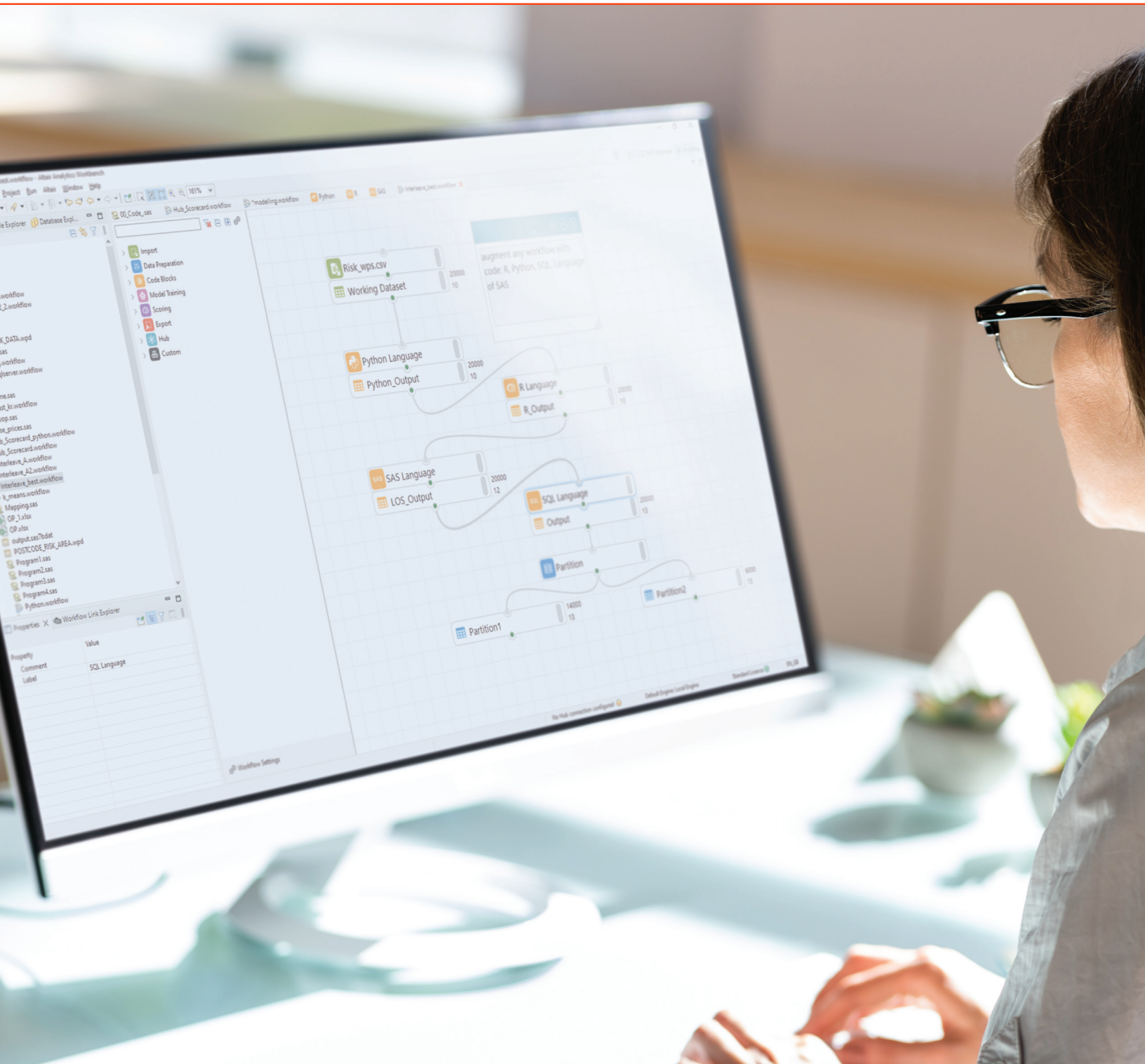
ALTAIR

BREAK DOWN DATA SCIENCE LANGUAGE BARRIERS



INTRODUCTION

In the race for competitive advantages, data science has moved center stage. For many enterprises, the ability to draw deep, personalized data insights is now an essential business asset. As a result, organizations have prioritized creating agile, accessible analytics and machine learning (ML) solutions that can deliver better outcomes faster. Specifically, that means automating, accelerating, and simplifying the key processes of learning from the past, and making predictions about the future, to reach the right business decisions.

This data science revolution has gone hand-in-hand with an equally dramatic explosion in open-source programming languages. For developers of analytics and ML tools, free-to-use resources like Python, R, and SQL have redefined the landscape. And this isn't simply a matter of cost. These open-source languages offer greater productivity, flexibility, and their own specific sets of capabilities and benefits when compared to legacy languages.

