Note - Deadline extended to January 13

Executive Summary

In the Spring of 2021 (January-April), the University of Toronto students enrolled in CSC301 (Introduction to Software Engineering) will be developing software projects in teams of 5-6 with the goal of solving a problem. They are in their third or fourth year of study in computer science and many of them have professional working experience (e.g., as interns). They will be led by experienced Teaching Assistants who have professional experience as software engineers. In the past few years, we have seen great projects developed by students over the course of a term. We are offering them the option to work on projects proposed by partner organizations (non-profits, startups, universities, hospitals, research centres, small businesses, etc.). Previous partners include teams from UHN, CSI, University of Toronto, Harvard Medical School among tens of other nonprofits and startups. We invite interested organizations to submit proposals below.

Software Project

Students will develop a **minimum viable product (software)**. This MVP is the **solution to a problem for a specific set of users** that are defined by the partners. The software can be a web application, mobile app, desktop application or any other type of software. Students will work with partners to define the scope of the project and aim to deliver the minimum viable product by the end of the term. You can see some examples below of general student work below.

1. **Feeding Canadian Kids** - An application that facilitates the organization and tracking of food delivery between donor restaurants and after-school programs
2. **Sick Kids** - A mobile application that performs uroflowmetry at home for caretakers and guardians of children in remote areas.
3. **Matron** - An application that reduces nurse workload by enabling optimal, spatially aware scheduling based on the layout of hospitals.
4. **Harvard Medical School** - A note-taking application that facilitates the research and improvement of the interview process between medical students and patients. -
5. **Law and Design CoLab** - A lease wizard application that creates a user-friendly, procedural approach to developing leases that adhere to the law in Ontario. -
6. **Ontario Association of the Deaf** - A mobile application that allows people who are deaf or hard of hearing to have more effective communications with first-responders and emergency service members.
7. **My Ethical Garment** - A fashion search engine to find responsibly made garments easily

Some common functionalities include:

- Multiple user types with different needs
- geolocation/map features
- Communication on the platform among users
- Posting text, images, videos on the website/platform for other users to see, download, comment, engage with
- Visualizing data using bar graphs, pie charts
- Running reports showing aggregation of data created
- Using calendar-related features
- Mobile app VR/AR (occasionally)
- Machine learning and statistical computations (occasionally)
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- ...

Program Requirements and Expectations

- Projects must have a considerable software component. This could include a website, mobile app, integration, or other similar technical projects. More advanced projects with significant hardware, machine learning and/or cryptocurrency components are acceptable but are less likely to be assigned a team given the complexity involved.
- We will not accept projects that are generic in nature (e.g., generic content management software, blogging tools, static/simple websites, etc.). We encourage partners to use existing software solutions that are widely used. Feel free to join our webinar to learn more.
- If your project fits the criteria, we will allow the students to choose your projects; however, your project may not be selected by any team. We will update you either way.
- Partners must be able to work with the teaching team and the students throughout the term (mid-January to mid-April). The partner must designate at least one individual to lead the project who can make themselves available at least once every 2 weeks to meet (~~in-person,~~ online or via phone) with the students or the teaching team and respond to student emails when needed.
- Students will release the software to the partners with an open-source license and **may** choose to volunteer their time after the course is finished; however, this is not a requirement and the partners need to be able to use the delivered project on their own.

Testimonials

“One of the most important initiatives of 0 Barriers Foundation is to develop a comprehensive Digital Accessibility Compliance Platform designed to alleviate accessibility barriers for people with disabilities. The Student Team at University of Toronto under the

CSC 301 Project Partnership Program has taken on this challenge head-on. We as a Foundation, we could never have pulled off a stunt like this in such a short time, without this teams tireless efforts and dedication. In a nutshell, they have far exceeded the MVP requirements on the application A11YMoly. So Thank You Team & CSC 301 Project Partnership Program!" Santhosh Kumar, Founding Director, 0 Barriers Foundation

"As a small NGO, we were thrilled with the opportunity to receive technical support from the CS301 class in the form of a community partnership placement. The placement allowed us to explore a project that we would not have been able to otherwise. The students were fantastic - highly professional and I was thoroughly impressed with the final deliverable." -Rachel Mansell, Vice President Operations, The Mosaic Institute.

"...The students were very professional and very motivated. Their ability to turn our ideas into functional programs exceeded our expectations, and we are happy that we took this chance to work with them. We expect to make use of their final products to improve the quality of our research." - Mohamed Abdalla (UofT CS PhD, Vector Institute for Artificial Intelligence)

Tips on good proposals and our webinar

Please provide as much detail as you can in your proposal to help us understand your project more deeply. This will allow the students to know in advance and increases the chances of success for your project.

