WELCOME TO THE C4C:EU TOOLKIT

Thank you for your interest in hosting your own C4C:EU Code for a Cause coding competition. This event is an opportunity for undergraduate and graduate software developers to make a profound difference by developing innovative, empowering software projects for persons with disabilities.

The purpose of the C4C:EU is threefold: to introduce student developers to the world of Assistive Technology (AT), to engage students in accessible computing, and to create open source software for persons with disabilities.

Here you will find all information needed to host your own C4C:EU Code for a Cause event.

Introduction

The C4C:EU is a team software development challenge that inspires students to create software for the disabled community. Participating undergraduate and graduate students collaborate to create software that will make a difference in people's lives and in society.

The C4C:EU is held in two stages: an C4C:EU Campus Round and C4C:EU Final Round. At the start of the C4C:EU Campus Round, students are registered into teams. Student teams are tasked with coding an assistive technology software prototype in collaboration with end users. All students within a region are given the same amount of time to develop this code. For competitions in the US and Asia, this is one single 48-hour window, typically over a single weekend. In Europe, the students are given one academic term.

At the end of the coding window, students present their projects to a panel of industry and academic judges. The winning teams may be awarded prizes and are invited to represent their respective campuses in the C4C:EU Final Round.

The US Finals take place at the International Conference on Technology and Persons with Disabilities (CSUN). The Europe Finals are hosted in alternating years at ICCHP (the biennial International Conference on Computers Helping People with Special Needs) and at AAATE (Association for the Advancement of Assistive Technology in Europe Conference). The Asia Finals are held at the Intelligent Interactive Systems and Assistive Technologies Conference.

The C4C:EU is an eye-opening experience for students; for some it is their first exposure to accessible computing. The event is a positive experience, with many of the students returning to future C4C:EU events as participants or coordinators. It is also a great networking opportunity for students and volunteers alike. Companies including Google, Microsoft, Adobe Systems, and Northrop Grumman have extended internship and job offers to students they first met at the C4C:EU.

Additionally, the code the students write goes on to form the foundation of open source software that benefits persons with disabilities. All of the software programs Project:Possibility showcases on our website began as entries in the C4C:EU coding competition.

Most importantly, as our students graduate to become software developers in industry, our hope is that the C4C:EU inspires them to code universal accessibility into the next generation of commercial and open source software.

If you would like to bring the C4C:EU to your university campus, apply to become a Campus Coordinator by emailing us today. We will work with you through the planning process to ensure the C4C:EU held at your university is a success.

This C4C:EU Toolkit was written to demonstrate the scope of a Campus Coordinator's responsibilities, as well as provide you guidance and support to recreate the C4C:EU experience. We built the Toolkit based on the most common questions Coordinators asked us as they prepared for C4C:EU of previous years. If you have any additional questions, please don't hesitate to reach out to us.

Guidelines

Project:Possibility and the Campus Coordinator will be jointly responsible for creating project ideas, securing funding, and sorting C4C:EU Final Round logistics. Details specific to the C4C:EU Campus Round such as room logistics and supply procurement will be the responsibility of the Campus Coordinator.

Eligibility

Eligible C4C:EU campuses shall have an established computer science department and the ability to procure financial support to self-fund the event. (Financial support can come either internally from the university, or externally via sponsorship. Fundraising tips will be discussed later in the Toolkit). The campus agrees to be listed as an C4C:EU participating school on promotional materials including online at ProjectPossibility.org and ss12.info. All source code written at the event needs to be released free of charge under an open source license. Project:Possibility can provide guidance for choosing a release process and the right open source license if you are unfamiliar with the available options.

Purpose

Our mission with Project:Possibility and the C4C:EU is to introduce students to the difference they can make in the world of assistive technology then empower them to create open source software for persons with disabilities. We ask that the C4C:EU at your campus holds true to this same mission.

The C4C:EU event is intended to be a rigorous, yet fun programming competition. Even though prizes will be awarded to the winning teams, recognition should be generously given to all participants for volunteering their time to code for a cause.

Format

The coding timeframe shall be established in advance by the C4C:EU campus. Some flexibility is afforded to accommodate schedule conflicts differing academic years. The final timeframe is subject to approval by Project:Possibility.