But there's a catch. While it may no longer be the preferred choice for coders who have grown up with open source, the long-established language of SAS remains a staple of the data science ecosystem. As a result, many enterprises still rely on a host of business-critical applications that were built using SAS language.

Tied to the Past?

With roots that stretch back to the 1970s, the role of the SAS language within data science reflects benefits that still resonate today. Notably, they include support for industrial-level analytics, high performance data handling, and scalability. However, a continuing dependence on the SAS language also creates significant strategic issues.

Running and maintaining the SAS language is costly; but so is rewriting SAS language applications in an open-source language. In many cases, migration is time-consuming and technically difficult – if not completely impossible. Combining existing SAS code with languages like Python, R, and SQL is equally problematic. To date, third party SAS language compilers have been essential parts of any potential solution, adding additional costs to the equation.

It's All About the Team

The challenges don't stop there. Data science is no longer the sole preserve of data scientists. The new wave of code-optional data analytics and ML tools is empowering a far larger population with different skillsets and disciplines. To maximize their data resources, enterprises must therefore harness the talents not just of their specialist programmers and data scientists, but also their statisticians, data engineers, and "citizen data scientists."

Taking an even wider perspective, strategies also need to address efficient deployment and effective governance. And organizations must also find ways to utilize the flexibility and scalability of the cloud alongside mobile computing, mainframe, and on-premises infrastructures.

Altair RapidMiner, our data analytics and AI platform, is designed for many different skill levels: from data scientists and engineers to MLOps specialists to business analysts to executives. With a code-optional, cloud-ready interface, we deliver the powerful capabilities organizations need to harness the full power of analytics and AI throughout the complete data lifecycle.

Rewriting the Rules of Rewriting SAS Code

Fortunately, times are changing. A new breed of software is finally bridging the gap between the worlds of the SAS language and open-source languages. That means today, enterprises can realize the full benefits of open-source languages while still preserving their legacy investment in SAS language applications and systems. What's more, this innovative technology also facilitates seamless collaboration between pure coders and people who prefer to work with coding blocks in a workflow environment.

THE SAS PROGRAMMING LANGUAGE WAS CREATED AT NORTH CAROLINA STATE UNIVERSITY IN THE EARLY 1970S TO HELP ANALYZE AGRICULTURAL RESEARCH DATA.

In 2021, the top five programming languages used by developers included both Python and SQL.

Source: Statista Research

Optimized Mixed Language Program Development

In this guide, we introduce and outline this new hybrid approach to the SAS language and open-source programming. The guide is designed for business leaders who are looking to develop more dynamic, more agile analytics strategies and the diverse and talented teams that will take hands-on responsibility for making those strategies work.

SPEAKING THE SAME LANGUAGE – A NEW GENERATION OF HYBRID SOFTWARE

Like all the best innovations, the new wave of hybrid software offers a simple, but powerful value proposition – it enables users to run and maintain their SAS language programs without the added cost of third-party compilers.

The Perfect Mix-and-Match

Utilizing this new wave of hybrid software, teams can operate SAS language programs more economically and integrate them more easily with new open-source syntax. Organizations can therefore retain the benefits of their legacy investments in SAS language development and work new Python, SQL, and R-based modules into their applications. That means enterprises no longer need to grapple with the cost, complexity, and feasibility questions that muddle attempts to translate existing SAS language programs. Instead, organizations can mix-and-match the languages that best suit their needs and resources.

Everyone's Invited

That flexibility extends even further. With the new hybrid software, users can choose between pure coding or building workflows with code blocks. It embraces both the SAS language and open-source languages and creates a single, unified environment in which coders and non-coders can collaborate. In terms of successful data analytics and ML, that's huge. This makes organizations less reliant on scarce specialist skillsets and makes it far easier for non-specialists to bring their domain expertise to the party.

In a nutshell: with the new hybrid software, everyone's free to create better data analytics outcomes.

HOW DOES THE NEW HYBRID ENVIRONMENT WORK?

What does this new environment look like? And how does it work? Let's take it one step at a time, starting with the SAS language.

The SAS Language

In this new hybrid world, the SAS language sits at the heart of Altair Analytics Workbench™, our fully integrated development environment (IDE). The graphical user interface (GUI) is modern and intuitive, and designed specifically to handle SAS language programs. Alongside pure coding, the workflow perspective offers visual programming tools for straightforward drag-and-drop control over code blocks.