We will host a webinar on

- ~~**Thursday, December 10, 2020 at 5pm EST. Please register here.**~~

~~After registering, you will receive a confirmation email containing information about joining the meeting. The recording will be available here after the webinar.~~

Note: The webinar recording is available here. Passcode: =U^PF0G4Le

How to submit a proposal

Interested partners can submit a proposal here **by Wednesday January 13th, 2021 at 9pm EST**. You can see an example of the functionalities of a great proposal that led to a successful project here. If you have any questions, please don't hesitate to contact David Jorjani or Adam El-Masri, or join our Webinars (see below for details). Slides from the presentation are available here

General process and estimated timeline

The process involves the following steps:

#	Description	Estimated Timeframe
1	You will submit your proposal. If you have any questions or doubts or need help clarifying the scope, you can join our webinar (see below for details) or email David at david.jorjani@utoronto.ca and Adam at adam.el.masri@mail.utoronto.ca	Up to January 13th, 2021 (Week 0)
2	The teaching team will review proposals and may invite selected partners to pitch their proposal (optional step). Alternatively, partners can submit a video (up to 5 minutes) to be shown to the students	Week 1
3	Students review selected proposals and will rank the ones they want to work on. Selected partners will be given the opportunity to pitch to the students.	Week 1
4	The teaching team will match student teams with partners based on the project requirements and the skills of the students.	Week 1-2
5	Selected partners will be contacted to have an initial introductory meeting/call with the teams to discuss scope, expectations, timelines, communication methods and frequency, etc. If an agreement is reached, the students start working on the project. If an agreement is not reached, students may work with other partners. One member of the teaching team will be present to facilitate the discussion.	Week 2
6	We will notify the partners whose projects have not been selected.	Week 4 (Early February)
7	Partners work with students to define the functionality of the software and the expected outcome.	Week 4-11
8	Students will submit their work in the middle of the project and allow the partners to give feedback to be incorporated in the final version.	Week 8
9	Students submit their final work and present it to the teaching team. Partners are welcome to join the presentation.	Week 10
10	The project is handed off to the partners. Students have no obligation to continue working on the project or maintain it.	Week 11 (early April)

	Partners and students may *choose* to continue working together at their own discretion.	

Frequently Asked Questions

1. **Is there a guarantee that we will be matched with a team?**
   No. Student teams choose the projects they are interested in working on. Our program has become popular over the years. Last term, we could only match one-third of the proposals. So we highly recommend making your proposal interesting to the students so they choose your project.

2. **Who owns the IP of the project?**
   Students own the IP; however, as mentioned before, they will release the software to their partner with the MIT License. This means **partners have the right to do anything** they want with the software but the teams are not responsible for maintaining the software and provide no guarantees.

3. **How can I protect my Intellectual Property (IP)?**
   You can ask the students for confidentiality AND discuss them with the student team at your first meeting. You can make the partnership conditional on students only sharing the code with you. If the students agree to that, they will treat the project confidentiality just like they would treat the confidentiality of projects in their internships. This has been the path in the past few years and we have never seen a problem. We cannot sign an NDA or any other legal documents.

4. **We are a startup. We cannot afford not owning our IP. What should we do?**
   Software companies use open-source software they don't own all the time. It's industry practice. Even companies like Google and Apple do that. The only risk is that the students will publish the code online despite the initial agreement not to do so, which has never happened. We recommend not including your “secret sauce” in the project if that’s a concern.

5. **We already have a team and a code base. Can the students work with our existing code?**
   Technically yes. However, there are several things to note. First, you need to share your resources with the team and the TA in a timely manner without an NDA (see questions above). Second, students cannot commit to be part of your team or work at the same pace and/or standard of a full-time employee. Third, student work may not integrate very well with your existing solutions unless you have a technical lead to guide the design and architecture. Please talk to us about your project before submitting a proposal.

6. **What if multiple teams choose our project?**

We choose the best team for your project. We might allow up to two teams to work with one partner **on the same project.** Due to the complexity of the projects and the short time frame, the risks of failure will be drastically increased if two teams work on separate projects with the same partner. Having two teams work on the same project allows the partner to choose the one they like more.

7. **What happens after the project finishes?**
   The source code will be released to partners with an open-source license. This means the partners can do anything they want with the software; however, students have no responsibility to maintain and update it. Partners may need to have a budget to run the software (e.g., servers, domain, etc.) or add additional features. They may be able to participate in future partnerships but very likely, they will need to find additional resources to continue developing and using the software.

8. **What if the team doesn't deliver what is expected?**
   Although we will do our best to support and incentivize complete projects, this is a possible outcome. The teams are made up of students who have other responsibilities and courses, and may not have the experience or the expertise to deliver a fully functional product. We strongly recommend our partners consider this risk and talk to us if the potential failure of this project will have a dramatic impact on them.

9. **Do we need to have any technical knowledge to do the project?**
   No. Any organization can become a partner. The course is designed in a way that no technical knowledge is expected from the partners.

10. **Do I need to be in Toronto or Canada to participate?**
    No. We have had partners from Europe, Africa, and the US in the past. We will work with you remotely.

11. **My question is not answered. What should I do?**
    Please email david.jorjani@utoronto.ca adam.el.masri@mail.utoronto.ca to ask your questions. We're always open to an email/phone/zoom chat!