Turbo Mobile Bot

Enterprise Bot Framework

Lex Translate Rekognition Comprehend

Kinesis Elastic Search Kibana Lambda S3 Slack

What is Turbo Mobile Bot

Turbo Mobile Bot is a Amazon Lex based bot framework for enterprise solution.

Translation and Image Analysis

- Translate Text
- Analyze images uploaded on organization's repository and upload the data on Elastic Search
- Find Image
- Recognize Image
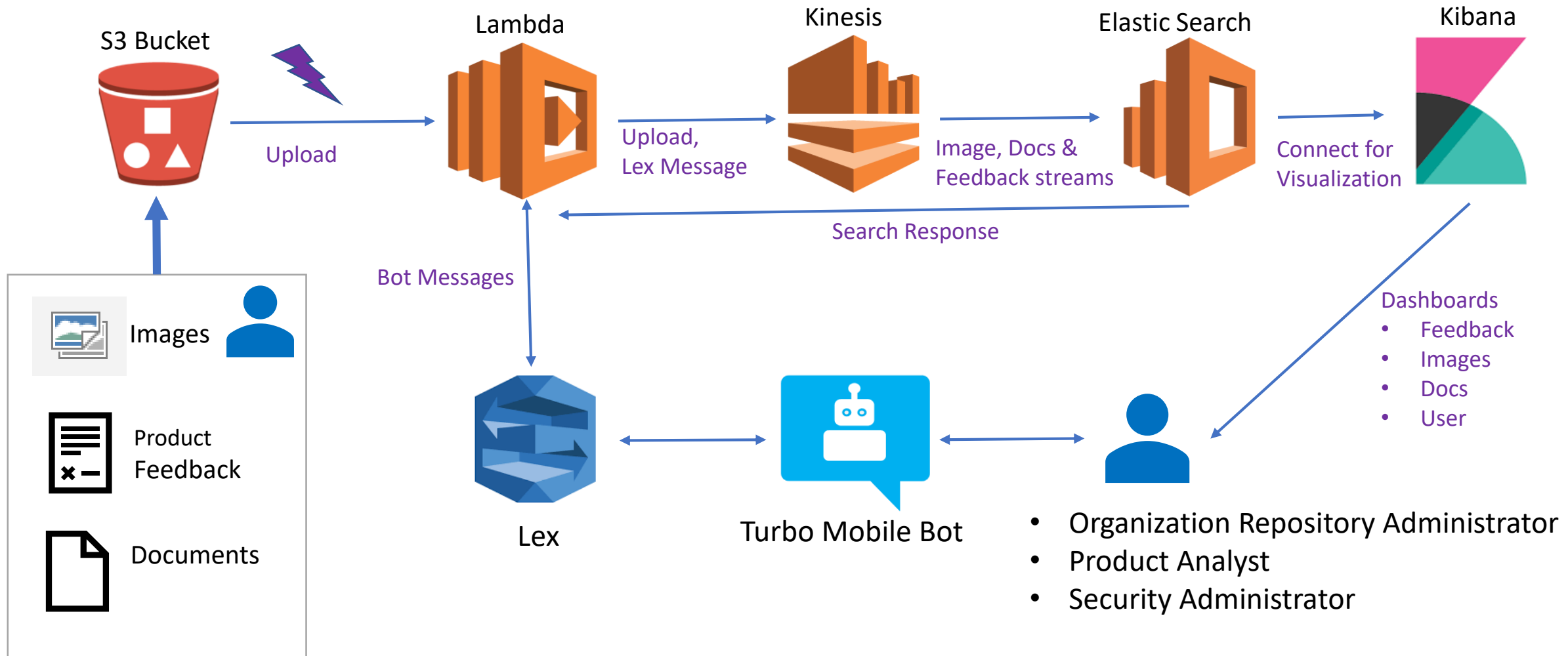- Search Face
- Detect Celebrity Info

Employee Management

- Create User Image Collection with Name , User ID
- Search User to match the image collected by any device e.g. Attendance system, security system etc
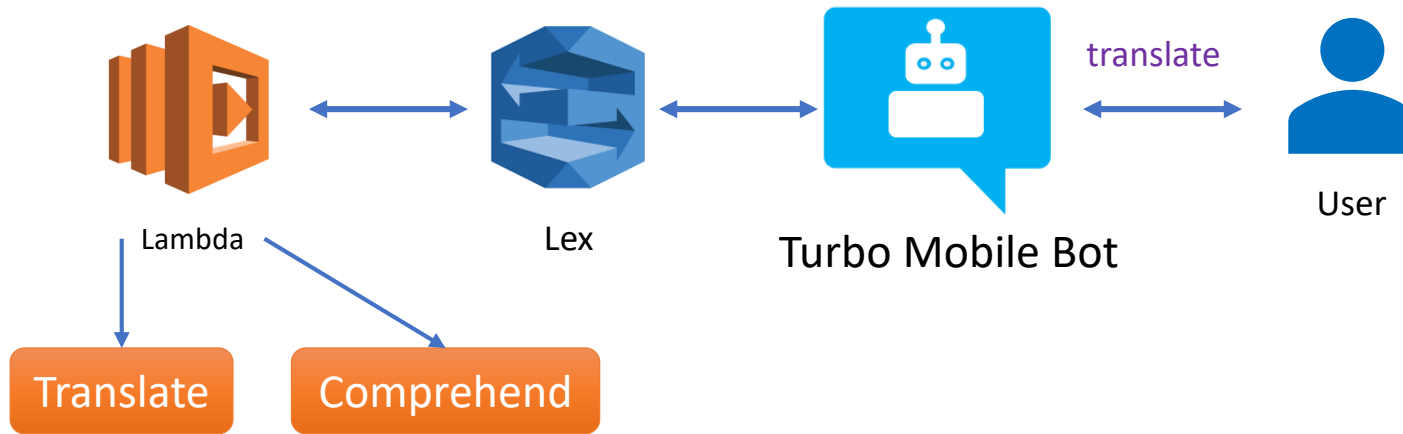
Product Review Analysis

