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## **2. Training (Jan. 29, 2016 - present)**

There is an enormous need for technical people in the United States. Locally, that burden is felt even deeper, not only because students need to “catch-up” in terms of academics but also because a degree in Computer Science or related fields is not enough. The fast pace of technology requires individuals to keep sharpening their skills and gain experience through self-learning, practice, and challenge. A hopeful candidate in the field needs to stay current with all relevant and emerging technologies to remain competitive. We spend a lot of time thinking about such problems and decided it was best to create a series of short “Challenges” to motivate trainees while at the same time preparing them to be competitive.

Traincube Mobile Challenge and Traincube Web Challenge are both examples of such program. These programs help trainees sharpen their skills and gain experience. The participants were trained on the skills required to build a project for a business. The motivation was to create a safe environment in which trainees can build their confidence and learn through practice. A side effect based on past results, has been that trainees also become more entrepreneurial.

To satisfy the need to stay current, frequent meetups were organized to present, perform, and discuss emerging technologies. Workshops were focused on several topics related to web and mobile development, cloud computing and machine learning.

Here is a list of topics and events covered:

- Android Development Training: building application for the Android mobile platform.
- Traincube Mobile Challenge: building a personal mobile application or game.
- Traincube Startup Challenge: business plan, business canvas and prototyping
- Traincube Web Challenge: building an application for a local business
- Web Development: talks and workshops on emerging technologies
- Cloud Computing: CP100A Training with Google Cloud team in NYC
- Machine Learning: talks and workshops on TensorFlow, scikit-learn and others.

## **2.1 Android Development Training (Feb. 4 - Mar. 18, 2016)**

The Android mobile platform runs on over 88% of all mobile phone worldwide. That's almost 9 out of every 10 mobile phones. Android development is a very lucrative and desired skill.

The curriculum was based on Google's Android for Beginners which is designed to introduce aspiring developers to the Android platform. In addition, the curriculum was enhanced to let participants be free of using the technology as they desired. Aim was to challenge their creativity and liberate the process of learning from preconceived constraints. Trainees were asked to build an application or a game of their choice. The full training ran from February 4 - March 18, 2016. Meeting weekly in-person and regularly over Slack (an online messaging application) to cover different areas required to build on mobile and Android platform.

The last day of the training everyone presented their project and shared what they had learned.

## **I. Goals**

The main goal was to teach people to develop application and games on Android platform. Spiking everyone's creativity by encouraging the participant's to challenge themselves by exploring the possibilities of deploying their app into the play store marketplace.

## **II. Participants**

We had 27 participants. They were mostly Lehman College students, but there were also individuals from the surrounding Bronx community.

## **III. Feedback**

The feedback received for the Android development training was positive. Participants enjoyed the fun learning environment and all the information they gained. One quote from a participant was, "Always fun to see everyone great work."

The participants enjoyed practicing their new skills and anticipated the next event so they could apply the newly acquired knowledge. One of the participants' exact words were, "The class was very informative. I can't wait to build on some of the skills I learned today next week."

## IV. Outcomes

All participants completed and presented their projects to their peers. At least one of the finished applications was deployed to the play store.

<https://play.google.com/store/apps/details?id=com.azizahmed.logicgates&hl=en>



## V. Android Development Training in Pictures



## **2.2 Traincube Startup Challenge - Training (Feb. 13 - Jun. 30, 2016)**

The ultimate goal of the “Pitch Night” event series and MVP weekend was to build a pipeline of entrepreneurial talent in the community and host startup founders in the Innovation Lab. The training curriculum model was created from a series of lectures given at Stanford University put together by Sam Altman, President at YCombinator, one of the world's most influential startup incubators. Each lecture is given by founders of very successful tech companies like PayPal, Airbnb, Facebook and others. In each lesson, they talk about their struggles; lesson learned and provides invaluable advice to overcome the early days of a new business. Web and mobile development technologies were included into the training since most modern technical products need to be delivered through those mediums. The training sessions for this program were spread out over 3 months to cover the entire duration the hosted entrepreneurs were in the Innovation Lab.