Users can:

- Migrate existing SAS language programs to the hybrid environment
- Create, maintain, and run SAS language programs and explore outputs with no additional configuration needed
- Use Python, R, Hadoop, and SQL code alongside SAS language modules within a single application
- Exchange data seamlessly between different parts of a program. Logs and outputs such as graphs are piped back and handled as part of the SAS language program output
- In the workflow perspective, add code blocks into a workflow and program them in the SAS language
- Chain processes, so the output generated with SAS code can be passed to R and Python and processed accordingly
- Extract SAS code from an end-to-end workflow
- Export workflows as a SAS language program

Altair provides an in-depth guide about SAS language syntax supported by its tools. This cross-referenced guide makes it easy to look up the syntax of all supported language elements and options. Click here to access the guide and related documentation.

Python

Mix the high-performance data handling and industrial analytics strengths of the SAS language with your favorite Python syntax and libraries to create powerful unified solutions. The software can exchange data between Python and SAS language code within a single SAS language program.

The software enables you to include Python code inline or incorporate Python programs into SAS language programs. When you execute the SAS language program, Altair Analytics Workbench runs the SAS language syntax itself and interoperates with your chosen Python environment to execute Python statements. The system automatically returns the output and log information generated by the Python environment so users can view it within the Altair Analytics Workbench user interface.

The software can pass data and commands to Python to access a broader range of processing tools and allow further processing of results in other languages. The PROC PYTHON procedure provides a simple, efficient way to exchange data between the SAS and Python language environments using Pandas DataFrames.

Use this capability on the following platforms:

- Linux on x86
- macOS on x86
- Windows on x86

Click here to access an extensive set of documentation on these capabilities.

R

Being able to use the R language together with the SAS language offers the best of both worlds: the high productivity, scalability, robust data handling, and industrial analytics strength of the SAS language together with novel and emerging academic statistics from the R ecosystem.

Altair Analytics Workbench lets you mix R into your SAS language programs. It will send sections of your program written in R together with data automatically to your R environment for execution. The software also provides a simple, efficient way to exchange data between the SAS and R language environments.

The software also enables you to include R code inline or incorporate R programs into SAS language programs. When you execute the SAS language program, Altair Analytics Workbench runs the SAS language syntax itself and interoperates with your chosen installed R environment for the execution of the R statements. The system automatically returns the output and log information generated by the R environment so users can view it within the Altair Analytics Workbench user interface.

You must have a third-party R environment configured and running on the same computer running Altair Analytics Workbench to run R procedures.

Click here to access an extensive set of documentation on these capabilities.

SQL

SQL databases are core elements in most businesses. SQL is also a programming language that facilitates communication with databases to manage the data they contain. The ability to incorporate SQL code into SAS language programs enables Altair Analytics Workbench users to employ SQL for data processing using the coding or workflow functions, apply SQL code and manipulate data as necessary, apply SQL code blocks to data and interleave code with visual processing chains, and process SQL statements to further enhance the capabilities of their programs.

Altair SLC™ makes it possible to use SQL to query any dataset – not just databases.

The query block function supported in Altair Analytics Workbench and Altair SLC allows users to visualize SQL queries and write complex queries without needing to fully understand SQL as a language.

Hadoop Big Data Environments

Hadoop is an ecosystem of storage and processing components that provide a scalable, fault-tolerant software framework for the distributed storing and processing of very large datasets on computer clusters.

Altair Analytics Workbench can operate with native Apache Hadoop and commercial variants that remain close to the Apache standard, including Hortonworks® and MapR®, and is certified by Cloudera® for use with their Hadoop environment version 5 and higher. Use this interoperability on platforms supporting third-party Hadoop environments, including Windows and UNIX.

MATRIX PROGRAMMING

In Altair Analytics Workbench, users can conduct advanced matrix manipulation and develop algorithms using either the SAS language or the R language. The software includes support for the IML procedure (PROC IML) syntax of the SAS language (sometimes referred to as IML language). This provides the ability to code matrix programming statements in a SAS program using natural mathematical syntax to write custom algorithms, read and write datasets, and control the flow of programs.

The IML syntax shares several basic similarities with SAS language DATA steps with mathematical functions such as LOG, SQRT, ABS, SIN, COS, CEIL, FLOOR, and so on. Mathematical functions used in the IML procedure act on elements in matrices, unlike a Data Step, which acts on single observations. The matrices will typically reside in memory (primary storage) whereas datasets typically reside on disk (secondary storage).

The IML syntax includes the flexibility to transfer matrices from Altair Analytics Workbench to and back from an R environment for further processing. This can be used in conjunction with or as an alternative to Altair Analytics Workbench's interop module for R capabilities, such as exporting and importing datasets between R and Altair environments and executing R code from the R procedure (PROC R).

USING THE POWERFUL FUNCTION COMPILER (FCMP)

Altair development tools support the FCMP procedure, which enables users to create custom functions to expand their programs' capabilities in creative ways. Essentially, developers use the FCMP procedure to specify user-defined functions and CALL routines to customize SAS language functionality. They can also store functions and call routines in a catalog for later use in SAS language programs or use them immediately by invoking them during procedure execution. This allows power users to share functions and call routines with their entire team.