- Detects sentiments from user feedback
- Uploads feedback on Elastic Search for analysis
- Creates Dashboard for live feedback analysis on multiple products of the organization

Turbo Mobile Bot: Data Flow

S3 Bucket

Lambda

Kinesis

Elastic Search

Kibana

Upload

Upload, Lex Message

Image, Docs & Feedback streams

Connect for Visualization

Search Response

Bot Messages

Images

Product Feedback

Documents

Dashboards
- Feedback
- Images
- Docs
- User

Lex

Turbo Mobile Bot

- Organization Repository Administrator
- Product Analyst
- Security Administrator

Use Case: Translate Text

Lambda

Lex

translate

Turbo Mobile Bot

User

Translate

Comprehend

Input Language is detected using 'comprehend' API
Text is translated using 'translate' API

Sample Utterances:
- Translate
- Translate text into German

Saleem Javed 11:58 AM
translate

TurboMobileBot APP 11:58 AM
Please specify output language. Supported languages are english, french, german, italian, portugese, russian, spanish and turkish

Specify output language
german

TurboMobileBot APP 11:58 AM
please enter text

Saleem Javed 11:58 AM
please give me a cup of coffee

TurboMobileBot APP 11:58 AM
Bitte geben Sie mir eine Tasse Kaffee

Saleem Javed 11:58 AM
translate

TurboMobileBot APP 11:58 AM
Please specify output language. Supported languages are english, french, german, italian, portugese, russian, spanish and turkish

Specify output language
english

TurboMobileBot APP 11:58 AM
please enter text

Saleem Javed 11:58 AM
Bitte geben Sie mir eine Tasse Kaffee

TurboMobileBot APP 11:59 AM
Please give me a cup of coffee

Use Case: S3 Repository

S3 bucket is used as repository for all items with following folders
Folder names can vary and they can have subfolders also except 'Feedback' which
Is used for Product Feedback.

- Images: folder for all images.
- Feedback: for customer feedback files
- Docs: For all documents in .txt or .text format
- General : folder for other documents

When any item is uploaded on S3Bucket and event is triggered and Lambda
Function is executed. This lambda functions sort the image in three categories
i.e. Image, Docs, Feedback

Image:

 Image is processed using 'rekognition' API and following items are detected and
Uploaded on Elastic Search domain with index *Images*;: Faces, Texts, Celebrity Information,
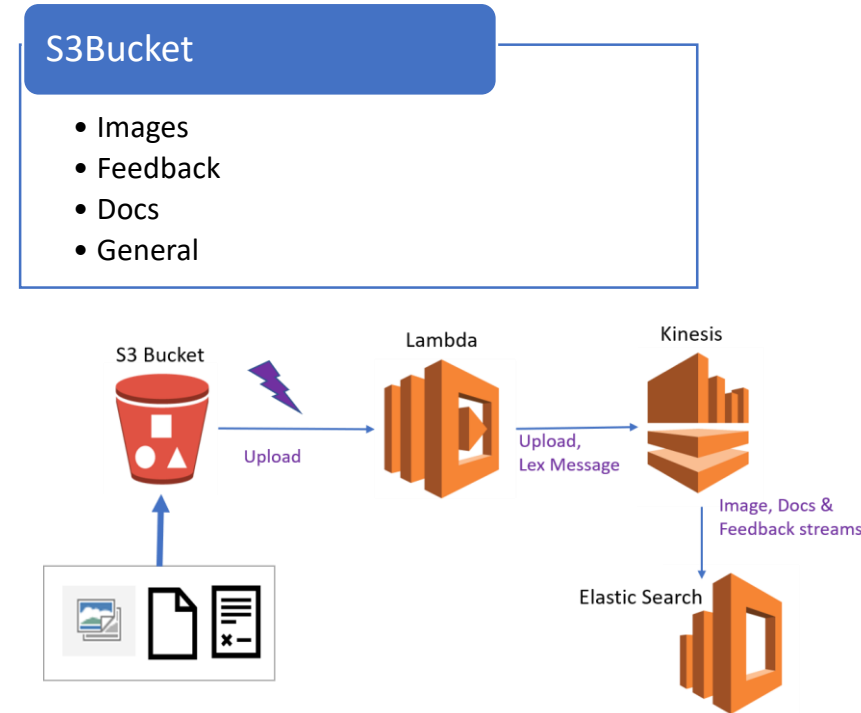Labels, face is listed in the face collection

Feedback:

