

HACKATHON HANDBOOK SEPTEMBER 2022



Stellenbosch
UNIVERSITY
IYUNIVESITHI
UNIVERSITEIT

**Innovation and
Commercialisation**
Innovus Technology Transfer

HACKATHON

16–18 SEPTEMBER 2022

**PRIZE MONEY
UP TO R30,000**



Venue: General Engineering Building,
Banghoek Road, Stellenbosch

REGISTER HERE
forms.office.com/r/zzfdDWqyS4

DATA CHALLENGE (CAPITEC BANK)

Using insights from client usage behaviours, apply data science and machine learning to incentivise behavioural changes.

FINTECH CHALLENGE

Develop a solution that will accelerate the adoption of digital products in the SME space.



www.sun.ac.za

forward together
sonke siya phambili
saam vorentoe



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HACKATHON PROGRAMME

Event: SU Hackathon 2022

Date: 5pm Friday 16th April until 4pm Sunday 18th of September

Venue: The General Engineering Building, Banghoek Road, Stellenbosch Central.

Location pin: [Click here](#)

FRIDAY 16TH OF SEPTEMBER 2022

Arrival, 5:00pm – 5:45pm:

Upon arrival, teams will register at the registration desk in the foyer. Each member will then receive:

- A goodie bag
- A Hackathon T-shirt

Please note: T-shirt sizes are limited and will be handed out on a first come first serve basis.

- A team wristband

Please note: Your wristband is what gives you access to the venue and to meals. so, you will need to keep it on for the entire event!

- Food vouchers

Please note: Food vouchers are what will get you your food. You only have one per meal, so don't lose them.

- Coffee vouchers

Please note: Each student is also receiving 10 coffee vouchers that are redeemable at The Chalk Board coffee shop this weekend only.

Introduction and QnA, 6:00pm – 8:30pm:

Once all the teams are registered our sponsors and industry partners will introduce the challenge and answer any questions you have. Then, at 8:30pm, the challenge begins!

SATURDAY 17TH OF SEPTEMBER 2022

On Saturday, the day is all yours! You will have the whole day to work on your solution. Participants may work from the General Engineering Building or may work from home and make use of the Microsoft Teams Mentor Channel. It is recommended that you try to finalize your solution on Saturday, so that you can start prepping your pitch to the judges on Sunday.

SUNDAY 18TH OF SEPTEMBER 2022

Work on Your Pitch, 10:30am – 11:30am:

On Sunday, teams will have until 10:30am to work on their solutions and submit their presentation to the judges before 11:30am. At noon, the challenge clock will stop and the challenge is over.

Break, 12:00pm – 1:00pm:

The teams will break for some snacks before the closing ceremony begins at 01:00pm.

Pitch to Judges, 1:00pm – 4:00pm:

From 1:00pm, the teams will pitch to the judges. Then, from 3:30pm the judges will announce the winners and the prizes will be given out.

HACKATHON CATERING PROGRAMME AND DETAILS

Now, you may be wondering about food. Wonder no longer, below is the timeline for food:

FRIDAY 16TH OF SEPTEMBER

- Opening Ceremony snacks and drinks, 5:00pm:
- Dinner time snack, 9:00pm:

SATURDAY 17TH OF SEPTEMBER

- Breakfast time, 8:30am – 9:30am
- Snack break, 11:30am
- Lunch time, 1:00pm- 2:00pm
- Snack break, 4:30pm
- Dinner time, 7:00pm – 8:00pm
- Snack break, 10:00pm

SUNDAY 18TH OF SEPTEMBER

- Breakfast time, 8:30am – 9:30am
- Closing Ceremony snacks and drinks, 12:00pm

THROUGHOUT THE EVENT

- Coffee vouchers are redeemable throughout the event, while the coffee shop is open (7am – 10pm).
- After 10pm, there will be a coffee and tea station available in the cafeteria for self-service. Please be considerate of others as we have catered accordingly. Please keep all general communal areas clean at all times
- There will be a water dispenser available throughout the event
- You need your wristband for food and drinks!

