



# CASE STUDY

## How AI Predicts An Employees Needs



### Company Info

**Name:** Amazon

**Location:** Seattle, United States

**Industry:** e-commerce

**Amazon has been selling products online since 1994 and has over 1 million seasonal and permanent employees worldwide.**

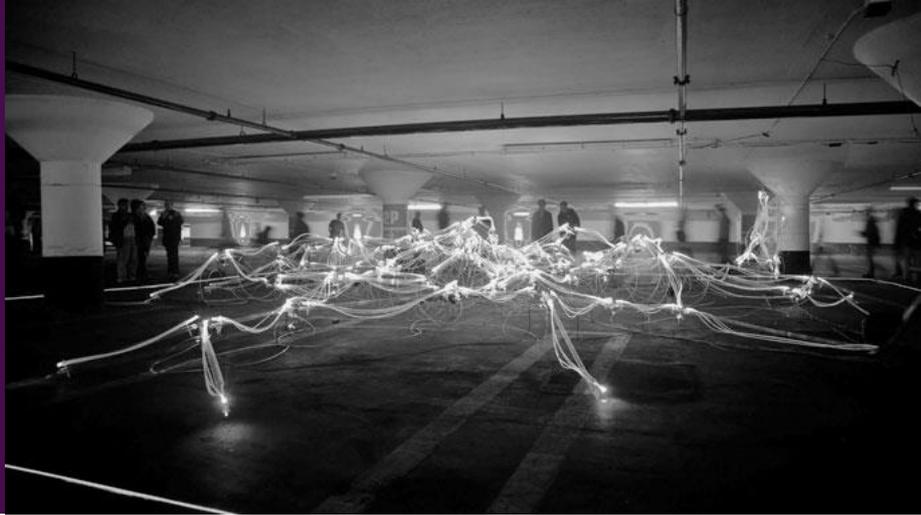
When a new employee starts in a new position or is promoted to another, their requirements vary according to the job role. From admittance to specific systems, access to a computer, entry of a reporting portal, knowing what an employee will need means cost savings, time efficiency, and the capacity to make more accurate plans.

This prediction capacity is even more essential in a company with an international presence, such as Amazon. Founded in 1994 by entrepreneur Jeff Bezos, this firm grew by leaps and bounds, until becoming one of the Big Four companies, including Apple, Google, and Facebook.

Considering its benefits of automatically determining access privileges, Amazon decided to search for a model that, given an employee's role information and resource code, will decide whether access to a resource should be granted. They also chose machine learning as the technology to create the solution because they understood that a learning model is ideal for predicting something so changing, such as an employee's needs.

The data they assembled for this project consisted of historical records for 32,769 employees containing information on roles, resources, and time of their approval.

*“87% of Data Science models never make it into production.”*



## AI Platform Significance

Machine learning models have become mainstream in fact prediction. Lately, these technologies have advanced rapidly, providing hundreds of different algorithms. As a result, finding the optimal one for a specific business problem can be very arduous. Even more, once an accurate model has been found, keeping it updated requires constant work. LogicPlum's platform provides a solution to this problem by combining AI, machine learning, and automation. This tool allows organizations to try hundreds of various algorithms in an automated manner; thus, reducing search time and increasing the probability of finding the right algorithm or algorithmic combination. The platform also has other complementary capacities, such as feature engineering and a single point API to connect to it. With these ideas in mind, the team of data scientists at LogicPlum decided to use their platform to create a model for Amazon.

## Processing the Data

Once the data was in their possession, the team could drag and drop the data into the platform. Immediately visualizations of various important data attributes and the descriptive statistics were built so the team could gain an intuition of the Amazon problem. Once the team was ready to move forward, they selected LogicPlum's Autonomous Modeling feature. LogicPlum began producing expertly crafted AI models, which included creating new data features, pre-processing the data in various ways, and tuning each model for optimality. In the end, the platform chooses a model

that was best suited for the employee access challenge at Amazon.

*“The first aspect considered by the platform was that the data was all of categorical type. This meant that model stability was a high priority. In other words, the final model had to be robust to changes in the composition of the dataset,”* explained the team leader.

The platform created three feature lists. Feature lists our many times created in LogicPlum to help amplify the data's signal by removing data, which is not useful for making a prediction.

## Finding the Best Model

For many organizations, identifying a powerful model to make predictions is not always obvious. Some companies use the same model repeatedly for each problem they solve; in other cases, the model parameters are not tuned, leaving valuable model accuracy on the proverbial table. Additionally, most companies cannot afford to run hundreds of models because of resource constraints like





time and money. What could typically could months to complete happened in an afternoon with LogicPlum. The platform applied AI best practices at each step, and after running hundreds of smart algorithmic combinations, it found the best model, according to what the business found important. The lead model consisted of 15 different models, each of them either using a different algorithm or a different feature set. When tested, this model scored 94% AUC. As the team leader summarized the process: *"It's not how many models you know. It's how many models you can build and properly test in a reasonable time for the business. And this is where our platform excelled! Without it, it would have taken us months to reach a similar solution, if ever"*.

## A Resource Control System

In many cases, there is a disconnect between a business unit and the Data Science team. That is why VentureBeat states, *"87% of data science project never make it into production"*. Knowing this, LogicPlum makes available for deployment every model in its platform. Secondly, it creates an AI-generated report that explains what it needs to know about the data, methods, and models used to build out a solution. All that was left was for LogicPlum's API endpoint to be connected to a front-end user experience to have a complete AI solution. *"In the end, a business doesn't have time to mess around with what can typically feel like a long and drawn-out process when trying to get results from data science. That is why LogicPlum exists"*, the team leader stated.



### Contact Us

LogicPlum  
1550 West  
McEwen Drive  
Suite 300  
Franklin, TN 37067 USA

[www.logicplum.com](http://www.logicplum.com)  
[message@logicplum.com](mailto:message@logicplum.com)

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