Feedback is processed using 'comprehend' API and feedback's sentiment , entities found and
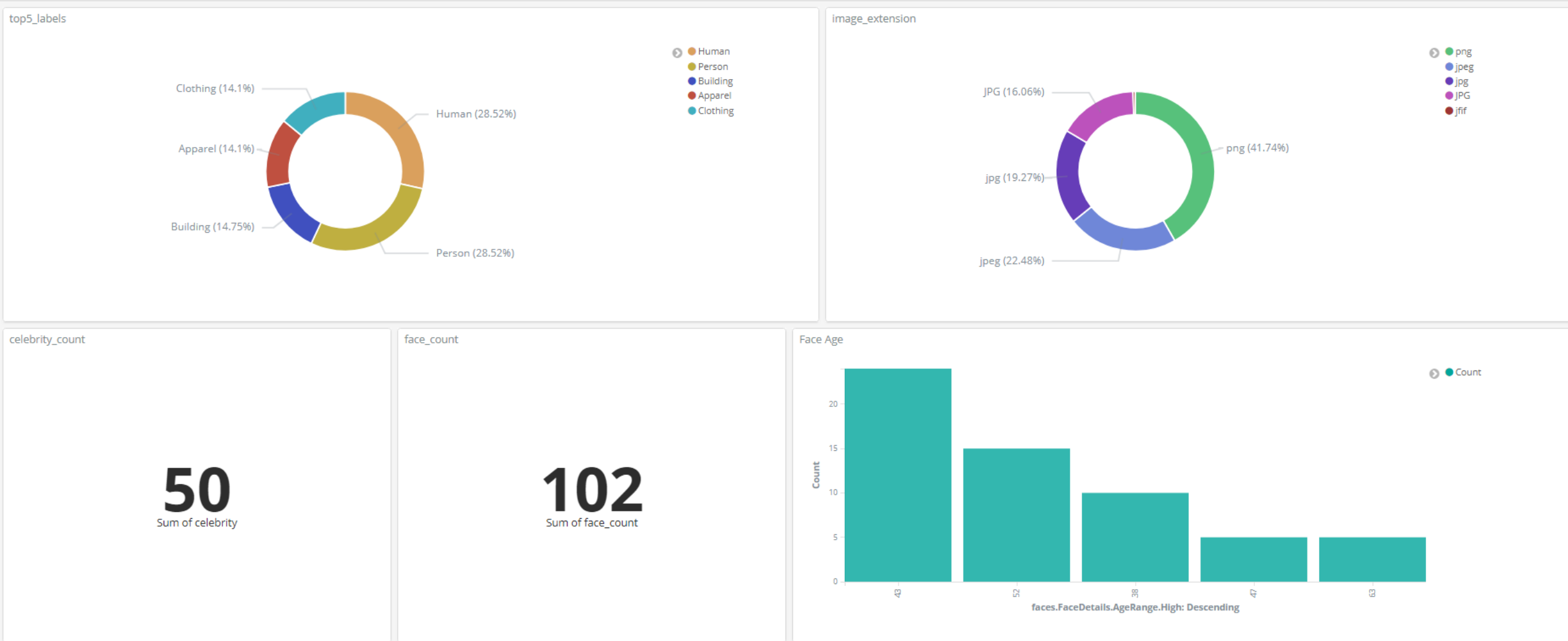other meta-data is uploaded
On Elastic Search with ' *Feedback'*

Documents:

Other documents are processed using 'comprehend' API and entities are uploaded on Elastic
Search with index '*Docs*'

