMKKSh3R4McOINZVYYfaTowVuF9TdnLc_A_yAffi71GOMhGLG6NI-05KBkS0dlaEhjHG-rBRqc&response_mode=form_post&nonce=638751801215559643.NmRkNWNmNWltNzlwMi00YmFjLWFiZWYtNWRmZDVkYzc5YzFmNTQ5MjdjMjQtZmE4Zi00MzY4LWI2NTctODhkNWJjNjgzYzhm&ui=tms&x-client-SKU=ID_NET472&x-client-ver=7.0.3.0)

## 5b IMAGES

Extract of the abc\_bank\_news\_dataset Activity e.5.0



insurance Customers are increasingly focused on coverage options when considering their options for insurance products.

insurance According to recent reports, life insurance policies have been a significant factor affecting the insurance sector.

insurance According to recent reports, health insurance has been a significant factor affecting the insurance sector.

insurance According to recent reports, insurance claims have been a significant factor affecting the insurance sector.

insurance Customers are increasingly focused on term insurance when considering their options for insurance products.

insurance Financial experts suggest keeping an eye on the evolving coverage options, as it may impact decisions in the insurance sector.

insurance Given the current trends in insurance benefits, many financial institutions are revising their strategies for insurance products.

insurance Financial experts suggest keeping an eye on the evolving life insurance policies, as it may impact decisions in the insurance sector.

insurance Recent developments in health insurance have caught the attention of many analysts, especially within the insurance sector.

insurance Financial experts suggest keeping an eye on the evolving life insurance policies, as it may impact decisions in the insurance sector.

insurance Recent developments in health insurance have caught the attention of many analysts, especially within the insurance sector.

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insurance Given the current trends in life insurance policies, many financial institutions are revising their strategies for insurance products.

insurance Given the current trends in insurance benefits, many financial institutions are revising their strategies for insurance products.

insurance According to recent reports, insurance benefits have been a significant factor affecting the insurance sector.

insurance Given the current trends in term insurance, many financial institutions are revising their strategies for insurance products.

insurance Recent developments in insurance claims have caught the attention of many analysts, especially within the insurance sector.

insurance Analysts expect premium payment to play a crucial role in shaping the future of insurance offerings. Given the current trends in insurance products, many financial institutions are revising their strategies for insurance products.

insurance Recent developments in policy riders have caught the attention of many analysts, especially within the insurance sector.

insurance Analysts expect term insurance to play a crucial role in shaping the future of insurance offerings. Given the current trends in insurance products, many financial institutions are revising their strategies for insurance products.

insurance According to recent reports, coverage options have been a significant factor affecting the insurance sector.

insurance Recent developments in premium payment have caught the attention of many analysts, especially within the insurance sector.

insurance Given the current trends in insurance benefits, many financial institutions are revising their strategies for insurance products.

insurance Customers are increasingly focused on policy riders when considering their options for insurance products.

insurance Given the current trends in life insurance policies, many financial institutions are revising their strategies for insurance products.

insurance Financial experts suggest keeping an eye on the evolving policy riders, as it may impact decisions in the insurance sector.

insurance Customers are increasingly focused on insurance benefits when considering their options for insurance products.

insurance Analysts expect premium payment to play a crucial role in shaping the future of insurance offerings. Given the current trends in insurance products, many financial institutions are revising their strategies for insurance products.

insurance Analysts expect health insurance to play a crucial role in shaping the future of insurance offerings. Recently, there has been a significant focus on how health insurance can be used to improve overall well-being.

insurance Given the current trends in life insurance policies, many financial institutions are revising their strategies for insurance products.

insurance Financial experts suggest keeping an eye on the evolving policy riders, as it may impact decisions in the insurance sector.

insurance Financial experts suggest keeping an eye on the evolving coverage options, as it may impact decisions in the insurance sector.

insurance Analysts expect health insurance to play a crucial role in shaping the future of insurance offerings. Financial institutions are exploring various ways to integrate health insurance into their products and services.

insurance According to recent reports, health insurance has been a significant factor affecting the insurance sector.

insurance According to recent reports, term insurance has been a significant factor affecting the insurance sector.

- Vision studio screenshot of the Azure AI services done on the images.

**Enlarged images from Activity f.6.0**



Figure image1



Figure image2



Figure image3



Figure image4



Figure image5

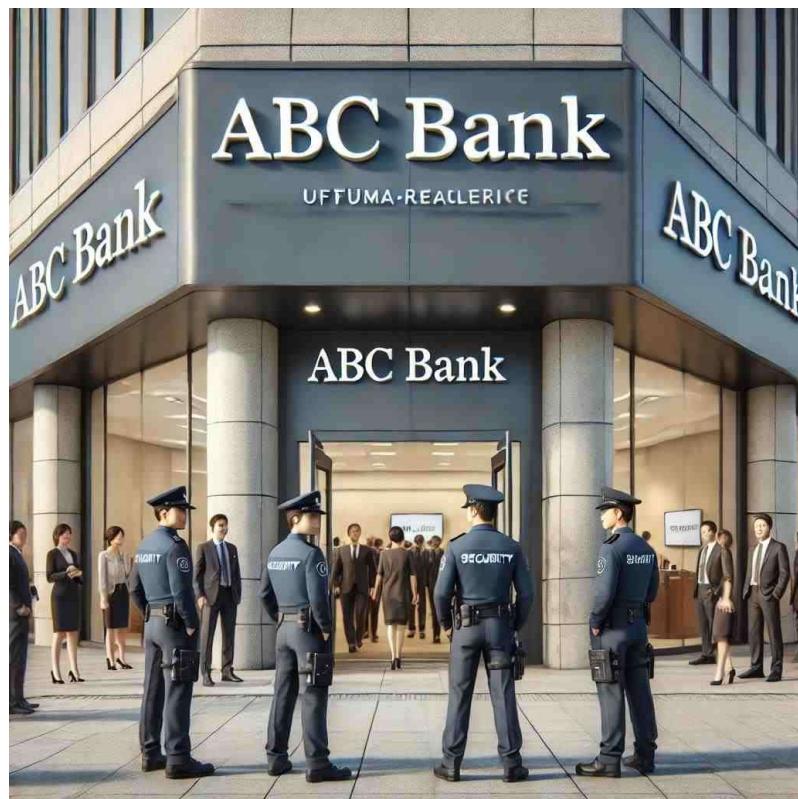


Figure image6



Figure image7



Figure image8



Figure image9



Figure image10



Figure image11



Figure image12



Figure image13



Figure image14



Figure image15

- Vision studio screenshot of the Azure AI services done on the images.

**Enlarged images from Activity g.7.0**

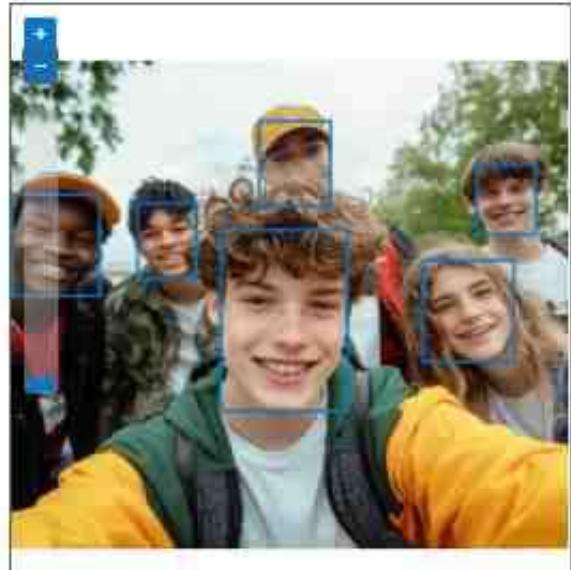
Detected attributes    [JSON](#)



Face #1  
Face mask: no  
Face #2  
Face mask: no  
Face #3  
Face mask: no  
Face #4  
Face mask: no  
Face #5  
Face mask: no

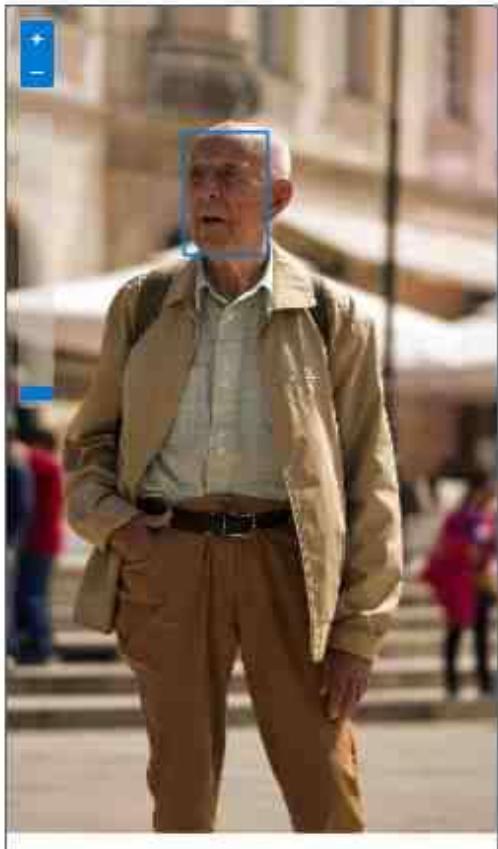
*Figure FaceP1*

Detected attributes    [JSON](#)



Face #1  
Face mask: no  
Face #2  
Face mask: no  
Face #3  
Face mask: no  
Face #4  
Face mask: yes  
Face mask covering nose and mouth: yes  
Face #5  
Face mask: no  
Face #6  
Face mask: no

*Figure FaceP2*



Detected attributes

JSON

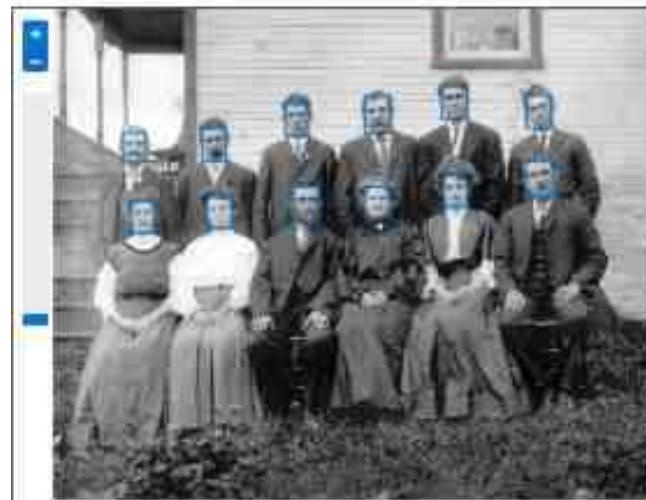
Face #1

Face mask: no

Face #2

Face mask: other type of mask or occlusion

Figure FaceP3



Detected attributes JSON

Face #1  
Face mask: no  
  
Face #2  
Face mask: no  
  
Face #3  
Face mask: no  
  
Face #4  
Face mask: no  
  
Face #5  
Face mask: no  
  
Face #6  
Face mask: no  
  
Face #7  
Face mask: no  
  
Face #8  
Face mask: no  
  
Face #9  
Face mask: no  
  
Face #10  
Face mask: no  
  
Face #11  
Face mask: no  
  
Face #12  
Face mask: no

Figure FaceP4



Detected attributes JSON

Face #1  
Face mask: no  
  
Face #2  
Face mask: no  
  
Face #3  
Face mask: no  
  
Face #4  
Face mask: no

Figure FaceP5



Detected attributes JSON

Face #1  
Face mask: no  
Face #2  
Face mask: no  
Face #3  
Face mask: no  
Face #4  
Face mask: no  
Face #5  
Face mask: no  
Face #6  
Face mask: yes  
Face mask covering nose and mouth: no  
Face #7  
Face mask: no  
Face #8  
Face mask: no  
Face #9  
Face mask: yes  
Face mask covering nose and mouth: yes  
Face #10  
Face mask: other type of mask or occlusion

Figure FaceP6



Detected attributes JSON

Face #1  
Face mask: no  
Face #2  
Face mask: no  
Face #3  
Face mask: no

Figure FaceP7



Figure FaceP8

[Detected attributes](#) [JSON](#)

Face #1  
Face mask: no  
Face #2  
Face mask: no  
Face #3  
Face mask: no



Figure FaceP9

[Detected attributes](#) [JSON](#)

Face #1  
Face mask: no  
Face #2  
Face mask: no  
Face #3  
Face mask: no  
Face #4  
Face mask: no  
Face #5  
Face mask: no  
Face #6  
Face mask: no  
Face #7  
Face mask: no  
Face #8  
Face mask: other type of mask or occlusion  
Face #9  
Face mask: no  
Face #10  
Face mask: no  
Face #11  
Face mask: other type of mask or occlusion



Figure FaceP10

[Detected attributes](#) [JSON](#)

Face #1:  
Face mask: no  
  
Face #2:  
Face mask: other type of mask or occlusion



Figure FaceP11

[Detected attributes](#) [JSON](#)

Face #1:  
Face mask: no  
  
Face #2:  
Face mask: no  
  
Face #3:  
Face mask: no  
  
Face #4:  
Face mask: no  
  
Face #5:  
Face mask: no  
  
Face #6:  
Face mask: no  
  
Face #7:  
Face mask: other type of mask or occlusion  
  
Face #8:  
Face mask: no



Detected attributes | JSON

- Face #1:  
Face mask: no  
- Face #2:  
Face mask: no  
- Face #3:  
Face mask: other type of mask or occlusion  
- Face #4:  
Face mask: no

Figure FaceP12



Detected attributes | JSON

- Face #1:  
Face mask: no  
- Face #2:  
Face mask: no  
- Face #3:  
Face mask: no

Figure FaceP13



Figure FaceP14

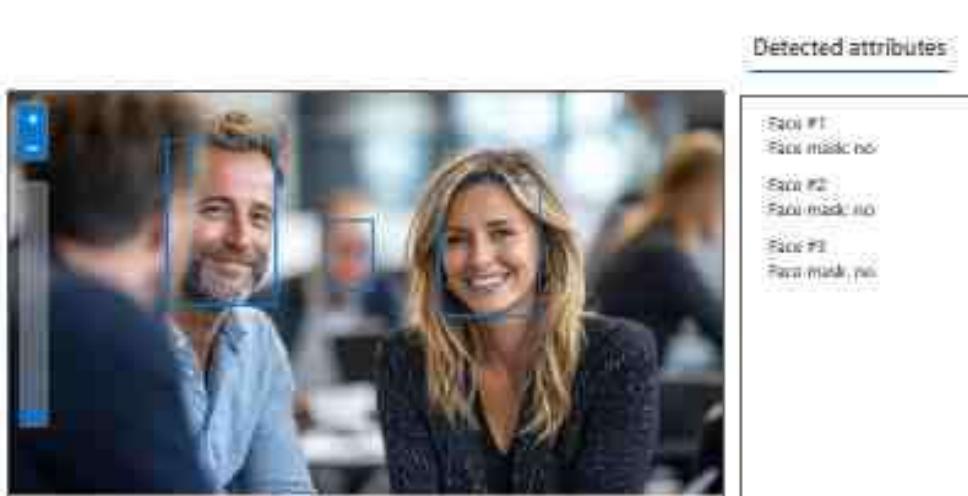


Figure FaceP15



Detected attributes

JSON

Face #1  
Face mask: no  
  
Face #2  
Face mask: no



Detected attributes

JSON

Face #1  
Face mask: no  
  
Face #2  
Face mask: no



[Detected attributes](#) [JSON](#)

Face #1  
Face mask: no  
Face #2  
Face mask: no  
Face #3  
Face mask: no

Figure FaceP18



[Detected attributes](#) [JSON](#)

Face #1  
Face mask: no  
Face #2  
Face mask: no  
Face #3  
Face mask: no  
Face #4  
Face mask: no  
Face #5  
Face mask: no  
Face #6  
Face mask: no  
Face #7  
Face mask: no  
Face #8  
Face mask: no  
Face #9  
Face mask: no  
Face #10  
Face mask: other type of mask or occlusion  
Face #11  
Face mask: no

Figure FaceP19



[Detected attributes](#) [JSON](#)

Face #1  
Face mask: yes  
Face mask covering nose and mouth: yes

Figure FaceP20



[Detected attributes](#) [JSON](#)

Face #1  
Face mask: yes  
Face mask covering nose and mouth: yes  
Face #2  
Face mask: other type of mask or occlusion

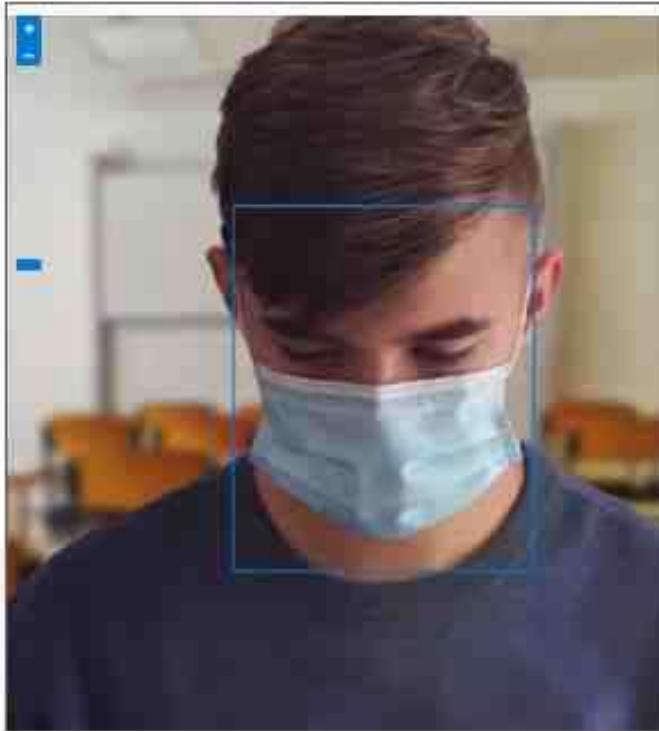
Figure FaceP21



[Detected attributes](#) [JSON](#)

Face #1  
Face mask: yes  
Face mask covering nose and mouth: no  
Face #2  
Face mask: yes  
Face mask covering nose and mouth: no  
Face #3  
Face mask: yes  
Face mask covering nose and mouth: no  
Face #4  
Face mask: yes  
Face mask covering nose and mouth: yes

Figure FaceP22



[Detected attributes](#) [JSON](#)

Face #1  
Face mask: yes  
Face mask covering nose and mouth: yes

Figure FaceP23

- Vision studio screenshot of the Azure AI services done on the images.

