Amazon Sensum

Monitor sentimental status during psychological treatments to complement therapy

Press Release

LATAM – February 10th, 2020 | The automation of therapy reports is finally available. Customers can now take advantage of Deep Learning technologies to process the emotions and speech of patients during a therapy session. Helping them to complement their note-taking to create a complete report.

Today AWS announces Amazon Sensum, a platform that generates reports with insights based on recorded therapy sessions. Amazon Sensum provide features that enable the analysis of a person's emotions and speech, complementing the examination the therapist executes during and after a session.

COVID-19 has taken a toll on everyday lives, especially in the way we work. Working from home has been a hot topic and for a good reason since it promotes keeping the community safe and stops the distribution of the virus. However, some jobs previously didn't have the remote option to operate and have had the biggest shifts. One of these jobs is psychological therapy. Online therapists may miss out on important details due to be taking notes and not looking at the monitor, not grasping the facial expressions, vocal signals, or body language. These signals can often be quite telling and give the therapist a clearer picture of their feelings, thoughts, moods, and behaviors.

Amazon Sensum provides the ability of giving insightful reports after each therapy session. Even when the therapist may have missed an important detail of the session with their patient, Amazon Sensum will be ready to perform an analysis and give back insights, graphs and transcripts of what was talked through. By utilizing Deep Learning to identify emotions and to convert speech to text quickly and accurately the platform outputs PDF reports that can be used to complement the professional analysis of the therapist and be stored in the patient's portafolio.

Jeff Bezos states, "our goal is to be Earth's most customer-centric company", and by being customer-centric we think about what product or feature will make their lives more easier or present an aggregate value. With Amazon Sensum we are automating the analysis of a therapy session and aggregating insights to what was covered by the therapist.

By uploading a recorded session on the platform, in minutes you can get several insights. Some of them are time lapse graph mapped to the emotions, specific time when there was sudden change of emotions, repeated words during the conversation, and much more! Everything just an upload away.

“As a recent psychology graduate and already in the field with patients, Amazon Sensum has been an excellent tool to complement and aggregate value to my previous analysis after each session with a patient. The analysis it outputs makes me look back on my notes to see if the insights given can be added to my personal report and create an even more complete picture of each session, giving me a confident result of the therapy and part of the path to follow with the patient” says Karla, psychology graduate from Tecnológico de Monterrey.

To learn more, visit https://console.aws.amazon.com/sensum/

FAQs

Q: What is Amazon Sensum?

Amazon Sensum is as web application for the monitoring of sentimental status during psychological treatments to complement therapy. Sensum uses and takes advantage of Amazon Web Services technologies such as Amazon Rekognition, Amazon Comprehend and Amazon Transcribe, merging them all together to give the costumer the best experience. Amazon Sensum takes a video in .mp4 format and after a couple of minutes, depending of the duration of the video, it gives the user a report of the emotions and sentimental analysis perceived from the patient in the video.

Q: What operating systems and browsers are supported?

All operating systems that support modern browsers like Chrome, Firefox, Safari and Edge are supported.

Q: What is the pricing of us Amazon Sensum?

Amazon Sensum does not have any upfront cost, and you only pay for what you use. The cost depends on the length of the video you want to analyze. For example, a video of 30 minutes can be analyzed for around $4.5 to $4.8 USD.

Q: How do I get started with Amazon Sensum?

To get started with Amazon Sensum you need to have created an account. Then you will have full access to the web application. You will have a main page in which you can upload your video, give it a name, a description and other functionalities.

Q: Can I use Amazon Sensum on the phone?

Amazon Sensum does not yet have a mobile application, but can be accessed by any supporting browser on the mobile phone. The web interface adapts to multiple screens, and the reports can be downloaded just as easy as it is on browser.

Q: How do I have certainty that my patient's videos are not public?

With Amazon Sensum you will have a private account that it is only accessed by private credentials. We support multi-factor authentication encryption of data-at-rest and in-transit.

Q: How can I see the full analysis of the video uploaded?

A couple of minutes after you upload your video you will have a generated PDF with all the insights created from the video. First you will have the emotions report where all the perceived emotions from the patient are mapped down to a timeline and the predominant emotions are identified. Next you will have a sentimental analysis of the patient's speech during the session, following an analysis of the most used words and the full transcription of the video.