### **I. Goals**

The main goal was to inculcate key components of the process of starting a new tech business into the program. There is a need to learn other things aside from the traditional business plan, financing, etc. in order to grow a successful business. Therefore, Sam Altman’s course was included to provide additional insight into building a successful business. The training was enhanced to satisfy the needs of our trainees.

### **II. Participants**

There were 6 startup businesses. A total of 13 individual entrepreneurs. 1 tech entrepreneur was skilled in the area of graphics but not in the area of programming logic. 1 entrepreneur was extremely technical but lacked business skills. The rest had some knowledge in both areas, but needed to sharpen and deepen those skills.

### **III. Feedback**

The excitement and positive feedback surrounding the Traincube Startup Challenge was overwhelming. Participants were enthusiastic and grateful for the opportunity to begin building their dreams into reality. One participant who was excited to return to his Bronx roots and follow in his father's footsteps said, "Thank you for the opportunity to build in the place I was born and with the same environment my father got his start." Another participant who was excited about participating in the program said, "I am excited for this opportunity and hope I am selected to bring my idea to life." Overall the atmosphere was full of energy and enthusiasm. Another participant said, "I can't wait to begin working on this app and improve the safety of my hood and your hood."

### **IV. Outcomes**

All participants completed the training sessions. A successful moment was when one of the founders, Daryl, learned about pivoting and refining his idea. His idea was roughly about providing a valet service for bicycles (Valet Cycle). He was able to openly share and refine his idea with the help of the training and input from other trainees at the lab.

Another successful moment was when one of the founders, Kareem, realized he had a much larger target audience than he initially thought. His idea was about providing an online queuing service for Barbers/Hair Salons (WhoDoMe), so patrons and service providers could save time and have a better experience overall. Initially he had forgotten about busy parents as part of his target audience. By discussing his idea with others he realized this oversight and adjusted his marketing plan.

## **2.3 Traincube Mobile Challenge (Mar. 24 - Jun. 23, 2016)**

Traincube Mobile Challenge training program was designed for individuals with a technical background who had an idea for an app and wanted to develop it into a business opportunity or help a Traincube Startup Challenge team develop their product. As the MVP weekend was completed, some of the teams were identified to be in need of technical help. To fill this gap, this training program was created. The curriculum was developed to build example applications that were fun and engaging, but at the same time would demonstrate the key aspects they would need to move forward in building their app. The training ran from April 7th to June 23rd, 2016. Weekly meetings were organized to measure the progress, provide guidance and offer technical help when needed.

### **I. Goals**

The main goal was to offer participants the experience of working with a project manager, follow requirements and project design principles and processes. A collaborative environment was created such that the trainees would meet with the Startup Challenge participants to share knowledge.

### **II. Participants**

Eleven Lehman College students participated in this training program.

### **III. Feedback**

Participants thought the Traincube Mobile Challenge was a great learning experience. They enjoyed being creative, embracing the challenge and using new skills. They felt the training also helped them gain the confidence they needed to pursue their dreams. Many of the participants exclaimed “Awesome experience!”, when asked what their thoughts were. Others said “It was good.”, and others said “Wonderful.”



#### **IV. Outcomes**

Three participants served as technical mentors to two of the Traincube Startup Challenge teams. Also, all participants were able to complete the program and present their project on Demo Day. One of the participants highlighted, thanks to the training she felt really comfortable during a recent job interview and yes, she got the job.

## V. Traincube Mobile Challenge (Mar. 24 - Jun. 23, 2016) in Pictures



## 2.4 Emerging Technologies (Jan. 29, 2016 - present)

The fast pace of technologies often means that in order to remain competitive an individual needs to keep learning or risk becoming obsolete and unemployable. With this in mind, faculty partnered with companies like Google and others to offer trainings, talks and workshops, often called “codelabs”, on emerging technologies. These covered a wide range of topics in web and mobile development including training on Android, Progressive Web Apps, Firebase, Angular, and Machine Learning using TensorFlow.

