Sprint 3

Product Backlog

Story	Priority	Effort (1-10)	Validation
As a user, I want to be able to find a song by giving our application lyrics **verbally**.	1	5	Assistant returns the correct song
As a user, I want to be able to find a song by giving our application lyrics through **text**.	1	5	Assistant returns the correct song
As a user, I want to be able to respond to the application and have it play a sample of the song.	3	6	Assistant plays the song that it finds
As a user, I want the application to return a way of finding the song (apple music, google music, spotify).	3	6	Assistant provides working links to different media
As a user, I want the application to be precise in that it can predict the song with the correct lyrics that I am looking for each time it is run.	2	7	Assistant provides the same song for the same search as long as the user confirms it is correct.
As a user, I want the application to respond smoothly throughout the duration of the user conversation.	2	6	Assistant interprets user requests correctly, can adjust conversation effectively based on user responses

As a user, I want the application to ask if the correct song was played and if not, I want the application to smoothly attempt to try again.	3	6	Assistant takes in additional information to narrow down false results, responds back to user
As a user, I want to be able to give input to the application and have it learn from mistakes and get rewarded for successful finds (ML).	3	9	Assistant is able to use ML to predict the best and most likely song from a list of songs.
As a user, I want to be able to use the application in multiple languages.	4	9	Assistant is able to understand and communicate in multiple languages.
As a user, I want to use the application (user interface).	1	3	User is able to interact with the assistant by talking and typing.
As a user, I want to be able to find a song using just the lyrics from a song (genius API).	1	3	Application is able to find the requested song using genius API.
As a user, share the song with social media.	4	7	Working links to post on social media appear.
Set up the firebase and google actions environment and get them to work with external API calls	1	7	Our code in the cloud can do external API calls [outside google]