Students shall be formed into teams and work on their project prototypes over the specified timeframe. Students then present their project prototypes to the judging panel, and the judging panel selects a team to represent the campus at the C4C:EU Final Round.

Each C4C:EU Final Round (US, Europe, Asia) shall indicate a region-wide code freeze deadline. Students may develop their projects at anytime starting from the beginning of the C4C:EU until this deadline. We have seen the best projects are not coded start-to-finish in only a few days, but are the result of hours of hard work over the course of several months.

Coordinator Responsibilities

Here is a checklist of the tasks and responsibilities a Coordinator has. (Note that all of the items may not be relevant, depending on the structure of your C4C:EU Campus Round.)The rest of the Toolkit will consider these topics in further detail.

Planning for the C4C:EU

- Invite Mentors and Judges to volunteer at the C4C:EU.
- Develop project ideas (jointly with the Project:Possibility Projects Team).
- Secure funding for the C4C:EU (jointly with Project:Possibility Fundraising Team).
- Recruit a Partner Organization or team of volunteers to assist with the C4C:EU.
- Promote the C4C:EU with prospective students and local media outlets.
- Confirm location for the C4C:EU.
- Procure supplies (e.g. prizes, certificates, food, t-shirts).
- Register students into the C4C:EU (jointly with Project:Possibility IT Team).
- Host an Orientation session for all participating students.

Running the C4C:EU

- Officially welcome all participants at the beginning of event and be a good host to the participating students, mentors and judges throughout the event.
- Resolve logistical issues as they arise.
- Provide meals, snacks and other optional breaks for students.
- Document the C4C:EU as it happens.
- Communicate judging criteria to Judges.
- Facilitate students' project presentations.
- Present awards and tell students how to stay involved (e.g. continue coding, finding volunteer opportunities).

After the C4C:EU

- Submit C4C:EU Campus Report.
- Gather feedback from the participants.
- Publish the event -- Share source code, pictures, and videos online.
- Coordinate participation logistics for winning team to attend C4C:EU Final Round.
- Share your wisdom and mentor next year's C4C:EU Coordinators.

Mentors & Judges

The participation of the greater community is crucial to any open source effort, and the same is true with the C4C:EU. Mentors serve as Team Leads, guiding the students as they frame and code their projects and inspiring them to think out of the box. Judges evaluate the students' projects at the end of the timeframe and provide positive feedback on how they can further improve their projects.

We encourage you to engage local corporate programmers, faculty members or software developers to serve as mentors and judges for the student participants. Be creative and tap your network for potential candidates - sponsoring companies, university representatives and accessibility communities can also suggest volunteers or provide further introductions.

Mentors

- Mentors Help throughout the competition by:
  - Help develop a plan of attack with their team
  - Advising their team on difficult problems
  - Providing critical analysis and feedback
  - And much more (short of writing the code for the students!)
- For weekend-length events, each team should be paired with one Mentor. In the event that not enough Mentors are available to attend, remote mentorship via IRC or Skype is a possibility. For term-length events, faculty members advising students in their coursework can serve as Mentors.
- The most effective mentors have a personal interest in the project(s) they are mentoring. For example, one C4C:EU team was tasked with creating binary input for the GNOME Caribou on-screen keyboard. The mentor for that project was a member of GNOME who worked directly on the Caribou product. His support in helping the participating students understand the source code and needs of the end user was a tremendous help to the team.

Judges

- Judges provide feedback to the students based on the following criteria:
    - **Challenge Factor**
      How did the team face the challenges their prompt provided and any others they faced during coding?
    - **Innovation**
      How innovative is the team's solution to the problem?
    - **Usability**
      Is the implementation something that the intended audience could use well?
    - **Documentation and Maintainability**
      Is documentation available? Is the system structured in a way that allows others to continue working on and further develop it?
- Judges give each of the teams a score (1-10) on each of the above criteria. The average score for each judge will be computed to determine each judge's ranking of all the teams. The top teams will be awarded the top prizes and invited to represent their university at the C4C:EU Finals. Note: Be sure to communicate to the judges and participating students that comparing such the vastly different projects they have worked on is not a perfect science. Every year, judges have a difficult time choosing the "best" team, and all students should be recognized for their hard work and participation.

Project Idea Selection

Every year, Project:Possibility and the Campus Coordinators generate a list of project ideas that is provided to all campuses. Campus Coordinators may elect to assign each team a project idea, or allow teams to develop their own ideas.