**Android** is the leading mobile operating system worldwide. Its market share is over 87% worldwide and over 53% in the United States. Learning Android Development skills increases employability as well as providing the skills to implement an idea and become an entrepreneur by deploying an Android app and growing a user base.

**Progressive Web Apps (PWA)** are platform independent web applications that use best practices and techniques to provide all users with a uniform experience without having to download and install an Android or iOS app. Progressive Web Apps include using responsive design, and enable workers to provide off-line use of the application. Learning to develop PWA is an important skill for anyone who wants to reach a wide audience of users on the web.

**Firebase** is a backend service for web (Android) iOS applications. It allows for rapid application deployment and hosting. It also provides user login management tools, analytics, and database. Learning to use Firebase will allow one to quickly and easily deploy a fully functional application without spending a penny.

**Angular** is a structural JavaScript framework for dynamic web pages. It allows one to quickly and easily connect the front and back ends and use data binding along with dependency injection to eliminate much of the code that would otherwise have to be written.

**Machine Learning** is a type of artificial intelligence that provides computers with the ability to learn without being explicitly programmed. **TensorFlow** is an open source library for numerical computation using data flow graphs. Machine learning is considered the next frontier in terms of the future of technologies.

The emerging technologies group also made a “field trip” to Google’s NYC offices on March 18, 2016 to learn about Cloud computing. A training worth thousands of dollars was provided at no charge by Google’s cloud engineering team. The group continues to organize frequent meetings to learn about and discuss new technologies.

## **I. Goals**

The main goal is to remain competitive, learn about emerging technologies and keep the students and the community up to date and prepared for the tech job market.

## **II. Participants**

We had about 500 participants attending these meetups in all. The participants consisted mostly of tech professionals, college students, aspiring techies. The majority of participants were local Bronxites, but there were many from other boroughs. They were mostly people in the technology industry with an interest in exploration and entrepreneurship. On multiple occasions there were participants from New Jersey and Connecticut. On a few occasions people who were visiting NY from overseas saw the event online and decided to join. One of those participants was a technical entrepreneur from Spain looking for opportunities in NY, another was from Russia, a third was from Argentina.