**Enlarged images from Activity h.8.0**

Detected attributes JSON

CHEMIN  
PRIVÉ  
PASSEAGE INTERDIT

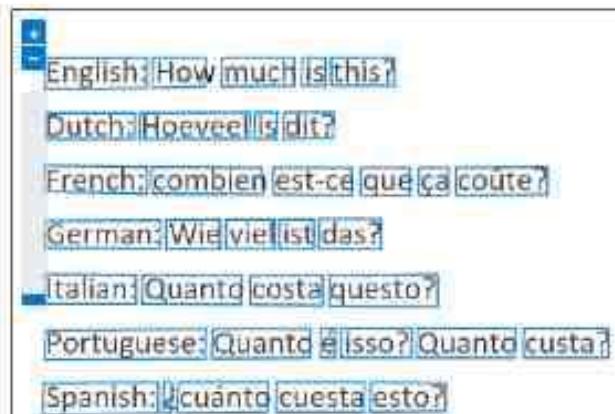
Figure OCR1



Detected attributes JSON

color  
text

Figure OCR2a

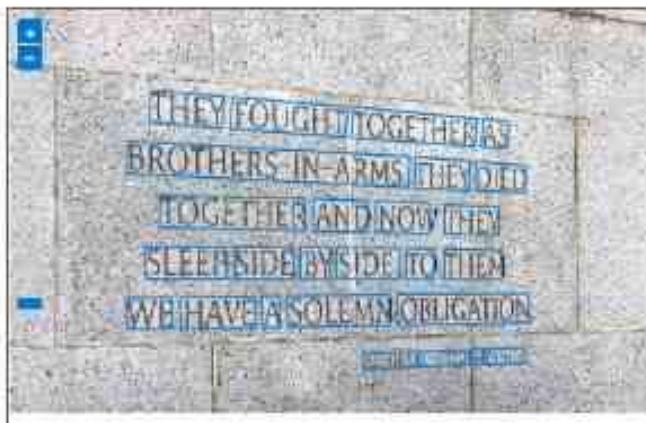


English: How much is this?  
Dutch: Hoeveel is dit?  
French: combien est-ce que ça coûte?  
German: Wie viel ist das?  
Italian: Quanto costa questo?  
Portuguese: Quanto é isso? Quanto custa?  
Spanish: Cuánto cuesta esto?

[Detected attributes](#) [JSON](#)

English: How much is this?  
Dutch: Hoeveel is dit?  
French: combien est ce que ça coûte?  
German: Wie viel ist das?  
Italian: Quanto costa questo?  
Portuguese: Quanto é isso? Quanto custa?  
Spanish: Cuánto cuesta esto?

Figure OCR2b



THEY FOUGHT TOGETHER AS  
BROTHERS-IN-ARMS. THEY DIED  
TOGETHER AND NOW THEY  
SLEEP SIDE BY SIDE. TO THEM  
WE HAVE A SOLEMN OBLIGATION.  
ADMIRAL CECIL W. NIMITZ

[Detected attributes](#) [JSON](#)

THEY FOUGHT TOGETHER AS  
BROTHERS-IN-ARMS. THEY DIED  
TOGETHER AND NOW THEY  
SLEEP SIDE BY SIDE. TO THEM  
WE HAVE A SOLEMN OBLIGATION.  
ADMIRAL CECIL W. NIMITZ

Figure OCR3



Detected attributes JSON

What's  
NEXT

Figure OCR4



Detected attributes JSON

Sparkasse  
VISA  
am Niederrhein  
0000 0000 0000  
0000  
GÜLTIG VON  
VALID FROM  
GÜLTIG BIS ENDE  
VALID THRU  
00/10/00  
00/00  
LITE MUSTERMANN

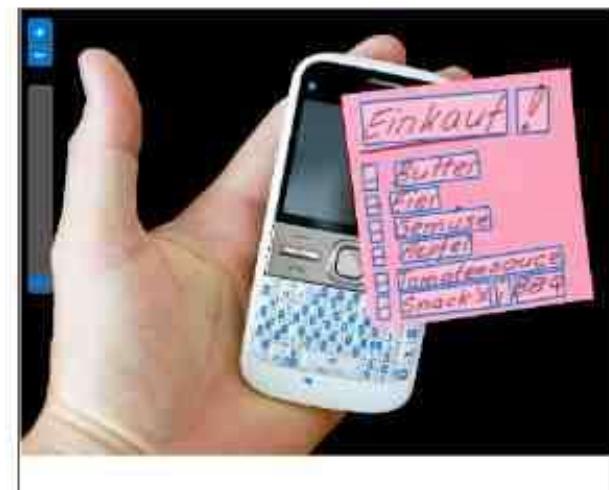
Figure OCR5



Detected attributes: JSON

FRAGILE

Figure OCR6



Detected attributes: JSON

E  
Einkauf  
-Butter  
-Milch  
-Bacon  
-Gehacktes  
-Eier  
-Käse  
-Tomatenmark  
1  
2  
Q  
3  
-Snacks  
-BBQ  
R  
T  
Z  
1  
4  
A  
S

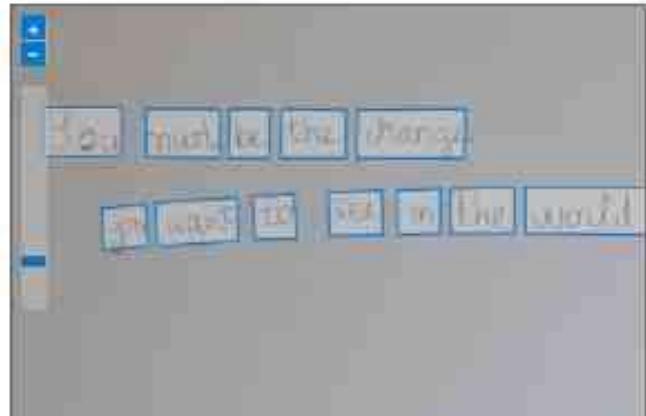
Figure OCR7



Detected attributes JSON

EE  
A Message  
awaiting for  
you!  
2  
↑  
B  
U  
WE  
H  
T  
O  
4  
S  
A  
N  
E  
SH  
I  
Y  
B  
7  
H

Figure OCR8



Detected attributes JSON

you must be the change  
you want to see in the world!

Figure OCR9



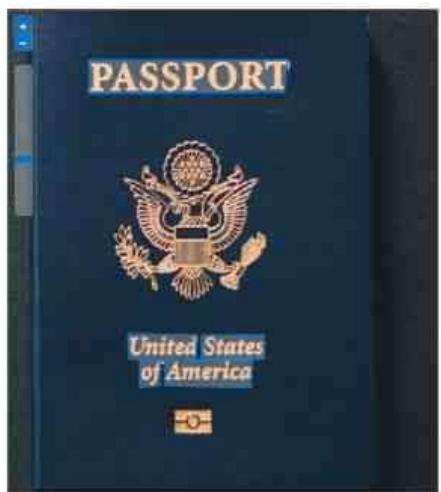
Detected attributes JSON



Detected attributes JSON

FRAGILE  
RED HOT  
KEEP REFRIGERATED  
HANDLE  
RUSH  
WITH CARE  
DO NOT FREEZE  
URGENT  
hold for  
URGENT  
packing  
Q.C. approval  
kit  
URGENT  
ENCLOSURE  
CAUTION  
PLEASE  
Stock  
HANDLE WITH CARE Credit before  
RED HOT  
DO NOT OVER TURN  
RUSH  
\*\* THANK YOU \*\*  
THIS SIDE UP  
388388382

Figure OCR11



Detected attributes JSON

PASSPORT  
United States  
of America

Figure OCR12



Detected attributes JSON

Nutrition Facts  
Amount Per Serving:  
Serving size: 1 bar (40g)  
Serving Per Package: 4  
Total Fat: 13g  
Saturated Fat: 1.5g  
Amount Per Serving:  
Trans Fat: 0g  
Sugars: 19g  
Cholesterol: 0mg  
Sodium: 20mg  
int Daily Values are based on  
Vitamin A: 38% - VN  
calories: 192

Figure OCR13



- Language studio screenshot of the Azure AI services done on these emails.  
**Enlarged images from Activity j.10.0**

Dear team, Bonnie Myers here. I recently signed up for a home loan and had a few thoughts to share.

The interest rates were reasonable, but the process took longer than expected. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Bonnie Myers

(577) 727-2843x81412

Email 1

Hi there, this is Thomas Moody. I decided to opt for your car loan and thought I'd share my experience.

Throughout the car loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. Satisfied with the loan process, though I wish there were more flexible options.

Looking forward to using more of your services in the future.

Best regards,

Thomas Moody

981.208.2669x1587

Email 2

I'm Carolyn Hayes from 2672 Moore Island Suite 727, Angelaside, IL 81766. After hearing good things, I went ahead with the fixed deposit.

Throughout the fixed deposit journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. The FD process was straightforward, and returns are satisfactory.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Carolyn Hayes

5358265688

Email 3

I'm Michelle Blake from 18836 Tonya Row, Jarvisborough, AL 26640. After hearing good things, I went ahead with the mutual funds.

Initially, I faced some issues with mutual funds application, but with a little guidance from your team, it all worked out. Reliable guidance from the financial advisors.

Thank you for your support throughout this process.

Best regards,

Michelle Blake

712.252.0388

Email 4

Dear team, Valerie Peck here. I recently signed up for a credit card and had a few thoughts to share.

Had a few problems with late fee charges that were resolved. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Valerie Peck

705-060-8825

Email 5

Hello ABC Bank team! I'm Lori Keller, residing at 725 Katherine Terrace Apt. 464, Port Angelaton, AK 71923. I'm writing to give feedback on your insurance.

Clear terms and easy to understand insurance plans. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Lori Keller

+1-298-609-7965

Email 6

Hello ABC Bank team! I'm Colleen Taylor, residing at Unit 9995 Box 3930, DPO AE 00721. I'm writing to give feedback on your home loan.

Throughout the home loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. I found the process seamless and the staff very helpful!

Looking forward to using more of your services in the future.

Best regards,

Colleen Taylor

001-582-246-7743x2620

Email 7

My name is David Adkins, and I recently availed the car loan from ABC Bank. I wanted to share some thoughts.

The car loan application was smooth, and the service was excellent. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Thanks for the guidance and support!

Best regards,

David Adkins

514.039.2416

Email 8

My name is Amy Clarke, and I recently availed the fixed deposit from ABC Bank. I wanted to share some thoughts.

One thing that stood out to me was the fixed deposit application process. Not too happy with the customer service response time for queries. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Amy Clarke

035-610-2812x45085

Email 9

My name is Randy Ritter, and I recently availed the mutual funds from ABC Bank. I wanted to share some thoughts.

Mutual fund options are average, but returns have been decent. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Best regards,

Randy Ritter

(946)519-8528x56751

Email 10

Dear team, Angela Sanchez here. I recently signed up for a credit card and had a few thoughts to share.

One thing that stood out to me was the credit card application process. The credit limit was quite generous, and the rewards are worth it. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Angela Sanchez

007.548.0812x879

Email 11

Dear team, Cory Moore here. I recently signed up for a insurance and had a few thoughts to share.

Premium rates could be lower for the value offered.

Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Looking forward to using more of your services in the future.

Best regards,

Cory Moore

001-360-857-8347

Email 12

Dear team, Christopher Chan here. I recently signed up for a home loan and had a few thoughts to share.

Throughout the home loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. The documentation process was overwhelming, and I faced delays.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Christopher Chan

356-120-2825

Email 13

Hi there, this is Mark Figueroa. I decided to opt for your car loan and thought I'd share my experience.

One thing that stood out to me was the car loan application process. Had issues with the repayment terms initially, but resolved eventually. It was an insightful experience.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Best regards,

Mark Figueroa

530-224-6429x9405

Email 14

I'm Brittney Rodriguez from 63000 Colin Cove, Tanyatown, KY 03848. After hearing good things, I went ahead with the fixed deposit.

Good options for short-term deposits, very pleased. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Thanks for the guidance and support!

Best regards,

Brittney Rodriguez

943.929.9636x37395

Email 15

I'm Michelle Richards from 081 Khan Radial Suite 301, Davidhaven, TN 38027. After hearing good things, I went ahead with the mutual funds.

One thing that stood out to me was the mutual funds application process. Good range of mutual funds, but returns are subject to high fluctuations. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Michelle Richards

283-802-4467x9609

Email 16

Hi there, this is James Rogers. I decided to opt for your credit card and thought I'd share my experience.

Faced issues with hidden charges on the credit card. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Best regards,

James Rogers

297-164-0744x54675

Email 17

Hello ABC Bank team! I'm Carla Cross, residing at 17294 Cain Square Apt. 429, North Timothy, VT 82344. I'm writing to give feedback on your insurance.

Initially, I faced some issues with insurance application, but with a little guidance from your team, it all worked out. Very satisfied with the claim settlement process.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Best regards,

Carla Cross

883-307-9240x8052

Email 18

My name is Alicia Eaton, and I recently availed the home loan from ABC Bank. I wanted to share some thoughts.

One thing that stood out to me was the home loan application process. Very competitive rates compared to other banks. It was an insightful experience.

Looking forward to using more of your services in the future.

Best regards,

Alicia Eaton

(445)050-7802x37426

Email 19

Dear team, Jason Key here. I recently signed up for a car loan and had a few thoughts to share.

One thing that stood out to me was the car loan application process. Affordable interest rates and clear process. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Jason Key

185.458.3483x13406

Email 20

Hello ABC Bank team! I'm Claudia Pace, residing at 29655 Wiley Street, Lake Antonio, MS 82526. I'm writing to give feedback on your fixed deposit.

Initially, I faced some issues with fixed deposit application, but with a little guidance from your team, it all worked out. Impressed with the interest rates offered on fixed deposits.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Best regards,

Claudia Pace

+1-225-607-2008

Email 21

My name is John Jefferson, and I recently availed the mutual funds from ABC Bank. I wanted to share some thoughts.

Happy with the investment advice provided by ABC Bank. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Best regards,

John Jefferson

234-438-2663x0579

Email 22

Hello ABC Bank team! I'm Ian Fuller Jr., residing at 960 Sabrina Ways, South Carmenfort, NV 53344. I'm writing to give feedback on your credit card.

Initially, I faced some issues with credit card application, but with a little guidance from your team, it all worked out. Very easy to apply, and the customer service is prompt.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Ian Fuller Jr.

085.746.5807

Email 23

Dear team, Nicole Wong here. I recently signed up for a insurance and had a few thoughts to share.

Initially, I faced some issues with insurance application, but with a little guidance from your team, it all worked out. Had issues with policy details initially, but sorted out later.

Looking forward to using more of your services in the future.

Best regards,

Nicole Wong

+1-593-183-3772x86148

Email 24

Hello ABC Bank team! I'm Lisa Elliott, residing at 396 Williams Square, Port Michaelmouth, RI 47417. I'm writing to give feedback on your home loan.

One thing that stood out to me was the home loan application process. Not satisfied with the customer service for home loan queries. It was an insightful experience.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Lisa Elliott

909-852-1348x102

Email 25

My name is Stephen Sanchez, and I recently availed the car loan from ABC Bank. I wanted to share some thoughts.

Throughout the car loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. Quick approval, but the rates could be better.

Looking forward to using more of your services in the future.

Best regards,

Stephen Sanchez

001-568-813-0878x677

Email 26

Dear team, Laura Lawson here. I recently signed up for a fixed deposit and had a few thoughts to share.

Initially, I faced some issues with fixed deposit application, but with a little guidance from your team, it all worked out. Wish the maturity period options were more flexible.

Looking forward to using more of your services in the future.

Best regards,

Laura Lawson

(538)493-2975

Email 27

My name is Lisa Medina, and I recently availed the mutual funds from ABC Bank. I wanted to share some thoughts.

Throughout the mutual funds journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. Not much transparency in fund performance updates.

Thanks for the guidance and support!

Best regards,

Lisa Medina

(092)560-1857x072

Email 28

I'm Lynn Sanders from PSC 6193, Box 7143, APO AE 32136. After hearing good things, I went ahead with the credit card.

Cashback options are limited, but the credit card service is good. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Lynn Sanders

747-776-0229x2533

Email 29

I'm James Skinner from 429 Kerry Locks, Jamesside, FL 85253. After hearing good things, I went ahead with the insurance.

Initially, I faced some issues with insurance application, but with a little guidance from your team, it all worked out. Not happy with the insurance claim process, took longer than expected.

Looking forward to using more of your services in the future.

Best regards,

James Skinner

001-775-645-7544

Email 30

- Language studio screenshot of the Sentiment classifications

**Enlarged images from Activity j.10.1**

Result JSON

Analyzed sentiment

Document sentiment

Mixed  
Confidence: 60.00%

Category	Percentage
Positive	60.00%
Neutral	14.00%
Negative	26.00%

Sentence 1

I recently signed up for a home loan and had mixed thoughts to say the least.

Sentence sentiment

Neutral  
Confidence: 0.00%

Category	Percentage
Positive	0.00%
Neutral	100.00%
Negative	0.00%

*Sentiment Result 1*

Result: JSON

## Analyzed sentiment

## Document sentiment

Mixed  
Confidence: 79.00%



## Sentence 1

I decided to opt for your car loan and thought I'd share my experience.

