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2018 Toronto Fishackathon Back Stories

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Fishackathon 2018 Toronto

For the past 5 years, I have incorporated cause-based "hackathons" as an experiential learning opportunity for students in various programs (Systems Analysis, Project Management) at GTA colleges. By partnering with Toronto-based hackathon powerhouse HackerNest, we have provided students with opportunities to demonstrate their innovation and leadership while developing solutions for real-world problems. For the past 3 years, my students have participated in the locally-based DementiaHack, focused on improving the lives of people with Dementia and their caregivers. This year's focus was ocean sustainability. Fishackathon was implemented in 40+ cities around the world with the help of the US State Department.

I set out three goals for this year's Fishackathon:

- To do anything possible to help with the incredible project management challenge of organizing a simultaneous global hackathon
- To intrinsically motivate students to participate out of their own free will (no marks attached!)
- To help students develop the skills necessary to contend for the WIN!

The logistical challenges were indeed massive, heightened by difficulties in fundraising. All was made worth it in that we had incredible participation from students, and entered many awesome projects including the winner, runner up and an honourable mention!

Figure 1 Fishackathon Toronto City Winners including students Damian Murawiecki and Simon Inoc pose with Judges and HackerNest CEO Shaharris Beh

Ultimately, what I saw from Fishhackathon was the amazing potential of experiential learning to highlight the unique skillsets of student leaders and entrepreneurs. Today's blog postings will feature the stories both former and current students whose lives have been changed by their participation in Hackathons.

Figure 2 Bamidele Olubadejo PMC helps manage Toronto Event while also being in charge of 7 African Cities Fishackathon

Bamidele Olubadejo was a student in the Seneca PMC Program in the winter of 2017. Originally from Nigeria, Bamidele came to Canada via Vietnam. In Vietnam he worked for the largest software outsourcing company in Indochina, acting as a liaison between the western clients and software development team. He volunteered as a team lead for "English Spotlight" in Hanoi, a program designed to serve people in non-English-speaking countries to help them improve their English skills to increase their job prospects.

Not only did Bamidele participate in DementiaHack in 2017, he and his fellow teammate, Ismael, also served as Ambassadors and mentors to Toronto District School Board high school students. Bamidele was bitten by the Hackernest 'Bug', and saw it as a real means to making the world a better place.

He became an instructor for WizkidCoding, a fun and innovative coding program designed for kids who want to change their world. The designer of the program leveraged the power of S.T.E.M(science, technology, engineering, management) to teach kids how to code with the overall aim of increasing their JADE skills (Judgement, Analytical, Diagnostic, Evaluative). Using his Hackernest connections, Bamidele secured a $250,000 scholarship so that children could attend summer camp this past summer.

Bamidele had a vision to bring Fishackathon to Africa. Based on his understanding of Africa Market, he created a GoFundMe page to aid his vision and got enough support to bring Fishackathon to some of the African cities in dire need of producing the event. With his inspired leadership and drive to success, Bamidele successfully organized Nairobi, Abuja, Idadan, Lagos, Benin and Johannesburg. The Logos event was so successful, that it became the second highest attendance

in the event, after Toronto. The event produced digital solutions that will help reduce overfishing activities in protected waters, and a fishery sustainability solution that will decrease hazardous substances in waters close to the fishing villages.

Figure 3 Damian and team contemplate their design for the their fish marketplace mobil app

The Winning Team:

The Backstory

Damian is an international student at Seneca College in the Computer Programming and Analysis program. As soon as he was introduced to the power of Hackathons, and provided the opportunity to participate in Fishackathon, he was all in. He participated in a Shopify/ Facebook hackathon in November to better prepare himself, and there had the opportunity to network with entrepreneurs, Hackathon mentors, and potential teammates. This is where he met Maggie, who holds a Liberal Studies BA Degress from Capilano University, a Master of Information from U of T, and most importantly, a desire to go to Fishackathon.

Spurred on by professors, Damian's idea was to incorporate blockchain technology into his solution in order to increase integrity in the supply chain. Excited by his idea, he tried to convince some of his Seneca friends to join in. He was met with resistance because his blockchain idea seemed difficult, and none of his peers had very much experience with it. However, for Damian, that was exactly the point.. to learn.

Damian met Simon through a common friend. Simon recently graduated from the IFS (Informatics and Security) program in December 2016. Rather than go straight into the workforce for a full-time job, he decided to stay in school another year to pursue the Computer Programming and Analysis Program.

The team of three was then connected with Kurshit and Jarman, both Lambton College graduates, through the Hackernest community. These final additions were just what the team needed, and provided backend for the SMS portion of the project.