MORE NOTES ON FOOD

- You will need to show your wristband to collect all meals.
- You will need to use your food vouchers to redeem your food at each meal.
- Plated meals (breakfast, lunch and dinner) will be served at The Chalk Board restaurant.
- Snacks will be individually packaged and placed on a table in the cafeteria, in the area covered with fake grass, close to the door on the foyer side.
- The late-night tea and coffee station will be set up in the same area as the snack table, where students can help themselves to tea and coffee.
- Students with special dietary requirements have been catered for, please ask the staff to hand you the correct meal.
- No meals or beverages besides water are allowed in the Study Centre, so that the area stays clean for working.
- All meals are halal certified.

THE CHALLENGE

Students are entered into one of two challenges, the FinTech or the Data Science challenge. Both challenges will be introduced during the opening ceremony on Friday the 16th of September.

FINTECH CHALLENGE

For students in the FinTech challenge, Entersekt will provide all the resources you need on Friday the 16th of September when the event begins. There is also a Teams meeting that will be open for the duration of the event, where students may ask mentors questions when they are not in the Engineering Building.

FinTech Mentor Teams Meeting Details:

Meeting ID: 366 372 370 774

Passcode: QMjEEN

Link: [Join the meeting](#)

DATA SCIENCE CHALLENGE

For students in the Data Science challenge, it is important that you spend time before the event setting up your coding environment. See details on what you will need below.

Data Science Mentor Teams Meeting Details:

Meeting ID: 327 004 373 447

Passcode: kA7Lta

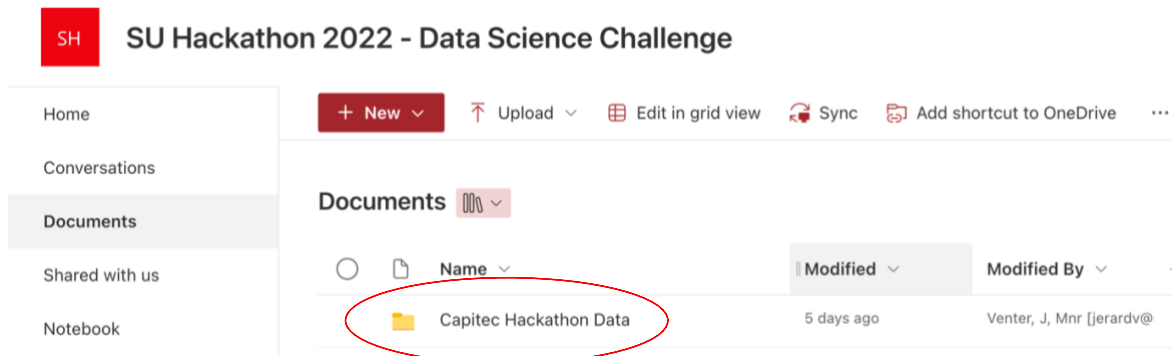
Link: [Join the meeting](#)

Data Science Challenge Data

All Data Science students have been added to a OneDrive group on the Stellenbosch University network. The name of the group is SU Hackathon 2022 - Data Science Challenge. You have been added using your Stellenbosch University email, which you will need to use in order to access the files in the group. The group can be accessed using the link below:




<https://stellenbosch.sharepoint.com/sites/SUHackathon2022-DataScienceChallenge>

In this group, under the documents tab, you will find a folder called Capitec Hackathon Data. See image below.



Inside this folder there are two .txt files provided by Capitec. These files are what you will use to solve Capitec's challenge. It is important that students access these files before the Hackathon begins on Friday.

Documents > Capitec Hackathon Data

 Name	Modified	Modified By	+ Add column
 ClientBehaviourEvaluation.txt	5 days ago	Venter, J, Mnr [jerardv@]	
 ClientBehaviourTraining.txt	5 days ago	Venter, J, Mnr [jerardv@]	

Capitec recommends that students use Python to solve their challenge and install JupyterLab on their Python console (documentation available [here](#)). Additionally, Capitec recommends that students set up and test their coding environment before the event, using the Data Science Docker Stacks (documentation available [here](#)). It is important that your environment is functioning before the Hackathon, so that valuable time is not wasted during the event.