## Sentence sentiment

Neutral  
Confidence: 0.00%



## Sentence 2

## Sentence 3

## Sentence 4

## Sentence 5

## Sentiment Result 2

## Examine the results

Result: JSON

## Analyzed sentiment

Mixed  
Confidence: 64.00%



## Sentence 1

After hearing good things, I went ahead with the fixed deposit.

## Sentence sentiment

Neutral  
Confidence: 17.00%



## Sentence 2

## Sentence 3

## Sentence 4

## Sentence 5

## Sentiment Result 3

## Examine the results

Result JSON

Analyzed sentiment

Document sentiment

Positive

Confidence: 98.00%



Sentence 1

After hearing good things, I went ahead with the mutual funds.

Sentence sentiment

Neutral

Confidence: 6.00%



Sentence 2

Sentence 3

Sentence 4

## Sentiment Result 4

## Examine the results

Result JSON

Analyzed sentiment

Mixed

Confidence: 59.00%



Sentence 1

I recently signed up for a credit card and had a few thoughts to share.

Sentence sentiment

Neutral

Confidence: 0.00%



Sentence 2

Sentence 3

Sentence 4

## Sentiment Result 5

## Examine the results

Result JSON

## Analyzed sentiment

## Document sentiment

Positive

Confidence: 87.00%



Sentence 1

Sentence 2



## Sentence sentiment

Positive

Confidence: 96.00%



## Opinion

Target: terms

Assessments:

Clear (positive: 100.00%)

## Opinion

Target: insurance plans

Assessments:

easy to understand  
(positive: 100.00%)

Sentence 3

Sentence 4

## Sentiment Result 6

## Examine the results

Result JSON

## Analyzed sentiment

## Document sentiment

Positive

Confidence: 80.00%



Sentence 1

Sentence 2

Sentence 3



## Sentence sentiment

Positive

Confidence: 84.00%



## Opinion

Target: ABC Bank

Assessments:

satisfied (positive:  
100.00%)

Sentence 4

Sentence 5

## Sentiment Result 7

## Examine the results

Result: JSON

## Analyzed sentiment

## Document sentiment

Positive:

Confidence: 94.00%



POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

Sentence 3

The car loan application was smooth, and the service was excellent.  
target target assess...  
assessment assessment

## Sentence sentiment

Positive:

Confidence: 100.00%



POSITIVE NEUTRAL NEGATIVE

## Opinion

Target: car loan application

Assessments:

smooth (positive, 100.00%)

## Opinion

Target: service

Assessments:

excellent (positive, 100.00%)

Sentence 4

Sentence 5

Sentiment Result 8

## Examine the results

Result: JSON

## Analyzed sentiment

## Document sentiment

Mixed  
Confidence: 58.00%



POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

Sentence 3

Sentence 4

Sentence 5

It was an insightful experience.  
assessme... target

## Sentence sentiment

Positive  
Confidence: 73.00%



## Opinion

Target: experience  
Assessments:  
insightful (positive,  
100.00%)

Sentence 6

Sentiment Result 9

Language Studio > Sentiment and opinion mining tryout.

### Examine the results

Result: JSON

#### Analyzed sentiment

##### Document sentiment

Mixed

Confidence: 45.00%



Sentence 1

Sentence 2

Sentence 3

Sentence 4

Sentence 5

Overall, I'd recommend ABC Bank to friends looking for a reliable option.  
assessme... target

##### Sentence sentiment

Positive

Confidence: 86.00%



##### Opinion

Target: ABC Bank

Assessments:

recommend (positive)

100.00%

Sentiment Result 10

Language Studio > Sentiment and opinion mining tryout:  
Examine the results

Result JSON

Analyzed sentiment

Document sentiment

Positive  
Confidence: 89.00%



Sentence 1

Sentence 2

Sentence 3

The credit limit was quite generous, and the rewards are worth it.  
target assess target assess

Sentence sentiment

Positive  
Confidence: 98.00%



Opinion

Target: credit limit

Assessments:  
generous (positive,  
100.00%)

Opinion

Target: rewards

Assessments:  
worth (positive,  
100.00%)  
worth it (positive,  
100.00%)

Sentence 4

Sentence 5

Sentiment Result 11

Language Studio > Sentiment and opinion mining tryout

Result JSON

Analyzed sentiment

Document sentiment

Mixed  
Confidence: 31.00%

31.00% 29.00% 40.00%  
POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

Sentence 3

assessment

Honestly, I felt that while the process was overall decent, there were parts that could have been target assesse... Improved.

Sentence sentiment

Negative  
Confidence: 10.00%

10.00% 10.00% 80.00%  
POSITIVE NEUTRAL NEGATIVE

Opinion

target: process  
Assessments:  
decent (mixed, !)

Sentence 4

Sentiment Result 12

Language Studio > Sentiment and opinion mining tryout:  
Examine the results

Result JSON

Analyzed sentiment

Document sentiment

Mixed

Confidence: 62.00%



POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

Sentence 3

But looking back, I feel that ABC Bank did their best to ensure I was satisfied.  
target assessm...

Sentence sentiment

Positive

Confidence: 87.00%



POSITIVE NEUTRAL NEGATIVE

Opinion

Target: ABC Bank

Assessments:

satisfied (positive)  
100.00%

Sentence 4

Sentence 5

Sentiment Result 13

Language Studio > Sentiment and opinion mining tryout:  
Examine the results

Result JSON

Analyzed sentiment:

Document sentiment:

Positive

Confidence: 84.00%



Sentence 1

Sentence 2

Sentence 3

ASSESSMENT

Had issues with the repayment terms, initially, but resolved eventually.  
asset target

Sentence sentiment:

Positive

Confidence: 96.00%



Opinion

Target: repayment terms

Assessments:

issues (negative, 100.00%)

Sentence 4

Sentence 5

Sentiment Result 14

Language Studio > Sentiment and opinion mining tryout:

Result JSON

Analyzed sentiment

Document sentiment

Mixed  
Confidence: 68.00%

68.00% 3.00% 28.00%  
POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

Good options for short-term deposits, very pleased.  
as: target

Sentence sentiment

Positive  
Confidence: 100.00%

100.00% 0.00% 0.00%  
POSITIVE NEUTRAL NEGATIVE

Opinion

Target: options  
Assessments:  
Good (positive, 100.00%)

Sentence 3

Sentence 4

*Sentiment Result 15*

Language Studio > Sentiment and opinion mining tryout

### Examine the results

Result JSON

#### Analyzed sentiment

##### Document sentiment

Positive

Confidence: 72.00%



72.00% 25.00% 3.00%

POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

Sentence 3

Sentence 4

Sentence 5

Thanks for the guidance and support!

##### Sentence sentiment

Positive

Confidence: 100.00%



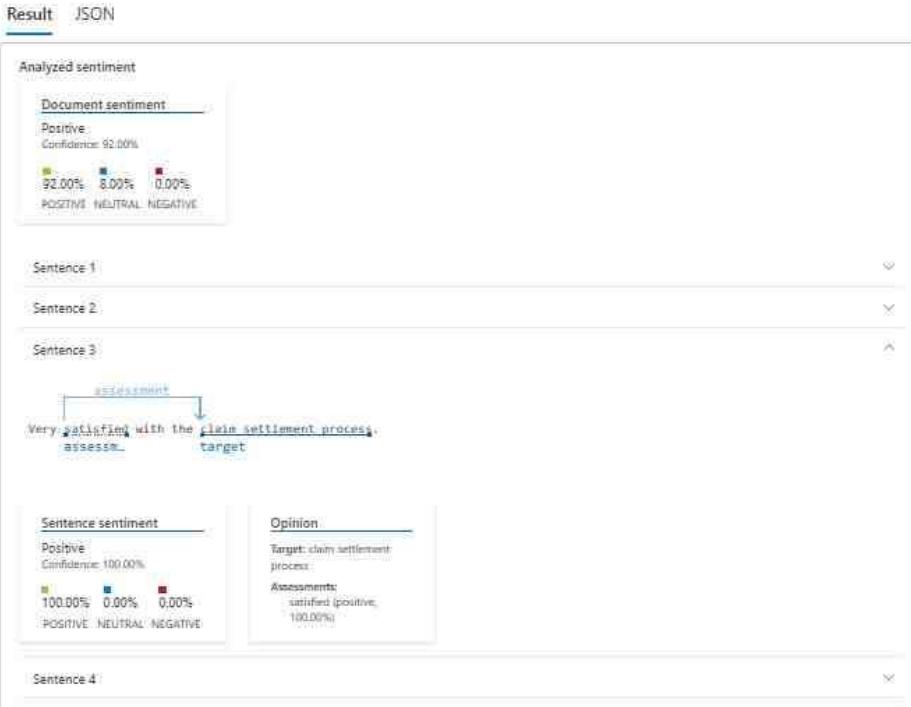
100.00% 0.00% 0.00%

POSITIVE NEUTRAL NEGATIVE

*Sentiment Result 16*

**Sentiment Result 17**

Language Studio &gt; Sentiment and opinion mining tryout

**Examine the results****Sentiment Result 18**

Language Studio > Sentiment and opinion mining tryout

### Examine the results

Result: JSON

#### Analyzed sentiment

##### Document sentiment

Positive:

Confidence: 77.00%



POSITIVE: NEUTRAL: NEGATIVE

Sentence 1

Sentence 2

Sentence 3

Sentence 4

##### Annotations

Very competitive rates compared to other banks.  
assessment tar...

##### Sentence sentiment

Positive:

Confidence: 84.00%



POSITIVE: NEUTRAL: NEGATIVE

##### Opinion

Target: rates

Assessments:

competitive (positive, 97.00%)

Sentence 5

Sentence 6

Sentiment Result 19

Language Studio > Sentiment and opinion mining tryout

### Examine the results

Result JSON

#### Analyzed sentiment

##### Document sentiment

Positive:

Confidence: 88.00%



Sentence 1

Sentence 2

Sentence 3

affordable interest rates and clear process assessments target affordabl... interest rates and clear process assessments target

##### Sentence sentiment

Positive:

Confidence: 98.00%



##### Opinion

Target: interest rates

Assessments:  
Affordable (positive, 100.00%)

##### Opinion

Target: process

Assessments:  
clear (positive, 100.00%)

Sentence 4

Sentence 5

*Sentiment Result 20*

Language Studio > Sentiment and opinion mining tryout

### Examine the results

Result JSON

#### Analyzed sentiment

##### Document sentiment

Positive

Confidence: 88.00%



POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

Sentence 3

assess... target

Increased with the interest rates offered on fixed deposits.

assess... target

##### Sentence sentiment

Positive

Confidence: 100.00%



POSITIVE NEUTRAL NEGATIVE

##### Opinion

Target: interest rates

Assessments:

impressed (positive, 100.00%)

Sentence 4

Sentiment Result 21

Language Studio > Sentiment and opinion mining tryout

### Examine the results

Result JSON

#### Analyzed sentiment

##### Document sentiment

Mixed  
Confidence: 63.00%



Sentence 1

Sentence 2

Sentence 3

##### Assessment

Happy with the investment advice provided by ABC Bank.  
target

##### Sentence sentiment

Positive  
Confidence: 100.00%



##### Opinion

Target: investment advice  
Assessments:

Happy (positive,  
100.00%)

Sentence 4

Sentence 5

Sentiment Result 22

Language Studio > Sentiment and opinion mining tryout:  
Examine the results

Result: JSON

#### Analyzed sentiment

##### Document sentiment

Positive  
Confidence: 98.00%



98.00% 2.00% 0.00%  
POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

Sentence 3

Very easy to apply, and the customer service is prompt, target asse...

##### Sentence sentiment

Positive  
Confidence: 100.00%



100.00% 0.00% 0.00%  
POSITIVE NEUTRAL NEGATIVE

##### Opinion

Target: customer service

Assessments:  
prompt (positive: 100.00%)

Sentence 4

Sentiment Result 23

Language Studio > Sentiment and opinion mining tryout

### Examine the results

Result JSON

#### Analyzed sentiment

##### Document sentiment

Positive

Confidence: 40.00%



Sentence 1

Sentence 2

Sentence 3

Had issues with policy details initially, but sorted out later.

##### Sentence sentiment

Neutral

Confidence: 40.00%



Sentence 4

*Sentiment Result 24*

Language Studio > Sentiment and opinion mining tryout.

### Examine the results

Result: JSON

#### Analyzed sentiment

##### Document sentiment

Mixed

Confidence: 56.00%

56.00% 11.00% 33.00%  
POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

Sentence 3

ASSESSMENT  
Not satisfied with the customer service for home loan queries.  
assess... target

##### Sentence sentiment

Negative

Confidence: 0.00%

0.00% 0.00% 100.00%  
POSITIVE NEUTRAL NEGATIVE

##### Opinion

Target: customer service

Assessments:

unified (negative:  
100.00%)

Sentence 4

Sentence 5

Sentiment Result 25

Language Studio > Sentiment and opinion mining tryout

Examine the results

Result JSON

Analyzed sentiment

Document sentiment

Positive Confidence: 65.00%

65.00% 22.00% 12.00%  
POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

Sentence 3

Sentence 4

But looking back, I feel that ABC Bank did their best to ensure I was satisfied.

Assessment

target assessm...

Sentence sentiment

Positive Confidence: 91.00%

91.00% 7.00% 2.00%  
POSITIVE NEUTRAL NEGATIVE

Opinion

Target: ABC Bank

Assessments: satisfied (positive, 100.00%)

Sentence 5

Sentence 6

Sentiment Result 26

The screenshot shows the Language Studio interface for sentiment and opinion mining. At the top, it says 'Language Studio > Sentiment and opinion mining tryout'. Below that, 'Examine the results' is displayed. There are two tabs: 'Result' (which is selected) and 'JSON'. Under 'Result', there's a section for 'Analyzed sentiment' which includes a 'Document sentiment' card showing 65.00% Positive confidence with a bar chart (yellow 65%, blue 22%, red 12%) and a 'Sentence sentiment' card for Sentence 4 showing 91.00% Positive confidence with a similar bar chart. Below these are sections for 'Sentence 1', 'Sentence 2', 'Sentence 3', and 'Sentence 4'. Sentence 4 contains the text 'But looking back, I feel that ABC Bank did their best to ensure I was satisfied.' with 'target' and 'assessm...' highlighted. To the right of this text is a 'Assessment' box with a bracket above it. Below the text are 'Opinion' cards for 'Target: ABC Bank' and 'Assessments: satisfied (positive, 100.00%)'. At the bottom, there are sections for 'Sentence 5' and 'Sentence 6', and a final summary 'Sentiment Result 26'.

Language Studio > Sentiment and opinion mining tryout:

### Examine the results

Result JSON

#### Analyzed sentiment

##### Document sentiment

Mixed

Confidence: 30.00%

30.00% 22.00% 48.00%  
POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

Sentence 3

Wish the maturity period options were more flexible.

##### Sentence sentiment

Negative

Confidence: 0.00%

0.00% 3.00% 97.00%  
POSITIVE NEUTRAL NEGATIVE

Sentence 4

Sentiment Result 27

Language Studio > Sentiment and opinion mining tryout

Examine the results.

Result JSON

Analyzed sentiment

Document sentiment

Mixed

Confidence: 62.00%



Sentence 1

Sentence 2

Sentence 3

Sentence 4

Assessment

But looking back, I feel that ABC Bank did their best to ensure I was satisfied.  
target assessm.

Sentence sentiment

Positive

Confidence: 87.00%



Opinion

Target: ABC Bank

Assessments:  
satisfied (positive,  
100.00%)

Sentence 5

Sentence 6

Sentiment Result 28

Language Studio > Sentiment and opinion mining tryout

### Examine the results

Result JSON

#### Analyzed sentiment

##### Document sentiment

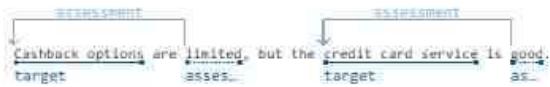
Mixed

Confidence: 64.00%

64.00% 5.00% 31.00%  
POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

  
Cashback options are limited, but the credit card service is good.  
target                  asses...                  target                  as...

##### Sentence sentiment

Positive

Confidence: 93.00%

93.00% 7.00% 0.00%  
POSITIVE NEUTRAL NEGATIVE

##### Opinion

Target: Cashback options

Assessments:  
Limited (negative: 69.00%)

##### Opinion

Target: credit card service

Assessments:  
Good (positive: 100.00%)

Sentence 3

Sentence 4

Sentiment Result 29

Language Studio > Sentiment and opinion mining tryout:

### Examine the results

Result: JSON

#### Analyzed sentiment

##### Document sentiment

Mixed

Confidence: 29.00%

29.00% 21.00% 50.00%  
POSITIVE NEUTRAL NEGATIVE

Sentence 1

Sentence 2

Sentence 3

assessment  
Not ~~happy~~ with the insurance claim process, took longer than expected.  
at... target

##### Sentence sentiment

Negative

Confidence: 0.00%

0.00% 0.00% 100.00%  
POSITIVE NEUTRAL NEGATIVE

##### Opinion

Target: insurance claim/  
process

Assessments:  
happy (negative,  
100.00%)

Sentence 4

*Sentiment Result 30*

- Language studio screenshot of the Key Phrase extraction

### Enlarged images from Activity j.10.2

Language Studio > Key phrases tryout:

### Examine the results

Result JSON

#### Key phrases

home loan, interest rates, positive experience, thoughts, process, support, help

#### Original text

I recently signed up for a home loan and had a few thoughts to share.  
key ph... key ph...

The interest rates were reasonable, but the process took longer than expected. I wasn't sure what to  
key phrase key p...  
expect, but overall, it turned out to be a positive experience.  
key phrase

Appreciate the support, and I'll be reaching out if I need further help.  
key ph... Ke...