S3Bucket

- Images
- Feedback
- Docs
- General

S3 Bucket
Lambda
Kinesis

Upload

Upload,
Lex Message

Image, Docs &
Feedback streams

Elastic Search

Elastic Search Data Visualization in Kibana

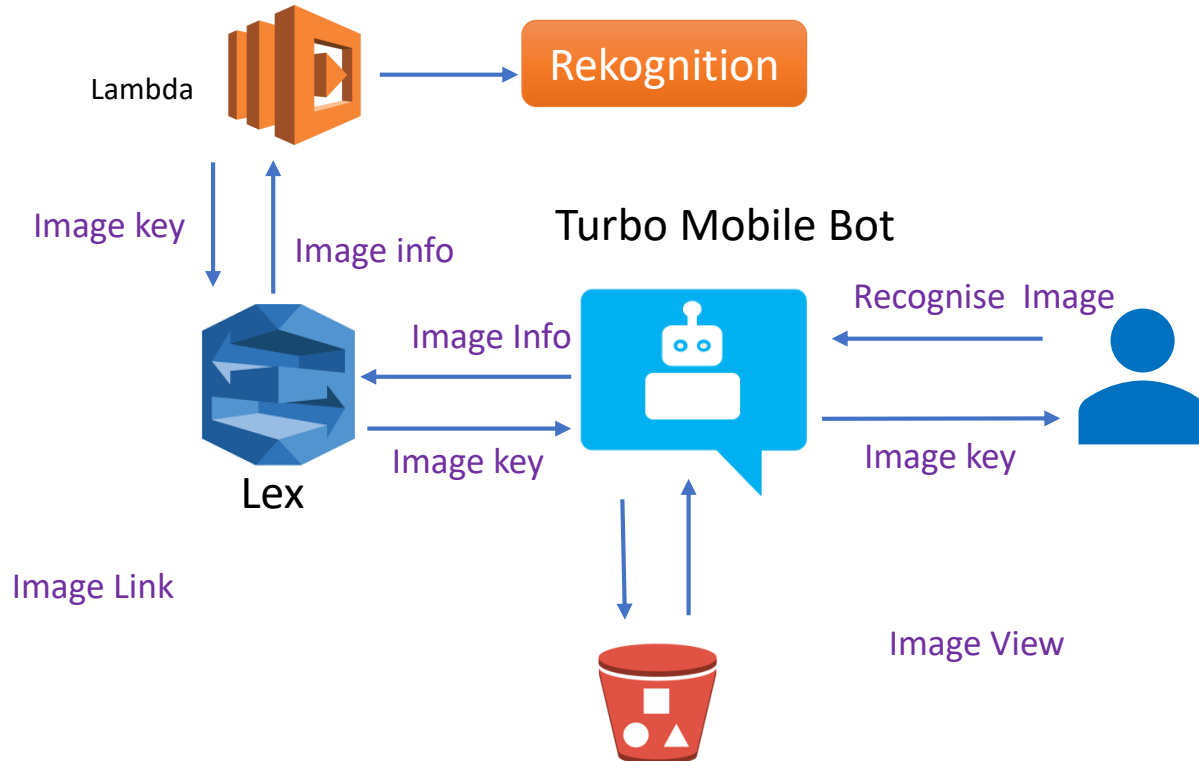# Use Case: Find Image in Repository

For all images uploaded, information detected by 'recognition' API is stored on 'Elastic Search' This information is used to search images available in the repository. Search request is sent to 'Elastic Search' if any matching image is found S3 link is returned. This link is provided to the user. Also Bot fetches image from S3 and provides image view to the user
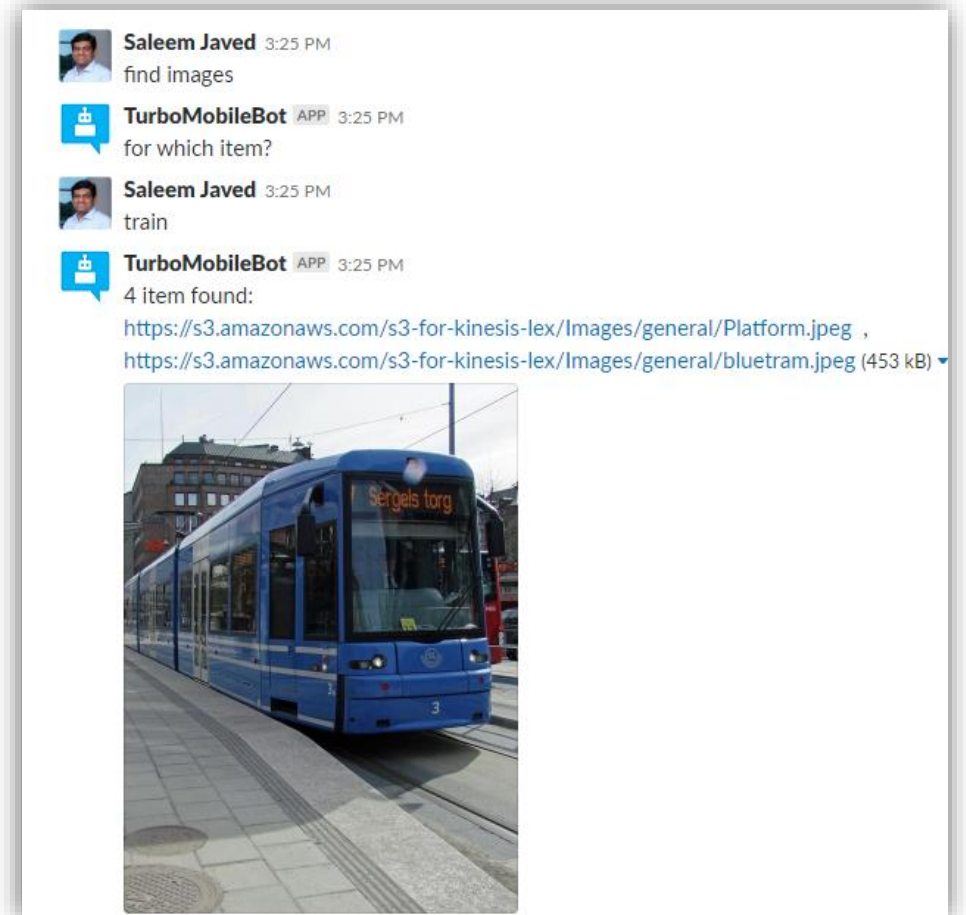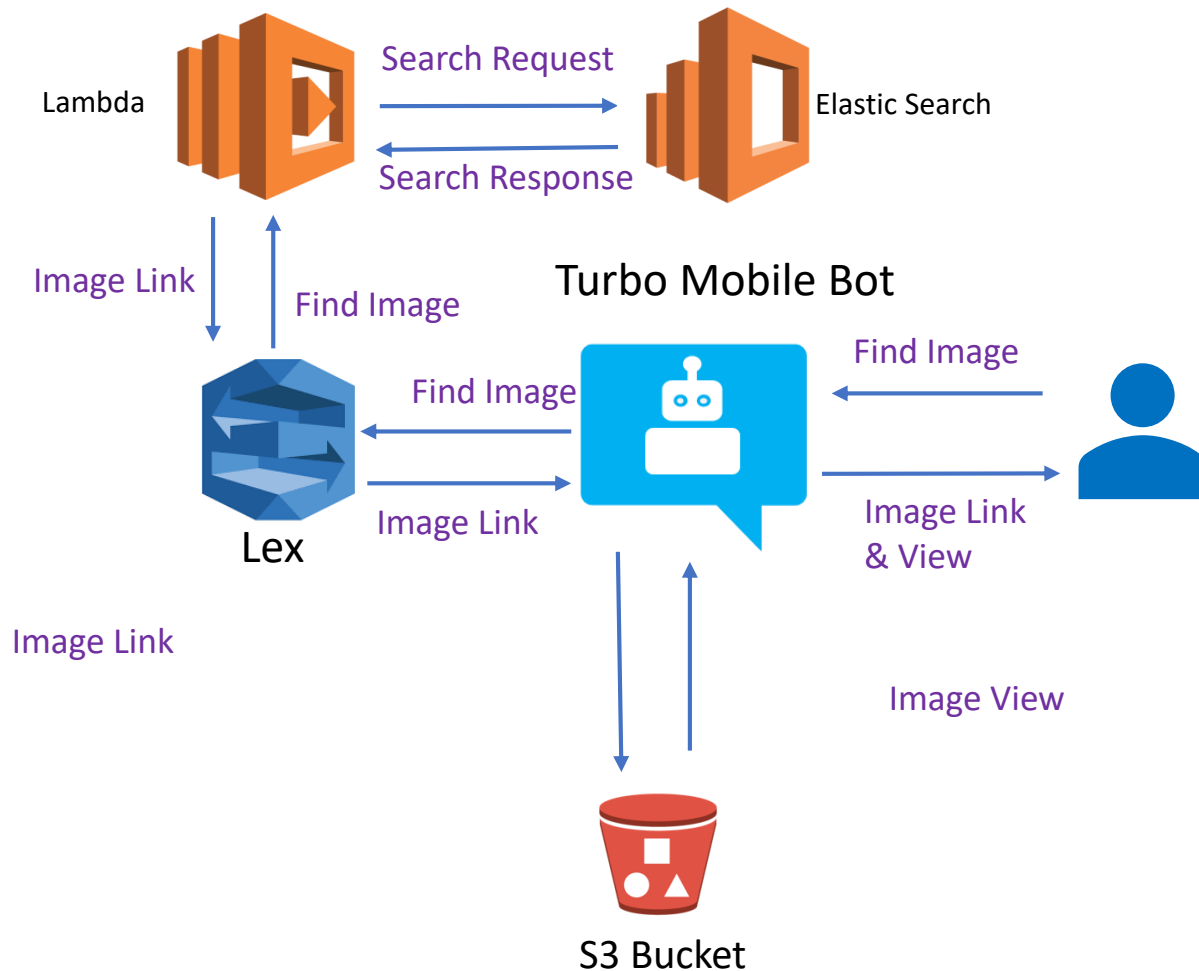
Use Case: Recognise Image in Repository