THE PRIZE MONEY

DATA SCIENCE CHALLENGE

1st place prize – R7 500 for the team

2nd place prize – R5 000 for the team

3rd place prize – R2 500 for the team

FINTECH CHALLENGE

1st place prize – R7 500 for the team

2nd place prize – R5 000 for the team

3rd place prize – R2 500 for the team

JUDGES & MENTORS

Our panel of judges and our team of mentors come from Entersekt, Capitec, Von Seidels and Stellenbosch University. The mentors will be at the event as well as on a Microsoft Teams meeting throughout the event to assist you with the challenge. These mentors are highly experienced professionals, so take advantage of them being at the event and ask them questions.

ENTERSEKT JUDGES



Adnaan Isaacs

Senior Vice President of Software Engineering

Adnaan has a background of over 25 years in telecommunications, engineering, SDLC and electronics. He has had a varied career, which includes R&D, Product Engineering, high-tech electronics manufacturing, engineering services to mention a few. He has led diverse global technical teams for the last 20 years, across many disciplines and technology sectors. He is the Senior Vice President of Software Engineering at Entersekt and spend the last 5 years of his career in the Fintech space.



Simon Armstrong

VP Product

Simon is a technologist with a passion for mobility, innovation and usability. He has been in the technology industry for over 10 years, working primarily in small to medium agency and product development environments. Simon has been with Entersekt for 4+ years providing leadership in their product function.

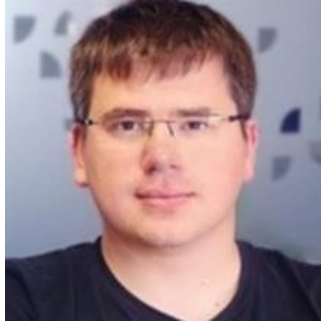
ENTERSEKT MENTORS



John Dalton

Vice President Software Engineering

Experienced Software Development Manager with a demonstrated history of working in the information technology and services industry. Skilled in Software Development, Software Design, Mobile Application Development and Agile Methodologies. Strong program and project management professional with a B.Eng.Sci focused in Engineering, Computer Science, Applied Mathematics from Stellenbosch University.



Paul Van Staden

Development Team Lead at Entersekt

Leading a cross-product team to become masters in the delivery of web-based security software. Paul and his team uses technologies like Kubernetes, Golang, Public-Key-Infrastructure, FiDO, vue.js to make the wheels spin in the background and strongly identify users. Paul has 7+ years in software development with a Bachelor of Computing, Computer Software Eng. at Belgium Campus.



Nicholas Thompson

Senior Software Engineer

Experienced Software Engineer with a demonstrated history of working in the information technology and services industry. Skilled in Python (Programming Language), Java, Go, Software Development, and Linux. Strong engineering professional with a Master of Engineering - MEng focused in Electrical and Electronics Engineering from Stellenbosch University.



Arno van der Merwe

Business Engineer

An experienced Business Engineer with a demonstrated history of working in the information technology industry. Arno holds a Bachelor of Engineering BEng. Electrical and Electronic Engineering from Stellenbosch University.



Nicolas Jonker

Product Owner of digital payments

I oversee the development of our payments product with the aim of enabling our clients to securely expand their payment capabilities (for example, via QR) with a consistent and user-friendly experience. Communicate clearly and honestly. Nicolas holds close to 6 years of experience as product owner and prior to that technical writer. His role is focused on translating product requirements to technical teams. Nicolas holds a bachelor's degree, Industrial Engineering from Stellenbosch University.

CAPITEC JUDGES



August Carstens

Job Title: Product Head: Client Insights. Aka herding smoke.

Academic/Professional Background: Did some hard time at Stellies. Completed Masters in Mathematical Statistics after realising that I'm not cut out for the life of an actuary. Did some consulting across South Africa for a few years before joining Capitec. When the term data science was coined it turned out that I was doing data science work.

What you do at Capitec on a day-to-day basis: Mostly sit in meetings and drink coffee while saying no to people.

Years of experience: Less than what it looks like. Could also be more, depending on what your guess to my age and experience would be.

Interest/Hobbies: While I have some at the moment, they are imminent to expire on the 21'st.

Why you wanted to be involved in the Hackathon: Always great to see what the teams come up with, looking forward to some new ideas that we can use to improve banking for our clients.



