

# FREIE UNIVERSITÄT BERLIN: HANDLE & ANALYZE REAL-WORLD EVENT STREAMS



## University Partner

Freie Universität Berlin was founded in 1948 and is one of the leading research universities in Germany and distinguishes itself through its modern and international character. Freie Universität Berlin is the highest-ranked university of all universities in Germany and it is one of the German Excellence Universities that met with success in all three funding lines in the federal and state Excellence Initiative. Additionally, it was one of nine German top universities to win in the German Universities Excellence Initiative, a national competition for universities organized by the German Federal Government.

## Industry

Public Sector/Research & Education

## Solution set

Streaming Analytics Education Package (SAEP), including Apama Streaming Analytics and MashZone NextGen Business Analytics

## Key benefits to faculty members:

- Predefined teaching material, including tutorials and corresponding solutions
- Decreased lecture preparation time
- Packages are free of charge
- Keeping students excited through leading-edge and easy-to-use software

## Key benefits to students:

- Expanded knowledge in streaming analytics and analyzing high throughput of data from multiple data sources
- Visualize business activities in real time by identifying patterns
- In-depth experience with leading-edge streaming analytics software, part of Software AG's Digital Business Platform
- Teamwork and management skills as a preparation for future careers
- Free certification

**24+STUDENTS**



**EXCELLENT**  
head start for  
**STUDENT**  
**CAREERS**



**CERTIFICATION**  
**FROM**  
**SOFTWARE AG**  
for future  
job seekers



**LEADING-EDGE**  
**TECHNOLOGY**  
**FREE OF CHARGE**

"You can't manage what you can't measure. And you can't fix what you can't see and understand."

As big, fast data proliferates, more and more data streams are being generated in real time from a myriad of data sources, such as market data, mobile devices, Internet of Things (IoT) sensors, click-stream analysis as well as internal business transactional systems. Real-time insights must be derived from this data to give a competitive edge to agile organizations that want to act on these insights before they lose their value. To handle billions of these data streams, new software architectures and techniques are needed.

These types of software are called "Big Data Streaming Analytics." Companies need educated specialists to harness the power of big data. The Streaming Analytics Education Package (SAEP) is Software AG's answer to the growing demand for data science experts. Universities and private companies share the responsibility of training the sought-after talent currently demanded by the market.

Freie Universität Berlin (FU Berlin) considers close and sustained cooperation with companies such as Software AG to be a valuable opportunity to offer market-oriented projects to their students.

*"Companies need specialists in the fields of streaming and big data analysis. With Software AG's Streaming Analytics Education Package, we are using leading-edge software to educate data scientists."*

— **Professor Dr. Adrian Paschke** | Freie Universität Berlin

## Products included in the SAEP:

The SAEP contains a bundle of Software AG's Digital Business Platform products. These products are offered on a virtual machine for research and educational purposes completely free of charge. Here is a short overview of the tools students use while completing the SAEP.

### Apama

Allows organizations to develop, execute, visualize and monitor business solutions that combine process automation and workflow management capabilities using concepts of Complex Event Processing (CEP). Add-on tools incorporate monitoring, real-time events, rules management and more.

### MashZone NextGen

The software delivers operational insight dashboards direct from live information sources. You can combine data from any original source, for example data warehouses, news feeds, social media, Business Intelligence (BI) systems, streaming big data and even Microsoft® Excel® spreadsheets, to create business mash-ups for right-time decision-making.

### For more information, visit:

[www.softwareag.com/university](http://www.softwareag.com/university)

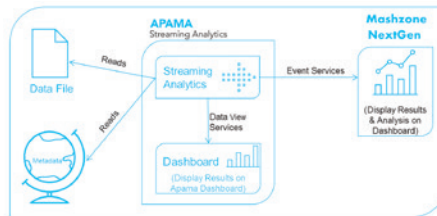
### To contact us, send an email to:

[university@softwareag.com](mailto:university@softwareag.com)

## Needed: data scientists

FU Berlin recognized the need for data scientists early on. For reasons listed, they decided to use the SAEP to help students become specialists in the field of event processing and analytics.

The SAEP is designed to be a full-term independent study project, enabling students to handle and analyze real-world event streams. The SAEP contains Software AG's big data products for the Digital Business Platform, enabling informed decisions to be made at speed and scale by integrating real-time analytics and decisioning into transaction-executing systems.



## Real business scenario with 50 million data sets

The students of FU Berlin used the "Soccer Scenario," one of the case studies included in the SAEP. It requires users to analyze position data of both, players and ball, in a soccer game and generate information about the game as results in a dashboard. The scenario includes 50 million data sets recorded using sensors mounted on soccer players' shoes and gloves as well as on the ball. In total, mixed groups of 24 master and bachelor students could either work on the project independently or within a group. "In the past, we only had access to small data sets, but with the SAEP we could practice structuring and filtering data as the set was very large," one student emphasized. The student groups were supported by Professor Dr. Adrian Paschke, head of the Corporate Semantic Web group (AG-CSW) at FU Berlin. He is also director of the Data Analytics Center (DANA) at Fraunhofer FOKUS, Director of RuleML Inc. in Canada, and a professorial member at the Institut für Angewandte Informatik (InfAI) at University of Leipzig.

## Teaching theory through practice

The goal was for the students to gain in-depth programming knowledge about the applications of streaming analytics: "I didn't know much about complex event processing before starting this education package, so it was great having such a practical example. It was a welcomed change to work with real-world data. We could even watch the video of the data being created," one student added. Professor Paschke is sure, "The collaboration with such a successful industry partner is a significant added value for FU Berlin. We could educate students with market-leading software, absolutely free of costs. Additionally, the SAEP is divided into clearly defined steps, so that every student knew what to expect and how to proceed." Whenever questions in the project arose, Software AG's University Relations department assisted. The students also had access to Software AG's TECHcommunity forum to exchange ideas with and give and receive support from students at other universities around the world.

## Benefits

By using the SAEP, students not only gain technical skills, they also establish social skills needed professionally by working together as a team and being in close contact with a company. All involved faculty members were delighted by the motivation with which the students addressed the package-specific challenges. Prof. Paschke reported: "Students were so highly motivated that they were even doing additional tasks." He also added: "They are proud of what they achieved and want to show it at the open house day at FU Berlin. Due to the overwhelmingly positive feedback we received from the students, we've decided to use the SAEP in future semesters. Next time around, we would like to extend the soccer scenario for more advanced semantic event pattern mining and would use further scenarios and test data sets." Software AG University Relations is currently working on additional real business scenarios.

After having completed the project, the students got a free certification from Software AG. The document was in high demand and demonstrates the excellent head start it promises for future job applications.

## ABOUT SOFTWARE AG

The digital transformation is changing enterprise IT landscapes from inflexible application silos to modern software platform-driven IT architectures which deliver the openness, speed and agility needed to enable the digital real-time enterprise. Software AG offers the first end-to-end Digital Business Platform, based on open standards, with integration, process management, in-memory data, adaptive application development, real-time analytics and enterprise architecture management as core building blocks. The modular platform allows users to develop the next generation of application systems to build their digital future, today. With over 45 years of customer-centric innovation, Software AG is ranked as a leader in many innovative and digital technology categories. Learn more at [www.SoftwareAG.com](http://www.SoftwareAG.com).

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