

COURSEHORSE.IT – A team from Oxford wins SV2UK

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Abstract: *Recently, a small team from the University of Oxford successfully competed in the Silicon Valley comes to the UK (SVc2UK) Award. As a proud participant within this team, I would like to take this opportunity to chronicle our journey from a small locally based competition in Oxford to the national awards ceremony at Number 10 Downing Street.*

The award, presented by Prime Minister David Cameron alongside *LinkedIn* co-founder Reid Hoffman and Angel Investor Sherry Coutu, reflects a growing requirement in the UK to consolidate and develop emerging talent in the IT industry. The competition required participating teams from around the country to submit software applications (commonly known as *Apps*) that capitalise on the vast data resources that the government has recently made public. That is, applications that would bring benefit to the public by simplifying that data into easily digestible and useful information sources. The competition was split into 3 categories: Healthcare, Education and Environment. Our entry, *CourseHorse* focused on Education.



CourseHorse, designed from the ground up, is a social enterprise application concerned with enabling easier access for the general public to information regarding vocational training courses available throughout the country. The initial data for these training courses were taken from a corpus of information outlining government backed schemes. The overall goal of the project, however, was to be a one-stop portal for training courses nationwide inclusive of both state-funded and independent providers. The driving factor for this application in the current socio-economic climate is providing the general public with the means to enhance their personal skill-set and thereby reduce unemployment levels through development and training of the national workforce.

The original *CourseHorse* team of 5 emerged from winning a locally run *App* competition held at Oxford University's *Saïd Business School* in mid-October. Hosted by the student group *Oxford Entrepreneurs* (OE), this competition focused on providing opportunities to students to develop their own business ambitions. At this stage *CourseHorse* was a technical demonstration without any real legs beyond a business idea with lightweight software application - while functional, it was a showcase technology.

Following this local competition, the *CourseHorse* team was recommended to participate at the national level by the OE group. The team, after losing a member Giovanni Milandri to a commitment overseas, refined the original idea into something more tangible. Unlike the Oxford based *appathon* the *Silicon Valley comes to the UK (SVc2UK)* required a more substantial entry that could be tested in full by the judging panel. The team refocused and took stock of the available skill set in order to determine the route forward to this end. This ultimate team comprised of:

- Fatima Sabar working towards an MSc Global Governance and Diplomacy, International Development and affiliated with Green Templeton College
- Ka Chung Lee doing a DPhil specialising in Quantum memory and Information Theory affiliated

with New College

- Nikhilkumar Adhia a student from the London School of Economics
- Niluka Dheep Satharasinghe focusing on a MSc Computer Science affiliated with St Anne's College

During a planning session we constructed a detailed project plan that helped us to determine where we should focus our efforts as a team in order to lift *CourseHorse* from its current state into a viable candidate entry. The key areas to be addressed were marketing and developing the software product. We met up shortly after the completion of the Oxford *Appathon* to develop the plan.

A major element of the marketing campaign was to create online video advertising that would showcase our submission and increase awareness of our project goals. Seeing the success of both *Google* and *Apple's* simple videos which illustrated new products in friendly, conversational style, highlighting how they improved the user experience, inspired our own approach. We storyboarded the journey of an ideal user named Steve using our unique application. Our narrative had him successfully retraining from a truck driver to a plumber. Ka Chung took the lead here, using his video editing skills to capitalise on our storyboard ideas in order to fashion an impressive video - both easy to digest and distinctive within this particular marketplace.

The reach of our viral marketing campaign, showing how we were advertising our application and its effectiveness was another criterion being judged in our submission. That is, how easily our idea would spread across the Internet, effectively becoming visible trend as the subject materialised as a point of discussion in the digital commons. This initially was a problem as we had to decide how to measure our reach. Ultimately, the best metrics for analysis were through monitoring *Facebook 'likes'* and *re-tweets*. Nikhilkumar focused on this side of the project and using his marketing skills advised the team on how to use our own social networks to increase the reach of the *CourseHorse* message. He concentrated initially on *Twitter* and *Facebook*, posting *tweets* and status updates to generate interest. After Ka Chung finished the video and posted it on *Youtube* we changed the scope of our advertising campaign to improving the views on the *Youtube* video, effectively using the view count as an indicator of success with our campaign. By carefully monitoring the trend analytics on our competitor videos we were able to find a relevant benchmark for assessing how well our viral campaign was performing. I found this an interesting exercise likening it to effectively giving ourselves a short-course in grassroots brand management.

The next key area to focus on was the development of the software application, which normally follows a set process from inception to completion:

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| • Understanding the scope of our application | • Acquiring and managing the government sourced data within the application |
| • Designing the software | • Testing the software |
| • Writing the software | |

During the Oxford *Appathon* we had designed the fundamentals of our software application, with the mentorship provided giving us food for thought as we were shaping our design. By imagining the actions that an individual using the software would make to sign themselves onto a relevant training scheme, we were able to wire-frame the interactions that would need to occur as well as the options that would need to be presented to a user; a wire-frame simply being a detailed design of a website, describing in detail the content and how it functions. This wire-

frame was turned into the technical demonstration that we used for the Oxford *Appathon* pitch. This needed to be fleshed out into a viable candidate application and additional information on courses was gathered as working with the governmental data was not as straightforward as we originally anticipated. Additional *api*'s, pathways that allow people to use systems designed by others, such as the *Google maps api* which gave us the ability to display *Google* maps, needed to be incorporated into the application. The maps would be useful to display the location of the various course providers. I focused on turning our technical demonstration into a more robust application.

The copy for the candidate application was crafted by Fatima, who also worked on the essential task of organising and managing our submission alongside ensuring that we stayed on track. She also worked on the governmental data that we were provided, collating the information and incorporating it into our application.

From a technical perspective a number of factors played key roles in my approach in the implementation of an application that met our planned requirements for the business idea. I spent a lot of time initially trying to decide what language to write the app in and what environment to host it on. Eventually I decided that the *app* should be built in *Clojure*, which is a *Lisp* language that runs on top of the Java Virtual Machine. *Lisp* languages are a family of programming languages that share certain properties such as having the function appear first, followed by the arguments, wrapped in parenthesis. For example: `(+ 1 2 3)` would produce 6, this alongside other characteristics, allows for a certain style of programming. I chose *Clojure* because I had some experience building software in it in the past; it integrates well with the Java universe of software so I would be able to use Java libraries if I needed to and because *Lisps* are very expressive languages so it is possible to do a lot with frugality which appealed to my sense of minimalism. The application was hosted on the *Heroku* cloud provider, which dispense remote storage and other services, accessible via the Internet, that I have experience with, as they provide a good service to developers who want to release an application to the general public with minimal fuss.

This experience proved to be a useful introduction to the life of an entrepreneur, showing us the ins and outs of pitching our ideas to a group of investors, incorporating their feedback to make a successful product offering as well as working on the creation and nurturing of a brand. Winning the award has been an amazing experience which has helped to open doors in our quest to improve the ease of transitioning to our lives beyond the University and increased our confidence in working on problems that apply to the world outside academia. We feel that the University has been pleased with our achievements.

Ideally I would like to see further opportunities for teams like ourselves to grow as developers able to offer versatile and dynamic solutions with real tangible offerings to the business world. This experience alone has opened my eyes to the possibilities available to talent eager for experience in a results driven climate.

We are looking towards expanding *CourseHorse*, integrating it with educational providers to give a seamless experience to users, however it currently serves as a testament to the various skills displayed by our team and the aid that we received to get as far as we did. The future on this remains uncertain, but the build experience represents a significant milestone for our team and the future of making recognisable *Apps* relevant to everyday needs.