Francois Dempers

Job Title: Head: Offshore & Open Source Development

Academic/Professional Background: BSc (Hons) Business Computing and Information Systems. Work experience of 10+ years at Capitec ranging from software development, product development, innovation incubation, digital strategy, working with start-ups & fintechs.

What you do at Capitec on a day-to-day basis: Create innovative new products, from idea through to development and delivered value in a client's hand, with an amazing group of people.

Years of experience: 15+

Interest/Hobbies: Long walks on the beach and having a good time.

Why you wanted to be involved in the Hackathon: Here to learn and spot great talent. It's often surprising how the best innovations emerge under pressure with limited resources.

CAPITEC MENTORS



David Gouvias

Job Title: Senior Data Scientist in Client Insights

Academic/Professional Background: My background is in Computer Science and Mathematics. Studied at UCT, WITS and UNISA. I'm a serial entrepreneur, always happy to listen to crazy ideas.

What you do at Capitec on a day-to-day basis: I program in Python, SQL and sometimes in PySpark. I live in the Cloud.

Years of experience: I stopped counting after 30, but I have been coding since 13.

Interest/Hobbies: Algorithmic Trading, MTB, swimming – follow me on Strava.

Why you wanted to be involved in the Hackathon: Innovation happens when you not bogged down with day-to-day activities. It is an opportunity to share my experience and learn from the students.



Jan Ehlers

Job Title: Data Scientist.

Academic/Professional Background: BCom Investment Management and Statistics, BCom Statistics Honours & MSc Statistics: Specialised in Data Science.

What you do at Capitec on a day-to-day basis: Build and Solve Cloud based Data Lake/Data Warehouse problems. Currently doing more Cloud Engineering work – Building cloud-based data pipelines with big data tools (ex: pyspark/hadoop), linux, python and a bit of sql here and there.

Years of experience: Data Science (+- 1 Year), Data Engineering (+- 1 Year), Cloud Engineering (+- 1 Year).

Interest/Hobbies: Like being active so I dabble my interest here and there in various kinds of sports. Currently extremely passionate about surfing and climbing. Addicted to the “aha” moments in life. Meaning, I am deeply passionate about learning new concepts and tools in the IT (Information Technology) industry.

Why you wanted to be involved in the Hackathon: Interested in seeing how individuals come up with new ways of doing things. Passionate about helping and brainstorming with hardworking individuals to try and resolve complex problems.



Koeshen Moodley

Job Title: Machine Learning Engineer in the AI Platform

Academic/Professional Background: Academic: BSc. (Computer Science, Applied Maths, Astronomy). BSc Hons. (Applied Maths). Professional: Data Science, Machine Learning Engineering.

What you do at Capitec on a day-to-day basis: Work with various teams to develop and maintain infrastructure for their Data and ML Modelling solutions, from ideation to deployment. Promote Cloud-Modelling solutions.

Years of experience: Data Science (~1yr), ML Engineering (~1yr)

Interest/Hobbies: Football, Music Production, Psychology, Art

Why you wanted to be involved in the Hackathon: Develop community interest in a field which is designed to solve problems, whilst polishing personal skills by tackling the problem itself.



PW Janse van Rensburg

Job Title: Software Development Manager

Academic/Professional Background: Academic: B.Com.(Actuarial Science), Post-graduate diploma in underwater plant psychology. Professional: 3 years software engineering, 1 year BI Analyst & ~ 5 years data scientist.

What you do at Capitec on a day-to-day basis: As Software Development Manager, specifically in the Client Insights product stream, I manage various MLOps teams to deliver value to our clients through the form of next best actions.

Years of experience: 3 years software engineering, 1 year BI Analyst & ~ 5 years data scientist

Interest/Hobbies: The dietary requirements of the earth-bound potenuse. History and influence of the black turtle bean.

Why you wanted to be involved in the Hackathon: Many people are interested in the hacking part of a hackathon, I wanted to provide a different perspective on it by focusing on the -athon part.



Molisa Moyo

Job Title: Data Engineer in the Credit Digitization team

Academic/Professional Background: B.Eng (Hons) Electronic Engineering

What you do at Capitec on a day-to-day basis: Write a lot of SQL scripts.

Years of experience: 2 years in Machine learning, 1 year Bash scripting & 2 years Web development.

Interest/Hobbies: Reading, meeting people & coding.