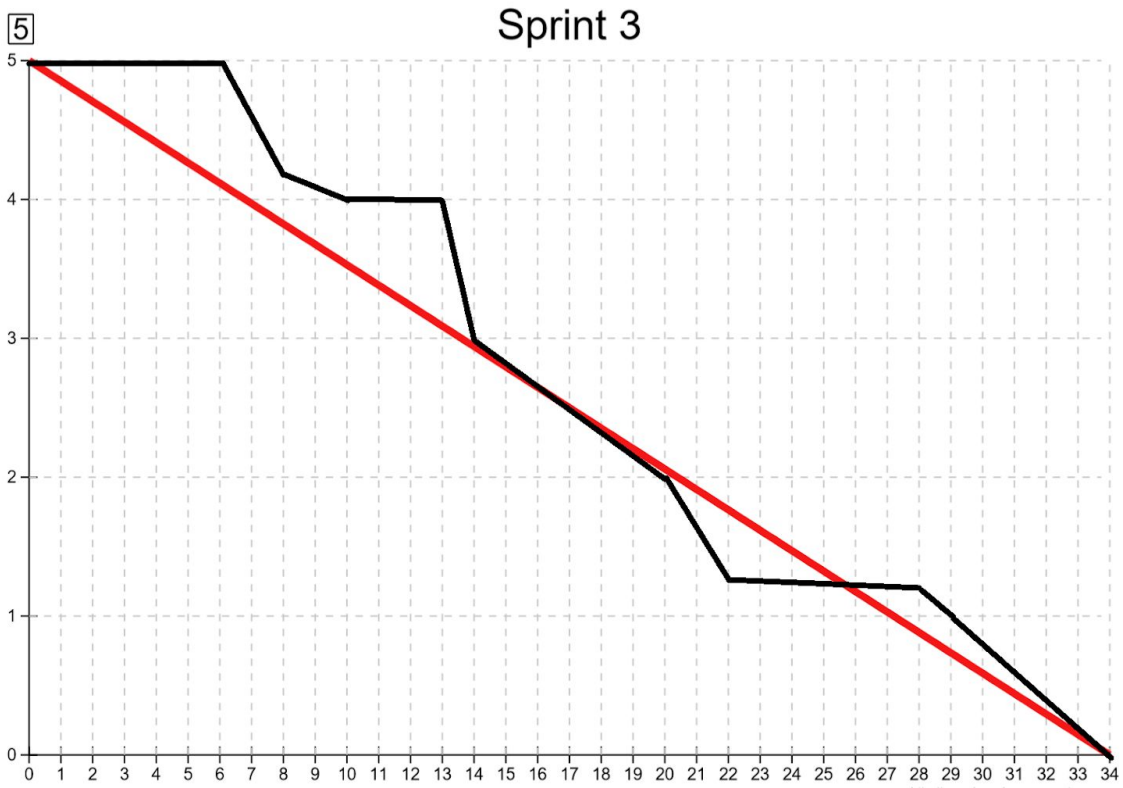
Sprint 3 Backlog

Story	Priority	Effort(1-10)	Validation
As a user, I want the artist that was returned from the NN to be returned to the google assistant where it will be presented to the user.	1	5	NN returns artist and response is captured by the google assistant and presented to the user.
As a user, I want the name of the song that was returned from the NN to be returned to the google assistant where it will be presented to the user.	1	5	NN returns the name of the correct song to the google assistant where it is presented to the user.
As a user, I want to be able to ask for multiple songs in a single session with the google assistant without having to exit the application.	1	6	Google assistant is able to handle question after question without being closed and reopened.
As a user, I want the application to return the artist and song name in a timely manner after the lyrics of the song have been given to the google assistant.	1	5	Neural Network, regular expression parser, express-js server are all efficient and optimized to

			produce a timely response to the user.
As a user, I want the firebase and google actions environment to work with python code we have written.	1	4	Our google actions code can return results found with python code

Burndown Chart

(Sprint 3)



Red line: Ideal

Black line: Actual

Requirements (1-point)

Non-Functional requirements (Non-functional requirements must be measurable):

- The lyricflow application should be fast (performance measured) in that it should not take too long (longer than 30 seconds) in displaying the correct artist and song after the user has provided the song lyrics to the google assistant.

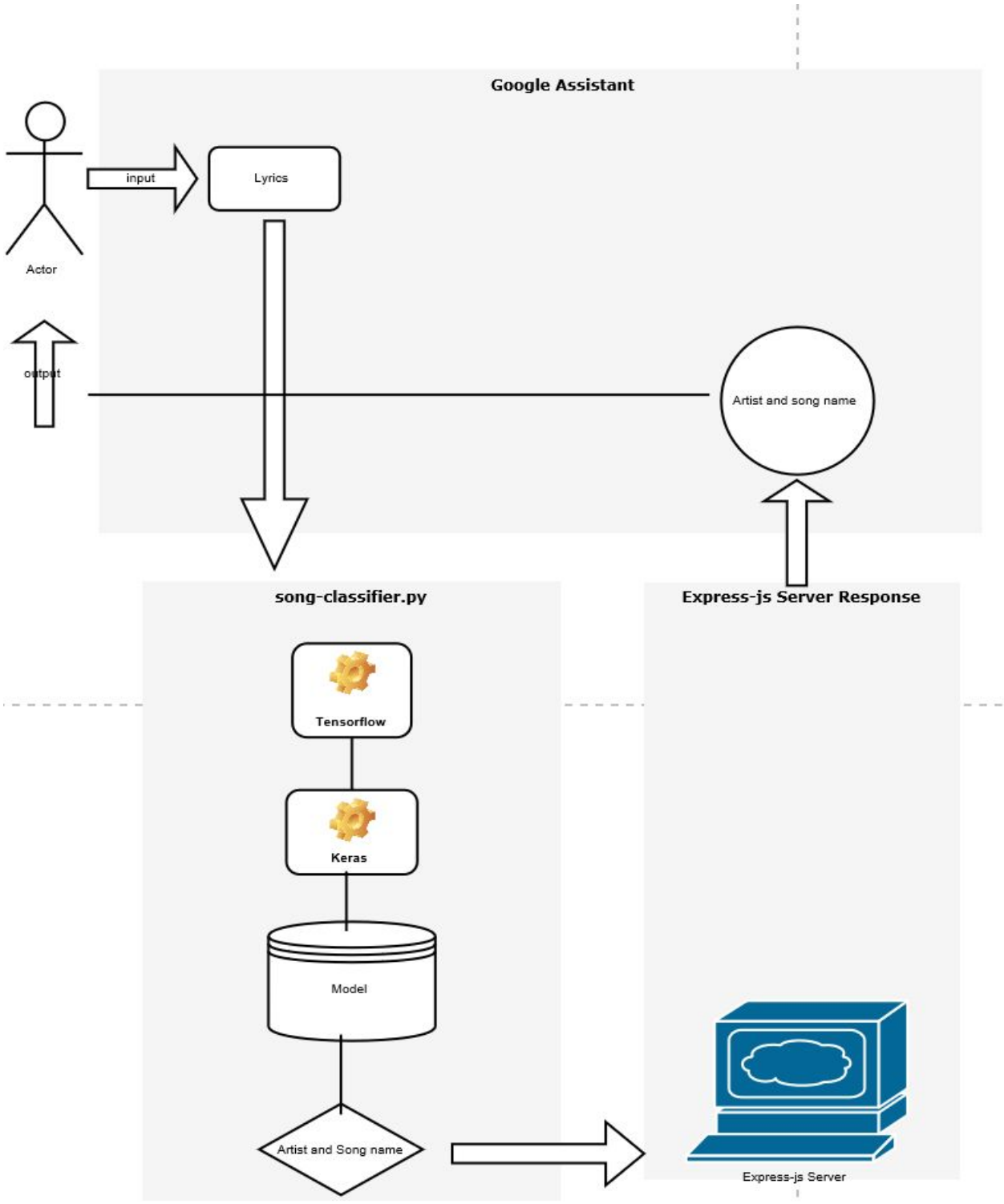
- The lyricflow application should be accurate (accuracy measured) in that it should be able to correctly predict at least 90% of the entered songs given that the model has trained sufficiently.