COMBINE LOCAL AND REMOTE PROGRAM EXECUTION

In regular Altair SLC sessions, a single host performs all processing. The software allows parts of a program to be executed on different remote servers synchronously or asynchronously.

It can be advantageous to run different parts of a program on different servers. For example, you might have a reporting application that needs to extract and summarize data before generating and distributing reports. It may make sense to perform the extraction and summarization parts of the process on the host that stores the data, and then transfer the summarized data back to the client machine for generation and distribution of the reports.

This can be ideal for the enterprise environment where security, scalability, and capacity are key. In it, data never leaves the data center, while analysts can perform powerful analytics using advanced programmatic capabilities. Analysts can also upload the datasets required on a remote server programmatically from within the locally running SAS program and then submit SAS program code for execution on the remote server. They can then download datasets produced by the remotely executed program to their local sessions for further analysis or processing.

Altair SLC can run on a completely different platform from the remote server. For example, you might have Altair SLC installed locally on a Windows workstation communicating to remote Altair SLC instances on Linux servers and mainframes. You can secure communications with robust, industry-standard, high-strength encryption or use Telnet protocol to connect to legacy systems.

Install Altair SLC in the cloud, or on grids, clusters, or mainframes and add enhanced security facilities to run programs within a completely secure environment. The data never has to leave the data center, which makes it perfect for automated, scheduled, or batch operations.

USE CASES

Here are brief descriptions of two important use cases involving mixed-language development.

MODEL CUSTOMER LIFETIME VALUE IN CONSUMER-FACING BUSINESSES

Customer retention is a major challenge for every type of business focused on consumers, including telecommunications operators, banks, and retailers. Let's look at a high-level example of a telecommunications company that wishes to assess the probability of its customers switching service providers ("churn") over the coming three months.

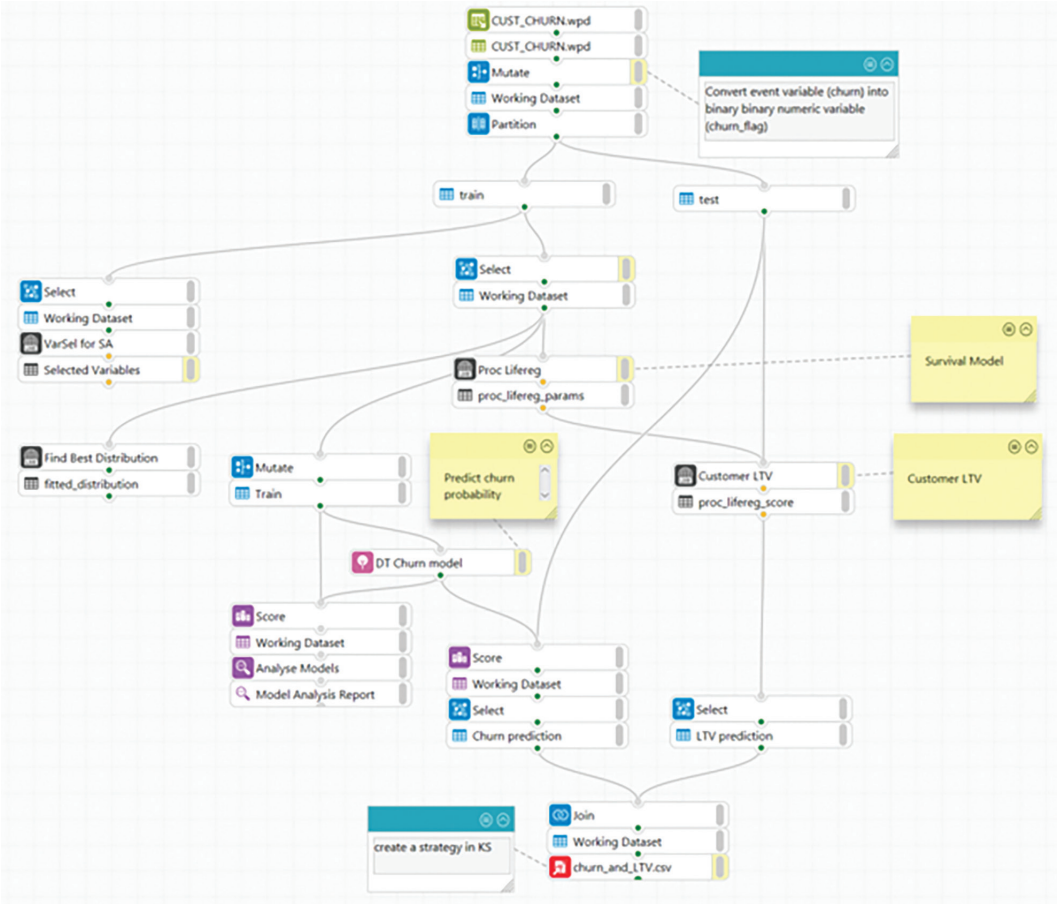
The company has already built models that predict churn with satisfactory degrees of accuracy, but it wants to go further and focus retention efforts on its most valuable customers. For that, they need a composite model that includes a survival rates component to predict the customer lifetime value (LTV).

