App8 Helps Restaurants Predict Demand Using AWS Solutions

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Tech company App8 empowers restaurateurs to create the ideal contactless dining experience for their guests. Whether dining in or taking out, guests can use App8's service to browse a digital menu, order food, and pay—all from their mobile devices and without the need to create an account or install an app. Before the COVID-19 pandemic, App8's innovations had gone a long way toward improving the customer experience and optimizing restaurant staff time. Once the COVID-19 pandemic hit and no-contact dining became a priority for restaurants, App8 fulfilled a critical customer need.

Looking to further improve the dining experience for guests and streamline operations for restaurateurs, App8 set out to develop a tool that could predict customer volume and demand for particular menu items. "Imagine you're a restaurant," says Hani Jabbour, chief technology officer at App8. "With this tool, you can actually predict how many people are going to come to your restaurant at a specific time and how many menu items are going to be in demand. This will enable you to better manage your inventory—you won't waste food, and you'll get a better return on your investment." In addition to reducing food waste and keeping popular menu items available, the solution would help restaurants optimize staff scheduling.

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cost-effective forecasts to our customers. We've been able to deepen our relationships with restaurateurs and further help them streamline their businesses and survive the pandemic."

Hani Jabbour
Chief Technology Officer

Optimizing Developer Time Using Machine Learning on AWS

App8 initially tried building its prediction solution in-house but struggled with steep development overhead. "It was relatively complicated," says Jabbour. "It took time to build. It took time from data scientists; it took time from developers; and it took time from development to keep it running." Looking to streamline its in-house tool, the company turned to a managed solution from Amazon Web Services (AWS). App8 discovered that Amazon Forecast, a fully managed service that uses machine learning to deliver highly accurate forecasts, offered much of the same capability as the company's in-house solution at a fraction of the overhead.

What's more, App8 discovered it could further optimize the process by using the Improving Forecast Accuracy with Machine Learning Solution, an AWS Solutions Implementation. The managed solution serves as an automated pipeline for generating, testing, and comparing Amazon Forecast predictors and forecasts. App8 can drag and drop formatted demand data into Amazon Simple Storage Service (Amazon S3), an object storage service that offers industry-leading scalability, data availability, security, and performance. From there, the solution generates forecasts using combined data from customers and from App8's service. It provides visualizations of these forecasts in Amazon QuickSight—a scalable, serverless, embeddable, machine learning–powered business intelligence service built for the cloud—and in Amazon SageMaker Jupyter Notebooks.

Helping Restaurants Thrive in Uncertain Times

App8's solution outputs probabilistic predictions at three default quantiles to address each restaurant's sensitivity to over- and understocking. Restaurants sensitive to overstocking can use the P10 forecast; restaurants more sensitive to missing customer demand can use the P90 forecast; and restaurants with equal sensitivity to over- and understocking can use the P50 forecast.

Perhaps most importantly, the tool can help restaurants run "what-if" scenarios to prepare in times of uncertainty. "Improving Forecast Accuracy with Machine Learning helped us deliver quick, reliable, and cost-effective forecasts to our customers," says Jabbour. "We've been able to deepen our relationships with restaurateurs and further help them streamline their businesses and survive the pandemic." Using an AWS Solution in conjunction with its own innovative service, App8 offers restaurants one more tool to help them not only survive—but thrive.

About App8

App8 creates digital dining solutions that empower restaurateurs to create the optimal dining experience for their establishments. Its products include mobile ordering, menu viewing, and payment solutions for dine-in and take-out orders.

Benefits of AWS

- Reduced development overhead
- Developed a tool that helps restaurants predict the volume of customer demand
- Automated demand forecasting
- Improved forecast accuracy

AWS Services Used

Improving Forecast Accuracy with Machine Learning

This solution automatically produces forecasts and generates visualization dashboards for Amazon QuickSight or Amazon SageMaker Jupyter Notebooks, providing a quick, easy, drag-and-drop interface that displays time series input and forecasted output.

Learn more »

AWS Solutions Implementations

AWS Solutions Implementations help you solve common problems and build faster using the AWS platform. All AWS Solutions Implementations are vetted by AWS architects and are designed to be operationally effective, reliable, secure, and cost efficient.

Learn more »

Amazon Forecast

Accurate time-series forecasting service, based on the same technology used at Amazon.com, no machine learning experience required. Amazon Forecast is a fully managed service, so there are no servers to provision, and no machine learning models to build, train, or deploy.

Learn more »

Amazon QuickSight

Amazon QuickSight is a scalable, serverless, embeddable, machine learning-powered business intelligence (BI) service built for the cloud. QuickSight lets you easily create and publish interactive BI dashboards that

include Machine Learning-powered insights.

Learn more »