The Solution

Their focus was to help fishers obtain fair market value for their catch, while recognizing ethical and legal practices to increase their profits by giving fishers access to real-time market data, expanding their access to different markets and buyers and certifying fair market value through the development of a Ship to Store certification. This certification would guarantee consumers and other stakeholders that fair wages were paid, and can address other issues such as illegal slavery.

The high impact of the system was immediately recognized by the judging panel. It provides instant traceability along the supply chain from the sea to the retailers, safeguarding in case of contamination once the product has been taken off the shelves.

Damian and his team used Firebase and Blockchain (Hyperledger Fabric) as their backend. They created a Blockchain Business Network using Hyperledger Composer framework, and the 'chaincode' was written in Javascript. He used Ionic Framework for the mobile application, and Twilio API for text messaging (a querying firebase database) for market prices in areas with no internet access. The text message capability allows fishermen to create/ post an offer on the business network, which is instantly added on the mobile app for Seafood Buyers. Once a seller (Fisherman) finds a buyer (i.e. exporter), a transaction can be signed by both parties and recorded into the distributed ledger (blockchain). The record can be retrieved by anyone with access to the transaction ID. It is tamper-proof, and can later be used to provide market prices.

The Team

- Damián: Blockchain / Hyperledger Developer
- Simon: Front End developer
- Magdalena: Business Manager
- Jarman: Backend developer (Firebase)
- Krushit: Back End Developer

The Runner Up

Figure 4 Alvin R, leader of InFiniFish with team ambers and judges

" [Fishackathon] gave me an opportunity to exercise some of these skills I've attained during my first year at Sheridan in a way that would possibly impact the world - something that was pretty daunting and cool at the same time."- Alvin

Alvin, a student of mine at Sheridan College, met Steve on a forum where their mutual interest in tech, hacking, and working collaboratively on interesting projects drove them to test their limits by participating in a Hackathon. Next to join was Jonathan, a Humber student, friend of Alvin's and fellow high school FIRST Robotics team member. The final additions to the team included Aunan, a fellow student at Sheridan with a business background and Gordon, a long running student in the field of IT, resident memer and friend of Steve. They shared a common interest of working together on something meaningful, with a real-world impact.

Their Solution

Their solution, Infinifish, is a tool that identifies fish based on their fin. Like a fingerprint, fins are perhaps the most unique aspect of a fish. They utilized a color spectrometer combined with translucency detection capabilities. The prototype consists of a 3D printed case containing a ESP8266-12E microcontroller which serves to interface with TCS3200 and LDR sensors. The hardware takes an approximate reading of the RGBA of the fin of any fish, and transmits that information via serial USB to a connected PC/device. The software is a light-weight desktop app written in ava with a UI done in

FXML. It provides an interface where users can interpret the results returned from the hardware. The results, once read, are queried against FishBase to return fish 'specs' (e.g. regional data, taxonomy, feeding etc…) for users to interpret.

The team hopes to partner with people and companies within their target demographic, such as researchers, marine bilogists or anglers, to discuss further development. While they are more than satisfied with their affordable and effective solution, they hope to some day expand the Infinifish to be something more than a simple spectromoter.

The Team

- Alvin R. : Sheridan College, Software Development and Network Engineering
- Aunan H.: Sheridan College,Software Development and Network Engineering
- Gordon S.: Centennial College, Software Engineering Technician
- Jonathan R.: Humber College, Mechanical Engineering
- Steve S. - Fanshawe College (GRAD) Computer Technology – IT Operations

Honourable Mention: iGoFish

The Backstory
iGoFish was grouped on site at the Fishackthon event on Feb.10, 2018 in Toronto City Hall. The five group members, Conor, Kenneth, Shardul l, Stefanie and Yanting did not know each other prior to the event.

Yanting is currently studying Project Management-Information Technology in Seneca College and holds a bachelor's degree in Electronic Information Engineering. Conor and Shardul are both freshmen studying computer science in University of Toronto. Kenneth, alumni of McMaster University, was major in Chemical Engineering and minor in Society and Business. Stefanie studied Business Administration in Wilfrid Laurier University for her undergrad and went to Bitmaker General Assembly for UX & Product Development.

The Solution

Yanting developed a vision for a computer solution that would support the everyday nature lover and fish enthusiast to identify fish species, and obtain helpful information about their catch. The concept was to use facial recognition software to identify a fish species, and crowdsourcing to capture geolocation and time, and feed the data into a cloud/big data system that could be used for research purposes.

Their solution helps local governments to reduce cost of gathering fish related information by using crowdsourced image data, providing incentives for average uses, improving recreational fishing regulations and providing insight to researchers about migration patters and species' locations.

The iGoFish project was exactly aligned with an active project that the Ministry of Natural Resources is looking to build. They gave the team a $500 award and are looking to partner with the team to commercialize the application!