Building an LTV model is a complex process and usually requires the following key components:

- Feature selection block
- Helper block to identify the best distribution for the survival model
- Survival model to predict customers' survival probabilities based on a parametric distribution and several explanatory variables
- A "what-if" scenario block for calculating LTV over time

These components are typically not available in packaged solutions. Developing each block often demands advanced analytical skills and a considerable amount of custom coding. Additionally, a single programming language may not be the best fit for all program blocks, making the ability to mix languages within a single model extremely valuable. For example, data scientists can select the best language to use for each component; this means they could build the feature selection block in Python, the parametric survival block in the SAS language, and the "what-if" scenario block in R.

Furthermore, Altair software enables data science teams to create a complete toolbox for LTV consisting of the above components packaged into separate custom blocks. Developers can access and configure each component with our intuitive visual interface. They can use as many different languages (including Python, R, SQL, and the SAS language) in each block as they like and make the blocks available to their coworkers.



Altair's tools enable data science teams to build workflows with drag-and-drop interactive blocks, including blocks of custom code. This provides the perfect combination of low-level data engineering facilities for retrieving, blending, and preparing data for analysis, along with machine learning features that let you build, explore, and validate reproducible predictive models. They can code each programmable block in the languages of SAS, SQL, Python, and/or R as needed.

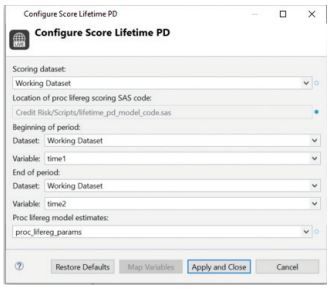
PREDICT LIFETIME DEFAULT PROBABILITY

Making accurate probability of default (PD) predictions is one of the most valuable machine learning applications in the financial services industry. The results of PD predictive models help determine the value of credit-backed bond portfolios, inform a lender's future credit worthiness decisions, and have a direct impact on earnings.

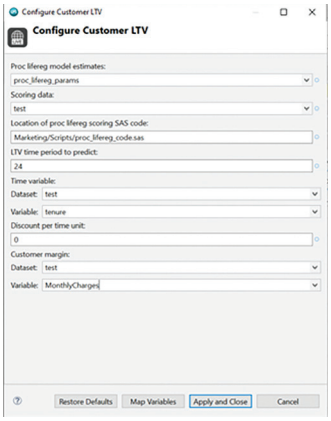
There are two general approaches to making PD predictions in widespread use today:

- The traditional — and most common — method makes predictions over the next financial period (one month, six months, one year, and so on). This one-period ahead model is based on the Basel III regulatory requirement, applicable to most consumer and commercial credit lenders in the world. Banks and non-bank financial firms typically use standard credit risk scorecards like those available in the Altair RapidMiner platform.
- A lifetime PD model predicts default rates from the start to the end of the life of the loan. This model is required by the IFRS9 accounting standard, and can apply to lenders as well as corporate entities using credit instruments of almost any type as components in their balance sheets. This standard may apply to long-term loans, equity stakes in other firms, or even receivables. Many organizations use survival analysis models to make lifetime PD predictions.

Let's examine the case of a lender that wants to predict the PD for new customers throughout their entire loan lifecycles. This approach will satisfy applicable IFRS9 requirements and provide the lender with a highly accurate prediction about the ongoing value of its portfolio.



Data science teams can create custom blocks within Altair Analytics Workbench that business teams can then assemble and use in various applications. The data science teams can specify the configuration parameters that are exposed to users in easy-to-understand popups like this one.