Be creative! Project ideas can be new software product concepts or adding new features to existing open source projects.

Criteria for an C4C:EU Project

A typical C4C:EU Project:

- Is challenging but achievable within the timeframe
- Needs to ensure that all ideas have a similar level of complexity
- Has a clearly outlined goal
- Has apparent benefit to users of accessibility or Assistive Technology

Project Idea Considerations

A typical C4C:EU Project:

- Is technically interesting to inspire student engagement
- Aims to build on students existing knowledge, but also stretch them

As examples, consider existing projects on projectpossibility.org and media on ss12.info

Technical Considerations

A typical C4C:EU Project:

- Is software only (for laptops/mobile) unless any specific hardware is made readily available by hosting institution or sponsor
- Utilizes existing open source software whenever possible (e.g. NVDA / Fangs screen readers, alt access software, etc)
- Ensures any specified platforms have freely available dev tools or communities
- Should be familiar to students to avoid frustration with learning curve during competition
- Avoids dependencies on proprietary software

How to reach out to end user groups for ideas

- Public announcement asking for ideas
- Arrange a workshop / brainstorm session
- Contact Accessibiliy groups / departments / teams on campus
- Colleagues may have research ideas or educational issues that can generate ideas
- Mailing lists / social networks
- Charities and user organisations
- Accessibility / AT specialists / AT manufacturers
- open source Accessibility and AT projects (eg NVDA)
- Existing open source accessibility projects always have work to be done that could be an idea (search for a roadmap or open issues posting)
- Talk to community directly asking for ideas

Here are some tips for brainstorming project ideas that benefit end users and are fair, challenging, and engaging for the students.

- Create Projects that have a visible application for the end user.
- Check what local organizations are working on & see if they would like to contribute project ideas.
- Check with faculty members to see if any of their research areas could become project ideas.
- Frame the projects so they are all similar in difficulty.
- Projects can fall under a unified theme or represent a diverse range of interests.
- Outline goals for each project to complete.
- See Project:Possibility website for examples of past project ideas.

For more information about selecting project ideas or to suggest one for this year's Call for Project Ideas, contact us.

Financing

Coordinators will work with Project:Possibility to ensure each C4C:EU campus is financially ready to host the C4C:EU. Project:Possibility will reach out to past sponsors and donors for funds to support the upcoming C4C:EU season. Coordinators are also encouraged to seek sponsorship and donations to help cover the cost of an C4C:EU. Coordinators should be prepared to raise a majority of the funds required.

The specific budget required for your C4C:EU will depend on the timeframe of the event, the number of students participating, the scale of the student presentations portion, and the distance to travel to the C4C:EU Final Round. For example, a two-day event in the US utilized a budget of EU €1500, while some universities have hosted an C4C:EU for much less. This amount is allocated for:

- Prize incentives for students and volunteers
- Food/snacks
- Facility/room rental
- IT for students
- Logistics/Travel

By partnering directly with individuals affiliated with the university, previous events have been able to reserve facilities at no cost.

If additional funding is raised, it can be used to purchase additional prizes, more food, or extra giveaways like t-shirts or USB drives for participants and / or judges.

Sponsors & Partner Organisations

To cover these costs, some universities utilize existing departmental budgets earmarked for student programs. Others invite external companies and funding bodies to participate as sponsors.

There are many benefits that make the C4C:EU an attractive venue for leading technology industry and AT companies to sponsor the event. Companies are constantly seeking to recruit future employees, either as generalist developers or accessibility specialists. The C4C:EU provides companies a venue not only to meet student developers, but also to interact with them and see their work. Through the Call for Project Ideas, companies also have the opportunity to propose projects that address accessibility issues relevant to their practice. Finally, companies are able to publicize their work through promotional materials and talks at the C4C:EU.

The list of organizations who have participated at the C4C:EU in previous years by sponsoring and/or contributing volunteers includes (in alphabetical order): Amgen, Cisco, Electronic Arts, Embark, Google, Litton, Lockheed Martin, Lookout Inc, NASA Jet Propulsion Lab, Method In Mind, Microsoft, Northrop Grumman, OCZ Technologies, Raytheon, Sony, Oracle, Tobii, and Zynga. We are grateful to all of them for their role in making the C4C:EU the success it is today.

