

Personal Growth Programming Challenge

Challenge Lead: Matthew Sharpe



“We can only see a short distance ahead, but we can see plenty there that needs to be done”

Alan Turing

Delegate Package



Design Phase Summary

Important Note:

If you haven't already emailed me with your GitHub username, please do so I can add you to your teams GitHub.

Introduction

Facing challenges and finding solutions is something fundamental to being human. However, finding the solution to a problem is only the first step of many; it's the implementation of the solution that counts.

As an Engineer, this Programming Challenge poses as an opportunity to develop a solution to a problem, and more importantly implement said solution using the wonders of technology.

Provided an issue, competitors are to **creatively** find a solution, plan the steps needed to implement, and actualize the final product. After doing so within the **6-hour 30 min** time period, competitors will submit their finished product at **4:30pm on January the 15th**, present their project to the judges (**30 min in total**) and wait for judges to finish evaluating (**30 min**).

Background

In this world, there are an infinite number of problems and after one issue is solved, it seems that two more problems are there to take its place.

Since there is never a shortage of issues, finding a solution to a single problem is merely a short-term success. A more far-sighted aim would be the development of ones problem-solving skills. Hence, the goal should first be to get our individual lives under control, so that we can later find the time to handle issues larger than ourselves, whatever they may be.

"You cannot pour from an empty cup. Take care of yourself first"

Task

Your ultimate end-goal is a self-betterment product that accomplishes two objectives. **First**, the product must help the individual to better themselves in some way and **second**, encourage them to keep bettering themselves through continual use of your product.

Your first job as a competitor is to create a means of helping the individual be a better version of themselves (Even if the change is minimal).

- Your final product could be anything. For instance, a sleep tracker to fix a bad sleep schedule, a daily planner that makes being on time easier, or a brain trainer that improves focus.
- Anything works, so long as it helps the individual improve in some way.
- Keep in mind that this part is merely a stepping-stone, so pick an idea, build the core functionalities, then move on to step 2. Leave any small details to the end.

Your next job is to make your product easy-to-use and something people will want to use continually.

- How this is done will vary depending on your first part, however, focusing on incentive is a good place to start.
- Think, *why* would someone use what I have made, and *what* would make them want to use it again?
- In the first step you build a foundation for a program that helps an individual grow. In this step, you add features that encourage repeated use and make the user-experience more seamless/enjoyable.

Examples of possible task ideas

A computer daily motivational quote program

- First part would be the development of a messages database system (could be in anything from a text file to an SQL database). Next would be a notification system that shows a message window every time the computer is turned on after pulling a random message from the database.
- Second part could include colours and different fonts for each message. For easier use, a simple GUI could be implemented to select what time the messages should appear in the day. For more continuous use, the program could have funny images/videos to put the user in a better headspace and make the application more rewarding to interact with.

A sleep tracker that fixes bad schedules

- The first part would be the coding of an alarm system that offsets gradually every day, until a desired wakeup time is met.
- The second part would be the creation of a user-friendly menu, and a progress reward system that unlocks new wakeup tones and slowly grows a virtual tree (a visual metaphor of your sleep habits). This would create incentive for continuous use, while the menu would make the application's interactions seamless.

A predictive daily planner

- First part would be the coding of a day planning system that allows users to record upcoming events. An API (Application Programming Interface) would be needed to include current traffic information from a third party, and the final code blocks would tie these systems together, considering traffic times to notify the user how far in advance to leave.
- The second part would include design elements such as notification styles, user interface, and perhaps a reward system that rewards the user for rating how accurate their trip predictions were.

Above all, keep this in mind when designing your product: **be creative and think outside of the box!**

Try and invent something new, even if it is strange, outlandish, or difficult (points are awarded for more difficult challenges).

If you're doing something that has been done before however, add your own twist to it. Not only will it make the creative process more fun, but it will likely make the final product better.

Design Focuses

Focus should be placed on the user-friendliness of the program. While a GUI (Graphical User Interface) isn't required for your application, having one certainly helps in the "user friendliness" portion of the grading scheme.

Regarding implementation and languages used, this is up to the team's discretion and there aren't any restrictions regarding what format the final product must be in (anything from a mobile app to a website).

