

Thorogood case study
Consumer Packaged Goods

Learning by Doing: Azure ML in Thorogood's Hackathon Program

Companies are increasingly incorporating machine learning and advanced analytics into their data strategy in order to better position themselves to both react to changing business realities and predict those changes in advance.

But this new frontier is a necessarily unfamiliar one, which can leave organizational decision-makers struggling to conceptualize how these new tools might apply to their business, and, thus, whether they are worth the investment. The best way to learn the capabilities of a software solution is to actively use that solution to solve a real-life problem, but Agile Analytics and Data Science requires a scaled up pool of resources and a responsive data environment that a company might not already have in place. In response to these realities, Thorogood has created an immersive training program that allows clients who are interested in making the move to ML to spend two days working with these tools alongside our consultants in real-world use cases that give participants a clear grasp of the capabilities of ML while also building their proficiency in the use of Azure's ML suite.

Understanding Software and its Applicability

How many bicycles ride through Washington D.C. on a single day? It's one of the questions that a team of data analysts from a large multinational corporation recently confronted as they gathered together from their remote work stations for the start of Thorogood's

two-day Hackathon. The never-ending quest to build competitive advantage has led analytics departments to constantly explore the ways that machine learning advancements might help it reach customers and drive revenue in a competitive marketplace. But that quest is not immune from the tension inherent in most large companies, where desire to improve decision-making processes must be balanced with the realities of a sprawling IT infrastructure that has been decades in the making. Any change to its architecture requires a careful decision-making process as well as a comprehensive understanding of the platforms it is considering. Because of this reality, Thorogood set out to develop a program that would provide such firms with a hands-on crash course in machine learning and enable them to envision their potential when scaled up and productionized on an organizational level.

Developed with the consideration of the work-from-home constraints of the COVID-19 era, the Hackathon paired three teams of data analysts with three Thorogood consultants and assigned each of them a problem to solve by the end of the seminar. After a day-long introduction to Azure ML that included some hands-on work, Thorogood divided the analysts into three teams, provided them with a dataset, and charged them with solving a hypothetical business problem by developing an Azure-based prediction model.

It isn't an understatement to say that the future will belong to the companies who best adapt machine learning advancements to their business approaches. With this Hackathon, our goal was to offer participants a chance to solve the sorts of specific business questions that require statistical machine learning approaches to understand the variables that drive outcomes and make predictions or recommendations on the optimal business decision. In Azure Machine Learning, Microsoft has created a software program that gives users all of the tools that they need to perform complex analyses and arrive at sophisticated conclusions that out-strip the capabilities of more traditional data science tools. But taking full advantage of these capabilities requires users to both understand the mechanics of the software and understand how various business teams can utilize their outputs to drive successful decisions. The goal of the Hackathon was to give the participants a solid understanding of both of these critical factors.

Azure Machine Learning: a three-module approach

When Microsoft created Azure ML, its goal was a software program that would fit the preferences and needs of a variety of developers. The program includes three ways to build machine learning models: an automated machine learning tool that identifies suitable algorithms and hyper-parameters; a drag-and-drop designer that enables users to create machine learning models by visually connecting datasets and modules on an interactive canvas; and a code-based interface that allows users to interact with the service in any Python or R environment. Beyond these three tools, it also has impressive capabilities that support the tracking data science experiments, and the deploying machine learning models.

During the Hackathon, participants relied primarily on the first two tools. After receiving their data sets, they utilized the automated machine learning tool to identify various approaches and evaluate their usefulness. Guided by a Thorogood consultant, one team worked on the bike problem, another on a dataset of property characteristics and price history, and the third team on a consumer packaged goods data set. Altogether, the aim was to harness the power of the tools to quickly forecast the contingent future scenarios of each use case such as the market values of various homes, or market demand.

After loading the data set directly into Azure ML, the teams utilized the designer's exploratory analysis capabilities before moving on to the modeling stage. From there, they published their machine learning models and used Azure ML's web API to query the models and get predictions. In an actual real-world use case, web applications could be developed as the front end to display results.

A solid foundation

Understanding the full extent of Azure ML's capabilities would require much more than a two-day crash course. Building a machine learning operation that offers the maximum level of flexibility and efficiency requires building structures that make use of DevOps principles like Continuous Integration and Development, Model Management, and Version Control functionalities among others. By incorporating Azure DevOps with Azure Machine Learning, companies can scale up or scale down their data architectures with ease, enabling them to become more reactive to changing business realities through the leveraging of ML predictions and efficient cloud architectures.

While the machine learning journey of the Hackathon participants is only just beginning, the seminar left them with a proficiency in both the automated learning tool and the drag-and-drop designer. By the end of the seminar, all three teams successfully produced an operational model capable of providing predictions for its assigned problem. While the models were not fully productionized, they offered participants an excellent understanding of the potential ways an enterprise-scale firm can deploy a Data Science strategy in its business by utilizing the latest advancements in machine learning.

This hands-on approach has long shaped Thorogood's business philosophy. From our long-running participation in Power BI's Dashboard in a Day training program to the iterative development process that we follow on client projects, we believe that active engagement drives quality production.

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Find out more:

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