### Key Phrase 31

Language Studio > Key phrases tryout:

### Examine the results

Result JSON

#### Key phrases

car loan journey, loan process, ABC Bank, flexible options, experience, moments, doubt, services, future

#### Original text

I decided to opt for your car loan and thought I'd share my experience.  
key ph...

Throughout the car loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did  
key phrase key p... key ph...

their best to ensure I was satisfied. Satisfied with the loan process, though I wish there were more  
key phrase

flexible options.  
key phrase

looking forward to using more of your services in the future.  
key ph... key ...

### Key Phrase 32

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

fixed deposit journey, good things, ABC Bank FD process, moments, doubt returns, support, help

#### Original text

After hearing good things, I went ahead with the fixed deposit.  
Key phrase

Throughout the fixed deposit journey, I had moments of doubt. But looking back, I feel that ABC Bank  
Key phrase Key ph. Key ph.

did their best to ensure I was satisfied. The FD process was straightforward, and returns are  
Key ph. Key ph.

satisfactory.

Appreciate the support, and I'll be reaching out if I need further help.  
Key ph. Key ph.

### Key Phrase 33

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

mutual funds application, good things, little guidance, Reliable, guidance, financial advisors, issues, team support, process

#### Original text

After hearing good things, I went ahead with the mutual funds.  
Key phrase

Initially, I faced some issues with mutual funds application. But with a little guidance from your  
Key ph. Key phrase Key phrase

team, it all worked out. Reliable guidance from the financial advisors.  
Key ph. Key phrase Key phrase

Thank you for your support throughout this process.  
Key ph. Key ph.

### Key Phrase 34

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

late fee charges, credit card, positive experience, thoughts, problems, support, help

#### Original text

I recently signed up for a credit card and had a few thoughts to share.  
Key phrase Key ph...

Had a few problems with late fee charges that were resolved. I wasn't sure what to expect, but  
Key ph... Key phrase

overall, it turned out to be a positive experience.  
Key phrase

Appreciate the support, and I'll be reaching out if I need further help.  
Key p... Ke...

### Key Phrase 35

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

Clear terms, positive experience, insurance plans, feedback, support, help

#### Original text

I'm writing to give feedback on your insurance.  
Key ph...

Clear terms and easy to understand. insurance plans, I wasn't sure what to expect. But overall, it  
Key phrase Key phrase

turned out to be a positive experience.  
Key phrase

Appreciate the support, and I'll be reaching out if I need further help.  
Key p... Ke...

### Key Phrase 36

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

home loan journey, ABC Bank, feedback, moments, doubt, process, staff, services, future

#### Original text

I'm writing to give feedback on your home loan.  
Key ph...

Throughout the home loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. I found the process seamless and the staff very helpful!  
Key phrase Key ph... Key ph...

Looking forward to using more of your services in the future.  
Key ph... Key ...

### Key Phrase 37

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

car loan application, ABC Bank, positive experience, thoughts, service, guidance, support

#### Original text

I recently availed the car loan from ABC Bank. I wanted to share some thoughts.  
Key ph... Key ph...

The car loan application was smooth, and the service was excellent. I wasn't sure what to expect,  
Key phrase Key ph...

but overall, it turned out to be a positive experience.  
Key phrase

Thanks for the guidance and support.  
Key ph... Key ph...

### Key Phrase 38

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

customer service response time, fixed deposit application process, ABC Bank, One thing, insightful experience, thoughts, queries, guidance, support

#### Original text

I recently availed the fixed deposit from ABC Bank. I wanted to share some thoughts.  
Key ph. Key ph.

One thing that stood out to me was the fixed deposit application process. Not too happy with the  
Key ph. Key phrase

customer service response time for queries. It was an insightful experience.  
Key phrase key p. Key phrase

Thanks for the guidance and support!  
Key ph. Key p.

### Key Phrase 39

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

Mutual fund options, mutual funds, ABC Bank, reliable option, thoughts, returns, process, parts, friends

#### Original text

I recently availed the mutual funds from ABC Bank. I wanted to share some thoughts.  
Key phrase Key ph. Key ph.

Mutual fund options are average, but returns have been decent. Honestly, I felt that while the  
Key phrase Key p.

process was overall decent, there were parts that could have been improved.  
Key p. Key p.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.  
Key p. Key phrase

### Key Phrase 40

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

credit card application process, credit limit, One thing, insightful experience, thoughts, rewards, guidance, support

#### Original text

I recently signed up for a credit card and had a few thoughts to share.  
Key ph...

One thing that stood out to me was the credit card application process. The credit limit was quite  
Key ph... Key phrase Key phrase

generous, and the rewards are worth it. It was an insightful experience.  
Key ph... Key phrase

Thanks for the guidance and support!  
Key ph... Key ph...

### Key Phrase 41

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

Premium rates, insurance, thoughts, value, process, parts, services, future

#### Original text

I recently signed up for a insurance and had a few thoughts to share.  
Key ph... Key ph...

Premium rates could be lower for the value offered. Honestly, I felt that while the process was  
Key phrase Key ph... Key ph...

overall decent, there were parts that could have been improved.  
Key...

Looking forward to using more of your services in the future.  
Key ph... Key ...

### Key Phrase 42

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

home loan journey, ABC Bank, documentation process, thoughts, moments, doubt, delays, support, help

#### Original text

I recently signed up for a home loan and had a few thoughts to share.  
Key ph...

Throughout the home loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did  
Key phrase      Key ph...      Key ph...

their best to ensure I was satisfied. The documentation process was overwhelming, and I faced  
Key phrase

delays,  
Key ...

Appreciate the support, and I'll be reaching out if I need further help.  
Key ph...      Ke...

### Key Phrase 43

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

car loan application process, One thing, repayment terms, ABC Bank, reliable option, insightful experience, issues, friends

#### Original text

I decided to opt for your car loan and thought I'd share my experience.

One thing that stood out to me was the car loan application process. Had issues with the repayment  
Key ph...      Key phrase      Key ...      Key ph...

terms initially, but resolved eventually. It was an insightful experience.  
Key phrase

Overall, I'd recommend ABC Bank to friends looking for a reliable option.  
Key ph...      Key ph...      Key ph...

### Key Phrase 44

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

good things, fixed deposit, Good options, short-term deposits, process, parts, guidance, support

#### Original text

After hearing good things, I went ahead with the fixed deposit.  
Key phrase Key phrase

Good options for short-term deposits, very pleased. Honestly, I felt that while the process was  
Key phrase Key phrase Key ph...

overall decent, there were parts that could have been improved.  
Key...

Thanks for the guidance and support!  
Key ph... Key ph...

### Key Phrase 45

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

mutual funds application process, good things, One thing, Good range, high fluctuations, insightful experience, returns, guidance, support

#### Original text

After hearing good things, I went ahead with the mutual funds.  
Key phrase

One thing that stood out to me was the mutual funds application process. Good range of mutual funds,  
Key ph... Key phrase Key ph...

but returns are subject to high fluctuations. It was an insightful experience.  
Key ph... Key phrase Key phrase

Thanks for the guidance and support!  
Key ph... Key ph...

### Key Phrase 46

Language Studio > Key phrases tryout

Examine the results

Result JSON

Key phrases

credit card, hidden charges, ABC Bank, reliable option, positive, experience, issues, friends

Original text

I decided to opt for your credit card and thought I'd share my experience.  
Key phrase

Faced issues with hidden charges on the credit card. I wasn't sure what to expect, but overall, it  
Key ph... Key phrase

turned out to be a positive experience.  
Key phrase

Overall, I'd recommend ABC Bank to friends looking for a reliable option.  
Key ph... Key p... Key phrase

Key Phrase 47

Language Studio > Key phrases tryout

Examine the results

Result JSON

Key phrases

claim settlement process, little guidance, ABC Bank, reliable option, insurance application, feedback, issues, team, friends

Original text

I'm writing to give feedback on your insurance.  
Key ph...

Initially, I faced some issues with insurance application, but with a little guidance from your  
Key ph... Key phrase Key phrase

team, it all worked out. Very satisfied with the claim settlement process.  
Key ph... Key phrase

Overall, I'd recommend ABC Bank to friends looking for a reliable option.  
Key ph... Key p... Key phrase

Key Phrase 48

Language Studio > Key phrases tryout

Examine the results

Result JSON

Key phrases:

home loan application process, ABC Bank, One thing, competitive rates, other banks, insightful experience, thoughts, services, future

Original text:

I recently availed the home loan from ABC Bank. I wanted to share some thoughts.

Key ph...

Key ph...

One thing that stood out to me was the home loan application process, Very competitive rates.

Key ph...

Key phrase

Key phrase

compared to other banks. It was an insightful experience.

Key phrase

Key phrase

Looking forward to using more of your services in the future.

Key ph...

Key ph...

Key Phrase 49

Language Studio > Key phrases tryout

Examine the results

Result JSON

Key phrases:

car loan application process, Affordable interest rates, clear process, One thing, insightful experience, thoughts, guidance, support.

Original text:

I recently signed up for a car loan and had a few thoughts to share.

Key ph...

One thing that stood out to me was the car loan application process, Affordable interest rates and clear process.

Key ph...

Key phrase

Key phrase

It was an insightful experience.

Key phrase

Key phrase

Thanks for the guidance and support!

Key ph...

Key ph...

Key Phrase 50

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

fixed deposit application, fixed deposits, little guidance, interest rates, ABC Bank, reliable option, feedback, issues, team, friends

#### Original text

I'm writing to give feedback on your fixed deposit.

Key ph...

Initially, I faced some issues with fixed deposit application, but with a little guidance from your

Key ... Key phrase

Key phrase

team, it all worked out. Impressed with the interest rates offered on fixed deposits.

Ke...

Key phrase

Key phrase

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Key ph... Key p...

Key phrase

### Key Phrase 51

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

mutual funds, ABC Bank, investment advice, reliable option, thoughts, process, parts, friends

#### Original text

I recently availed the mutual funds from ABC Bank. I wanted to share some thoughts.

Key phrase Key ph...

Key ph...

Happy with the investment advice provided by ABC Bank. Honestly, I felt that while the process was

Key phrase

Key p...

overall decent, there were parts that could have been improved.

Key...

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Key p...

Key phrase

### Key Phrase 52

Language Studio > Key phrases tryout.

### Examine the results

Result JSON

#### Key phrases

credit card application, little guidance, customer service, feedback issues, team, support, help.

#### Original text

I'm writing to give **feedback** on your credit card.

**Key ph...**

Initially, I faced some **issues** with **credit card application**, but with a **little guidance** from your

**Key ...** **Key phrase**

**Key phrase**

**team**, it all worked out. Very easy to apply, and the **customer service** is prompt.

**Key ...**

**Key phrase**

Appreciate the **support**, and I'll be reaching out if I need further **help**.

**Key p...**

**Key**

### Key Phrase 53

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

little guidance, policy details, insurance application, thoughts, issues, team, services, future

#### Original text

I recently signed up for a insurance and had a few **thoughts** to share.

**Key ph...**

Initially, I faced some **issues** with **insurance application**, but with a **little guidance** from your

**Key ...** **Key phrase**

**Key phrase**

**team**, it all worked out. Had issues with **policy details** initially, but sorted out later.

**Key ...**

**Key phrase**

Looking forward to using more of your **services** in the **future**.

**Key ph...**

**Key**

### Key Phrase 54

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

home loan application process, home loan queries, One thing, customer service, insightful experience, feedback, support, help

#### Original text

I'm writing to give feedback on your home loan.

Key ph..

One thing that stood out to me was the home loan application process. Not satisfied with the Key ph.. Key phrase

customer service for home loan queries. It was an insightful experience. Key phrase Key phrase Key phrase

Appreciate the support, and I'll be reaching out if I need further help. Key ph.. Key ..

### Key Phrase 55

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases

car loan journey, ABC Bank, Quick approval, thoughts, moments, doubt, rates, services, future

#### Original text

I recently availed the car loan from ABC Bank. I wanted to share some thoughts. Key ph.. Key ph..

Throughout the car loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did Key phrase Key ph.. Key ..

their best to ensure I was satisfied. Quick approval, but the rates could be better. Key phrase Key ..

Looking forward to using more of your services in the future. Key ph.. Key ..

### Key Phrase 56

Language Studio > Key phrases tryout.

### Examine the results

Result JSON

#### Key phrases

maturity period options, fixed deposit application, little guidance, thoughts, issues, team, services, future.

#### Original text

I recently signed up for a fixed deposit and had a few thoughts to share.  
Key ph.

Initially, I faced some issues with fixed deposit application, but with a little guidance from your  
Key ph. Key phrase. Key phrase

team, it all worked out. Wish the maturity period options were more flexible.  
Key ph. Key phrase

Looking forward to using more of your services in the future.  
Key ph. Key ph.

### Key Phrase 57

Language Studio > Key phrases tryout.

### Examine the results

Result JSON

#### Key phrases

maturity period options, fixed deposit application, little guidance, thoughts, issues, team, services, future.

#### Original text

I recently signed up for a fixed deposit and had a few thoughts to share.  
Key ph.

Initially, I faced some issues with fixed deposit application, but with a little guidance from your  
Key ph. Key phrase. Key phrase

team, it all worked out. Wish the maturity period options were more flexible.  
Key ph. Key phrase

Looking forward to using more of your services in the future.  
Key ph. Key ph.

### Key Phrase 58

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases:

credit card service; good things; Cashback options; process; parts; support; help

#### Original text

After hearing good things, I went ahead with the credit card.

Key phrase

Cashback options are limited, but the credit card service is good. Honestly, I felt that while the Key phrase Key phrase

process was overall decent, there were parts that could have been improved.

Key ph. Key...

Appreciate the support, and I'll be reaching out if I need further help.

Key ph. Ke...

### Key Phrase 59

Language Studio > Key phrases tryout

### Examine the results

Result JSON

#### Key phrases:

insurance claim process; good things; insurance application; little guidance; issues; team; services; future

#### Original text

After hearing good things, I went ahead with the insurance.

Key phrase

Initially, I faced some issues with insurance application, but with a little guidance from your Key... Key phrase Key phrase

team, it all worked out. Not happy with the insurance claim process, took longer than expected.

Key... Key phrase

Looking forward to using more of your services in the future.

Key ph... Key...

### Key Phrase 60

- Language studio screenshot of the Named Entity recognition

### Enlarged images from Activity j.10.3

Language Studio > Named entities tryout:

### Examine the results

Result JSON

Named entities identified

Show cards  On Sort Filter

person

Entity value: Bonnie Myers  
Confidence: 100.00%

Event

Entity value: process  
Confidence: 52.00%

Person

Entity value: Bonnie Myers  
Confidence: 99.00%

PhoneNumber

Entity value: (577)727-  
2843x81412  
Confidence: 80.00%

Original text:

Dear team, Bonnie Myers here. I recently signed up for a home loan and had a few thoughts to share.

Person

The interest rates were reasonable, but the process took longer than expected. I wasn't sure what to expect,

Event:

but overall, it turned out to be a positive experience.

Appreciate the support, and I'll be reaching out if I need further help,

Best regards,

Bonnie Myers  
Person

(577)727-2843x81412  
PhoneNumber

Named Entity recognition 1

Language Studio > Named entities tryout:

### Examine the results

**Result** JSON

#### Named entities identified

Show cards  On Sort Filter

##### Person

Entity value: Thomas Moody  
Confidence: 100.00%

##### Product

Entity value: car  
Confidence: 97.00%

##### Event

Entity value: car loan journey  
Confidence: 76.00%

##### Organization

Entity value: ABC Bank  
Confidence: 100.00%

##### Skill

Entity value: loan process  
Confidence: 71.00%

##### Skill

Entity value: serviz  
Confidence: 97.00%

##### Person

Entity value: Thomas Moody  
Confidence: 100.00%

##### PhoneNumber

Entity value:  
981 208 2669x1587  
Confidence: 88.00%

#### Original text

Hi there, this is Thomas Moody. I decided to opt for your car loan and thought I'd share my Person P experience.

Throughout the car loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did Event Organiz.

their best to ensure I was satisfied. Satisfied with the loan process, though I wish there were more Skill flexible options.

Looking forward to using more of your services in the future. Skill

Best regards,

Thomas Moody  
Person

981 208 2669x1587  
PhoneNumber

*Named Entity recognition 2*

Language Studio > Named entities tryout

### Examine the results

Result: JSON

Named entities identified

Show cards  On Filter

#### Person

Entity value: Carolyn Hayes  
Confidence: 100.00%

#### Address

Entity value: 2672 Moore Island, Suite 727, Angelaside, IL 61766  
Confidence: 100.00%

#### Event

Entity value: fixed  
Confidence: 62.00%

#### Event

Entity value: journey  
Confidence: 73.00%

#### Organization

Entity value: ABC Bank  
Confidence: 100.00%

#### Event

Entity value: FD process  
Confidence: 92.00%

#### Person

Entity value: Carolyn Hayes  
Confidence: 100.00%

#### PhoneNumber

Entity value: 5108265088  
Confidence: 80.00%

#### Original text

I'm Carolyn Hayes from 2672 Moore Island Suite 727, Angelaside, IL 61766. After hearing good things.

I went ahead with the fixed deposit.

Throughout the deposit , I had moments of doubt. But looking back, I feel that

did their best to ensure I was satisfied. The was straightforward, and returns are

satisfactory.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Carolyn Hayes  
Person

5108265088  
PhoneNumber

Named Entity recognition 3

Language Studio > Named entities tryout

### Examine the results

Result JSON

Named entities identified

Show cards  On Filter

<b>Person</b> Entity value: Michelle Blake Confidence: 100.00%	<b>Address:</b> Entity value: 18836 Tonya Row, Jarvisborough, AL 36640 Confidence: 100.00%	<b>Skill</b> Entity value: funds Confidence: 65.00%	<b>PersonType</b> Entity value: team Confidence: 74.00%
<b>PersonType</b> Entity value: financial advisors Confidence: 81.00%	<b>Person</b> Entity value: Michelle Blake Confidence: 99.00%	<b>PhoneNumber</b> Entity value: 712.252.0388 Confidence: 80.00%	

Original text

I'm Michelle Blake from 18836 Tonya Row, Jarvisborough, AL 36640. After hearing good things, I went ahead with the mutual funds.

