James May

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A graduating Mathematics student at the University of Durham with a passion for technology, seeking a role to combine my mathematical and programming skills.

Work Experience

Barclays, Technology Intern: Summer 2021

I spent 8 weeks as a technology intern within the wealth management division at Barclays. This time was spent in a team of 4 interns building a tool to allow developers to automatically deploy serverless applications using AWS services to the Barclays internal network. We wrote several CloudFormation templates in YAML to deploy the necessary resources (including API Gateways, Lambdas, S3 Buckets and Network Load Balancers). We then wrote a Python command line tool using the Click library which parsed and populated these templates with user input using the Pyyaml library. Finally, we created a basic React application to link to a lambda written in Java to demonstrate our tool. This project received very positive feedback from project sponsors. I also gained experience in working in an Agile environment; using a Kanban board and regular stand ups to structure the project.

Nandoca, Nandos: 2018-2021

This role placed me as floor staff in my local Nandos restaurant. My responsibilities included serving customers and cleaning the restaurant. This taught me valuable skills, mainly customer service, but also working as part of a team of 10-15 working in the restaurant at any one time.

Education

Durham University (Collingwood College), 2019-Present

This year I will graduate from Durham University with a BSc Mathematics. I am taking modules in Mathematical Finance, Stochastic Processes, Bayesian Statistics and Statistical methods, as well as undertaking a project on Machine Learning. I have also taken modules on a range of pure (e.g., Algebra, Topology, Complex Analysis, Linear Algebra) and applied (e.g., Mathematical Modelling, Monte Carlo Methods) topics. I am also a keen participant in college life, captaining my colleges football O team, and being a keen member of the rugby team and the university climbing club.

King Edward VI School, Stratford upon Avon, 2012-2019

I attended school at King Edward VI, achieving A levels in Maths (A*), Further Maths (A*), Economics (A*), and Physics (A). Here I also founded my schools Maths and Physics society and was a keen member of the school's rugby 1st XV in my senior 2 years. Upon leaving I received a Governor's Leaver Scholarship f or my strong academic performance and involvement in school life.

Skills

Python: I have experience using Python for a range of projects. On my GitHub page you will see my solutions to the advent of code problems (adventofcode.com) using python. I have experience in many libraries and APIs (including Numpy, Scipy, Matplotlib, Pandas, Click, Pyyaml and more), and in unit testing through both Pytest and Unittest. During my time at Barclays, I used Python to code a command line tool to populate AWS Cloudformation templates with user input. I also used Python to model bridge oscillations and the spread of Covid-19 during my mathematical modelling course at university.

Mathematics: Throughout my course I have gravitated towards statistics and probability, covering topics such as Hypothesis testing (parametric and non-parametric), Bayesian vs Frequentist methods, and Linear Regression in Statistics, and Markov chains, Monte Carlo methods and generating functions in Probability. I also have a strong basis across a range of other areas of mathematics, such as algebra, analysis and calculus.

AWS: During my time at Barclays, I learnt how to write CloudFormation templates to deploy AWS services including Lambdas, API Gateways, S3 Buckets, DynamoDBs, Network Load Balancers, and Security Groups. I also used the AWS SAM CLI to manage these services.

C++: I have also taught myself the fundamentals of C++, also using it to solve some of the Advent of Code problems. I have covered concepts such as polymorphism, classes, function overloading and more.

Haskell: I am currently teaching myself Haskell in order to understand functional programming better. I am familiar with language concepts like Monads, Monoids, Functors and more. I have used the language to complete a selection of the advent of code problems, which can also be seen on my GitHub. I have enjoyed learning about functional programming and intend to take it further by also learning about category theory to further deepen my understanding.

R: I have used the R language during my Statistics courses to complete statistical analysis on data and presenting the results, using techniques such as Linear Regression and Hypothesis Testing

JavaScript: During my time at Barclays, I spent some time creating a React web application to allow a user to make HTTP requests to AWS services to demonstrate the tool we had built.

I have also taught myself the basics of Java, and SQL (using MySQL). I am passionate about learning new skills, and I am always on the lookout for new technologies to explore.

Hobbies and Interests

I am a keen sportsman, particularly in rugby and football, but also in rock climbing, and running. I also play the Piano, and the Guitar.