Because of the lack of restrictions however, documentation is a major requirement as the judges can't be expected to understand all languages, so pseudo code and comments are strongly recommended to help judges better understand your code.

Usage of External Resources and Plagiarism

Use of external resources is allowed, however, **proper citation of said resources is of extreme importance!** Failing to cite a script, snippet, or recycled piece of code could bring serious consequence. At any time during the presentation a judge can ask the team to explain a portion of code, and failure to do so alongside the lack of citation could be grounds for plagiarism. If convicted, the team in question will be dropped from the competition and faculty will be notified of the offences.

To keep competitors honest and the challenge fair for everyone, breakout room drop-ins will be made by challenge coordinators without warning to check on team progress and answer any questions. To state the obvious, competitive honesty is expected from each of the participants.

Design Phase Deliverables

For redundancy and to ensure honesty, push (upload) project changes to the QEC GitHub every hour.

Regardless of project format (Website, Smart Phone app, Java Program, Python Script) the source code and project files should all be submitted to the GitHub so that they can be made available to competition judges and to avoid any complications.

Documentation should be submitted, along with any external citations (if you decide to put your citations outside your code). Diagrams, pseudocode, logic flowcharts etc. should also be included if you have any, as they can help the judges better understand your program.

When the design phase has concluded the following should have been uploaded.

- A working final model (end user product)
- The program source code files
- Supporting documents (pseudocode, external citations, external documentation)
- A final presentation (specifications outlined in next section)

Final Presentations Phase

Presentation Focus

The presentation should include an explanation of the application's purpose, how the application operates on a program level, and a demonstration of the functioning end-product.

Presentation Submissions

After the design phase, your finished presentations should be pushed to the GitHub in PDF format and that exact file should be re-obtained from the GitHub upon presentation time

(Any access between submission and presentation times is forbidden)

Presentation Platform

The presentations medium is up to the team's discretion and there aren't any restrictions so long as the content is there. PowerPoint (recommended), Google Slides, Prezi, Keynote, and other methods are acceptable. Just make sure a pdf format is obtainable.

Presentation Timeline

After the design phase, teams will be selected at random to present their final products to the judges.

Presentations should be **capped at 5 minutes** in length and any overshooting will result in a loss of points plus a forced ending.

Within the 5 minutes there should be an even distribution of talking between team members.

Evaluation Phase

Marking Scheme

The marking scheme is divided into multiple parts worth a combined total of 100 Marks.

A project is considered completed if it has:

- A front end (GUI / Menu)
- A back-end system (Program inner functions)
- Documentation of development procedure and project structure

Project Core and Code (Task 1) 0/35pts	Code is very well structured and easily readable: 10pts Code is documented perfectly, and comments describe code perfectly: 10pts	Code is moderately structured and readable: 7pts Code has good documentation, and comments describe code well: 6pts	Code is slightly structured and decently readable: 4pts Code has a little documentation, and comments somewhat describe code: 3pts	Code is unstructured and barely readable: 2pts Code has no documentation, and no comments: 0pts
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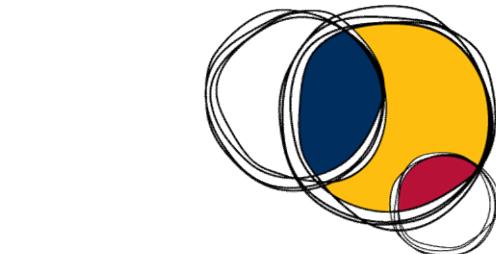
	<p>Code has no errors and glitches: 5pts</p> <p>Program architecture is well designed, and in efficient programming structures: 10pts</p>	<p>Code has a few errors and glitches: 3pts</p> <p>Program architecture is well designed, and includes intermediate programming structures: 6pts</p>	<p>Code has several errors and glitches: 2pts</p> <p>Program architecture is poorly designed, and includes basic programming structures: 3pts</p>	<p>Code has many errors and glitches: 0pts</p> <p>Program is completely without architecture, and uses no programming structures: 0pts</p>
Project User-Friendliness and Reusability (Task 2) 0/20pts	<p>Program is very easy to use and very easy to understand: 12pts</p> <p>Program provides plenty of reasons to interact with the program regularly: 8pts</p>	<p>Program is somewhat easy to use and simple to understand: 8pts</p> <p>Program provides a few reasons to interact with the program regularly: 5pts</p>	<p>Program is challenging to use and difficult to understand: 4pts</p> <p>Program provides minimal reasons to interact with the program regularly: 2pts</p>	<p>Program is virtually unusable and is hard to understand: 0pts</p> <p>Program provides no reasons to interact with the program regularly: 0pts</p>
Presentation 0/20pts	<p>Presentation is professional and summarizes project completely: 10pts</p> <p>Presentation doesn't exceed 5min limit: 4pts</p> <p>Presenters evenly distributed content: 3pts</p> <p>Presenters</p>	<p>Presentation is well done and summarizes most of the project: 7pts</p> <p>Presentation exceeds 5min: 0pts</p> <p>Presenters decently distributed content: 1pts</p> <p>Presenters</p>	<p>Presentation is poorly done and summarizes some of the project: 5pts</p> <p>Presentation exceeds 5min: 0pts</p> <p>Presenters barely distributed content: 1pts</p> <p>Presenters</p>	<p>Presentation is terribly done and fails to summarize the project: 2pts</p> <p>Presentation exceeds 5min: 0pts</p> <p>Presenters evenly distributed content: 2pts</p> <p>Presenters</p>