Initially, I faced some issues with mutual funds application, but with a little guidance from your team, it all worked out. Reliable guidance from the financial advisors.

Thank you for your support throughout this process.

Best regards,

Michelle Blake  
Person

712.252.0388  
PhoneNumber

Named Entity recognition 4

Language Studio > Named entities tryout

Examine the results

Result JSON

Named entities identified

Show cards  On

Person

Entity value: Valerie Peck  
Confidence: 99.00%

DateTime

Entity value: recently  
Confidence: 60.00%

Product

Entity value: credit card  
Confidence: 76.00%

Person

Entity value: Valerie Peck  
Confidence: 97.00%

PhoneNumber

Entity value: 705-060-8825  
Confidence: 80.00%

Original text

Dear team, Valerie Peck here. I recently signed up for a credit card and had a few thoughts to share.

Had a few problems with late fee charges that were resolved. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Valerie Peck  
Person

705-060-8825  
PhoneNumber

Named Entity recognition 5

Language Studio > Named entities tryout

### Examine the results

[Result](#) [JSON](#)

Named entities identified

Show cards  On Filter

#### Organization

Entity value: ABC Bank  
Confidence: 100.00%

#### Person

Entity value: Lori Keller  
Confidence: 100.00%

#### Address

Entity value: 725 Katherine Terrace Apt. 464, Port Angelaton, AK 71923  
Confidence: 100.00%

#### Skill

Entity value: writing  
Confidence: 89.00%

#### Skill

Entity value: insurance plans  
Confidence: 80.00%

#### Person

Entity value: Lori Keller  
Confidence: 100.00%

#### PhoneNumber

Entity value: +1-298-609-7965  
Confidence: 80.00%

#### Original text

Hello ABC Bank team! I'm Lori Keller, residing at 725 Katherine Terrace Apt. 464, Port Angelaton, AK 71923. I'm writing to give feedback on your insurance.

skill

Clear terms and easy to understand insurance plans. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

skill

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Lori Keller  
Person

+1-298-609-7965  
PhoneNumber

*Named Entity recognition 6*

Language Studio > Named entities tryout:  
Examine the results

Result JSON

Named entities identified

Show cards  On Sort Filter

<u>Organization</u> Entity value: ABC Bank Confidence: 100.00%	<u>Person</u> Entity value: Colleen Taylor Confidence: 100.00%	<u>Address</u> Entity value: Unit 9995 Box 3930, DPO AE 00721 Confidence: 99.00%	<u>Skill</u> Entity value: writing Confidence: 94.00%
<u>Event</u> Entity value: home loan journey Confidence: 61.00%	<u>Organization</u> Entity value: ABC Bank Confidence: 100.00%	<u>PersonType</u> Entity value: staff Confidence: 80.00%	<u>Skill</u> Entity value: services Confidence: 97.00%
<u>Person</u> Entity value: Colleen Taylor Confidence: 100.00%	<u>Quantity Number</u> Entity value: 001 Confidence: 80.00%	<u>Quantity Number</u> Entity value: 182 Confidence: 80.00%	<u>Quantity Number</u> Entity value: 246 Confidence: 80.00%

Original text:

Hello ABC Bank team! I'm Colleen Taylor, residing at Unit 9995 Box 3930, DPO AE 00721. I'm writing skill to give feedback on your home loan.

Throughout the home loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did organizational skill their best to ensure I was satisfied. I found the process seamless and the staff very helpful! person

looking forward to using more of your services in the future. skill

Best regards,

Colleen Taylor  
Person

801-581-246-7743x2620  
Q Q Q

Named Entity recognition 7

Language Studio > Named entities tryout

### Examine the results

Result JSON

Named entities identified

Show cards  On

<b>Person</b> Entity value: David Adkins Confidence: 100.00%	<b>Datetime</b> Entity value: recently Confidence: 93.00%	<b>Product</b> Entity value: car Confidence: 60.00%	<b>Organization</b> Entity value: ABC Bank Confidence: 100.00%
<b>Product</b> Entity value: car Confidence: 84.00%	<b>Person</b> Entity value: David Adkins Confidence: 100.00%	<b>Quantity</b> <b>Number</b> Entity value: 2416 Confidence: 80.00%	<b>Quantity</b> <b>Number</b> Entity value: 038 Confidence: 80.00%
<b>Quantity</b> <b>Number</b> Entity value: 2416 Confidence: 80.00%			

Original text

My name is David Adkins, and I recently availed the car loan from ABC Bank. I wanted to share some thoughts:

The car loan application was smooth, and the service was excellent. I wasn't sure what to expect,

but overall, it turned out to be a positive experience.

Thanks for the guidance and support!

Best regards,

David Adkins  
Person

514-839-2416  
Q\_ Q\_ QU\_

Named Entity recognition 8

Language Studio > Named entities tryout

### Examine the results

Result JSON

Named entities identified:

Show cards:  On

Person

Entity value: Amy Clarke  
Confidence: 100.00%

DateTime

Entity value: recently  
Confidence: 87.00%

Organization

Entity value: ABC Bank  
Confidence: 100.00%

Quantity

Number

Entity value: One  
Confidence: 80.00%

PersonType

Entity value: customer  
Confidence: 77.00%

Person

Entity value: Amy Clarke  
Confidence: 100.00%

PhoneNumber

Entity value: 035-610-  
2812x45085  
Confidence: 80.00%

Original text

My name is Amy Clarke, and I recently availed the fixed deposit from ABC Bank. I wanted to share  
Person Date**ell** Organization

some thoughts.

The thing that stood out to me was the fixed deposit application process. Not too happy with the  
customer service response time for queries. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Amy Clarke  
Person

035-610-2812x45085  
PhoneNumber

Named Entity recognition 9

Language Studio > Named entities tryout:

Examine the results

Result JSON

Named entities identified

Show cards  On Sort Filter

Person

Entity value: Randy Ritter  
Confidence: 100.00%

DateTime

Entity value: recently  
Confidence: 66.00%

Organization

Entity value: ABC Bank  
Confidence: 100.00%

Organization

Entity value: ABC Bank  
Confidence: 100.00%

PersonType

Entity value: friends.  
Confidence: 95.00%

Person

Entity value: Randy Ritter  
Confidence: 100.00%

PhoneNumber

Entity value: (946)519-  
8528x56751  
Confidence: 80.00%

Original text

My name is Randy Ritter, and I recently availed the mutual funds from ABC Bank. I wanted to share  
Person DateTime Organization.

some thoughts.

Mutual Fund options are average, but returns have been decent. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.  
Organization Person

Best regards,

Randy Ritter  
Person

(946)519-8528x56751  
PhoneNumber

Named Entity recognition 10

Language Studio > Named entities tryout:

### Examine the results

Result JSON

Named entities identified

Show cards:  On Sort Filter

<b>Person</b> Entity value: Angela Sanchez Confidence: 100.00%	<b>DateTime</b> Entity value: recently Confidence: 60.00%	<b>Product</b> Entity value: credit card Confidence: 75.00%	<b>Quantity</b> <b>Number</b> Entity value: One Confidence: 80.00%
<b>Skill</b> Entity value: credit Confidence: 57.00%	<b>Event</b> Entity value: application process Confidence: 55.00%	<b>Person</b> Entity value: Angela Sanchez Confidence: 100.00%	<b>PhoneNumber</b> Entity value: 007-548-0812x879 Confidence: 80.00%

Original text:

Dear team, Angela Sanchez here. I recently signed up for a credit card and had a few thoughts to share.

One thing that stood out to me was the credit card application process. The credit limit was quite generous, and the rewards are worth it. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Angela Sanchez  
Person

007-548-0812x879  
PhoneNumber

*Named Entity recognition 11*

Language Studio | Named entities tryout

Examine the results

Result JSON

Named entities identified

Show cards  On  Filter

Person

Entity value: Cory Moore  
Confidence: 98.00%

Skill

Entity value: services  
Confidence: 97.00%

Person

Entity value: Cory Moore  
Confidence: 100.00%

Quantity

Number

Entity value: 001  
Confidence: 90.00%

Quantity  
Number

Entity value: 360  
Confidence: 90.00%

Quantity  
Number

Entity value: 857  
Confidence: 90.00%

Quantity  
Number

Entity value: 834  
Confidence: 91.00%

Original text

Dear team, Cory Moore here. I recently signed up for a insurance and had a few thoughts to share.  
Person

Premium rates could be lower for the value offered. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

looking forward to using more of your services in the future.  
Skill

Best regards,

Cory Moore  
Person

881-068-857-0147  
0-0-0-04

Named Entity recognition 12

Language Studio > Named entities tryout

### Examine the results

Result JSON

Named entities identified

Show cards  On Sort Filter

Person	Event	Organization	Event
Entity value: Christopher Chan Confidence: 100.00%	Entity value: home loan journey Confidence: 65.00%	Entity value: ABC Bank Confidence: 100.00%	Entity value: documentation process Confidence: 70.00%

Person	PhoneNumber
Entity value: Christopher Chan Confidence: 100.00%	Entity value: 356-128-2825 Confidence: 80.00%

Original text

Dear team, Christopher Chan here. I recently signed up for a home loan and had a few thoughts to share.

Throughout the home loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. The documentation process was overwhelming, and I faced delays.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Christopher Chan  
Person

356-128-2825  
PhoneNumber

Named Entity recognition 13

Language Studio > Named entities tryout

### Examine the results

Result JSON

Named entities identified

Show cards  On  Sort  Filter

Person	Product	Quantity Number	Product
Entity value: Mark Figueros Confidence: 100.00%	Entity value: car Confidence: 97.00%	Entity value: One Confidence: 90.00%	Entity value: car Confidence: 94.00%

Organization	PersonType	Person	PhoneNumber
Entity value: ABC Bank Confidence: 100.00%	Entity value: friend Confidence: 96.00%	Entity value: Mark Figueros Confidence: 100.00%	Entity value: 512-234-6429x9405 Confidence: 80.00%

Original text:

Hi there, this is Mark Figueros. I decided to opt for your car loan and thought I'd share my experience.

One thing that stood out to me was the car loan application process. Had issues with the repayment terms initially, but resolved eventually. It was an insightful experience.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Best regards,

Mark Figueros  
Person

512-224-6429x9405  
PhoneNumber

Named Entity recognition 14

[Language Studio](#) > [Named entities tryout](#)

## Examine the results

Result: JSON

Named entities identified

Show cards:  On  Sort  Filter

## Person

Entity value: Britney  
Rodriguez  
Confidence: 100.00%

## Address

Entity value: 63000 Colin  
Cove, Tanyatown, KY 03848  
Confidence: 100.00%

## Person

Entity value: Britney  
Rodriguez  
Confidence: 100.00%

## PhoneNumber

Entity value:  
943.929.9636x37395  
Confidence: 80.00%

## Original text

I'm Britney Rodriguez from 63000 Colin Cove, Tanyatown, KY 03848. After hearing good things, I went

Person address

ahead with the fixed deposit.

Good options for short-term deposits, very pleased. Honestly, I felt that while the process was

overall decent, there were parts that could have been improved.

Thanks for the guidance and support!

Best regards,

Brittney Rodriguez  
Person

943.929.9636x37395  
PhoneNumber

Named Entity recognition 15

Language Studio | Named entities tryout

### Examine the results

Result: JSON

Named entities identified

Show cards  On Sort Filter

Person

Entity value: Michelle  
Richards  
Confidence: 100.00%

Address

Entity value: 881 Khan Radial  
Suite 301, Davidhaven, TN  
38027  
Confidence: 100.00%

Quantity

Number

Entity value: One  
Confidence: 100.00%

Person

Entity value: Michelle  
Richards  
Confidence: 100.00%

PhoneNumber

Entity value: 203-882-  
4467x9609  
Confidence: 100.00%

Original text:

I'm Michelle Richards from 881 Khan Radial Suite 301, Davidhaven, TN 38027. After hearing good  
Person Address

things, I went ahead with the mutual funds.

One thing that stood out to me was the mutual funds application process. Good range of mutual funds,  
Q.

but returns are subject to high fluctuations. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Michelle Richards  
Person

203-882-4467x9609  
PhoneNumber

Named Entity recognition 16

Language Studio > Named entities tryout

### Examine the results

Result JSON

#### Named entities identified

Show cards  On Sort Filter

##### Person

Entity value: James Rogers  
Confidence: 100.00%

##### Product

Entity value: credit card  
Confidence: 71.00%

##### Product

Entity value: credit card  
Confidence: 66.00%

##### Organization

Entity value: ABC Bank  
Confidence: 100.00%

##### PersonType

Entity value: friend  
Confidence: 96.00%

##### Person

Entity value: James Rogers  
Confidence: 100.00%

##### Quantity

Entity value: 297  
Confidence: 80.00%

##### Quantity

Entity value: 164  
Confidence: 80.00%

#### Original text

Hi there, this is James Rogers. I decided to opt for your credit card and thought I'd share my Person Product.

experience.

Faced issues with hidden charges on the credit card, I wasn't sure what to expect, but overall, it Product

turned out to be a positive experience.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.  
Organiz. Person

Best regards,

James Rogers  
Person

297-164-0744x54675  
Q. Q.

Named Entity recognition 17

Language Studio > Named entities tryout

### Examine the results

Result: JSON

Named entities identified.

Show cards:  On

#### Organization

Entity value: ABC Bank  
Confidence: 100.00%

#### Person

Entity value: Carla Cross  
Confidence: 100.00%

#### Address

Entity value: 17294 Cain Square Apt. 429, North Timothy, VT 82344  
Confidence: 100.00%

#### Skill

Entity value: writing  
Confidence: 88.00%

#### Skill

Entity value: insurance  
Confidence: 61.00%

#### PersonType

Entity value: team  
Confidence: 59.00%

#### Organization

Entity value: ABC.Bank  
Confidence: 100.00%

#### PersonType

Entity value: friends  
Confidence: 96.00%

#### Location

Entity value: Carla.Cross  
Confidence: 93.00%

#### PhoneNumber

Entity value: 883-307-0246#052  
Confidence: 80.00%

#### Original text

Hello ABC Bank team! I'm Carla\_Cross, residing at 17294 Cain Square Apt. 429, North Timothy, VT 82344.  
Organiz Person Address

I'm writing to give feedback on your insurance.  
Skill

Initially, I faced some issues with insurance application, but with a little guidance from your  
Skill

team, it all worked out. Very satisfied with the claim settlement process.  
Pe

Overall, I'd recommend ABC\_Bank to friends looking for a reliable option.  
Organiz Person

Best regards,

Carla\_Cross  
location

883-307-9140#0052  
PhoneNumber

Named Entity recognition 18

Language Studio > Named entities tryout

### Examine the results

Result JSON

Named entities identified

Show cards  On Sort Filter

<b>Person</b> Entity value: Alicia Eaton Confidence: 100.00%	<b>DateTime</b> Entity value: recently Confidence: 90.00%	<b>Organization</b> Entity value: ABC Bank Confidence: 100.00%	<b>Quantity Number</b> Entity value: One Confidence: 80.00%
<b>Event</b> Entity value: application process Confidence: 45.00%	<b>Location Geographical</b> Entity value: banks Confidence: 82.00%	<b>Skill</b> Entity value: services Confidence: 97.00%	<b>Person</b> Entity value: Alicia Eaton Confidence: 100.00%
<b>Quantity Number</b> Entity value: 445 Confidence: 80.00%	<b>Quantity Number</b> Entity value: 250 Confidence: 80.00%		

Original text

My name is Alicia Eaton, and I recently availed the home loan from ABC Bank. I wanted to share some thoughts.  
Person      DateTime      Organization

One thing that stood out to me was the home loan application process. Very competitive rates  
Event

compared to other banks. It was an insightful experience.  
Loc

Looking forward to using more of your services in the future.  
Skill

Best regards,

Alicia Eaton  
Person  
(445)050-7802x37426  
Loc

Named Entity recognition 19

Language Studio > Named entities tryout:

### Examine the results

Result JSON

Named entities identified.

Show cards  On Sort Filter

Person	Product	Quantity	Product
Entity value: Jason Key Confidence: 99.00%	Entity value: car Confidence: 95.00%	Entity value: One Confidence: 80.00%	Entity value: car Confidence: 94.00%

Person	PhoneNumber
Entity value: Jason Key Confidence: 100.00%	Entity value: 185.458.3483x13406 Confidence: 80.00%

Original text

Dear team, Jason Key here. I recently signed up for a car loan and had a few thoughts to share.  
Person

One thing that stood out to me was the car loan application process. Affordable interest rates and  
Q R  
clear process. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Jason Key  
Person

185.458.3483x13406  
PhoneNumber

Named Entity recognition 20

Language Studio > Named entities tryout

### Examine the results

[Result](#) [JSON](#)

Named entities identified

Show cards  On [Sort](#) [Filter](#)

#### Organization

Entity value: ABC Bank  
Confidence: 100.00%

#### Person

Entity value: Claudia Pace  
Confidence: 100.00%

#### Address

Entity value: 29655 Wiley Street, Lake Antonio, MS 82526  
Confidence: 100.00%

#### Skill

Entity value: deposit application  
Confidence: 93.00%

#### PersonType

Entity value: team  
Confidence: 82.00%

#### Organization

Entity value: ABC Bank  
Confidence: 100.00%

#### PersonType

Entity value: friends  
Confidence: 90.00%

#### Person

Entity value: Claudia Pace  
Confidence: 98.00%

#### PhoneNumber

Entity value: +1-225-607-2008  
Confidence: 80.00%

#### Original text

Hello! ABC Bank team! I'm Claudia Pace, residing at 29655 Wiley Street, Lake Antonio, MS 82526. I'm Organizational Person Address

writing to give feedback on your fixed deposit.