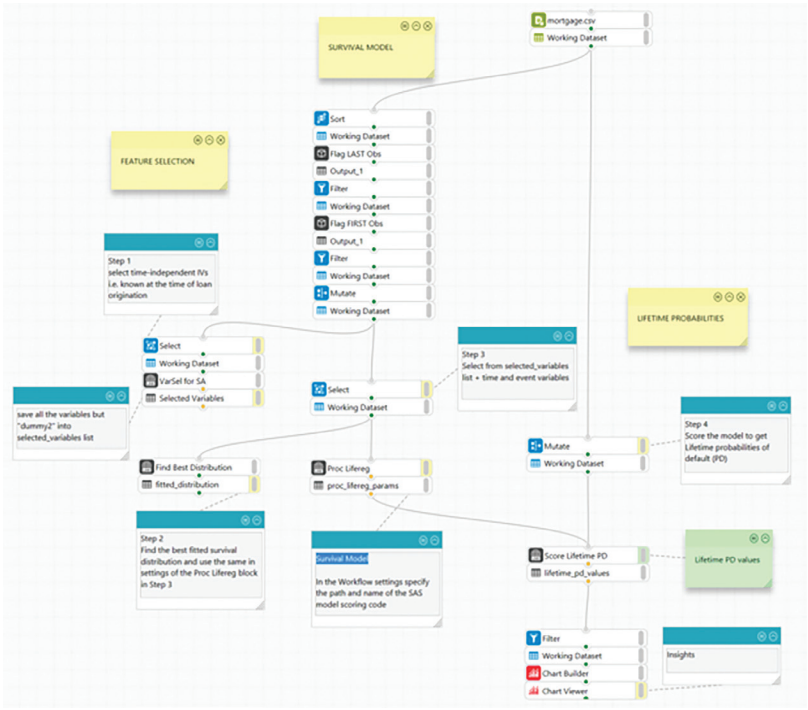


Altair's software enables developers to create custom-configured pop-up windows like this one within their visual workflows. Entering parameters in pop-ups requires no programming skills and less technical users don't have to try editing Python, R, SQL, or SAS code directly.

The lender has historical data for existing customers including the default status for each loan on a month-by-month basis. The preferred modeling method will utilize a censored dataset containing only loans for which complete data is available. The PD model itself will use a combination of a best-fitted survival probability distribution and a parametric survival model. This approach requires a variety of tools that are not readily available in commercial machine learning packages.

The custom blocks feature included in Altair Analytics Workbench includes all the components needed to assemble a complete PD model. Each component package appears as a single block within the software's visual user interface, including all necessary configuration parameters. The software enables data science teams to build and tweak each component as needed and publish them to a larger group of users. Less technical people in the firm — often called "citizen data scientists" — can then use those components and build their own PD models.

The custom blocks capability included in Altair Analytics Workbench can incorporate code written in the languages of SAS, Python, R, SQL, or a combination of these. Once the blocks are built and published, assembling, configuring, and using PD models becomes something that the people who understand the business best can easily accomplish.



Business users can use a visual, drag-and-drop interface to create sophisticated, comprehensive PD models quickly using custom blocks and other elements available within the Altair Analytics Workbench solution.

SMARTER STRATEGIES FOR DEPLOYMENT, GOVERNANCE, AND THE CLOUD

TAKE IT TO THE CLOUD

Breaking down the barriers between open-source and SAS languages is a major win. But it's far from the only strategic challenge data analytics stakeholders face. Moving to the cloud is another analytics priority. Migration facilitates scalability and access to the latest technology, and also ensures that more data products serve the front office.

To realize these benefits, organizations typically need to overcome several obstacles. These include:

- Replicating complex extract, transform, and load (ETL) in the cloud
- Ensuring that business-critical applications run successfully and produce the same outcomes
- Ensuring effective change management for analytics in production
- Integrating on-premises and cloud analytics

The latest technology offers a platform for migrating to the cloud in three distinct phases: data, analytics, and people. In particular, the ability to maintain business-critical applications while testing cloud execution represents a key driver for adopting new cloud infrastructures quickly.

Deploy, Deploy, Deploy

Today's data analytics modernization strategies also need to facilitate the growing demand for faster, more efficient deployment capability. Traditionally, organizations have pushed development code to DevOps or charged analysts with the job of rewriting code for production use. Both approaches are costly in terms of time, skills, and resources.

Here again, the latest hybrid technology is designed to make analytics deployment quick and straightforward.

Multiple options are available to access deployed analytics:

- Microsoft Excel
- Web browsers
- Custom reporting portals and dashboards
- Programmable calls (C++, C#, Java, JavaScript)

Other features include:

- Scheduling capabilities to run deployed analytics at a specified time/day
- Quick, simple facilities to deploy analytics programs to internal users or external customers (For example, Git integration, user management, data access governance and dataset library publishing).
- Straightforward, point-and-click RESTful API creation to prompt users for inputs such as dates, numeric values, and string values

The Home of Better Governance

Given the ever-increasing number of skillsets and disciplines involved in the creation, management, and operation of data analytics solutions, effective governance is also becoming more of a headache. Here again, the fact that the new solutions offer a single environment in which everyone can collaborate adds significant value. Crucially, it lets teams centrally manage users, data access credentials, and Git integration with development and deployment.

END USERS MOVING TO ALTAIR SOFTWARE SAY THEY OFTEN ACHIEVE POSITIVE RETURN ON INVESTMENT WITHIN JUST TWELVE MONTHS.