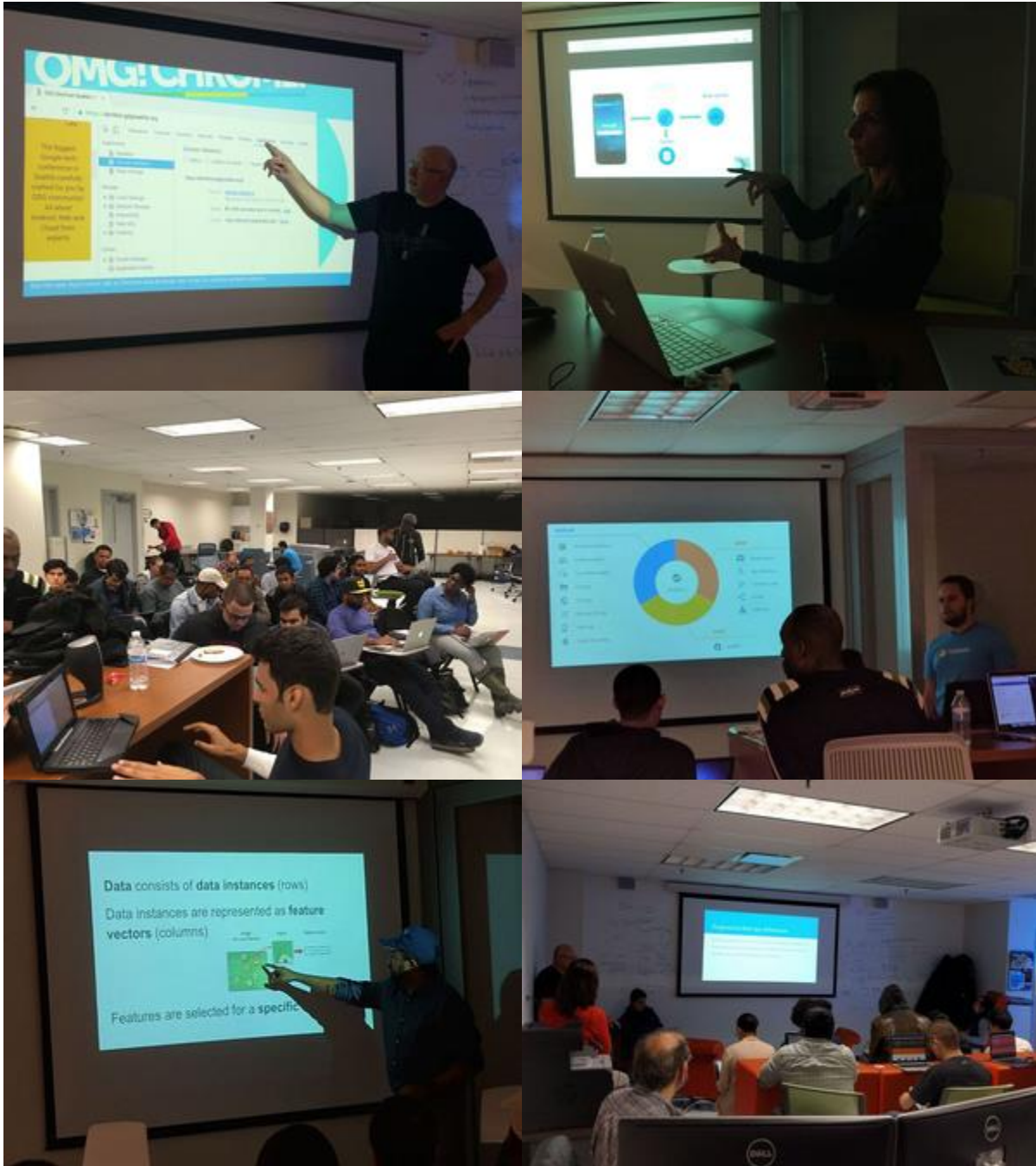
### **III. Feedback**

The feedback received for the training on various emerging technologies was positive and encouraging. People found the topics interesting, enjoyed the space and appreciated their hosts graciousness and guidance in the topics. The exact words of one of the participants were, “Interesting topics. Friendly and gracious hosts. Nice space. It's all good.” The participants enjoyed learning hands on and realized there were ways they could become better developers without spending extra money on devices. One participant said, “I enjoyed learning about building progressive web applications and seeing them live. It was also good to learn that I can do most of my development on a simple Chromebook without spending a lot of money.” A participant from one of the hands on labs said, “The instructors help a lot and try their best that all of us understand the topic.”

### **IV. Outcomes**

Participants from these events have been able to use the new knowledge in their job and/or school work. Others were inspired to pursue a new career in tech as well as promotion from their previous role. A lasting outcome from the meetups was how it enables people for new job opportunities and creates economic growth in the tech area of our community.

## V. Emerging Technologies (Jan. 29, 2016 - present) in Pictures



## **2.5 Traincube Web Challenge (Apr. 21, 2017 - present)**

The Traincube program connects students and businesses to offer them both the opportunity to maximize their potential. The businesses receive completed but not fully featured websites which they can hire students to deploy, maintain, or enhance. This allows businesses to see a solution before committing any capital investment into IT services, while students gain real world hands-on experience to build a better future.

There were over 100 applicants for this cohort and after the selection process and interviews, 12 candidates were selected. It was notable that there were so many strong candidates who unfortunately couldn't make it into this session. Clearly this is an area which is much in demand.

### **I. Goals**

The main goal for this program is to improve participant's technical skills, and develop new skills. Participants will gain real-world experience with hands-on training and build confidence in coding and team building by designing and implementing a web application to a local business.

### **II. Participants**

Twelve Lehman College students are participating in this training program.

### **III. Feedback**

This training is in progress at the moment, but already the feedback received is positive. The participants are excited to be part of the program and feel extremely lucky that they were accepted. They look forward to learning and working hard to implement a technical solution for a real business.

#### IV. Outcomes

Ongoing.

#### v. Traincube Web Challenge (Apr. 21, 2017 – present) in Pictures