Initially, I faced some issues with fixed deposit application, but with a little guidance from your skill.

team, it all worked out. Impressed with the interest rates offered on fixed deposits.

P.S.:

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Best regards,

Claudia Pace  
Person

+1-225-607-2008  
PhoneNumber

Named Entity recognition 21

Language Studio > Named entities tryout

### Examine the results

Result: JSON

Named entities identified

Show cards  On Filter

<b>Person</b> Entity value: John Jefferson Confidence: 100.00%	<b>DateTime</b> Entity value: recently Confidence: 91.00%	<b>Organization</b> Entity value: ABC Bank Confidence: 100.00%	<b>Skill</b> Entity value: investment Confidence: 99.00%
<b>Organization</b> Entity value: ABC Bank Confidence: 100.00%	<b>Organization</b> Entity value: ABC Bank Confidence: 100.00%	<b>PersonType</b> Entity value: friends Confidence: 96.00%	<b>Person</b> Entity value: John Jefferson Confidence: 100.00%
<b>PhoneNumber</b> Entity value: 234-438- 3663x8579 Confidence: 80.00%			

Original text

My name is John Jefferson, and I recently availed the mutual funds from ABC Bank. I wanted to share some thoughts.

Happy with the investment advice provided by ABC Bank. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Best regards,

John Jefferson  
Person

234-438-3663x8579  
PhoneNumber

Named Entity recognition 22

Language Studio > Named entities tryout

Examine the results

Result JSON

Named entities identified

Show cards  On Sort Filter

Organization

Entity value: ABC Bank  
Confidence: 100.00%

Person

Entity value: Ian Fuller Jr.  
Confidence: 96.00%

Address

Entity value: 960 Sabrina  
Ways, South Carmentfort, NV  
53344  
Confidence: 100.00%

Skill

Entity value: credit card  
application  
Confidence: 86.00%

PersonType

Entity value: team  
Confidence: 99.00%

Skill

Entity value: customer  
service  
Confidence: 100.00%

Person

Entity value: Ian Fuller Jr.  
Confidence: 100.00%

PhoneNumber

Entity value: (065) 746 5867  
Confidence: 90.00%

Original text

Hello ABC Bank team! I'm Ian Fuller Jr., residing at 960 Sabrina Ways, South Carmentfort, NV 53344.

Organiz Person Address

I'm writing to give feedback on your credit card.

Initially, I faced some issues with credit card application, but with a little guidance from your skill

team, it all worked out. Very easy to apply, and the customer service is prompt.  
Pe Skill

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Ian Fuller Jr.  
Person

(065) 746 5867  
PhoneNumber

Named Entity recognition 23

Language Studio | Named entities tryout  
Examine the results

Result JSON

Named entities identified

Show cards  On Sort Filter

Person

Entity value: Nicole Wong  
Confidence: 100.00%

Skill

Entity value: insurance  
Confidence: 61.00%

PersonType

Entity value: team  
Confidence: 59.00%

Skill

Entity value: services  
Confidence: 97.00%

Person

Entity value: Nicole Wong  
Confidence: 100.00%

Quantity  
Number

Entity value: 1  
Confidence: 80.00%

Quantity  
Number

Entity value: 593  
Confidence: 80.00%

Quantity  
Number

Entity value: 183  
Confidence: 80.00%

Original text

Dear team, Nicole Wong here. I recently signed up for a insurance and had a few thoughts to share.  
Person

Initially, I faced some issues with insurance application, but with a little guidance from your  
Skill

team, it all worked out. Had issues with policy details initially, but sorted out later.  
Pe...

looking forward to using more of your services in the future.  
Skill

Best regards,

Nicole Wong  
Person

+1-593-183-3772x#6148  
Q Q - Q -

Named Entity recognition 24

Language Studio &gt; Named entities tryout

## Examine the results

Result JSON

Named entities identified:

Show cards  On Sort FilterOrganizationEntity value: ABC Bank  
Confidence: 100.00%PersonEntity value: Lisa Elliott  
Confidence: 100.00%AddressEntity value: 396 Williams Square, Port Michaelmouth, RI 47417  
Confidence: 97.00%SkillEntity value: writing  
Confidence: 84.50%QuantityEntity value: One  
Confidence: 80.00%EventEntity value: application process  
Confidence: 45.00%SkillEntity value: customer service  
Confidence: 95.00%LocationEntity value: home  
Confidence: 65.00%PersonEntity value: Lisa Elliott  
Confidence: 95.00%PhoneNumberEntity value: 999-852-1348x102  
Confidence: 80.00%

## Original text:

Hello ABC Bank team! I'm Lisa Elliott, residing at 396 Williams Square, Port Michaelmouth, RI 47417.

Organiz Person Address

I'm writing to give feedback on your home loan.

Skill

One thing that stood out to me was the home loan application process. Not satisfied with the o.

Event

customer service for home loan queries. It was an insightful experience.

Skill Lo

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Lisa Elliott  
Person

999-852-1348x102  
PhoneNumber

Named Entity recognition 25

Language Studio > Named entities tryout

### Examine the results

Result JSON

Named entities identified

Show cards  On  Filter

#### Person

Entity value: Stephen Sanchez  
Confidence: 100.00%

#### DateTime

Entity value: recently  
Confidence: #1.00%

#### Product

Entity value: car  
Confidence: 71.00%

#### Organization

Entity value: ABC Bank  
Confidence: 100.00%

#### Event

Entity value: car loan journey  
Confidence: 75.00%

#### Organization

Entity value: ABC Bank  
Confidence: 100.00%

#### Event

Entity value: approval  
Confidence: 67.00%

#### Skill

Entity value: services  
Confidence: 97.00%

#### Person

Entity value: Stephen Sanchez  
Confidence: 100.00%

#### Quantity

Number  
Entity value: 001  
Confidence: 80.00%

#### Quantity

Number  
Entity value: 500  
Confidence: 80.00%

#### Quantity

Number  
Entity value: #11  
Confidence: 80.00%

#### Original text

My name is Stephen Sanchez, and I recently availed the car loan from ABC Bank. I wanted to share my thoughts.

Throughout the car loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. Quick approval, but the rates could be better.

I am looking forward to using more of your services in the future.

Best regards,

Stephen Sanchez  
Person

001-500-813-0878x677  
Q: Q: Q:

Named Entity recognition 26

Language Studio > Named entities tryout

### Examine the results

Result: JSON

Named entities identified

Show cards  On

#### Person

Entity value: Laura Lawson  
Confidence: 100.00%

#### Skill

Entity value: deposit application  
Confidence: 93.00%

#### PersonType

Entity value: team  
Confidence: 92.00%

#### Skill

Entity value: services  
Confidence: 97.00%

#### Person

Entity value: Laura Lawson  
Confidence: 100.00%

#### PhoneNumber

Entity value: (538)493-2975  
Confidence: 90.00%

#### Original text

Dear team, Laura Lawson here. I recently signed up for a fixed deposit and had a few thoughts to share.

Initially, I faced some issues with fixed deposit application, but with a little guidance from your skill,

team, it all worked out. Wish the maturity period options were more flexible.  
pe.

Looking forward to using more of your services in the future.  
skill

Best regards,

Laura Lawson  
Person

(538)493-2975  
PhoneNumber

Named Entity recognition 27

Language Studio > Named entities tryout

### Examine the results

Result JSON

Named entities identified:

Show cards  On  Filter

**person**  
Entity value: Lisa Medina  
Confidence: 100.00%

**DateTime**  
Entity value: recently  
Confidence: 67.00%

**Organization**  
Entity value: ABC Bank  
Confidence: 100.00%

**Event**  
Entity value: mutual  
Confidence: 50.00%

**Event**  
Entity value: journey  
Confidence: 37.00%

**Organization**  
Entity value: ABC Bank  
Confidence: 100.00%

**Skill**  
Entity value: fund performance  
Confidence: 56.00%

**Person**  
Entity value: Lisa Medina  
Confidence: 100.00%

**phoneNumber**  
Entity value: (092)560-1857x072  
Confidence: 91.00%

#### Original text:

My name is Lisa Medina, and I recently availed the mutual funds from ABC Bank. I wanted to share  
 Person                              DateTi                              Organiz

some thoughts.

Throughout the mutual funds journey, I had moments of doubt. But looking back, I feel that ABC Bank  
 Event                              Event                              Organiz

did their best to ensure I was satisfied. Not much transparency in fund performance updates.  
 Skill

Thanks for the guidance and support!

Best regards,

Lisa Medina  
Person

(092)560-1857x072  
PhoneNumber

Named Entity recognition 28

Language Studio > Named entities tryout

### Examine the results

Result JSON

Named entities identified

Show cards  On Sort Filter

Person	Address	Product	Product
Entity value: Lynn Sanders Confidence: 100.00%	Entity value: PSC 6193, Box 7143, APO AE 32136 Confidence: 100.00%	Entity value: credit card Confidence: 80.00%	Entity value: credit card Confidence: 50.00%

Person	PhoneNumber
Entity value: Lynn Sanders Confidence: 100.00%	Entity value: 747-776-0229x2533 Confidence: 80.00%

Original text

I'm Lynn Sanders from PSC 6193, Box 7143, APO AE 32136. After hearing good things, I went ahead with the credit card.

Cashback options are limited, but the credit card service is good. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Lynn Sanders

747-776-0229x2533

PhoneNumber

Named Entity recognition 29

Language Studio > Named entities tryout

### Examine the results

Result JSON

Named entities identified.

Show cards:  On  Sort  Filter

<b>Person</b> Entity value: James Skinner Confidence: 100.00%	<b>Address</b> Entity value: 429 Kerry Locks, Jamesside, FL 85253 Confidence: 100.00%	<b>Skill</b> Entity value: insurance Confidence: 61.00%	<b>PersonType</b> Entity value: team Confidence: 59.00%
<b>Skill</b> Entity value: insurance Confidence: 51.00%	<b>Skill</b> Entity value: services Confidence: 97.00%	<b>Person</b> Entity value: James Skinner Confidence: 100.00%	<b>Quantity</b> <b>Number</b> Entity value: 001 Confidence: 80.00%
<b>Quantity</b> <b>Number</b> Entity value: 775 Confidence: 80.00%	<b>Quantity</b> <b>Number</b> Entity value: 645 Confidence: 80.00%	<b>Quantity</b> <b>Number</b> Entity value: 7544 Confidence: 80.00%	

Original text

I'm James Skinner from 429 Kerry Locks, Jamesside, FL 85253. After hearing good things, I went ahead with the insurance.

Initially, I faced some issues with insurance application, but with a little guidance from your skill team, it all worked out. Not happy with the insurance claim process, took longer than expected.

looking forward to using more of your services in the future,

Best regards,

James Skinner  
Person  
001-775-645-7544  
0-0-0-0

Named Entity recognition 30

- Language studio screenshot of the Personal Identifiable Information extraction

### Enlarged images from Activity j.10.4

Language Studio > PII tryout:

Examine the results

Result: JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort

Filter

Person Entity value: Bonnie Myers Confidence: 100.00% Person Entity value: Bonnie Myers Confidence: 99.00% PhoneNumber Entity value: (577)727-2843x#1412 Confidence: 90.00%

Original text:

Dear team, Bonnie Myers here. I recently signed up for a home loan and had a few thoughts to share.  
Person

The interest rates were reasonable, but the process took longer than expected. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Bonnie Myers  
Person

(577)727-2843x#1412  
PhoneNumber

Personal Identifiable Information 1

Language Studio > PII tryout

### Examine the results

Result: JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort ▾

Filter

person	Organization	Person	PhoneNumber
Entity value: Thomas Moody Confidence: 100.00%	Entity value: ABC Bank Confidence: 100.00%	Entity value: Thomas Moody Confidence: 100.00%	Entity value: 981.200.0669x1587 Confidence: 80.00%

Original text

Hi there, this is Thomas Moody. I decided to opt for your car loan and thought I'd share my Person experience.

Throughout the car loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did Organis their best to ensure I was satisfied. Satisfied with the loan process, though I wish there were more flexible options.

looking forward to using more of your services in the future.

Best regards,

Thomas Moody  
Person

981.200.0669x1587  
PhoneNumber

Personal Identifiable Information 2

Language Studio | PII tryout

Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards:  On Sort ▾

Filter

Person Entity value: Carolyn Hayes Confidence: 100.00%

Address Entity value: 2672 Moore Island Suite 727, Angelaside, IL 81766 Confidence: 100.00%

Organization Entity value: ABC Bank Confidence: 100.00%

Person Entity value: Carolyn Hayes Confidence: 100.00%

PhoneNumber Entity value: 5358265688 Confidence: 90.00%

Original text

I'm Carolyn Hayes from 2672 Moore Island Suite 727, Angelaside, IL 81766. After hearing good things,  
Person Address

I went ahead with the fixed deposit.

Throughout the fixed deposit journey, I had moments of doubt. But looking back, I feel that ABC Bank  
Organiz...

did their best to ensure I was satisfied. The FD process was straightforward, and returns are  
satisfactory.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Carolyn Hayes  
Person

5358265688  
PhoneNumber

Personal Identifiable Information 3

Language Studio > PII tryout  
Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort ▾

Filter

Person	Address	PersonType	PersonType
Entity value: Michelle Blake Confidence: 100.00%	Entity value: 18836 Tonya Row, Jarvisburgh, AL 26640 Confidence: 100.00%	Entity value: team Confidence: 74.00%	Entity value: financial advisor Confidence: 81.00%
Person	PhoneNumber		
Entity value: Michelle Blake Confidence: 99.00%	Entity value: 712.252.0388 Confidence: 80.00%		

Original text

I'm Michelle Blake from 18836 Tonya Row, Jarvisburgh, AL 26640. After hearing good things, I went ahead with the mutual funds.

Initially, I faced some issues with mutual funds application, but with a little guidance from your team, it all worked out. Reliable guidance from the financial advisors.

Best regards,

Michelle Blake  
Person

712.252.0388  
PhoneNumber

Personal Identifiable Information 4

Language Studio > PII tryout  
Examine the results.

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort ▾

Filter

Person	DateTime	Person	PhoneNumber
Entity value: Valerie Peck Confidence: 99.00%	Entity value: recently Confidence: 60.00%	Entity value: Valerie Peck Confidence: 97.00%	Entity value: 705-660-8825 Confidence: 80.00%

Original text

Dear team, Valerie Peck here. I recently signed up for a credit card and had a few thoughts to share.

Had a few problems with late-fee charges that were resolved. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Valerie Peck  
Person

705-660-8825  
PhoneNumber

Personal Identifiable Information 5

Language Studio > PI tryout:

### Examine the results

Result: JSON

Personally Identifiable Information (PII) and Protected Health Information Hide PII  Off Show cards  On  Sort

 Filter

Organization	Person	Address	Person
Entity value: ABC Bank Confidence: 100.00%	Entity value: Lori Keller Confidence: 100.00%	Entity value: 725 Katherine Terrace Apt. 464, Port Angelaton, AK 71923 Confidence: 100.00%	Entity value: Lori Keller Confidence: 100.00%

PhoneNumber  
Entity value: +1-208-609-7965  
Confidence: 60.00%

Original text

Hello ABC Bank team! I'm Lori Keller, residing at 725 Katherine Terrace Apt. 464, Port Angelaton, AK 71923. I'm writing to give feedback on your insurance.

Clear terms and easy to understand insurance plans. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Lori Keller  
Person

+1-208-609-7965  
PhoneNumber

Personal Identifiable Information 6

Language Studio &gt; PII Tryout

Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI) Hide PII  Off Show cards  On Sort ↗

Filter

Organization

Entity value: ABC Bank  
Confidence: 100.00%

Person

Entity value: Colleen Taylor  
Confidence: 100.00%

Address

Entity value: Unit 9995 Box 3930, DPO AE 00721  
Confidence: 99.00%

Organization

Entity value: ABC Bank  
Confidence: 100.00%

PersonType

Entity value: staff  
Confidence: 90.00%

Person

Entity value: Colleen Taylor  
Confidence: 100.00%

## Original text

Hello ABC Bank team! I'm Colleen Taylor, residing at Unit 9995 Box 3930, DPO AE 00721. I'm writing  
Organiz. Person Address  
to give feedback on your home loan.

Throughout the home loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did  
Organiz.  
their best to ensure I was satisfied. I found the process seamless and the staff very helpful.  
Per.

Looking forward to using more of your services in the future.

Best regards,

Colleen Taylor  
Person

001-582-246-7743x2628

Personal Identifiable Information 7

Language Studio > PI layout  
Examine the results

Result: JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort

Filter

Person

Entity value: David Adkins  
Confidence: 100.00%

DateTime

Entity value: recently  
Confidence: 93.00%

Organization

Entity value: ABC Bank  
Confidence: 100.00%

Person

Entity value: David Adkins  
Confidence: 100.00%

Original text

My name is David Adkins, and I recently applied the car loan from ABC Bank. I wanted to share some thoughts:

The car loan application was smooth, and the service was excellent. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Thanks for the guidance and support!

Best regards,

David Adkins  
Person

514.819.1416

Personal Identifiable Information 8

Language Studio > PII tryout  
Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort

Filter

Person

Entity value: Amy Clarke  
Confidence: 100.00%

DateTime

Entity value: recently  
Confidence: 87.00%

Organization

Entity value: ABC Bank  
Confidence: 100.00%

PersonType

Entity value: customer  
Confidence: 77.00%

Person

Entity value: Amy Clarke  
Confidence: 100.00%

PhoneNumber

Entity value: 035-610-  
2812x45005  
Confidence: 80.00%

Original text:

My name is Amy Clarke, and I recently availed the fixed deposit from ABC Bank. I wanted to share:

Person

DateTime

Organiz

some thoughts..

One thing that stood out to me was the fixed deposit application process. Not too happy with the

customer service response time for queries. It was an insightful experience.