Functional requirements:

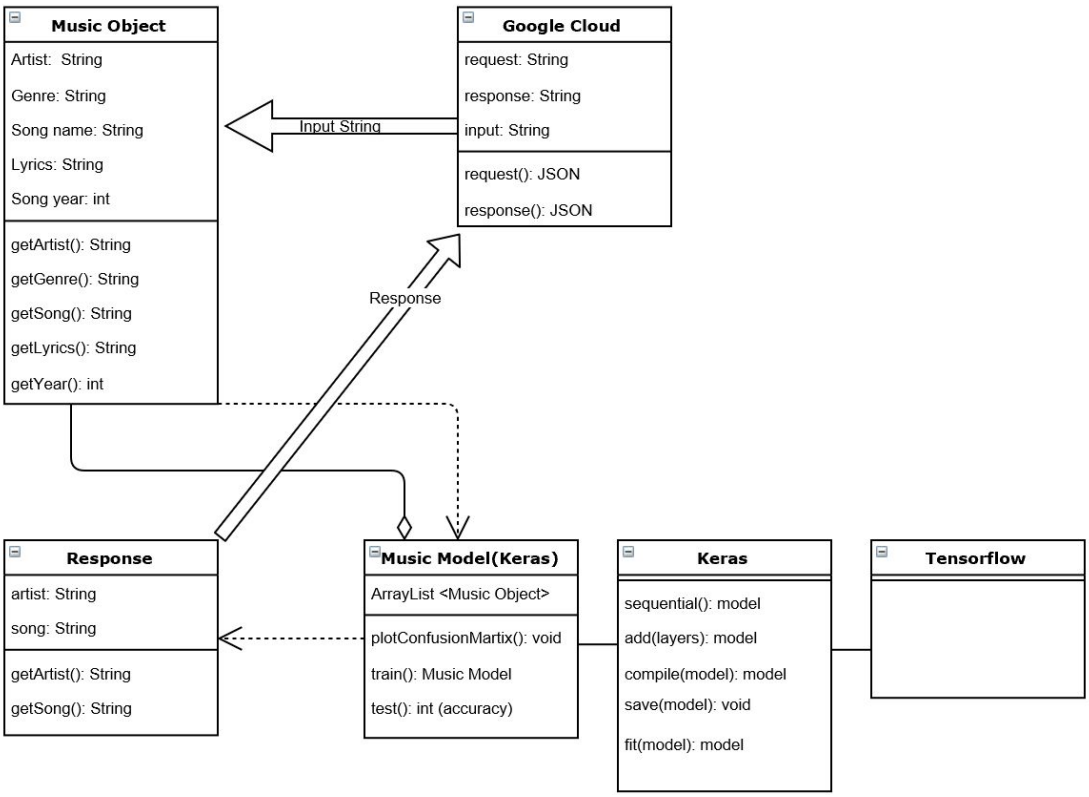
- If the user enters lyrics into the google assistant, an artist and song should be returned, else an error message should be displayed to the user.

Design Documents [2 points] (UML diagrams)