Various information contained by any image in the repository, can be obtained using the function 'recognize image' on Turbo Mobile Bot.

- Face Detected
- Text in the image
- Celebrity Information
- Image Label
- Image Moderation information

Use Case: Search Face in Repository

- When any image is uploaded, lambda function is triggered
- Lambda function detects the faces in the image using 'recognition'
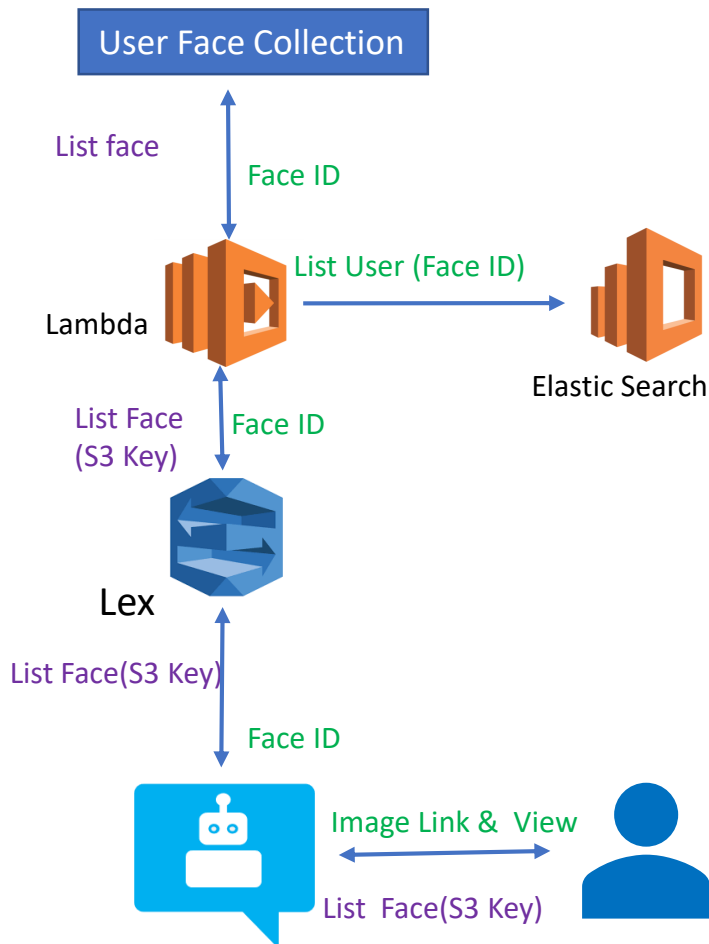- Faces are listed in the collections and saved.
- In an image, face can be searched in the repository using Turbo mobile bot.
- On given S3 key Lambda detects face and then find that in Face Collection.
- Then for matched face id , S3 Bucket link is searched in Elastic Search
- Once link is found , same is returned to the user

Face Collection

Search face

Face ID

Elastic Search

S3

Lambda

Find Image(Face ID)

Image Link

Get Image View(link)

Search Face
S3 Key

Lex

Image Link

Search Face(S3 Key)

Image Link & View

Search Face(S3 Key)

