General Timeline

Our first week in the country was spent meeting with administrators to ensure the readiness of the program, as well as setting up the lab (however, since most students used their personal laptops, we saved the bulk of the installation process for an entire class day later). After an initial diagnostic test we gave in order to evaluate the students’ programming abilities, we decided that it would be best to allocate about two weeks to the Python curriculum. This allowed the students to all get to a similar level of programming comprehension. We then gave several lectures on Django and Google App Engine, and several guest speakers who worked in the field of mobile technology came to talk to the class. In our remaining three weeks, the students worked on their final group projects, gave practice pitches, and, on the last day, delivered their presentations at our final event.

Curriculum description

* Entrepreneurship

The Entrepreneurship curriculum was designed around a single goal - conveying the relevance of entrepreneurial thinking to technologists and empowering those interested with the essential ingredients of a solid business. To achieve this, the curriculum focused on (1) developing and distilling an idea, (2) forming and working in an effective team focused on results, (3) building a solid business plan, and (4) effectively pitching your business plan. In developing this business plan, we were very deliberate to make the lessons actionable ones that students could put to immediate practical use. In teaching this curriculum, it was also essential to include lessons on business strategy and competition in order to drive home the lesson that these fundamentals of business were in constant use by the most successful of businesses in the world today.

Lessons from the news were matched up with lessons we learned in class regularly. We sometimes would read the technology business headlines and consider the strategies and considerations that were at play. We related these to the decisions that students were making about their business plans under development. This really engaged the students both as technologists and as aspiring entrepreneurs.

* Technical

The technical curriculum focused on teaching the students the technologies necessary for developing mobile websites. We started off by teaching the students Python. We spent almost two weeks teaching them the language. Next, we introduced them to Django on the third week, and asked them to start on their projects. When teaching Django, we guided them through django-nonrel (and not the standard Django version), as this enabled them to deploy their final mobile websites on Google App Engine very easily.

Lab setup

The technical team delivered lectures and conducted lab sessions in the 30 person Kiambere lab. The systems were already set up for dual boot with Windows XP and Ubuntu 10.10 - - still, many students preferred their own computers. While we recommended using Ubuntu,
many students stuck with Windows. We provided them with Google App Engine and the allbuttonpressed nonrelational adaptation of Django for GAE. We initially had trouble with getting WiFi connections for the students and instructors, but eventually found out that there was already a working router in that lab from last year’s program.

Students’ successes and failure with curriculum

* Entrepreneurship

The class did impressively well with the Entrepreneurship curriculum. The curriculum was built around the essential elements for moving from an idea to a viable business. Students originally quite shy about sharing their closest-held business ideas matured and realized the gain from collaboration that came at the risk of sharing. Similarly, the students came to appreciate the value of forming an effective team to collaborate on a business plan. The last major segments of the Entrepreneurship curriculum involved developing an effective business strategy and a plan that was consistent with this strategy and also informed and honest about the challenges.

Students really rose to the challenge of formulating and presenting their business ideas as well as possible and I am hard pressed to find any failure in this regard. Some ideas presented to me were unrealistic, and others were not as well thought out, but these were minor and early corrections. On the whole, students’ grasp of Entrepreneurial concepts and of their relevance to the students as technologists exceeded my expectations. Even after the program the students continue to seek my input on Entrepreneurial ventures.

* Technical

Most of the students in the class were very quick learners. None of the students had prior experience in Python, and most of the them were able to master Python in a very short period of time. Pretty much everybody in the class was impressed how easy programming in Python is compared to some of the other languages they had learnt in the past. Some of the students had initially assumed that MIT AITI course would introduce them to Android and J2ME as in previous years, and they were not expecting to learn mobile web technologies and a new programming language. However, at the end of the course, we were pretty sure they learnt how versatile mobile website development could be compared to other platform specific technologies.

Partners

There were many partners during the course of the program. These included both organizations and individuals. Firstly there were speakers who volunteered their time to come and speak to the class about a variety of topics - some Entrepreneurial others Technical and some a combination. These speakers were all recruited by us to cover specific aspects of their experience and expertise. They included recent MIT graduates and founders of startups in Nairobi, IP Law experts, leading technologists at Google visiting from Cupertino, and local successful Techpreneurs with years of experience.
Organizations that partnered well included Google and Safaricom which provided support for the program including two mobile bootcamps for which the AITI instructors were requested to also teach, in Nairobi and in Mombasa. Safaricom provided for lunch daily and helped with the business plan competition finale as well.

For each project:

Note: all of the groups below developed their project using django and deployed for the mobile web using Google App Engine. Most of the groups have plans to adapt their technology to SMS.

- **Chagua Plus** is a school selection system for parents to use when researching education opportunities for their country. Schools are ranked in various subjects and feedback from previous attendees is provided.

- **Real Property** hopes to be Kenya’s premier online real estate agency. The group plans to list houses, offices, and land, and gain revenue through commissions from the sellers.

- **E-BIMA** allows users to validate their own insurance policy to ensure that their broker is legitimately forwarding their premiums. The simple, user-friendly interface also allows for checking the validity of public transportation vehicles.

- **Mpira** is an all inclusive hub for soccer fans, who can use the service to track games, teams, and players. In the off-season, fans can use the forums to discuss the upcoming season.