	answered questions perfectly: 3pts	answered questions fairly well: 2pts	answered questions poorly: 1pts	Didn't answer questions well: 0pts
Creativity and Uniqueness 0/10pts	Project idea is very creative and has no commonalities with other products: 10pts	Project idea is quite creative and has some commonalities with other products: 7pts	Project idea is slightly creative and has many commonalities with other products: 4pts	Project idea is uncreative and has many commonalities with other products: 1pts
Project Idea Difficulty 0/15pts	Project idea is very challenging and difficult to execute: 15pts	Project idea is moderately challenging and slightly hard to execute: 10pts	Project idea is slightly challenging and fairly easy to execute: 6pts	Project idea is barely challenging and easy to execute: 2pts

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We build changemakers from across Queen's University and the Kingston region by encouraging and supporting their entrepreneurial activities through incubators, workshops, courses, and pitch competitions.



290

startups launched in our programs.



49%

of ventures still in operation or acquired.

510

Changemakers cultivated through the Queen's Innovation Centre Summer Initiative.

\$864K

in non-dilutive funding awarded through pitch competitions.

115

Queen's alumni in our Global Network of mentors, and some of the world's best entrepreneurs, innovators, policy makers, and business strategists.

FLAGSHIP PROGRAM

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QICSI is a 16-week program where budding founders receive no-cost training, mentorship, seed funding, a personal stipend, and office space to launch their own venture.

QICSI 2022 applications are now open!