Saleem Javed 4:17 PM
search face

TurboMobileBot APP 4:17 PM
Please enter image Key

Saleem Javed 4:19 PM
Images/movies/titanic.jpg

TurboMobileBot APP 4:19 PM
found 2 match.
https://s3.amazonaws.com/s3-for-kinesis-lex/Images/movies/titanic.jpg (8 kB) ▾

https://s3.amazonaws.com/s3-for-kinesis-lex/Images/movies/titanic1.jpg (9 kB) ▾

Utterance : ' Search Face'

Use Case: List User's Face in Repository

- Turbo Mobile Framework is used for Employee Data Management.
- Using List User Intent users are listed on Elastic Search and User's Face is listed on 'UserFaceCollection', this collection is used later to identify user by attendance   system or security system.
- User Data collected: Name, User ID, Picture

User Face Collection

List face

Face ID

List User (Face ID)

Lambda

Elastic Search

List Face (S3 Key)

Face ID

Lex

List Face(S3 Key)

Face ID

Image Link & View

List Face(S3 Key)

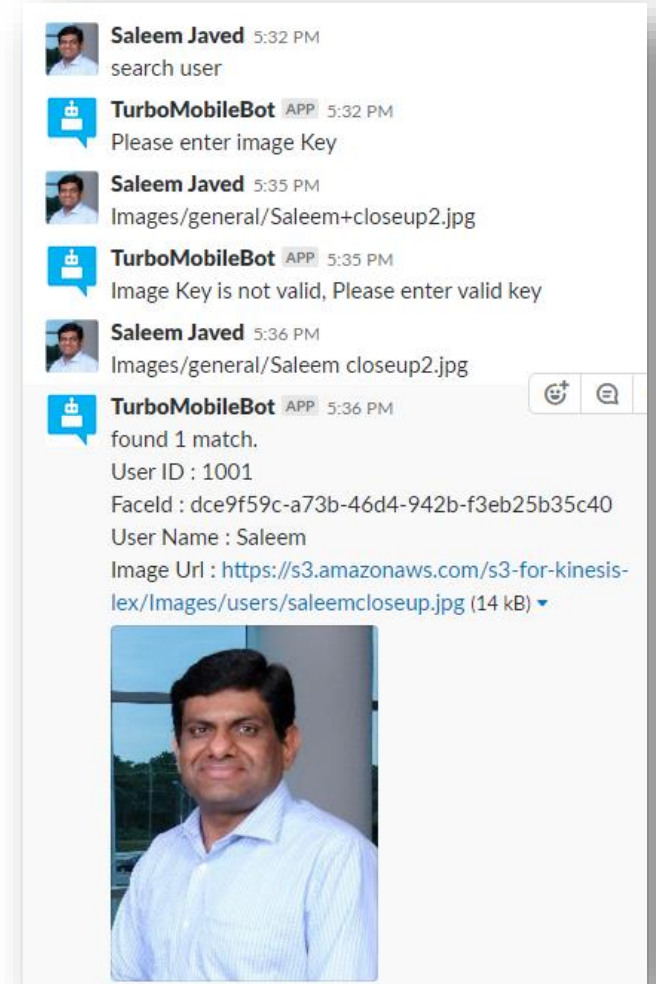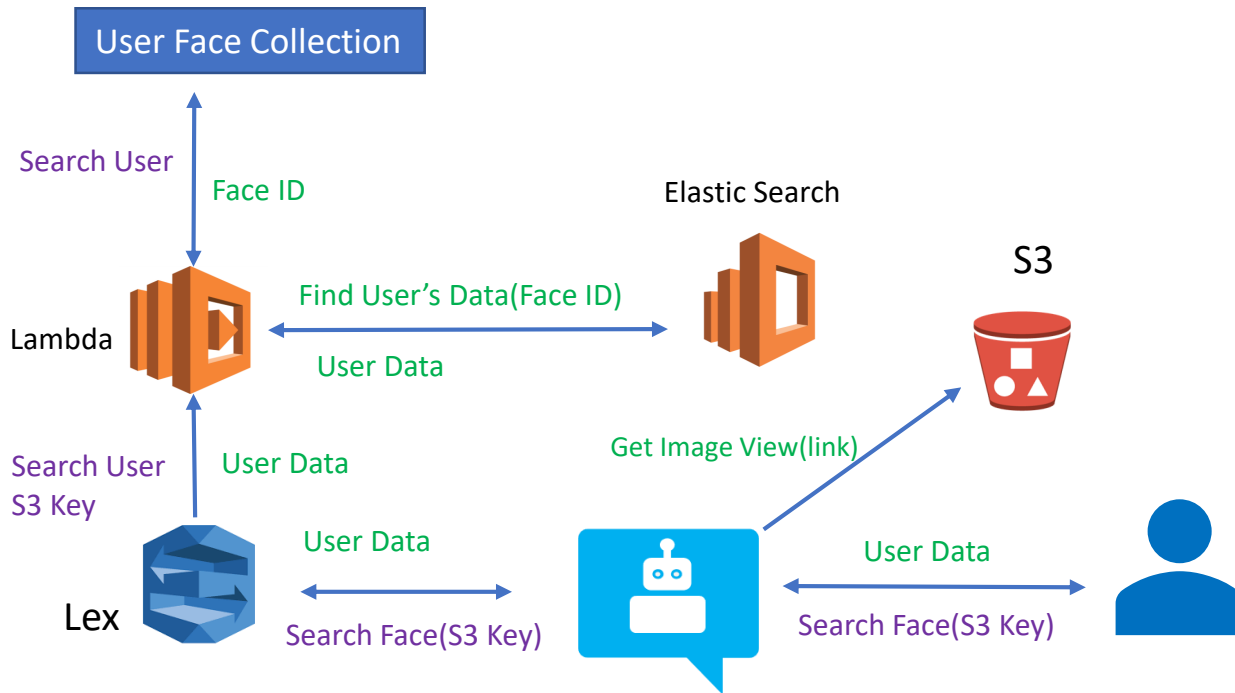|	UserName	Face.FaceId	FaceDetail.Gender.Value	ExternalImageId
▶	Sourav Ganguly	2603338b-ea16-45dd-9baf-c22db63a8782	Male	1005
▶	Emma Stone	60afdbcd-18da-40eb-9bc1-dadcb2c7ee43	Female	1007
▶	MS Dhoni	a2e0c75d-f1f6-43b7-93b6-65bd449cf0f2	Male	1004
▶	Scarlet Johnson	df7d495d-c6b6-4f0d-8a36-a3a25b24221e	Female	1008
▶	Lewis Hamilton	5aa12c54-4c7b-4b71-834d-5c54232637f2	Male	1005
▶	Vinay CR	18a6f8a5-6503-48a7-b475-b14fbf993ca3	Male	1005
▶	Saleem	dce9f59c-a73b-46d4-942b-f3eb25b35c40	Male	1001
▶	Saleem	dce9f59c-a73b-46d4-942b-f3eb25b35c40	Male	1001
▶	saleem javed	dce9f59c-a73b-46d4-942b-f3eb25b35c40	Male	1001
▶	Brad Pit	fa240cfa-6eaf-41dc-867e-cd9d7ac8f634	Male	1002