Q: What languages does Amazon Sensum transcription service support?

Amazon Sensum voice transcription service currently supports US English. Support for other languages is in process.

Q: What countries is Amazon Sensum available in?

Amazon Sensum is available globally.

Q: How many videos can I upload for analysis?

Amazon Sensum works with Amazon S3 storage service and you can upload as many videos as you want and delete then just after the report is generated.

Internal FAQs

Q: Who is the solution sponsor?

The project this PR/FAQs covers is the Capstone Project of the first Tech U cohort in LATAM (Mexico, Colombia, Chile, Argentina). The project serves as a way for the residents to demonstrate their technical proficiency and soft skills acquired during the 6-months of training in AWS. The primary stakeholder of this project is therefore Marco Cuadros, Tech U Site Program Manager, Thiago Paiva, Tech U Technical Trainer, and the Tech U Global Administration along with the residents' destination managers.

Q: Who is the customer?

Therapists working remotely with their patients.

Q: What is the customer's problem or opportunity?

The therapists when conducting a session with a patient have to make annotations when they notice something relevant to the patient's case. Whether they reacted to a topic the therapist mentioned or when they are narrating an event of their lives. The problem that may present during the session is missing a reaction the patient had due to making annotations and not looking at the monitor. Instead of recording the session and looking back at approximately an hour of footage, we have perceived the opportunity of capturing the exact minute of the footage when the patient reacted to what was being discussed.

Q: What is the most important customer benefit?

Being able to have a summary of the emotions and sentiments of the patient mapped to what was being discussed on the session that was recorded. The therapist would be able to look back to the summary and check for missing details, giving a confident result of the therapy and the correct steps to follow.

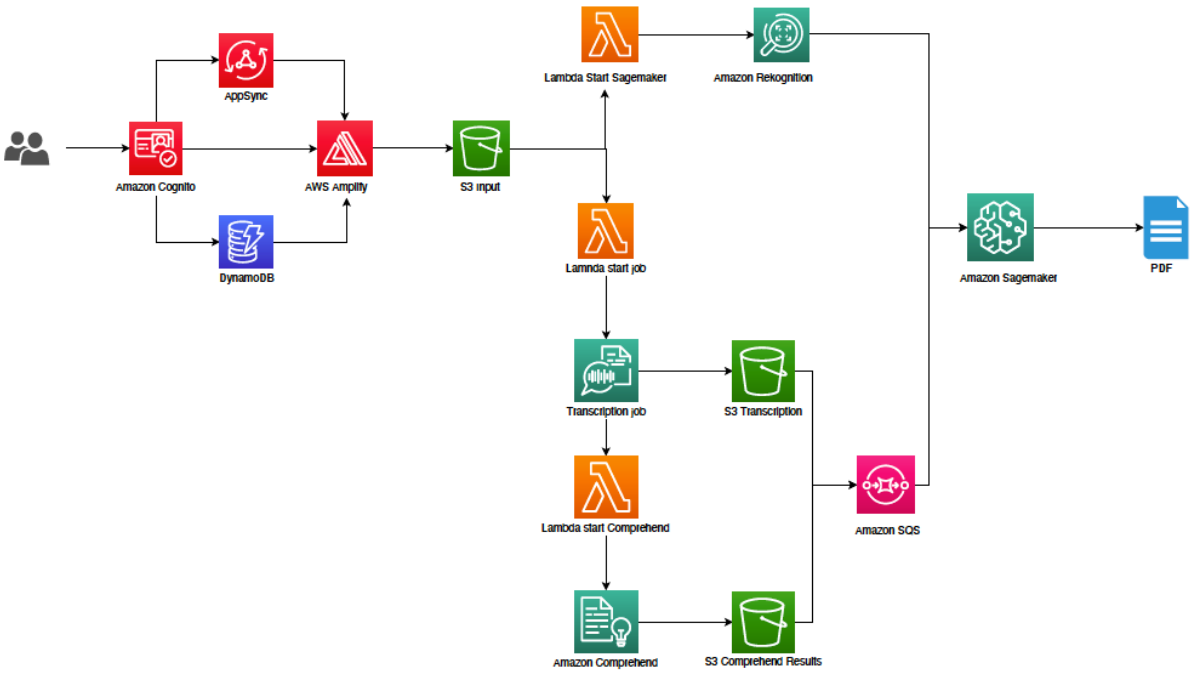
Q: How do we know what customers need or want?