Why you wanted to be involved in the Hackathon: Meet keen minds who have an interest in a field I am deeply passionate about.

VON SEIDELS JUDGES



Anna Tomlinson

A computer technology specialist, qualified European and UK patent attorney. Anna has over 20 years' experience in drafting and prosecuting computer implemented inventions. Her areas of expertise include hardware, software applications, cloud computing, storage systems, encryption and security, Internet of Things, financial technology, and mobile communications technology.



Erik van der Vyver

A qualified electrical and electronic engineer, lawyer and patent attorney. Erik has an electronic engineering and computer science background. He advises tech start-ups and multinational companies and on their patent strategies. His expertise includes high-tech electronics, radar, software, cloud-based computing, blockchain, machine learning, deep learning and the Internet of Things across a variety of applications. He regularly speaks on IP in these areas at conferences.

VON SEIDELS MENTORS



Cronje Jackson

A qualified electrical and electronic engineer, lawyer and patent attorney. Cronje focuses on technology in the electrical, electronic, mechanical, process and biomedical engineering fields. He spent a number of years as a developer before pursuing a career as a patent attorney. He is experienced in drafting patents relating to computer implemented inventions, such as secure digital payment systems, and network security.



Martin Vermeulen

A qualified mechatronic engineer, lawyer and patent attorney. Martin advises clients on patents and registered designs locally and abroad. He is experienced in drafting patents for mobile technologies, manufacturing systems, tracking and security systems, control systems, cryptography, cyber-security, data processing, biomedical engineering, and biometric authentication.



Gunther Roland

A qualified civil engineer, lawyer and patent attorney. Gunther advises tech start-ups and multinational companies on their African patent strategies. In addition to being a South African patent attorney, he is also a qualified Namibian attorney. His patent practice focuses on mechanical, electronic and civil inventions, including computer implemented technologies. Gunther is a regular speaker at IP conferences.

STELLENBOSCH UNIVERSITY JUDGES



Professor Kanshukan Rajaratnam

The director of the School for Data Science and Computational at Stellenbosch University. Prior to this, he was a vice-dean and acting dean at UCT, where he also taught finance for nine-years. His research interest is in the application of operations research and data science to banking and finance.



Professor Ingrid Woolard

The Dean of the Faculty of Economic and Management Sciences at Stellenbosch University, the first woman to hold this position. She is a statistician-turned-economist and her research interests include survey design, the measurement of poverty and inequality, unemployment, social protection and fiscal policy. She is strongly committed to providing data-driven policy advice. She has served on the Davis Tax Committee since 2013, advising seven consecutive Ministers of Finance on tax reform for more inclusive growth. She occasionally regrets having only taken one semester of Accounting at university.

WIFI AVAILABILITY

WiFi will be available at the venue throughout the event. Below are the details you will need to access the network.

Network Name: Hackathon2022

Case Sensitive Password: Hack@St3lli3s

SAFETY AND SECURITY

Campus security will be on standby and will be monitoring in and around the engineering building. If there are security issues please contact Campus Security. Please make sure you look after your belongings, we cannot take responsibility for any loss or damages.

Campus Security Phone Number: 021 808 2333

Campus Security WhatsApp Number: 082 808 2333

ACCESS CONTROL

All students must bring their student card in order to gain access to the main entrance as well as the Study Centre. For those without student cards or those who experience issues with access, please ask your teammates or the venue manager to assist you. Please note that the Study Centre is reserved only for Hackathon participants for the entire duration of the event. Non-participating students are not permitted in the Study Centre, so please do not give access to nonparticipating students or friends during the event.

PARKING

Parking at the venue is limited. So, we recommend that if you live on or near campus you should walk to the venue or share an Uber with your teammates.

LOAD SHEDDING

If and when load shedding strikes, the building has generators that will kick in instantly. Power will be restored and the Wi-Fi should be back up and running in less than 10 minutes.

CONFIRMED TEAM NAMES

DATA SCIENCE

Avengers Assemble

Buffeltjies

Crispy-30

DamaVille

DP^2

Errorr404

Invicta

The Lannisters

FINTECH

AmaQhawe

ECEU

Flutter on Toast

Java_the_hutt

Kaas&Wyn

Lab Rats

StackOverflow Warriors