ALTAIR® UNLIMITED™ DATA ANALYTICS APPLIANCE

The Altair Unlimited Data Analytics Appliance boxes up software, system administration, and infrastructure-as-a-service into a single, intuitive unit.

The Altair Unlimited Data Analytics Appliance is a pre-built, pre-configured, ready-to-run solution loaded with powerful software like the Altair SLC™ SAS language compiler and execution environment, Altair Analytics Workbench™, Altair SLC Hub™, and more. Users can run programs written in SAS language syntax without translation or third-party products. The out-of-the-box coding environment is ideal for developing models and programs written in the SAS language, with centralized governance and deployment for every step in the data analytics lifecycle.

Turnkey Data Analytics

Access data and run programs, models, and workflows. Many organizations have developed SAS language programs that are vital to their operations. Altair SLC handles high levels of throughput, and because it eliminates the need for translation or third-party products, it also reduces capital costs and operating expenses.

A powerful, interactive development environment enables you to unify data and tool silos between engineers, analytics scientists, and statisticians with a single platform to connect, prepare, discover, and model data. Altair Analytics Workbench is a sophisticated coding environment that's ideal for developing models and programs written in the SAS language. Include Python, R, or SQL code in SAS language programs without paying for third-party software to run SAS language programs. Use the software's drag-and-drop workflow to develop models and programs without writing any code.

Take control of your analytics ecosystem by simplifying data management and streamlining analytics to the right users in a secure, governed environment with Altair SLC Hub.

Key Benefits

With the Altair Unlimited Data Analytics Appliance, users get unlimited use of all Altair data analytics and machine learning software.

- Innovative licensing model with Altair's flexible units program
- Deploy in hours, not days or weeks, with one Altair phone number to call for expert support
- Expanded computing capacity without investing in new infrastructure or personnel
- Virtual or physical appliance with a small footprint and all the components you need
- Scale up on demand and between your on-premises and cloud solutions

3RD GEN INTEL® XEON® SCALABLE PROCESSORS

3rd Gen Intel® Xeon® Scalable processors offer a balanced architecture with built-in acceleration and advanced security capabilities, designed through decades of innovation for the most in-demand workload requirements. It is the only data center CPU with built-in AI acceleration, end-to-end data science tools, and an ecosystem of smart solutions. Through Intel's optimizations to streamline popular end-to-end data science tools, powered by the open oneAPI standard, 3rd Gen Intel Xeon Scalable processors make it easier and faster for data practitioners to build and widely deploy smarter models—and simpler to move smoothly from PoC to production.

Built-in workload and service acceleration

Intel Deep Learning Boost (Intel DL Boost) acceleration is built-in specifically for the flexibility to run complex AI workloads on the same hardware as your existing workloads.

- with INT8 – available on all 3rd Gen Intel Xeon Scalable processors, Vector Neural Network Instructions (VNNI) enhance inference workloads by maximizing use of compute resources, improving cache utilization, and reducing potential bandwidth bottlenecks.
- with bfloat16 – available on select 3rd Gen Intel Xeon Scalable processors, the industry's first x86 support of Brain Floating Point 16-bit (blfoat16)5 brings enhanced artificial intelligence inference and training performance with Intel Deep Learning Boost.

Intel Advanced Vector Extensions 512 (Intel AVX-512) boosts performance and throughput for the most demanding computational tasks in applications such as modeling and simulation, data analytics and machine learning, data compression, visualization, and digital content creation. Take advantage of 3rd Gen Intel Xeon Scalable processors' increased memory bandwidth, improved frequency management, and 2x the FMA (intrinsics for floating point fused multiply-add [FMA] operations)—now across Platinum Gold, and Silver SKUs. Compared to Intel AVX2, Intel AVX-512 is designed to enable greater performance than ever before.

Security

Intel Software Guard Extensions (Intel SGX) provides fine grain data and privacy protection via application isolation in memory, independent of operating system or hardware configuration.

- Intel QuickAssist Technology provides platform-based hardware acceleration for cryptography and data compression.
- Intel Total Memory Encryption delivers full physical memory encryption support to enhance data and VM protection.

CONCLUSION

For enterprises across an array of industries, the need to extract greater value from data is a given. The real challenge lies in finding the most efficient, agile, and effective methods of doing so. Applications based solely on the SAS language are limited in many ways, but the arrival of new hybrid development workflows and software has upended the landscape. Instead of making decisions based on the “least bad” option, organizations can now choose and use the languages that will best serve their objectives. At the same time, they can create “open door” development environments that embrace the full range of talent that can and should be contributing to compelling data analytics outcomes.

LEARN MORE

Technical Document: Architecture of Your Choice
Altair's complete, high performing alternative SAS language environment empowers organizations to create, maintain and run models and programs using Python, R, SQL, and SAS languages on the architecture of your choice: cloud, SaaS, on-prem, and mainframe. Read document here.