Elastic Search Data in Kibana

Saleem Javed 12:43 AM
list face

TurboMobileBot APP 12:43 AM
Please enter user Name

Saleem Javed 12:45 AM
George Clooney

TurboMobileBot APP 12:45 AM
Please enter user ID

Saleem Javed 12:45 AM
1011

TurboMobileBot APP 12:45 AM
Please enter image Key

Saleem Javed 12:45 AM
Images/users/georgeclooney.jpg

TurboMobileBot APP 12:45 AM
"Image of user 'George Clooney' is listed successfully with FaceId 'bde05a37-925a-4e72-a24d-d1dadab0a242'"

Utterance : ' list Face'

Use Case: Search User in Repository

- A user' face captured by any system e.g. attendance system is uploaded on S3 bucket
- Now this image can be matched in User Face Collection to detect that supplied
image is of an identified user (employee)

User Face Collection

Search User

Face ID

Elastic Search

S3

Lambda

Find User's Data(Face ID)

User Data

Search User
S3 Key

User Data

Get Image View(link)

User Data

User Data

Lex

Search Face(S3 Key)

Search Face(S3 Key)

Utterance : ' Search User'

Use Case: Product Feedback Analysis

- Turbo Mobile Framework can create live dashboards for Product Feedback Analysis
- In the application 'Sample Product Feedback' taken from a third party data set has been used only for demonstration purpose
data source: http://jmcauley.ucsd.edu/data/amazon/

Feedback Data for four items have been uploaded on S3 and Elastic Search.

(i) Cell Phones (ii) Automotive Products (iii) Digital Music (iv) Musical Instruments

|		
1- Feedback Database downloaded	2 - Each feedback is saved as individual feedback JSON file	3- JSON file uploaded on respective S3 folder e.g. for mobile -> 'Feedback\mobile'
4 -Sentiments of feedback is determined using 'comprehend' API	5- Feedback data is parsed from JSON	6 - Every File upload triggers Lambda function
7- Entities are also listed from feedback text using 'comprehend' API	8 - Sentiment and entities are uploaded on Elastic Search with index – Feedback and type – product name	9- Visualizations and Dashboards are created on Kibana