Person...

Thanks for the guidance and support!

Best regards,

Amy Clarke  
Person

035-610-2812x45005  
PhoneNumber

Personal Identifiable Information 9

Language Studio &gt; PIIL tryout:

Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort ▾

Person	DateTime	Organization	Organization
Entity value: Randy Ritter Confidence: 100.00%	Entity value: recently Confidence: 66.00%	Entity value: ABC Bank Confidence: 100.00%	Entity value: ABC Bank Confidence: 100.00%
PersonType	Person	PhoneNumber	
Entity value: friends Confidence: 96.00%	Entity value: Randy Ritter Confidence: 100.00%	Entity value: (946)519-8528x56751 Confidence: 88.00%	

Original text:

My name is Randy Ritter, and I recently availed the mutual funds from ABC Bank. I wanted to share

Person      DateTime      Organi

some thoughts.

Mutual fund options are average, but returns have been decent. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.

Organi      Perso

Best regards,

Randy Ritter

Person

(946)519-8528x56751

PhoneNumber

Personal Identifiable Information 10

Language Studio > PII tryout

Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort ▾

Filter

Person

Entity value: Angela Sanchez  
Confidence: 100.00%

DateTime

Entity value: recently  
Confidence: 60.00%

Person

Entity value: Angela Sanchez  
Confidence: 100.00%

PhoneNumber

Entity value:  
007.548.0812x879  
Confidence: 80.00%

Original text

Dear team, Angela Sanchez here. I recently signed up for a credit card and had a few thoughts to  
Person DateTi...

share.

One thing that stood out to me was the credit card application process. The credit limit was quite  
generous, and the rewards are worth it. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Angela Sanchez  
Person

007.548.0812x879  
PhoneNumber

Personal identifiable information 11

[Language Studio](#) > PII tryout

## Examine the results

Result

JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort ▾

Filter

Person

Entity value: Cory Moore  
Confidence: 98.00%

Person

Entity value: Cory Moore  
Confidence: 100.00%

Original text

Dear team, Cory Moore here. I recently signed up for a insurance and had a few thoughts to share.  
Person

Premium rates could be lower for the value offered. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Looking forward to using more of your services in the future.

Best regards,

Cory Moore  
Person

001-360-857-8347

*Personal identifiable information 12*

[Language Studio](#) > PII tryout

## Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI) Hide PII  Off Show cards  On Sort ▾

Filter

Person

Entity value: Christopher Chan  
Confidence: 100.00%

Organization

Entity value: ABC Bank  
Confidence: 100.00%

Person

Entity value: Christopher Chan  
Confidence: 100.00%

PhoneNumber

Entity value: 356-120-2825  
Confidence: 80.00%

## Original text

Dear team, Christopher Chan here. I recently signed up for a home loan and had a few thoughts to Person

share.

Throughout the home loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did Organi

their best to ensure I was satisfied. The documentation process was overwhelming, and I faced delays.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Christopher Chan  
Person

356-120-2825  
PhoneNumber

Personal identifiable information 13

Language Studio > PII tryout

Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort ↴

 Filter

Person	Organization	PersonType	Person
Entity value: Mark Figueroa Confidence: 100.00%	Entity value: ABC Bank Confidence: 100.00%	Entity value: friends Confidence: 96.00%	Entity value: Mark Figueroa Confidence: 100.00%

**PhoneNumber**  
Entity value: 530-224-6429x9405  
Confidence: 80.00%

Original text

Hi there, this is Mark Figueroa. I decided to opt for your car loan and thought I'd share my Person experience.

One thing that stood out to me was the car loan application process. Had issues with the repayment terms initially, but resolved eventually. It was an insightful experience.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.  
Organi... Perso...

Best regards,

Mark Figueroa  
Person

530-224-6429x9405  
PhoneNumber

Personal identifiable information 14

Language Studio > PII tryout

### Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI) Hide PII  Off Show cards  On Sort ▾

Filter

#### Person

Entity value: Brittney Rodriguez  
Confidence: 100.00%

#### Address

Entity value: 63000 Colin Cove, Tanyatown, KY 03848  
Confidence: 100.00%

#### Person

Entity value: Brittney Rodriguez  
Confidence: 100.00%

#### PhoneNumber

Entity value:  
943.929.9636x37395  
Confidence: 80.00%

#### Original text

I'm Brittney Rodriguez from 63000 Colin Cove, Tanyatown, KY 03848. After hearing good things, I went   
Person Address

ahead with the fixed deposit.

Good options for short-term deposits, very pleased. Honestly, I felt that while the process was  
overall decent, there were parts that could have been improved.

Thanks for the guidance and support!

Best regards,

Brittney Rodriguez

Person

943.929.9636x37395

PhoneNumber

*Personal identifiable information 15*

[Language Studio](#) > PII tryout

## Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information Hide PII  Off Show cards  On  Sort ▾

 Filter

Person	Address	Person	PhoneNumber
Entity value: Michelle Richards Confidence: 100.00%	Entity value: 081 Khan Radial Suite 301, Davidhaven, TN 38027 Confidence: 100.00%	Entity value: Michelle Richards Confidence: 100.00%	Entity value: 283-802- 4467x9609 Confidence: 80.00%

Original text

I'm Michelle Richards from 081 Khan Radial Suite 301, Davidhaven, TN 38027. After hearing good  
Person Address  
things, I went ahead with the mutual funds.

One thing that stood out to me was the mutual funds application process. Good range of mutual funds,  
but returns are subject to high fluctuations. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Michelle Richards  
Person

283-802-4467x9609  
PhoneNumber

*Personal identifiable information 16*

Language Studio > PII tryout

Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI) Hide PII  Off Show cards  On Sort ▾

Filter

Person

Entity value: James Rogers  
Confidence: 100.00%

Organization

Entity value: ABC Bank  
Confidence: 100.00%

PersonType

Entity value: friends  
Confidence: 96.00%

Person

Entity value: James Rogers  
Confidence: 100.00%

Original text

Hi there, this is James Rogers. I decided to opt for your credit card and thought I'd share my  
Person

experience.

Faced issues with hidden charges on the credit card. I wasn't sure what to expect, but overall, it turned out to be a positive experience.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.  
Organiz... Person...

Best regards,

James Rogers  
Person

297-164-0744x54675

Personal identifiable information 17

Language Studio &gt; PII tryout

## Examine the results

Result

JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI) Hide PII  Off Show cards  On Sort ▾

Filter

Organization

Entity value: ABC Bank  
Confidence: 100.00%

Person

Entity value: Carla Cross  
Confidence: 100.00%

Address

Entity value: 17294 Cain Square Apt. 429, North Timothy, VT 82344  
Confidence: 100.00%

PersonType

Entity value: team  
Confidence: 59.00%

Organization

Entity value: ABC Bank  
Confidence: 100.00%

PersonType

Entity value: friends  
Confidence: 96.00%

Person

Entity value: Carla Cross  
Confidence: 63.00%

PhoneNumber

Entity value: 883-307-9240x8052  
Confidence: 80.00%

## Original text

Hello ABC Bank team! I'm Carla Cross, residing at 17294 Cain Square Apt. 429, North Timothy, VT  
Organi... Person Address

82344. I'm writing to give feedback on your insurance.

Initially, I faced some issues with insurance application, but with a little guidance from your  
team, it all worked out. Very satisfied with the claim settlement process.  
Pe...

Overall, I'd recommend ABC Bank to friends looking for a reliable option.  
Organi... Perso...

Best regards,

Carla Cross  
Person

883-307-9240x8052  
PhoneNumber

Personal identifiable information 18

Language Studio > PII tryout

Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort ▾

Filter

Person	DateTime	Organization	Person
Entity value: Alicia Eaton Confidence: 100.00%	Entity value: recently Confidence: 90.00%	Entity value: ABC Bank Confidence: 100.00%	Entity value: Alicia Eaton Confidence: 100.00%

Original text

My name is Alicia Eaton, and I recently availed the home loan from ABC Bank. I wanted to share some  
Person DateTime Organiz...

thoughts.

One thing that stood out to me was the home loan application process. Very competitive rates  
compared to other banks. It was an insightful experience.

Looking forward to using more of your services in the future.

Best regards,

Alicia Eaton  
Person

(445)050-7802x37426

*Personal identifiable information 19*

[Language Studio](#) > PII tryout

Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)  
 Hide PII  Off Show cards  On  Sort ▾

 Filter**Person**

Entity value: Jason Key  
Confidence: 99.00%

**Person**

Entity value: Jason Key  
Confidence: 100.00%

**PhoneNumber**

Entity value:  
185.458.3483x13406  
Confidence: 80.00%

Original text

Dear team, Jason Key here. I recently signed up for a car loan and had a few thoughts to share.  
**Person**

One thing that stood out to me was the car loan application process. Affordable interest rates and  
clear process. It was an insightful experience.

Thanks for the guidance and support!

Best regards,

Jason Key  
**Person**

185.458.3483x13406  
**PhoneNumber**

*Personal identifiable information 20*

## Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On  Sort ▾

 Filter

<b>Organization</b> Entity value: ABC Bank Confidence: 100.00%	<b>Person</b> Entity value: Claudia Pace Confidence: 100.00%	<b>Address</b> Entity value: 29655 Wiley Street, Lake Antonio, MS 82526 Confidence: 100.00%	<b>PersonType</b> Entity value: team Confidence: 82.00%
<b>Organization</b> Entity value: ABC Bank Confidence: 100.00%	<b>PersonType</b> Entity value: friends Confidence: 96.00%	<b>Person</b> Entity value: Claudia Pace Confidence: 98.00%	<b>PhoneNumber</b> Entity value: +1-225-607-2008 Confidence: 80.00%

Original text

Hello ABC Bank team! I'm Claudia Pace, residing at 29655 Wiley Street, Lake Antonio, MS 82526. I'm writing to give feedback on your fixed deposit.

Initially, I faced some issues with fixed deposit application, but with a little guidance from your team, it all worked out. Impressed with the interest rates offered on fixed deposits.  
Pe...

Overall, I'd recommend ABC Bank to friends looking for a reliable option.  
Organiz... Person...

Best regards,

Claudia Pace  
Person

+1-225-607-2008  
PhoneNumber

*Personal identifiable information 21*

Language Studio > PII tryout

### Examine the results

[Result](#) [JSON](#)

Personally Identifiable Information (PII) and Protected Health Information (PHI)

[Hide PII](#)  Off [Show cards](#)  On [Sort](#)

[Filter](#)

#### Person

Entity value: John Jefferson  
Confidence: 100.00%

#### DateTime

Entity value: recently  
Confidence: 91.00%

#### Organization

Entity value: ABC Bank  
Confidence: 100.00%

#### Organization

Entity value: ABC Bank  
Confidence: 100.00%

#### Organization

Entity value: ABC Bank  
Confidence: 100.00%

#### PersonType

Entity value: friends  
Confidence: 96.00%

#### Person

Entity value: John Jefferson  
Confidence: 100.00%

#### PhoneNumber

Entity value: 234-438-2663x0579  
Confidence: 80.00%

#### Original text

My name is John Jefferson, and I recently availed the mutual funds from ABC Bank. I wanted to share  
Person DateTime Organization

some thoughts.

Happy with the investment advice provided by ABC Bank. Honestly, I felt that while the process was  
Organization

overall decent, there were parts that could have been improved.

Overall, I'd recommend ABC Bank to friends looking for a reliable option.  
Organization Person

Best regards,

John Jefferson  
Person

234-438-2663x0579  
PhoneNumber

*Personal identifiable information 22*

Language Studio > PII tryout

### Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort ▾

**Filter**

<b>Organization</b> Entity value: ABC Bank Confidence: 100.00%	<b>Person</b> Entity value: Ian Fuller Jr. Confidence: 96.00%	<b>Address</b> Entity value: 960 Sabrina Ways, South Carmenfort, NV 53344 Confidence: 100.00%	<b>PersonType</b> Entity value: team Confidence: 59.00%
<b>PersonType</b> Entity value: customer Confidence: 80.00%	<b>Person</b> Entity value: Ian Fuller Jr. Confidence: 100.00%	<b>PhoneNumber</b> Entity value: 085.746.5807 Confidence: 80.00%	

Original text

Hello ABC Bank team! I'm Ian Fuller Jr., residing at 960 Sabrina Ways, South Carmenfort, NV 53344.  
Organi Person Address

I'm writing to give feedback on your credit card.

Initially, I faced some issues with credit card application, but with a little guidance from your team, it all worked out. Very easy to apply, and the customer service is prompt.  
Pe Person...

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Ian Fuller Jr.  
Person

085.746.5807  
PhoneNumber

*Personal identifiable information 23*

Language Studio > PII tryout

### Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort ▾

Filter

Person

Entity value: Nicole Wong  
Confidence: 100.00%

PersonType

Entity value: team  
Confidence: 59.00%

Person

Entity value: Nicole Wong  
Confidence: 100.00%

Original text

Dear team, Nicole Wong here. I recently signed up for a insurance and had a few thoughts to share.  
Person

Initially, I faced some issues with insurance application, but with a little guidance from your

team, it all worked out. Had issues with policy details initially, but sorted out later.  
Pe...

Looking forward to using more of your services in the future.

Best regards,

Nicole Wong  
Person

+1-593-183-3772x86148

*Personal identifiable information 24*

Language Studio > PII tryout

### Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI) Hide PII  Off Show cards  On  Sort ▾

 Filter

#### Organization

Entity value: ABC Bank  
Confidence: 100.00%

#### Person

Entity value: Lisa Elliott  
Confidence: 100.00%

#### Address

Entity value: 396 Williams Square, Port Michaelmouth, RI 47417  
Confidence: 97.00%

#### PersonType

Entity value: customer  
Confidence: 75.00%

#### Person

Entity value: Lisa Elliott  
Confidence: 99.00%

#### PhoneNumber

Entity value: 909-852-1348x102  
Confidence: 80.00%

#### Original text

Hello ABC Bank team! I'm Lisa Elliott, residing at 396 Williams Square, Port Michaelmouth, RI 47417.  
Organiz. Person Address

I'm writing to give feedback on your home loan.

One thing that stood out to me was the home loan application process. Not satisfied with the

customer service for home loan queries. It was an insightful experience.  
Person...

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Lisa Elliott  
Person

909-852-1348x102  
PhoneNumber

*Personal identifiable information 25*

Language Studio > PII tryout

### Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information Hide PII  Off Show cards  On Sort ▾

Filter

Person	DateTime	Organization	Organization
Entity value: Stephen Sanchez Confidence: 100.00%	Entity value: recently Confidence: 81.00%	Entity value: ABC Bank Confidence: 100.00%	Entity value: ABC Bank Confidence: 100.00%

Original text

My name is Stephen Sanchez, and I recently availed the car loan from ABC Bank. I wanted to share  
Person DateTi... Organi...

some thoughts.

Throughout the car loan journey, I had moments of doubt. But looking back, I feel that ABC Bank did  
Organiz...

their best to ensure I was satisfied. Quick approval, but the rates could be better.

Looking forward to using more of your services in the future.

Best regards,

Stephen Sanchez  
Person

001-568-813-0878x677

*Personal identifiable information 26*

[Language Studio](#) > [PII tryout](#)

## Examine the results

[Result](#) [JSON](#)

Personally Identifiable Information (PII) and Protected Health Information (PHI) Hide PII  Off Show cards  On  Sort ▾

 FilterPerson

Entity value: Laura Lawson  
Confidence: 100.00%

PersonType

Entity value: team  
Confidence: 82.00%

Person

Entity value: Laura Lawson  
Confidence: 100.00%

PhoneNumber

Entity value: (538)493-2975  
Confidence: 80.00%

## Original text

Dear team, Laura Lawson here. I recently signed up for a fixed deposit and had a few thoughts to Person

share.

Initially, I faced some issues with fixed deposit application, but with a little guidance from your

team, it all worked out. Wish the maturity period options were more flexible.  
Pe..

Looking forward to using more of your services in the future.

Best regards,

Laura Lawson  
Person

(538)493-2975  
PhoneNumber

*Personal identifiable information 27*

Language Studio > PII tryout

### Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort ↴

 Filter

Person	DateTime	Organization	Organization
Entity value: Lisa Medina Confidence: 100.00%	Entity value: recently Confidence: 67.00%	Entity value: ABC Bank Confidence: 100.00%	Entity value: ABC Bank Confidence: 100.00%

Person	PhoneNumber
Entity value: Lisa Medina Confidence: 100.00%	Entity value: (092)560-1857x072 Confidence: 80.00%

Original text

My name is Lisa Medina, and I recently availed the mutual funds from ABC Bank. I wanted to share some thoughts.

Throughout the mutual funds journey, I had moments of doubt. But looking back, I feel that ABC Bank did their best to ensure I was satisfied. Not much transparency in fund performance updates.

Thanks for the guidance and support!

Best regards,

Lisa Medina  
Person

(092)560-1857x072  
PhoneNumber

*Personal identifiable information 28*

[Language Studio](#) > [PII tryout](#)

## Examine the results

[Result](#) [JSON](#)Personally Identifiable Information (PII) and Protected Health Information Hide PII  Off Show cards  On  Sort ▾ FilterPersonEntity value: Lynn Sanders  
Confidence: 100.00%AddressEntity value: PSC 6193, Box  
7143, APO AE 32136  
Confidence: 100.00%PersonEntity value: Lynn Sanders  
Confidence: 100.00%PhoneNumberEntity value: 747-776-  
0229x2533  
Confidence: 80.00%

## Original text

I'm Lynn Sanders from PSC 6193, Box 7143, APO AE 32136. After hearing good things, I went ahead with  
Person Address

the credit card.

Cashback options are limited, but the credit card service is good. Honestly, I felt that while the process was overall decent, there were parts that could have been improved.

Appreciate the support, and I'll be reaching out if I need further help.