Technical Document: Altair SLC™ with Fully Integrated SAS Language Compiler
The SAS language compiler built into Altair SLC can run programs written in SAS language syntax without the need to install any third-party products.
Read document here.

Solutions Flyer: Altair SLC: Access Data and Run Programs in Development and Production
Altair SLC runs programs written with SAS language syntax without translation and without licensing other third-party products. Read document here.

Technical Document: Altair Analytics Workbench
Altair Analytics Workbench is a sophisticated coding environment that's ideal for developing models and programs written in the SAS language. With it, developers can include Python, R, or SQL code in their SAS language programs, and it requires no third-party software to run SAS language programs. The platform also provides a drag-and-drop workflow where users can develop models and programs without needing to write any code. Read document here.

Solutions Flyer: Altair Unlimited™ Data Appliance for Data Analytics
The Altair® Unlimited™ Data Analytics Appliance is a pre-built, pre-configured, ready-to-run solution loaded with powerful software like the Altair SLC SAS language compiler and execution environment, Altair Analytics Workbench™, Altair SLC Hub, and more. Read document here.

Video: Altair Unlimited Data Appliance for Data Analytics: An Overview
The Altair Unlimited Data Analytics Appliance is a pre-built, pre-configured, ready-to-run data analytics and AI solution loaded with all the software and computing power forward-looking organizations need to drive next-level business results.
Read document here.

Case Study: Real-Time Credit Scoring: Reduce Approval Times, Increase Loan Numbers, Improve Borrower Experience
Implementing artificial intelligence (AI) models that facilitate fast credit reviews — and even approvals —helps a non-bank financial institution increase the quality, number, and amount of loans granted without taking on unacceptable levels of risk.
Read document here.

Customer Story: Game-Changing Financial Analytics
Credit risk specialist builds robust SAS language-powered analytics framework. The team can combine modules built in Python, R, SQL, in addition to the SAS language into their updated models. Read document here.

Customer Story: Streamlining the Data Experience
Healthcare analytics specialist uses Altair SLC to run programs and macros written in SAS language syntax without translation and without needing to license third-party products. Read document here.

Technical Document: Deploy a Complete, High-Performance Alternative SAS Language Environment
Altair provides the tools you need to bring the SAS language, Python, R, and other modern analytics technologies together into a coherent, future-proof platform. Read the document.

eGuide: Make Machine Learning Work for You: An Executive's Guide to the Future of Enterprise Decision-Making
This eGuide will help you understand the key concepts behind ML, some common applications, and how ML is becoming more useful to people at all levels of the modern organization. Read document here.

Video: Altair Analytics Workbench: An Overview
Altair Analytics Workbench is a sophisticated coding environment that's ideal for developing models and programs written in the SAS language. This video presents a short introduction to the capabilities of the software. Watch video here.

Video: Altair SLC Hub: An Overview
Altair SLC Hub enables you to govern your analytics enterprise and deploy programs and models coded in the SAS language, Python, and R as APIs for use in real time and on demand business applications. Watch video here.

Video: Move to Altair's Alternative SAS Language Environment in Three Steps
Altair enables you to run existing or new programs written in SAS language syntax without the need to install any third-party products. Bridge the world of the SAS language and open-source languages, including Python, R and SQL. This short video explains the major steps in the migration process. Watch video here.

Video: Explore Altair's Alternative SAS Language Environment
Altair enables you to develop, test and deploy programs, machine learning models, and macros written in the SAS language as well as Python, R, and SQL — or in any combination of these — affordably, intuitively, and without the need for third-party software needed. Watch video here.

Webinar: Deploy an Alternative SAS Language Environment Part 1: An Introduction to Altair SLC™ - An SAS Language Compiler and Execution Environment, Altair Analytics Workbench™, and Altair SLC Hub™
In this webinar, you'll learn how to overcome licensing challenges by running critical SAS language programs alongside open-source languages in a single platform, developing end-to-end analytics workflows from siloed data processes, and reduce DevOps bottlenecks with APIs. Watch webinar here.

Webinar: Deploy an Alternative SAS Language Environment Part 2: Establish Better, Safer, Higher-Value End-to-End Analytics – Technical Demonstration and Common Use Cases
This webinar discusses business use cases and common implementation journeys, including the use of SAS language programs by users of varying skill sets.
Watch webinar here.

Altair is a global leader in computational science and artificial intelligence (AI) that provides software and cloud solutions in simulation, high-performance computing (HPC), data analytics, and AI. Altair enables organizations across all industries to compete more effectively and drive smarter decisions in an increasingly connected world – all while creating a greener, more sustainable future.

For more information, visit www.altair.com