Dashboard: Mobile Feedback Analysis

Feedback Sentiment , Overall Rating, Keywords used in feedback, Total Feedback, Commercial keywords used in feedback
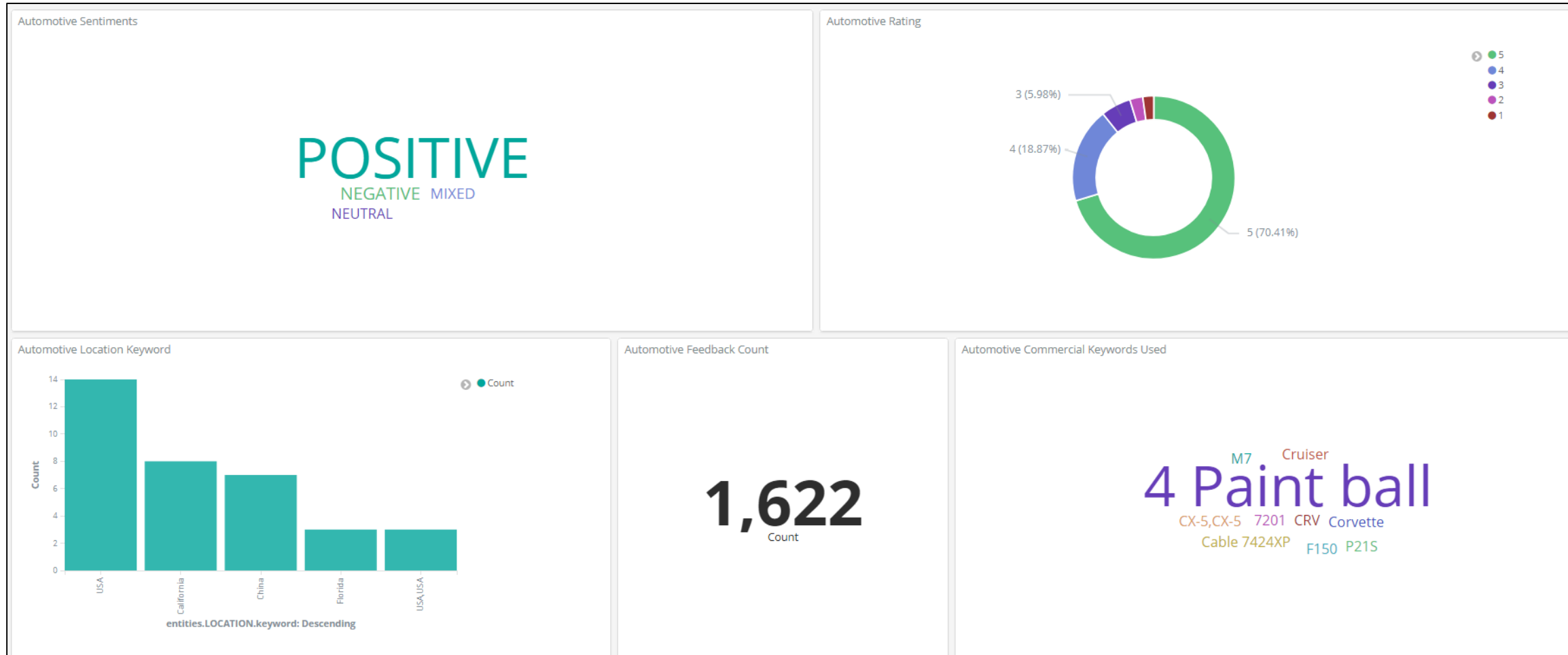Kibana Link : Kibana Page , Dashboard: Mobile Feedback Dash Board
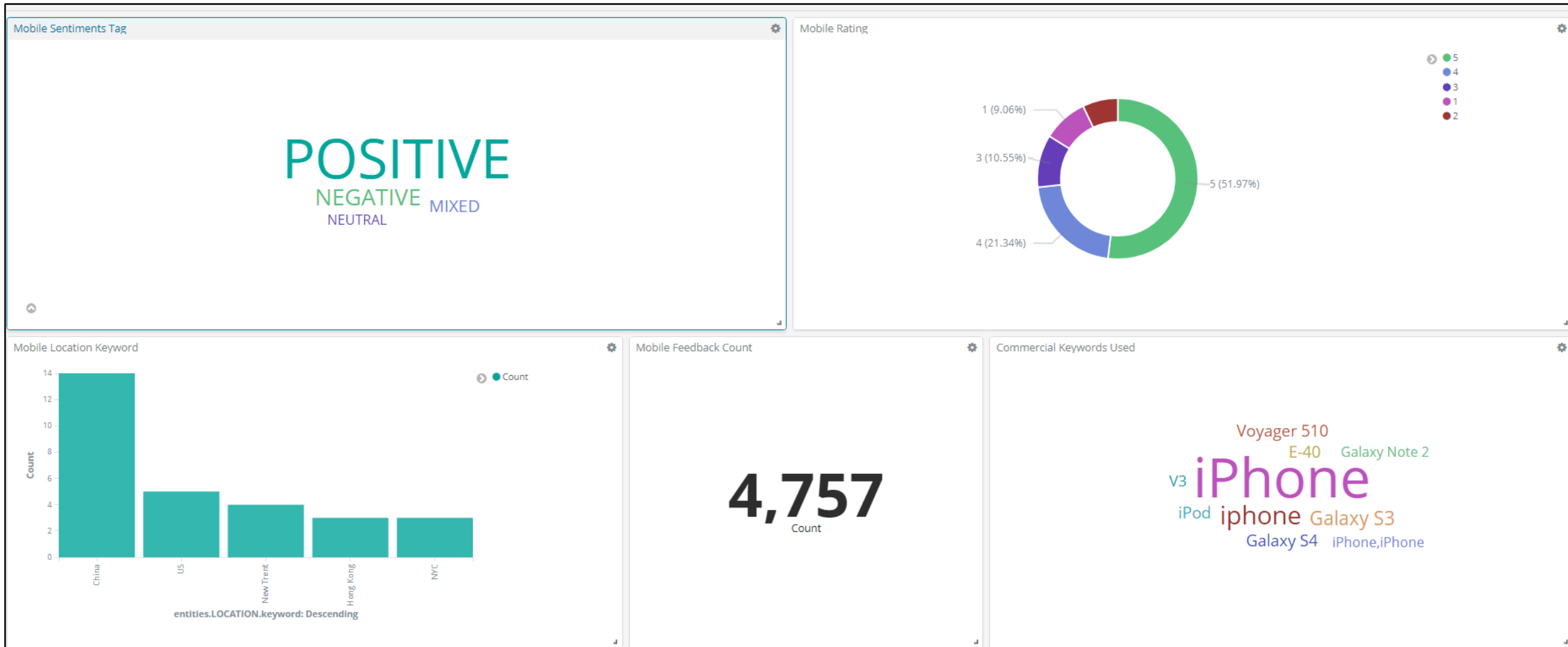
Dashboard: Automotive Feedback Analysis

Feedback Sentiment , Overall Rating, Keywords used in feedback, Total Feedback, Commercial keywords used in feedback
Kibana Dashboard Link : Click here

- Turbo Mobile App is available on Slack Channel 'awsaichallange.slack.com'.
- Github : https://github.com/Kitemaker/TurboMobileBot
- Kibana: Kibana Link

Thank You