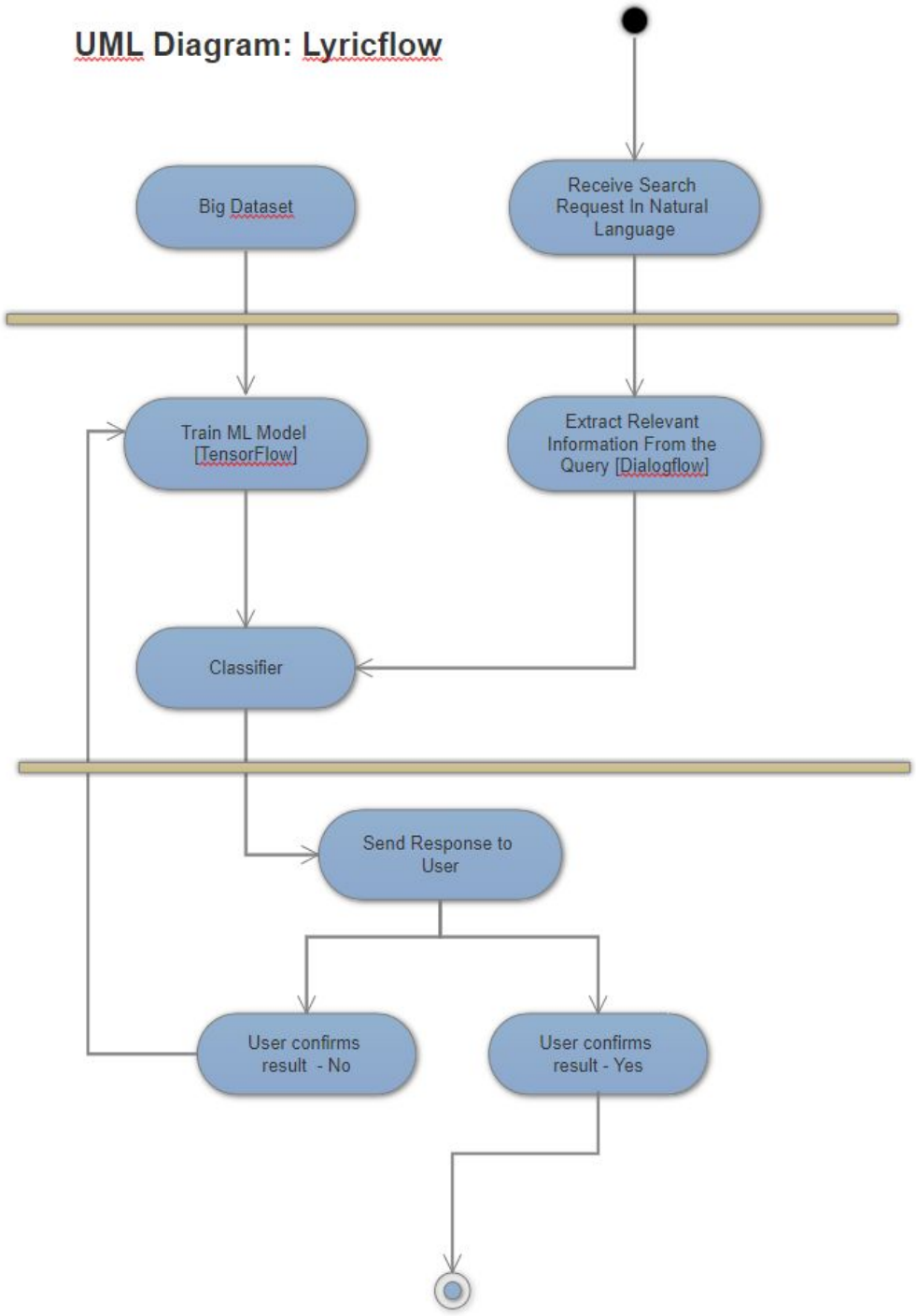
1. Architecture Diagram



2. Class Diagrams



3. Other UML diagrams as appropriate

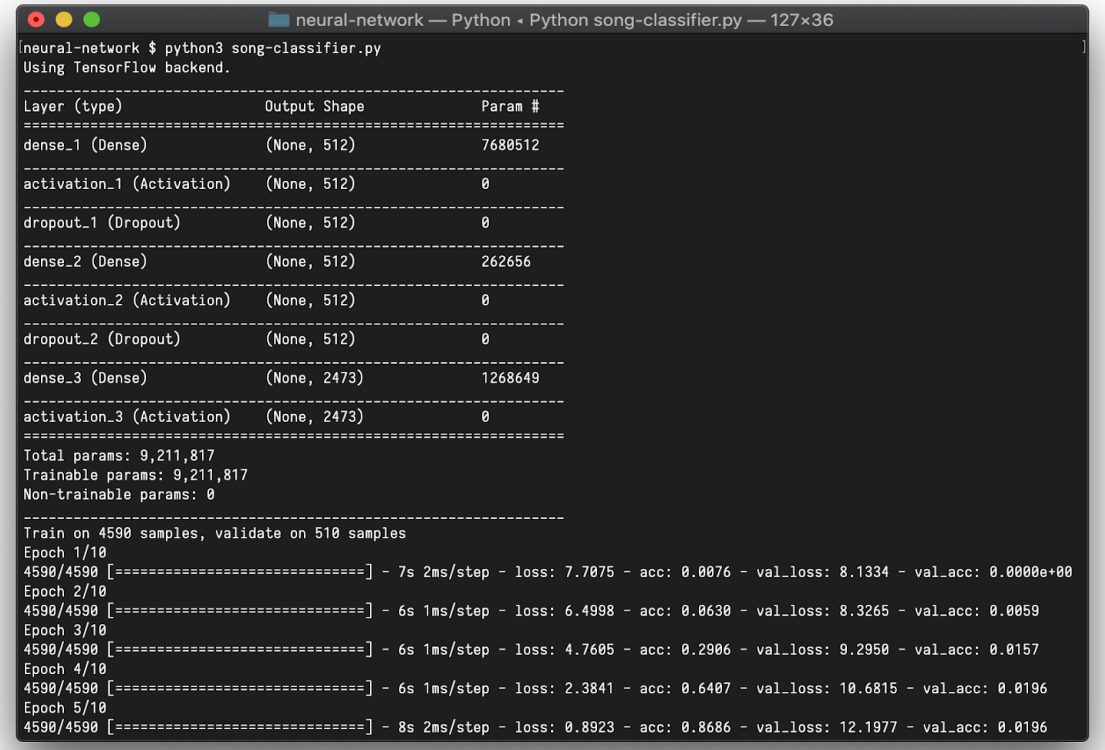


Sprint 3 tests/demos

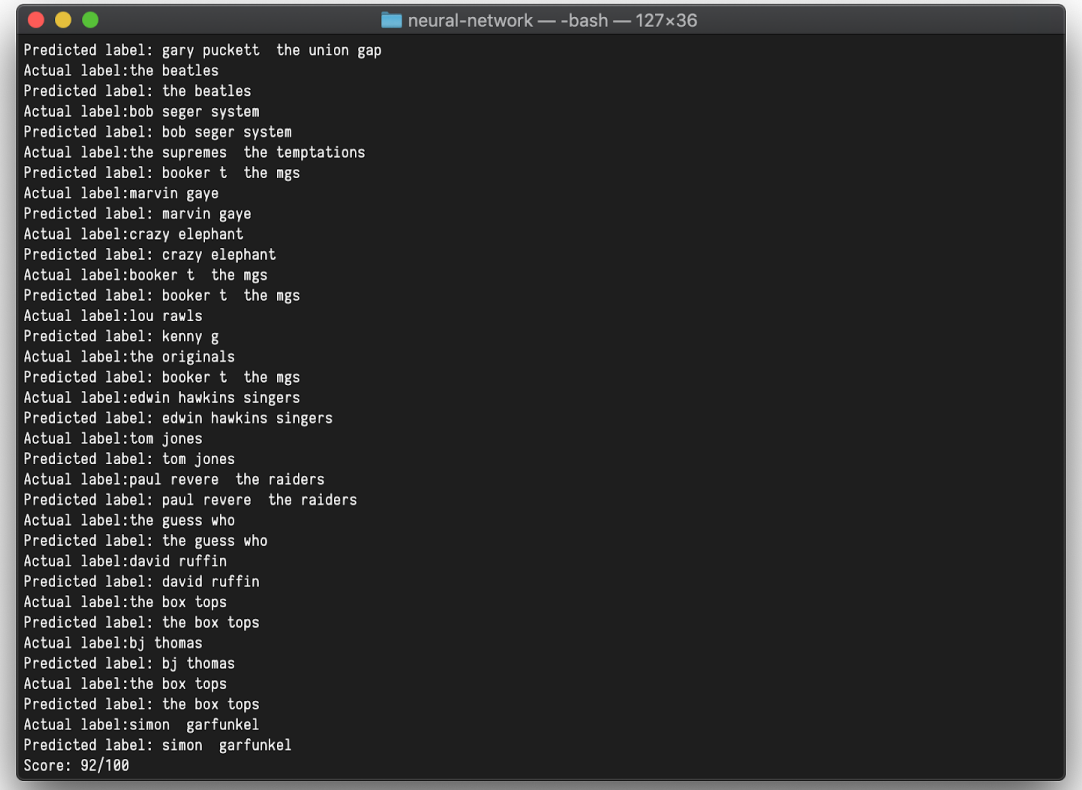
Fig 1:

Training the model, 10 epochs

Fig 2:



Running a test with 100 random lyrics, with 92 correct predictions.



See code sections in our Github for further tests/code.

See presentation slides and live demo for demonstration.