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My Year in industry with Vodafone

5CCS2YII Final report



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I verify that I am the sole author of this report, except where explicitly stated to the contrary.

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Abstract

Starting as an Industrial Placement contractor for Vodafone in July 2019 in Newbury, West Berkshire, I moved back to London in September 2019 for the rest of my placement, joining the Big Data and AI team in Paddington. During the length of the year, I learned a lot about the corporate life and how to be more professional as an employee, as well as new technologies in different areas of programming from what I was used to during studies. For the length of my job at Vodafone, I took part in several different projects, as well as volunteering activities and corporate events.

The skills depicted from this job include and are not limited to Python, data analysis, PySpark, JavaScript and React.js, and extended graph theory algorithms.

All of these experiences allowed me to meet new people, form new professional connections, and expand my skill palette as a programmer, while at the same time made me grow as an individual.

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# Introduction

## The company

For the length of my year in industry, I was a contractor for Vodafone Group Plc. in their two main locations in the UK. The first two months I spent in Newbury, Berkshire, and for the rest of the year I worked in the London Paddington office, main home of Vodafone Group.

Vodafone is one of the top telecommunication providers in the UK, alongside EE, O2, and other notable names. The company’s name comes from a play on the words voice-data-phone and they started their operations in 1991, together with the separation of Racal Telcom from Racal Electronics. Their main technological interests at the moment involve 5G and the internet of things (IoT).

## My expectations

Knowing Vodafone’s interest to pivot into tech, on top of the placement being advertised as a “technology stream” role, my expectations in the Big Data team were to learn more about AI and the way in which multinationals use this technology. When I found out the title of my initial role (Project Management Office support), I thought I was going to help project managers with their big data projects in the field of AI.

Not too long after the start of the placement, I requested to be transferred to a role which is more suitable for my abilities, and so I ended up working in the Big Data and AI team in the “commercial stream”. Given the outcome of my contributions in the technological role, I was not expecting to do something very different, but I did hope for something more programming oriented.

## Hopes and Desired Skills

Going into this new and exciting chapter of my academic life, I wanted to come out of this placement understanding what the corporate life is like in more depth than I already did. The sound of a new technological role gave me the impression of a promise to learn more about programming practices in large projects, maybe even a new programming language if not a more in-depth use of what I already learned in university.

After moving to London, the corporate lifestyle appealed even more to me. I wanted the life of working a full-time office job in a big city office and going through the actual experience I was looking for when I started looking for an industry opportunity. The desire to learn more about new technologies was still present, especially after being told that the new role was going to involve programming.

# Description of my Role

## My Responsibilities

While in Newbury, my main task was to support a team of project managers from Germany with creating a new progress tracker. They were looking for a modern, semi-automatic tool to help them monitor the current state of their ongoing projects.

Moving to London, my tasks were different in many ways. I started being involved in several projects within my new team, some involving administrative work (tracking monthly reports from twelve Vodafone markets), and some involving data analysis (sense checking the reliability of our data for creating mobility clustering algorithms) and front end development (React.js animated infographics, small HTML presentation pages).

## My Role

Within the company, I was a contractor signed through the Lorien agency, having the role title of “Industrial Placement”. The unofficial titles I carried through Vodafone were “PMO Support” during my time in Newbury, and “Data Scientist” in London.

## Co-Workers

I had the pleasure of working with a talented team of other students on industrial placement, summer interns, and graduates, alongside Vodafone full-time employees ranging across different levels on the organisation chart. I have worked with people who are based in the same offices as myself, but also with people from other countries, either remotely or while they were visiting our offices. Everybody in Vodafone created a warm and welcoming environment, making it very pleasant to work in.

## Changes overtime

Due to the nature of my job as a PMO support in Newbury, I requested a transfer to a role which would be more suited to my abilities. After a conversation with human resources, they found such a position for me, and I was required to move back to London.

## Training

The company offers a platform called Vodafone University, which is a collection of external links to courses paid for by the company on platforms like EdX and LinkedIn Learning.

My training was mostly conducted on LinkedIn Learning for the fundamentals of PowerBI and PySpark. I also used the to learn more about the principles of AI and Machine learning, as well as cross-platform mobile application development using React Native. After completing these courses, one of my teammates provided me with further guidance on PySpark and the use of it in Vodafone.

In the beginning of December, the Big Data and AI team went through a day-long Agile training workshop, mostly focusing on the implementation of Scrum. We learned about the methodology and participated in team buildings throughout the day.

My tasks and projects

## The Wacker IP-VPN Upgrade

At the start of my placement year, I became part of the Customer Programme Delivery team in Newbury. My job title was PMO Support, and my first task was to create a tool for a team of project managers in Germany. The purpose of this tool was to make progress tracking easier with the use of automation.

The creation of the tracker consisted in a number of populated Excel spreadsheets, as well as a new PowerBI project that was easy to follow and understand. The data was extracted into the PowerBI file from the populated spreadsheets, which were updated regularly. The benefits of the tracker were not limited to the visualisation alone, but it was also an opportunity for the team and I to learn more about data consistency and how to structure a document such that we can create accurate representations based on it.

## Customer Programme Delivery (CPD) SharePoint

While working on the tracker mentioned previously, I briefly collaborated with a Newbury-based project manager on a web page needed for our department. We created a SharePoint page with information about everything there is to know about the Customer Programme Delivery team. This data is displayed in an “iceberg” manner, where you would start with the smallest piece of information (tip of the iceberg) and make your way down a chain of pages on a relevant topic, one more in-depth than the other. This representation can also be visualised as a tree, where you start at the root and go up the branches that interest you the most in order to get the information you need.

