



**UNIVERSITY OF NAIROBI
COLLEGE OF BIOLOGICAL AND PHYSICAL SCIENCES
SCHOOL OF COMPUTING AND INFORMATICS**

INDUSTRIAL ATTACHMENT BRIEFS

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Institution Attached: C4DLab
Period of Attachment: Feb - April 2016

Objectives

1. Exposure to industrial work environments
2. Active participation in creating practical solutions using knowledge learnt
3. Build professional networks with potential employers

Activities Undertaken

My major task revolved around a start-up that my colleagues and I founded, called Learnmine. Learnmine is an online platform that makes it as easy as possible for learners to connect with tutors who have the knowledge that the learners require. We believe that a good tutor is determined by their ability to teach, and to teach well, which is why we aim to give interested people a chance to have a go at tutoring. Ultimately, we aim to make a significant transformation in the functioning of our education system.

Designing the User Interface

The User Interface was first designed as a paper prototype. The prototypes were then used during user interviews to further iterate on the design and idea, and learn about the users

After doing some research on various frontend design frameworks, I settled on Google's Material Design due to its powerful features. I used this along with HTML, CSS, and LESS. I used GitHub for version controlling, in order to be able to iterate on different designs and make the best design choices.

Building the Frontend

For the frontend side of the website, I decided to use AngularJS, a JavaScript framework, since it would enable me to create a single paged website, and maintain

a low bandwidth requirement on the network. The frontend was built to enable connection to an API Backend, and thus ensure a very low dependence on the backend side.

Building the Backend

The backend was built on Django, a Python Framework for building web applications. Specifically, I used Django REST Framework to have my backend as an API to which my AngularJS frontend would connect.

Deploying the website

I deployed the website to the servers using three main tools, that is: Gunicorn, Nginx and Supervisor. These three technologies work together to help automate common tasks involved when hosting an application on the web.

Start-up pitching

We also got the opportunity to present our prototype at the Nairobi University Open day under the C4DLab stand. The feedback we got from users who came to the stand was very encouraging. We got a lot of meaningful contacts that will be very useful during our initial launch. I also learnt how to pitch, and adopt a pitch to different audiences. Overall, the whole experience was quite fun and enjoyable.

Product Design and Business Modelling

The C4DLab partnered with Intel and UNICEF to establish the Nairobi Design Thinking School (NDTS). The goal of the Design Thinking for IoT (Internet of Things) program was to develop user centric sound start-ups that can be absorbed into the growth stage of accelerators.

The participants admitted attended 2 days a week of training (Monday and Tuesday) for a total of 7 weeks. The start-ups also allocated additional time in the course of the week on their projects. C4DLab will avail a lab where start-ups can work on their projects during the entire period. The program ran from 22nd February, 2016 to the 5th of April 2016.

During this program, I learnt a lot on how to develop a clear business plan with a tested and validated business model, including a clear sense of the customers, a unique value proposition, how to identify suppliers, know about cost structures, revenue streams and how to identify key partners for the start-up.

It was a very enriching experience. Learnmine would not have been where it is today were it not for the Design Thinking School.

Lessons worth Sharing

Knowing the users if your product is essential

I had spent far too long mulling over what grand technology we would have for Learnmine. The Design Thinking School sessions really changed this perspective when we were necessitated to talk to potential users and know who they were, without discussing the product concept. It was difficult at first, but the benefits became apparent when I discovered simpler, more effective solutions to the problems that Learnmine aims to solve. A problem can never be fully understood without understanding the user, and deliberately doing so.

Teamwork is the way to go

Teamwork is important since it gives different perspectives hence ensuring the end product is of higher quality. It is easy to vouch for teamwork and praise it in all its glory, but only until it becomes difficult to deal with the different personalities and quirks that come with every member. But even so, we must learn to look at the numerous benefits of teamwork, such that these quirks become acceptable side-effects of working in a team. The benefits of teamwork highly outweigh those of working alone and should be an inspiration to the cultivation of teams.

Always think of ways to better your product

It is important never to be content simply with the way things are. Technology, being a constantly changing field, cannot support stagnant solutions. One must keep innovating and keep learning of new things in order to remain relevant. Though obvious, constantly improving an idea must sometimes be done deliberately as the idea of staying within one's comfort zone can encroach unnoticed.