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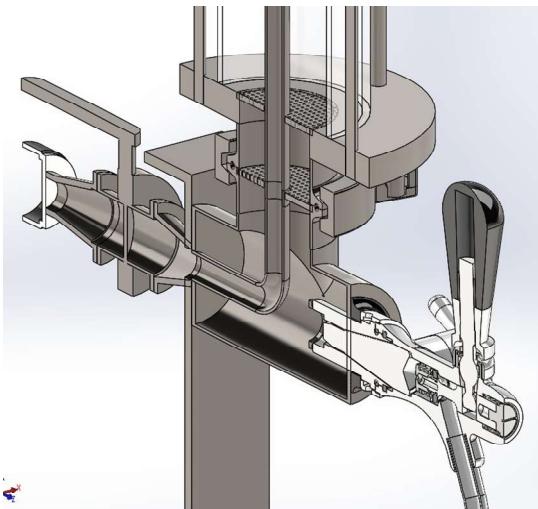
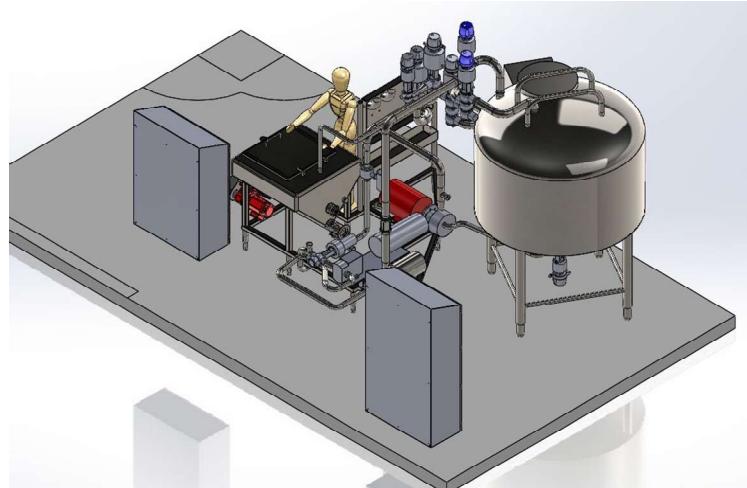
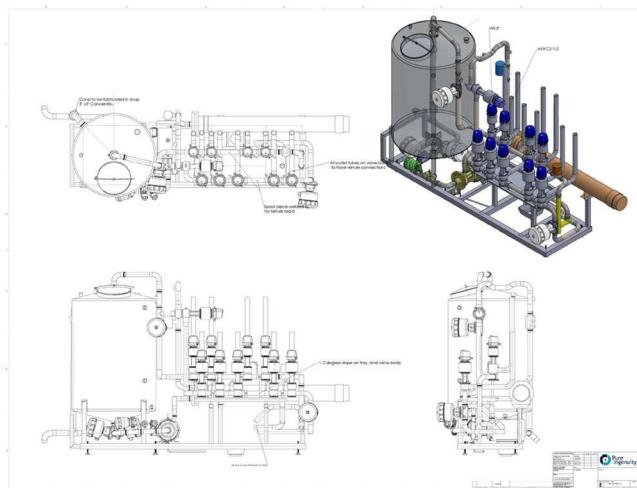
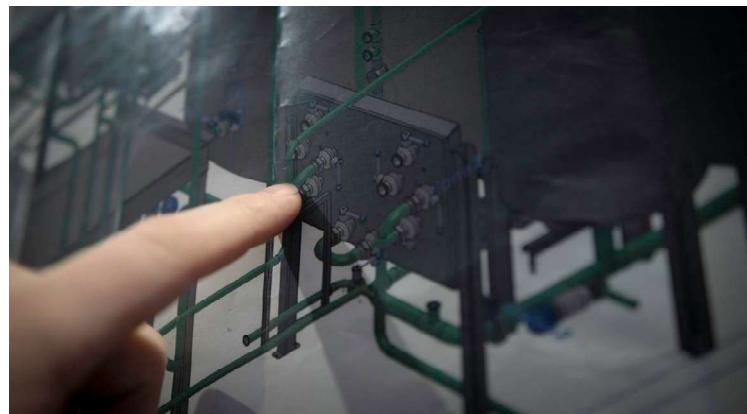
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Pure Ingenuity™ Engineers provide professional engineering services along with designing custom manufacturing equipment. We have a strong focus on collaboration. The expert design and analysis we provide to our customers, along with our experience designing to meet strict regulatory requirements, ensures our engineering services add value to our clients' projects and processes.



Engineering Internship and Summer Job Opportunities:

An engineering internship or summer job at Pure Ingenuity is an opportunity for an engineering student to gain meaningful work experience while providing engineering, manufacturing, and project management support to our team. Pure Ingenuity engineering interns and summer students start by gaining practical knowledge of metal fabrication techniques such as forming and welding by working in our manufacturing environment. Students then go on to work with our engineering team. The ideal students will be self-starters who thrive in an entrepreneurial environment.



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About Deloitte

At Deloitte, we are driven to inspire and help our people, organization, communities, and country to thrive. Our Purpose is to build a better future by accelerating and expanding access to knowledge. Purpose defines who we are and gives us reason to exist as an organization. By living our Purpose, we will make an impact that matters.

Purpose and Shared Values

Our Shared Values describe the behaviour we expect from each other at the firm. They provide common ground to unite us across cultures and geographies. They help us to earn the trust and respect of our stakeholders. We all commit to living by these shared values, to stay true to the principles they represent, and to honour the legacy from which they came. They are what sets us apart and makes us Deloitte.