As Campus Coordinator, you have the option to provide a number of different opportunities for sponsors to be involved in the C4C:EU. These include:

- Inviting a company representative to speak with students on accessibility topics
- Hosting a "meet and greet" event for students and sponsors
- Allowing companies to propose project ideas
- Engaging company volunteers as Mentors or Judges
- Publishing a CV booklet of students interested in employment opportunities
- Distributing company's promotional materials (i.e. "swag")

Partner Organisations

Hosting an C4C:EU is a team effort. While not mandatory, Coordinators often find it beneficial to partner with an established organization at the university.

- Student Organizations
- Computer Science (or other Engineering) Department
- Accessibility Services Department

The first C4C:EU events were held in partnership with established student organizations at the respective universities. Many schools have student chapters for Computer Science or Electrical Engineering such as Association for Computing Machinery (ACM), Institute for Electrical and Electronics Engineers (IEEE), and / or Eta Kappa Nu (HKN). More recent C4C:EU events have been held in direct collaboration with the School of Engineering at a campus.

Partnering with the Coordinator serves the University in several key ways:

- Hosting the C4C:EU is a chance to promote their student organization or department throughout the university and to the general public. Because of the excitement generated by the students, this is a great opportunity to generate media attention and buzz.
- The C4C:EU also presents the opportunity to teach students about open source development and accessible technology.
- Students work with industry mentors during the C4C:EU who may teach programming concepts during the event and even provide contacts for seeking jobs / internship prospects later on.
- Meanwhile, the Partner Organization is able to provide necessary support to the Coordinator in the following ways: The Partner Organization can help provide the manpower for securing food and prize sources.
- Many campuses have institution - wide event funding sources that Partner Organizations can utilize.
- The Partner Organization can help with promoting the event and getting the word out to prospective participants.

Promoting

It is important to promote the C4C:EU effectively before the event. Students will not be able to participate if they do not hear about the event. Also, the C4C:EU event itself provides the university an opportunity to generate media attention.

The C4C:EU will be branded as a Project:Possibility C4C:EU event on your campus. Project:Possibility will provide graphics and other promotional media. If the Coordinator would like to create their own, please make sure these are approved by Project:Possibility prior to distribution.

Here are some of the methods of promotion which have been effective for previous C4C:EU events:

- Word of Mouth
- Fliers
- Website (e.g.: http://ss12.info/)
- Social media (Facebook, Twitter, etc)
- Classroom announcements
- Campus student newspaper
- University official publications
- Press release
- Local news outlets (e.g.: TV, newspaper)
- Education and accessibility blogs / podcasts

The C4C:EU –Classroom Format

An alternative pioneered by the European C4C:EU campuses is to incorporate the C4C:EU directly into the classroom. Instead of renting rooms and hosting a separate event, students may participate in the C4C:EU through the projects they are already completing for a capstone computer science or accessible computing course.

Student Registration

Students in an C4C:EU capstone course are not automatically registered for the C4C:EU, but shall register their interest separately. The instructing faculty member compiles the list of student teams and submits it to the C4C:EU Campus Coordinator who invites the teams to present their projects at the local campus presentation (see next section). Students not in the capstone course are still eligible to register a project they have been working on independently for the C4C:EU. All C4C:EU project entries must meet the submission requirements described earlier in the Toolkit.

C4C:EU Final Round - Entry Requirements

Once the winning C4C:EU team has been selected, a project summary report must submitted to the C4C:EU Final Coordinators. The principle elements of this report are:

- A summary of the project, the source code and relevant documentation
- A description of the university resources allocated toward the team

The report will be used in conjunction with the presentation the team gives at the C4C:EU Final Round to evaluate the project and determine the C4C:EU Champion.

The C4C:EU –Campus Presentations & Award Ceremony

Documenting the Event

Photos should be taken throughout the event and final presentations videoed. An interview of the winning team should also be videoed with the primary question being what did the team learn through their participation. Copies of all digital recordings of the event are to be provided to Project:Possibility for future promotional and educational purposes.

Prepare the Judges

Share the criteria of the event with the Judges. Depending on the judges' availability, allow them some time to review the students' code before the final presentations. Set the Judges' expectations: the students have only had 24 hours to code. As such, what they will present are not finished products but concepts and prototypes that can be further developed. Remind the judges to demonstrate to students where they can improve their projects, but also encourage them to continue coding after the event.