We made sure to contact psychologists and interview them on their opinions regarding a service that would help them monitor the sentimental status of their patients. We received feedback on what would be of help for them. They mainly mentioned that they did not need a service that would do their job of identifying how the patient is feeling but that they would gladly make use of a tool that would help them identify missing parts they didn't grasp.

Q: What, if any, constraints are there to the solution?

A constraint that may rise is the consent patients must give before the therapists uses Amazon Sensum to complement the therapy. If the patient they are treating doesn't want their session to be analyzed and stored in Amazon Web Services, the therapist must respect their decision.

Q: What is the solution?



1. The user enters the web application which is being powered by AWS Amplify and has a secure and scalable user directory through Amazon Cognito.
2. Through the web application of Amazon Sensum, the user will be able to upload a video which will be stored in an Amazon S3 bucket and attached to the user information in AWS DynamoDB.
3. When the video is uploaded to the bucket, two Lambda functions will be triggered to start two different jobs: a recognition job and a transcription job
4. In the recognition job, the video will be scanned to search for faces and identify their emotions through the Emotion API led by Amazon Rekognition. Each emotion will be mapped to the timestamp of the video.
5. In the transcription job, Amazon Transcribe will create a transcript of the complete video and it will be sent to a new bucket and to Amazon Comprehend through an AWS Lambda function.
6. In Amazon Comprehend, it will generate a sentiment analysis of the transcription and then be sent to a bucket.
7. Having the emotions with timestamp, the transcription and the sentiment analysis, in Amazon Sagemaker graphs and insights are done and then outputted in a PDF file which will be available in the web application of Amazon Sensum.

Q: What assumptions have been made in regards to the solution?

We are assuming that the videos that are going to be uploaded will consist approximately. between 30 minutes to 1 hour and they will be uploaded in .mp4 format only.

Q: What exactly is delivered as part of the solution?

A web application were the therapist can store and analyze therapy sessions with the features of:

- Analysis of the emotions portrayed by the patient in a therapy session using Amazon Rekognition
- Sentiment analysis of the conversation during the therapy session using Amazon Comprehend
- A complete transcription of the conversation during the therapy session along with the most used words using Amazon Transcribe
- Feature to edit or delete the video that was stored

Q: How do we ensure the solution is Well Architected?

We ensure our application is Well Architected because we followed the AWS Well Architected Framework. Our solution is configured to have high availability. The implementation of serverless architecture works for the cost optimization pilar since the compute power will be used only when the users are accessing the application.

In addition, since the application will not have loads every time a deployment of on-demand since services such as AWS DynamoDB, Amazon Transcribe and Amazon Comprehend were chosen. In terms of data storage, Amazon S3 buckets contain lifecycle rules for transitions to less expensive tiers of the data that is not frequently used.

We use Amazon Cognito for user handling, which already supports encryption of data-at-rest and in-transit. Amazon Cognito is SOC, ISO/IEC 27001, ISO/IEC 27017, SO/IEC 27018, and ISO 9001 compliant. Beyond this we used AWS Trusted Advisor to find vulnerabilities on our application.

For performance efficiency since the application is using services such as AWS Lambda, Amazon Transcribe, Amazon Comprehend, Amazon Rekognition, AWS DynamoDB, and Amazon S3 where all the components scale independently and automatically to meet demand.

Roadmap

In the future we plan to implement the next features:

- A complete serverless orchestration through AWS Step Functions so it is easier to sequence the AWS Lambda functions and multiple AWS services.
- Host the webpage on a reachable domain.
- Display the loading percentage so the user can know when the report is available.
- Present the report graphs in the dashboard of Amazon Sensum.
- Transfer automatically a video call to Amazon Sensum so the analysis is done automatically; the user wouldn't have to upload it manually.
- Send a notification when the analysis jobs have finished and the report is ready.