## Digital Index

Digital Index is a collaborative project between Vodafone Group and their top 6 markets (Italy, Spain, Germany, UK, Turkey, and South Africa). The idea of this project is to identify and categorise Vodafone customers into traditional (who do not do anything about their contracts online) and digital (who manage everything using online channels).

Given that Vodafone Italy created this project already and are using this categorisation at present, they revealed their strategy to everyone else in order to mimic the process and come with a solution by the end of the fiscal year.

My involvement in this project was to help Germany identify the necessary data in their system. The purpose of this was to establish whether the already-provided information was consistent enough to proceed with the categorisation, or if we needed something else. However, in December, Germany decided to complete this step without the help of Vodafone Group, as their data engineers are more informed in terms of where the information is located.

## Monthly KPI Reporting

My job in London mainly revolved around these reports, as it was a task in direct collaboration with my line manager. My responsibilities were to collect monthly reports from twelve countries and measure their year-to-date performance in regard to a certain KPI (key performance indicator), which in this case was the number of customer interactions enabled by Big Data. After collecting these numbers, I was using them to calculate the actual progress percentages and compare them to their targets, then weigh them in order to get an accurate overall number. Once a financial quarter, I provided an evaluation of these reports, highlighting the markets that were the best or worst performing in terms of this KPI.

## The Malaria Project

Vodafone has a very big database with information about customer calls across all markets. One of these markets is Vodacom Mozambique, our telecommunications provider that covers 44% of the country’s Call Data Records (CDRs). For the purpose of this project, we have been analysing 1.3 TB of data and over 80 billion records to create a mobility matrix throughout the country.

My contributions in this project were not limited to one area of work. I started by sense checking the CDRs for the months where we were sure we had consistent and reliable data. The sense check step involved seeing the consistency of the number of CDRs per region, customer, and timeframe, and was all done using Pyspark and Pandas.

Other tasks I involved the creation of visual components for the front end of our application, which was part of Vodafone’s presentatio. For this demo, I created some animated Reract.js components representing the amounts of data we use in the project, as well as a simple HTML introducing the team.

## Volunteering

One thing that stayed the same throughout the entire placement was my implication in volunteering activities.

Vodafone offers five days a year to their employees to participate in volunteering activities, and I made sure to make the most out of this opportunity.

While in Newbury I participated in activities where I was helping scout’s camps and dog shelters with their day-to-day activities or where I was representing Vodafone at the Reading Pride festival.

In Paddington, I was a volunteer for a boat tea party held for the elderly, and I also helped organise the sixth edition of HackKing’s at Vodafone, making sure that all the participants were satisfied during the event.

# Reflections

## The most important thing I learned

There is not just one important thing I learned, as this experience had a lot of ups and downs. Probably the best thing to take out of everything is the fact that I became more mature and professional as an individual.

This year was full of new experiences, both at work and in my personal life, programming and non-programming related. It was for the first time when I was fully in charge of my own life, both financially and in terms of decisions. For the first time in my life I rented a flat (or three), I had to manage my expenses solely based on my own income, and I split my time to create a healthy work-life balance.

From a coding point of view, I learned new technologies and how to apply them in real-life situations, as well as other technologies for my own curiosity and product ideas, enlarging my palette of knowledge that will eventually make me a worthy full-stack developer.

## What went well and what did not

Speaking about a twelve-month period, a lot of things went well, and a lot did not.

Starting on a bright note, some of the best things I experienced were a more relaxed lifestyle, compared to part-time work during studies. This allowed me to manage my time better, having room for visiting the gym frequently in the evening.

Moreover, I met some fantastic people with whom I had very interesting conversations and good times around the office. The teams whom I worked with were amazing and the environment was always warm, which lead to a healthy work life.

There were some things which did not work as well, for example when I had to move out of Newbury and back to London. For about two months I have been stressed about finding a flat that suits me, and the place where I initially moved did not. Therefore, at the end of 2019, I started looking for a different place, closer to work, and just nicer altogether.

Another thing that did not go as well was the fact that just as I settled in my new job, I had to change it. Usually in the beginning, an employee does not receive a lot of tasks, so my job was relaxed for double the amount of time. After a while, it got tiring to not do anything, but I tried keeping myself busy by learning about new technologies or studying on the university modules that I will be taking during the final year of studies.

## How university fits into what I accomplished

A lot of the curriculum was helpful for underlayers of the job, such as understanding how to code in an imperative programming language, operating systems knowledge, multithreading, data structures, time/space complexity and Big-Oh, understanding the Unix command line and how to operate with git through it, teamwork skills learned from most coursework pieces in second year, and more. I used all the skills mentioned before, together with my new knowledge of Python, to achieve my goals and deliver top quality performance that would benefit my team.

## What I wish I knew from the start

The most important thing I wish I knew when I first started working is that nothing is set in stone. Comparing the first to the first day after six months on the job, everything changed drastically, both in terms of environment and me as a person. Looking back on the induction day with all the other placement students, when I first met everybody, and comparing it later days in the office, it feels like they are taken from different chapters. This journey made me grow as an individual, both from a professional and a personal point of view, and it prepared me for what is to come after I complete my degree.

## What I will change not that I am back in university

There is no telling what I will do differently in practice, but my target is to manage my time better than I did in previous years. During the year in industry, I managed to put myself in a position that I believe to be good enough to absolve me of a part-time job.

I want to work hard enough, and, at the end of this year, I want to graduate with a first-class honours degree. I want to show both to myself and to the university that I learned enough during these four years to put myself in a great position for when I fully go out in the corporate world.

# Conclusion

# Appendix