Every day, we live our Purpose through the following five Shared Values: lead the way, serve with integrity, take care of each other, foster inclusion, collaborate for measurable impact.

Diversity, Equity, and Inclusion

Inclusion for all. At Deloitte people are valued and respected for who they are and are trusted to add value to their clients, teams, and communities in a way that reflects their own unique capabilities. DEI is embedded in our Purpose and Shared Values. Part of that purpose involves a commitment to taking care of each other and fostering inclusion.

We aspire to build a workforce reflective of the diversity of contemporary society, and we are committed to building a diverse pipeline of candidates to continue our journey in creating a culture where everyone has equal opportunity to grow, develop, succeed and be their truest selves.

We offer the opportunity to be your authentic self through:

- an inclusive working culture where respect and equity are supported at every level of the organization
- a working environment where people are trusted to blend home, office and client site working while considering individual preferences, business area, team, and work requirements
- an organization that provides challenging work assignments alongside a focus on sustaining mental health and well-being and respecting an individual's work life choices

Drive your career

At Deloitte people are encouraged to take ownership of their careers, we recognize there is no one size fits all career path, and international, cross-business mobility and up/re-skilling are all within the range of possibilities to shape a unique and fulfilling career.



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À propos de Deloitte

Chez Deloitte, nous sommes déterminés à inspirer et à aider nos gens, notre organisation, nos collectivités et notre pays à prospérer. Notre raison d'être est de créer un avenir meilleur en accélérant et en élargissant l'accès au savoir. Notre raison d'être définit qui nous sommes et nous donne une raison d'exister en tant qu'organisation.

En incarnant notre raison d'être, nous aurons une influence marquante.

Notre raison d'être et nos valeurs communes

Nos valeurs communes décrivent les comportements auxquels nous nous attendons de tous les membres du Cabinet. Elles nous unissent par-delà les cultures et les frontières. Elles nous aident à gagner la confiance et le respect de nos parties prenantes. Nous nous engageons tous à incarner ces valeurs communes, à respecter les principes qu'elles représentent et à honorer l'héritage duquel elles sont issues. Elles nous placent dans une classe à part et contribuent à faire de nous Deloitte.

Chaque jour, nous incarnons notre raison d'être grâce aux cinq valeurs communes suivantes:

L'inclusion chez Deloitte

Inclusion pour tous. Chez Deloitte, les gens sont valorisés et respectés pour qui ils sont et on leur fait confiance pour offrir de la valeur aux clients, à leurs équipes et à leurs collectivités en fonction de leurs capacités uniques. La diversité, l'équité et l'inclusion sont intégrées à notre raison d'être et à nos valeurs communes. Une partie de cette raison d'être consiste à prendre soin des uns des autres et à favoriser l'inclusion.

Nous aspirons à constituer une main-d'œuvre qui reflète la diversité de la société contemporaine, et nous sommes déterminés à constituer un bassin diversifié de candidats pour poursuivre notre parcours vers la création d'une culture où chacun a les mêmes chances de croître, de se perfectionner, de réussir et d'être pleinement soi-même.

Nous vous offrons la possibilité d'être vous-même grâce aux occasions suivantes:

- une culture de travail inclusive qui favorise le respect et l'équité à tous les niveaux de l'organisation;

- un environnement de travail dans lequel nous comptons sur nos gens pour qu'ils décident eux-mêmes s'ils doivent travailler à la maison, au bureau ou sur le site d'un client en fonction de leurs préférences individuelles, de leur secteur d'activité, de leur équipe et de leurs exigences de travail;
- une organisation qui offre des mandats stimulants tout en mettant l'accent sur la santé mentale et le bien-être, ainsi que le respect des décisions professionnelles de nos gens

Faites avancer votre carrière.

Chez Deloitte, nous encourageons nos gens à prendre leur carrière en main, nous reconnaissons qu'il n'y a pas d'approche unique pour tous les cheminement de carrière, et nous offrons des occasions de mobilité internationale et interservices ainsi que des occasions de perfectionnement et d'apprentissage pour vous permettre d'avoir une carrière unique et enrichissante.