Best regards,

Lynn Sanders  
Person

747-776-0229x2533  
PhoneNumber

*Personal identifiable information 29*

Language Studio > PII tryout

### Examine the results

Result JSON

Personally Identifiable Information (PII) and Protected Health Information (PHI)

Hide PII  Off Show cards  On Sort ↴

 Filter

#### Person

Entity value: James Skinner  
Confidence: 100.00%

#### Address

Entity value: 429 Kerry Locks,  
Jamesside, FL 85253  
Confidence: 100.00%

#### PersonType

Entity value: team  
Confidence: 59.00%

#### Person

Entity value: James Skinner  
Confidence: 100.00%

#### Original text

I'm James Skinner from 429 Kerry Locks, Jamesside, FL 85253. After hearing good things, I went ahead  
Person Address

with the insurance.

Initially, I faced some issues with insurance application, but with a little guidance from your

team, it all worked out. Not happy with the insurance claim process, took longer than expected.  
Pe...

Looking forward to using more of your services in the future.

Best regards,

James Skinner  
Person

001-775-645-7544

*Personal identifiable information 30*

## 5c JSON FILES

### JSON file for Annexure 9. f.6.0

```
{  
    "modelVersion": "2023-10-01",  
    "captionResult": {  
        "text": "a man standing in a bank",  
        "confidence": 0.7767596244812012  
    },  
    "denseCaptionsResult": {  
        "values": [  
            {  
                "text": "a man standing in a bank",  
                "confidence": 0.7767596244812012,  
                "boundingBox": {  
                    "x": 0,  
                    "y": 0,  
                    "w": 1024,  
                    "h": 1024  
                }  
            },  
            {  
                "text": "a man looking at the camera",  
                "confidence": 0.715904951095581,  
                "boundingBox": {  
                    "x": 544,  
                    "y": 0,  
                    "w": 460,  
                    "h": 1001  
                }  
            },  
            {  
                "text": "a person in blue jeans",  
                "confidence": 0.6634309887886047,  
                "boundingBox": {  
                    "x": 0,  
                    "y": 393,  
                    "w": 136,  
                    "h": 554  
                }  
            },  
            {  
                "text": "a blurry image of a person standing at  
a desk",  
                "confidence": 0.7515058517456055,  
                "boundingBox": {
```

```
        "x": 192,
        "y": 392,
        "w": 140,
        "h": 388
    }
},
{
    "text": "a plant in a pot",
    "confidence": 0.7903368473052979,
    "boundingBox": {
        "x": 450,
        "y": 429,
        "w": 91,
        "h": 202
    }
},
{
    "text": "a close-up of a sign",
    "confidence": 0.7685977816581726,
    "boundingBox": {
        "x": 353,
        "y": 232,
        "w": 199,
        "h": 136
    }
},
{
    "text": "a blurry image of a man in a suit",
    "confidence": 0.851833164691925,
    "boundingBox": {
        "x": 333,
        "y": 394,
        "w": 87,
        "h": 316
    }
},
{
    "text": "a blurry image of a person's arm",
    "confidence": 0.8337739109992981,
    "boundingBox": {
        "x": 0,
        "y": 481,
        "w": 86,
        "h": 176
    }
},
```

```
{  
    "text": "a group of people standing in a line",  
    "confidence": 0.7457073926925659,  
    "boundingBox": {  
        "x": 0,  
        "y": 576,  
        "w": 661,  
        "h": 438  
    },  
    {  
        "text": "a metal pole with a sign on it",  
        "confidence": 0.6491613984107971,  
        "boundingBox": {  
            "x": 468,  
            "y": 659,  
            "w": 114,  
            "h": 302  
        }  
    }  
},  
]  
},  
"metadata": {  
    "width": 1024,  
    "height": 1024  
},  
"tagsResult": {  
    "values": [  
        {  
            "name": "clothing",  
            "confidence": 0.9987287521362305  
        },  
        {  
            "name": "person",  
            "confidence": 0.9948886036872864  
        },  
        {  
            "name": "human face",  
            "confidence": 0.9673390984535217  
        },  
        {  
            "name": "indoor",  
            "confidence": 0.9396439790725708  
        },  
        {  
            "name": "jeans",  
            "confidence": 0.9396439790725708  
        }  
    ]  
}
```

```
        "confidence": 0.9309995174407959
    },
    {
        "name": "footwear",
        "confidence": 0.8963714838027954
    },
    {
        "name": "man",
        "confidence": 0.8725972175598145
    },
    {
        "name": "wall",
        "confidence": 0.859596848487854
    },
    {
        "name": "standing",
        "confidence": 0.7733779549598694
    }
]
},
"objectsResult": {
    "values": [
        {
            "boundingBox": {
                "x": 458,
                "y": 438,
                "w": 83,
                "h": 188
            },
            "tags": [
                {
                    "name": "potted plant",
                    "confidence": 0.579
                }
            ]
        },
        {
            "boundingBox": {
                "x": 226,
                "y": 401,
                "w": 111,
                "h": 376
            },
            "tags": [
                {
                    "name": "person",

```

```
        "confidence": 0.792
    }
]
},
{
    "boundingBox": {
        "x": 329,
        "y": 403,
        "w": 89,
        "h": 321
    },
    "tags": [
        {
            "name": "person",
            "confidence": 0.634
        }
    ]
},
{
    "boundingBox": {
        "x": 3,
        "y": 405,
        "w": 130,
        "h": 542
    },
    "tags": [
        {
            "name": "person",
            "confidence": 0.848
        }
    ]
},
{
    "boundingBox": {
        "x": 507,
        "y": 5,
        "w": 517,
        "h": 1019
    },
    "tags": [
        {
            "name": "person",
            "confidence": 0.897
        }
    ]
}
```

```
        ],
    },
    "readResult": {
        "blocks": [
            {
                "lines": [
                    {
                        "text": "ABC",
                        "boundingPolygon": [
                            {
                                "x": 66,
                                "y": 227
                            },
                            {
                                "x": 150,
                                "y": 246
                            },
                            {
                                "x": 140,
                                "y": 299
                            },
                            {
                                "x": 58,
                                "y": 283
                            }
                        ],
                    },
                    "words": [
                        {
                            "text": "ABC",
                            "boundingPolygon": [
                                {
                                    "x": 73,
                                    "y": 228
                                },
                                {
                                    "x": 150,
                                    "y": 244
                                },
                                {
                                    "x": 138,
                                    "y": 300
                                },
                                {
                                    "x": 61,
                                    "y": 284
                                }
                            ]
                        }
                    ]
                }
            }
        ]
    }
}
```

```
        ],
        "confidence": 0.994
    }
]
},
{
    "text": "ABC",
    "boundingPolygon": [
        {
            "x": 374,
            "y": 255
        },
        {
            "x": 536,
            "y": 254
        },
        {
            "x": 536,
            "y": 311
        },
        {
            "x": 373,
            "y": 311
        }
    ],
    "words": [
        {
            "text": "ABC",
            "boundingPolygon": [
                {
                    "x": 380,
                    "y": 254
                },
                {
                    "x": 512,
                    "y": 254
                },
                {
                    "x": 513,
                    "y": 311
                },
                {
                    "x": 381,
                    "y": 311
                }
            ]
        }
    ]
},
```

```
        "confidence": 0.994
    }
]
},
{
    "text": "BANK",
    "boundingPolygon": [
        {
            "x": 374,
            "y": 312
        },
        {
            "x": 539,
            "y": 312
        },
        {
            "x": 539,
            "y": 358
        },
        {
            "x": 374,
            "y": 358
        }
    ],
    "words": [
        {
            "text": "BANK",
            "boundingPolygon": [
                {
                    "x": 375,
                    "y": 312
                },
                {
                    "x": 526,
                    "y": 313
                },
                {
                    "x": 525,
                    "y": 359
                },
                {
                    "x": 374,
                    "y": 359
                }
            ],
            "confidence": 0.992
        }
    ]
}
```

```
        }
    ],
},
{
  "text": "ABC BANK",
  "boundingPolygon": [
    {
      "x": 93,
      "y": 380
    },
    {
      "x": 206,
      "y": 380
    },
    {
      "x": 205,
      "y": 419
    },
    {
      "x": 92,
      "y": 417
    }
  ],
  "words": [
    {
      "text": "ABC",
      "boundingPolygon": [
        {
          "x": 92,
          "y": 380
        },
        {
          "x": 139,
          "y": 380
        },
        {
          "x": 138,
          "y": 418
        },
        {
          "x": 92,
          "y": 418
        }
      ],
      "confidence": 0.959
    },
  ]
},
```

```
{  
    "text": "BANK",  
    "boundingPolygon": [  
        {  
            "x": 147,  
            "y": 380  
        },  
        {  
            "x": 204,  
            "y": 380  
        },  
        {  
            "x": 203,  
            "y": 419  
        },  
        {  
            "x": 146,  
            "y": 418  
        }  
    ],  
    "confidence": 0.99  
},  
]  
},  
{  
    "text": "ABC BANK",  
    "boundingPolygon": [  
        {  
            "x": 115,  
            "y": 624  
        },  
        {  
            "x": 234,  
            "y": 587  
        },  
        {  
            "x": 246,  
            "y": 627  
        },  
        {  
            "x": 126,  
            "y": 666  
        }  
],  
    "words": [  
    {
```

```
        "text": "ABC",
        "boundingPolygon": [
            {
                "x": 123,
                "y": 621
            },
            {
                "x": 164,
                "y": 608
            },
            {
                "x": 177,
                "y": 649
            },
            {
                "x": 136,
                "y": 662
            }
        ],
        "confidence": 0.99
    },
    {
        "text": "BANK",
        "boundingPolygon": [
            {
                "x": 172,
                "y": 605
            },
            {
                "x": 232,
                "y": 587
            },
            {
                "x": 245,
                "y": 627
            },
            {
                "x": 185,
                "y": 646
            }
        ],
        "confidence": 0.977
    }
]
```

```
        }
    ],
},
"smartCropsResult": {
    "values": [
        {
            "aspectRatio": 1.13,
            "boundingBox": {
                "x": 14,
                "y": 43,
                "w": 967,
                "h": 853
            }
        }
    ]
},
"peopleResult": {
    "values": [
        {
            "boundingBox": {
                "x": 557,
                "y": 7,
                "w": 465,
                "h": 1015
            },
            "confidence": 0.9470229148864746
        },
        {
            "boundingBox": {
                "x": 0,
                "y": 399,
                "w": 138,
                "h": 550
            },
            "confidence": 0.9412882328033447
        },
        {
            "boundingBox": {
                "x": 332,
                "y": 400,
                "w": 86,
                "h": 312
            },
            "confidence": 0.8756301999092102
        },
        {

```

```
"boundingBox": {  
    "x": 199,  
    "y": 399,  
    "w": 136,  
    "h": 384  
},  
"confidence": 0.859340488910675  
},  
{  
    "boundingBox": {  
        "x": 598,  
        "y": 413,  
        "w": 389,  
        "h": 257  
},  
    "confidence": 0.0021701978985220194  
},  
{  
    "boundingBox": {  
        "x": 0,  
        "y": 447,  
        "w": 12,  
        "h": 117  
},  
    "confidence": 0.001530365669168532  
},  
{  
    "boundingBox": {  
        "x": 0,  
        "y": 396,  
        "w": 41,  
        "h": 549  
},  
    "confidence": 0.0014951503835618496  
},  
{  
    "boundingBox": {  
        "x": 200,  
        "y": 507,  
        "w": 133,  
        "h": 152  
},  
    "confidence": 0.0013226462760940194  
}  
]  
}
```

}

**JSON file for Annexure 9. g.7.0**

```
[  
 {  
   "recognitionModel": "recognition_01",  
   "faceRectangle": {  
     "width": 539,  
     "height": 657,  
     "left": 403,  
     "top": 126  
   },  
   "faceLandmarks": {  
     "pupilLeft": {  
       "x": 550,  
       "y": 403.8  
     },  
     "pupilRight": {  
       "x": 809.2,  
       "y": 417.8  
     },  
     "noseTip": {  
       "x": 681.8,  
       "y": 543.2  
     },  
     "mouthLeft": {  
       "x": 565.4,  
       "y": 642.3  
     },  
     "mouthRight": {  
       "x": 767,  
       "y": 653.4  
     },  
     "eyebrowLeftOuter": {  
       "x": 462.6,  
       "y": 332.3  
     },  
     "eyebrowLeftInner": {  
       "x": 617.2,  
       "y": 337.1  
     },  
     "eyeLeftOuter": {
```

```
"x": 501.8,  
"y": 400.5  
},  
"eyeLeftTop": {  
    "x": 555.6,  
    "y": 381.9  
},  
"eyeLeftBottom": {  
    "x": 543.6,  
    "y": 423.2  
},  
"eyeLeftInner": {  
    "x": 599.1,  
    "y": 409.8  
},  
"eyebrowRightInner": {  
    "x": 753.1,  
    "y": 348.5  
},  
"eyebrowRightOuter": {  
    "x": 901.3,  
    "y": 361.9  
},  
"eyeRightInner": {  
    "x": 762.6,  
    "y": 421.7  
},  
"eyeRightTop": {  
    "x": 807.1,  
    "y": 393.5  
},  
"eyeRightBottom": {  
    "x": 810.3,  
    "y": 437  
},  
"eyeRightOuter": {  
    "x": 856.7,  
    "y": 419.1  
},  
"noseRootLeft": {
```

```
"x": 645.9,  
"y": 424.9  
},  
"noseRootRight": {  
    "x": 716.8,  
    "y": 427.3  
},  
"noseLeftAlarTop": {  
    "x": 627.4,  
    "y": 506.1  
},  
"noseRightAlarTop": {  
    "x": 729.8,  
    "y": 509.9  
},  
"noseLeftAlarOutTip": {  
    "x": 603.1,  
    "y": 549.1  
},  
"noseRightAlarOutTip": {  
    "x": 746.7,  
    "y": 558.5  
},  
"upperLipTop": {  
    "x": 674.8,  
    "y": 632.3  
},  
"upperLipBottom": {  
    "x": 669.2,  
    "y": 649.5  
},  
"underLipTop": {  
    "x": 667.2,  
    "y": 671.1  
},  
"underLipBottom": {  
    "x": 666,  
    "y": 701.4  
}  
},  
},
```

```

"faceAttributes": {
    "mask": {
        "type": "faceMask",
        "noseAndMouthCovered": true
    }
}
]

```

## 5d Dataset

### Fraud\_dataset from Activity b.2.0

Fraud_data																									
Version: 1 (beta)																									
Details	Consume	Explore	Models	Jobs																					
<a href="#">Preview</a>																									
Number of columns: 23 Number of rows: 50 (of 8262)																									
261407	2020-09-10	4,380,000.	fraud_Bu...	shopping...	4.4	Thomas	Jenkins	M	98914 Gr...	Oakland	CA	94619	37.788	-122.188	387459	Barista	1974-01-15	8868698...	13801173...	37.989	122.116	0	0		
26231	2020-06-10	1,530,000.	fraud_Bu...	gas,trans...	18.82	Lauren	Moseno	F	83719 Wil...	Hicksville	NJ	8324	49.224	74.994	526	Exercise p...	1940-09-10	4778001...	13725518...	39.297	74.975	1	1		
65904	2020-07-10	3,540,000.	fraud_Du...	shopping...	984.39	Christian	Johns	M	892 Solis ...	Londale	MN	55046	44.448	93.425	5211	Chair Stra...	1987-01-01	454HfQo...	1377556...	43.603	92.97	1	1		
65801	2020-07-10	3,510,000.	fraud_Pc...	shopping...	7.72	Randy	Murphy	M	0156 Saro...	Baltimore	MD	63021	38.877	90.526	92608	Engineer...	2001-07-01	5e4d49fc...	1377442...	39.275	90.46	0	0		
116025	2020-08-10	175,000.0...	fraud_Bu...	shopping...	819.05	Shannon	Bell	F	2918 Dool...	Georgeta...	MN	56546	47.1	96.727	346	Research ...	1976-12-10	d268046...	13750291...	47.079	97.196	1	1		
21721	2020-06-10	1,580,000.	fraud_Lab...	shopping...	1,199.89	Gregory	Wood	M	622 Rose...	Arlon	OH	44107	41.107	81.549	272114	Call cent...	1964-09-10	646k807...	1372457...	40.768	81.318	1	1		
32991	2020-07-10	4,820,000.	fraud_Tu...	misc_pos...	2.64	Christopher...	Farell	M	97070 An...	Haines City	FL	33844	28.076	81.598	31804	Exercise p...	1991-01-10	9254c39...	13727760...	28.461	82.379	0	0		
213499	2020-09-10	341,000.0...	fraud_Ku...	shopping...	1,186.21	Mario	Johns	M	62130 ML...	Brinson	GA	39625	30.979	84.737	1461	Engineer...	1985-09-09	c99656e...	13781330...	31.558	85.133	1	1		
153285	2020-08-10	1,580,000.	fraud_Ma...	shopping...	845.81	Beth	Lambert	F	6447 Joh...	Roosevelt	OK	73564	34.847	98.984	551	Amanity ...	1970-09-10	14ad4484...	13764331...	34.837	98.366	1	1		
52453	2020-07-10	2,230,000.	fraud_Hu...	grocery,n...	48.14	Thomas	Hale	M	549 Smit...	Czarcovia	WI	53924	41.499	90.28	136	Occupati...	1984-11-10	70c54749...	13731565...	42.988	90.431	0	0		
61296	2020-07-10	6,010,000.	fraud_Ro...	kids,pets...	4.46	Kathryn	Smith	F	19838 To...	Rocky Mo...	MO	65072	38.291	92.706	1847	Tax inspe...	1968-10-10	51a3360f...	13736553...	37.897	93.492	0	0		
112621	2020-07-10	48,200,000.	fraud_Th...	entertain...	66.57	Jesse	Roberts	M	8475 Vac...	Arworth	NH	3601	41.196	72.3	477	Naval sci...	1988-04-10	926bd52...	13751941...	44.045	71.815	0	0		