

SU and Shoprite partnership empowers first cohort of data science graduates

- *Students were granted access to a dataset of 14 million sale transactions, and they were continuously mentored by engineers from the Shoprite Group.*
- *It is difficult for students to access large datasets independently due to privacy concerns, licensing restrictions, and the infrastructure needed to handle such data.*

A long-standing partnership between Stellenbosch University (SU) and the Shoprite Group has enabled the first cohort of graduates in the Data Science programme to engage with real life business challenges from the retail industry.

For their final year project in the Computer Science Division, for example, Günther Tonitz and Steffan Schoonbee tackled the hard question of promotional timing: *When is the right time to promote which item, and for how long?*

“We quickly realised the much more difficult question was whether items on promotion actually lead to success from a retail perspective,” explains Günther. In other words, if a customer buys five of the same items on promotion – what is known as pantry stocking – it may mean that they are not going to buy that product again for the next five months.

In another scenario, called off-target shopping, a customer may buy a promotional item, such as a soft drink, and then add a few bags of chips (that are not on promotion) for throwing a party, Steffan adds.

Which approach then, can be defined as a success?

To answer this question, the students were given access to two years' worth of data from one of the Shoprite Group's supermarkets. It included 16 000 articles, equating to 78 000 promotional combinations. This dataset was further enhanced with stock movement data over a nine-month period, covering 18 000 articles. The dataset contained over 1 million stock movements.

Working with 14 million sales transactions, Steffan and Gunther built a dashboard to predict the success of future promotions, based on the performance of previous promotions.

According to Debbie Vigario, Head of Engineering at the Shoprite Group's Data Analytics Office (and a SU alumnus), their approach is to provide students with real life business challenges: "We support them through the analytical development life cycle while challenging their thinking along the way. We assigned mentors to students and ensured that we engaged regularly to support and guide them."

With the launch of the B-degree in Data Science and the BEng Data Engineering programs in 2019, the Group engaged with the various faculty leadership on ways they could partner with SU on project work. This engagement led to the various real-life projects for final-year students in the Computer Science focal area within the BDatSci programme.

Dr. Mkhuseleli Ngxande from SU's Computer Science Division says the BDatSci programme with a Computer Science focus emphasises technical expertise in software engineering, web development, and data science: "It equips students with practical skills to develop end-to-end solutions that are both innovative and well documented. This focal area is distinct from others like Economics and Management Sciences or AgriSciences, as it centres on technical implementation, computational problem-solving,

and creating software-driven data solutions rather than applying data science concepts to domain-specific problems in business, agriculture, or environmental studies,” he explains.

While this is the first cohort of five BDatSci graduates in the Computer Science focal area, there are another 20 to 25 students in the undergraduate pipeline.

He says it is challenging for students to gain access to large datasets independently due to privacy concerns, licensing restrictions, and the infrastructure needed to handle such data. Collaborations like those with Shoprite are invaluable in bridging this gap.

Prof. Ingrid Rewitzky, head of the Department of Mathematical Sciences and Vice-Dean: Teaching and Learning for the Faculty of Science, says the partnership with Shoprite contributes towards “enhancing student success through unlocking opportunities for work-integrated learning and for equipping students with skills and competencies to be competitive for their future employment applications”.

The final-year BDatSci (CS) students are Dirk Hoffmann, Steffan Schoonbee, Shriyan Singh, Günther Tonitz, and Franco Uys.

-ENDS-

Caption

The first cohort of students in the Data Science Programme at Stellenbosch University (SU) graduated this week. This group, which graduated in the Computer Science focal area, were mentored by Debbie Vigario, Head of Engineering at the Shoprite Group’s Data Analytics Office. The students are, from left to right, Dirk Hoffmann, Shriyan Singh,

Steffan Schoonbee, and Günther Tonitz. Franco Uys was absent when the photo was taken.

Note to editor

The collaboration between SU and the retailer started in 2017 when the Shoprite Group engaged with the Operations Research programme in the Faculty of Economics and Management Sciences. In 2019 the retailer formed a relationship with Launchlab to sponsor students for incubation programs and engagements with the School for Data Science and Computational Thinking. Since 2023, the Group has an industry representative on the governing board of the Centre for Multi-Dimensional Visualisation in SU's [Department of Statistics and Actuarial Science](#).