- **FoodPoa** is Nairobi’s equivalent of Campusfood or Foodler. Instead of waiting in long queues at restaurants and fast-food establishments, users can find nearby restaurants, browse their menus, and order food with the help of this location based service.

- **TAZAMA** analyzes data from GPS devices installed on local public service vehicles in order to provide its users with real-time traffic information in the area. As an added benefit, it allows the owners of these PSVs with accurate information about the distance travelled by their vehicles.

- **Okoa Maisha** is a blood-type based social network where users can, in the case of an emergency, send out a request for blood to those with the same group. The service also encourages blood donations by promoting local blood drives.

- **digiLAW** is a content provider and crowd-sourcing tool that allows Kenyans to gain a better understanding of their constitution and discuss its provisions. Users can also gain access to listings of legitimate, verified lawyers in their desired field.

- **iShopper** lets users shop for groceries from the comforts of their own homes. By comparing prices between several stores, users get both convenience and savings.

**Description of final event**

* Winners*
The winners of the business plan competition were iShopper, ChaguaPlus, and digiLaw. The business plans were varied in that digiLaw had a very social and public focus, while iShopper focused squarely on consumers and retailers. ChaguaPlus sat somewhere in the middle. The one thread that tied them together was the fresh thinking they brought to old problems.

All the business plan pitches at the finale event were really recognized by the exceptional quality of the ideas and of the presentations. The pitches all presented the opportunities they sought to seize clearly and had a strategy that was consistent with their goals. Perhaps reflective of the overall high quality is the additional time the six judges needed to agree on the top three teams out of the nine that competed.

* List of judges

The judges for the finale event included John Waibochi, CEO of Kenyan technology company Virtual City, Kevin Gibbs of Google App Engine who was on Sabbatical in Nairobi, and other judges from Samsung, Safaricom, and Google Kenya.

Exit survey summary

We did not have an exit survey for the students.

Personal testimonial focusing on your AITI experience

BRIAN:

I decided to pursue the opportunity with MIT AITI for a couple of reasons. It was important for me to contribute my experience towards the development of possibilities for other people and my plans were to start a technology-based venture in East Africa. AITI was the perfect way to achieve both. After getting the offer to join AITI, I collaborated with other MIT Sloan student instructors to develop a solid curriculum beginning with the lessons we wanted to impart with due consideration for the goal of the program.

I have always enjoyed discussing interesting issues with people. I learn from listening and sharing in engaging discussions like many people do. However, I did not expect to come to the realization of how much I love teaching as happened to me while teaching this curriculum that I had developed. It was really the best lesson this experience has taught me. Everyday, I could not help but reflect on how much fun it must me for my professors at MIT Sloan to teach. It is possible it remains a little magical to watch someone learning and to see realizations dawning in students minds and new possibilities coming into their imaginations.

Given my extensive previous work experience, I also related leading teams of people with leading students. They may be differently motivated, yet the result you seek as a leader is identical - you want your team engaged and productive. The experience has also made me a better leader in this way. The experience taught me to be a better presenter to an audience, a better leader of discussions in a team, and a better motivator of others.

OSHANI:

I decided to become an instructor for AITI primary because I am considering a teaching career
after I graduate. I have been a teaching assistant for an undergraduate level class at MIT, had taught high school students, but I have never taught Masters level students or students in a developing country. Also, I have always wanted to travel to and experience Africa. Therefore, AITI gave me a very good opportunity to develop my teaching skills in a very different context and to travel to an African country.

The students we taught had no or minimal experience in programming in Python. This was ideal as we were able to teach them from the very basics to how to become a Python ninja. I was very happy to see that after about two weeks almost all the students were capable of writing Python programs that did useful things. By that time they had realized the power of the language and its simplicity amidst the initial skepticism. It was very satisfying to see how thrilled they were when they got a program and parts of their projects to work after hours of debugging.

I enjoyed engaging with students and giving advice whenever and wherever possible. Some of the informal conversations I had with the students weren’t just limited to the things we covered in the classroom or their projects. They were interested in learning about how to apply for graduate programs in the US, life at MIT, and some were even interested in learning about my PhD thesis research. I also learnt a lot from these interactions with the students. Some of the students still keep in touch with me, and update the progress of their projects through the next steps of the incubation process, and some of them request technical assistance and advice for the problems they face as they progress.

AITI gave me a much needed break from academics at MIT. I am very happy it lived up to and beyond my expectations and that I was part of team that made a positive impact for thirty six Kenyan students.

MAX:

So many of my interests, hobbies, and goals coalesced in this past years AITI program. I have always had a strong passion for outreach programs, specifically those that provide a group of people with a skill that they will be able to use for the rest of their careers and their lives. The programming and entrepreneurship skills that we helped develop in these individuals are especially beneficial, considering the demand for such services in east Africa. Although I’ve help multiple teaching and tutoring positions in the past, none were nearly as rewarding as AITI.

The students surpassed all of our initial expectations. The selection process was rigorous, and it showed in their experience, work ethic, and character. I’m confident that these students, and others like them, will be the future leaders of ICT in the area. They showed not just a great understanding of the material, but also a real desire to put what they learned into action. It was evident at the final event, from their engagement with businesspeople and others in the industry, that the students loved what they were doing and were excited to do it on a larger scale.

Even now I receive email from the students with questions about Django best practices and various APIs to make their applications more powerful. Rarely does one see such lasting impact from a program, and I fully expect to hear success stories of these businesses years from now.