Final Presentations

Make sure all teams are given enough time to present. Teams should not be allowed to go beyond their allotted time, as this will take away from their fellow participants' presentation time or extend the event too long.

Judging

Judges familiar with program should arrive early on day 2, so they can observe each team and get a technical overview from each team. Each final presentation should be limited to 10 minutes in length. Presentation times may be reduced to accommodate the number of teams presenting. Make sure the judging criteria are clearly explained and is as fair as possible.

Make sure ALL the teams are recognized for their hard work during the competition. In past competitions, the difference between the top placing team's work and the bottom ones' is minimal. Impress on all the teams that the work they have done is significant and will be beneficial to the end users. Announce only the top 1-3 teams depending on the number of grand prizes secured and ensure all teams have a consolation prize, such as an C4C:EU T-shirt.

Awards Ceremony

Announce the winning teams and allow the winning teams to collect their prizes. Do not announce the rankings all the way to the last place team, as this will discourage the lower ranked teams. Congratulate everyone for all their hard work, and encourage them to continue coding for a cause. Make sure to confirm with the team or teams invited to the C4C:EU Finals that they do plan on participating.

After the Event

Gather Feedback

Follow up is very important. If the event was successful, many teams will want to put the finishing touches on their projects and their project wiki, and may even want to participate in a larger capacity in Project:Possibility.

Publish the Event

Pictures should go up immediately, and videos from the presentations should also be edited and posted to YouTube as quickly as possible after the event.

Let Us Know How it Went

Share with us any media you have gathered, and we will publicize it on our main webpage. Also, let us know if you have any feedback on the C4C:EU, and ideas for how to make next year's C4C:EU a greater success.

Mentor New Coordinators

Take your hard-earned wisdom and share it with the next generation of C4C:EU Coordinators. Share with others your experience as a Coordinator, and inspire your friends to bring the C4C:EU to their campuses as well.

The C4C:EU Finals

The top teams from each C4C:EU campus are invited to an C4C:EU Final Round based on their geographic location. Teams are given the opportunity to improve their projects before presenting them at the Finals. We encourage teams to work directly with a member of the disabilities community to ensure their project is as valuable as possible for the end user. A panel of judges will evaluate the presentation and code during the C4C:EU Final Round. And the winning team will win the title of C4C:EU Champions.

The top teams from each of the C4C:EU campuses in the US are invited to the C4C:EU Final Round at the International Conference on Technology and Persons with Disabilities hosted by the CSUN Center on Disabilities. For more information on the upcoming CSUN Conference, please visit the Center on Disabilities website.

The top teams from each of the European C4C:EU campuses are invited to the C4C:EU Final Round at ICCHP (International Conference on Computers Helping People with Special Needs) or at AAATE (Association for the Advancement of Assistive Technologies in Europe) conference taking place alternating years. For more information on the upcoming ICCHP / AAATE Conference, please visit the ICCHP and AAATE websites. The C4C:EU Final Round in Asia is hosted at the Intelligent Interactive Systems and Assistive Technologies Conference.

Representing Your Campus

Each of these leading conferences is a great way to introduce students to individuals in the world of accessibility. Hopefully students will be inspired, and one or two of them will even decide to get more involved in assistive technologies.

When the top placing team from your campus participates at the C4C:EU Finals, they may also be invited to attend some of the Conference sessions. If more students, faculty or administration are interested in attending, this can be arranged in advance with the coordinators of the Conference.

Conclusion

We have demonstrated how the C4C:EU - Code for a Cause Europe is built to enable students to take a step further into the world of assistive technology. The projects give them an opportunity to built AT of their own. The C4C:EU Campus and Final Rounds are structured to introduce them to leaders in industry, academic research experts, and the end user community. Whether students graduate and delve deeper into the AT field or enter industry, the entire C4C:EU experience is built to equip them to engage capably with accessibility issues no matter where they go.

We invite you to join us by hosting an C4C:EU Campus Round at your university this year. We hope this toolkit has answered all the questions you have about hosting your own C4C:EU event. If you have any more questions, feel free to reach out to us at info@projectpossibility.org

We hope you'll join us in educating the next generation of software developers in accessibility.