BREAK THROUGH TECH

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Challenge Project Workbook

You can design a great challenge project.

This guide is designed to help.

Your challenge project will be unique to your organization. As you decide what your Sprintern team will take on, consider:

- Is there an **unmet need** or **unanswered question** that you have been looking to address?
- Where could your organization benefit from **fresh perspective**, especially from young people?
- What kind of project could benefit from the **combined skills and talents** of a small team?

Here's what some other organizations asked:

How might we integrate technology into a retail store to improve the customer experience?

How might we evaluate and demonstrate anonymized trends in client data?

How might we create dashboards to facilitate the analysis of data from various systems?

How might we employ company APIs to build a real-world solution that will expand our customer base?

How might we revamp our employee directory to be more current, useful, and interactive?

How might we use chatbot technology to improve the customer experience in a specific area?

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Once you find a topic, think flexibly.

We encourage you to think not only about a **project description**, but also about how that same project might play out at **various levels of complexity**.

The Break Through Tech Chicago team can review those different levels of complexity with you to strike the right balance between the Sprintern team's capabilities and your organization's expectations.

What do we mean by "levels of complexity"?

Below, we describe different levels for one example, knowing that the spectrum of projects is vast and levels will vary accordingly.

Intranet design

One challenge project proposal might be for a five-Sprintern team to create an Intranet for internal staff to access various company information. Here are possible levels of complexity that project could take:

1- Easy/straightforward: Create fillable forms to allow entering and retrieving information with underlying data stored in Excel spreadsheets or an Access database.

2- Moderate (ideal): Use a Javascript prototyping tool to read/write key/value pairs in online tables.

3- Challenging: Create custom web-based forms for the front end that talk to a MySQL back end.

4- Difficult/complex: Create a cross-platform app that accesses and aggregates information from third-party APIs.

In this example, the first-level project requires only general knowledge, while the difficult level requires expertise in particular IDEs, APIs, and software systems.

An average team of Sprinterns might be expected to implement something at the "moderate" level, but this may vary depending on the specific courses the Sprinterns have taken at UIC and any guidance/training that your organization provides.

Another example, just in case.

(Want to talk through how a specific project might vary by level of expertise? Reach out to us anytime.)

Predictive modeling

Another challenge project proposal might be to create a predictive model to improve marketing or operational success metrics for an organization. Here are some possible levels of implementation:

1- Easy/straightforward: Perform data-cleaning tasks on a single file using Excel capabilities and build a regression/classification model in SAS/R/Python using off-the-shelf algorithms.

2- Moderate (ideal): Fetch data from multiple sources; perform joins and complex data cleaning in SQL, R, or Python; and build and tune a regression/classification model in SAS, R, or Python.

3- Challenging: Generate data using APIs and join these data with in-house data in SQL. Use a live stream of data to build and tune a regression/classification model.

4- Difficult/complex: Create a web/mobile front end that displays recommended actions and insights from the model output. Work with neural networks and deep learning to build desired models.

Key takeaway: It can be challenging to know which UIC coursework students might need to perform certain industry tasks. Therefore, enrichment that you can provide—specific training, information about your organizational context, resources, mentorship, and goal-setting—will help your Sprinternship to be successful.

A sample challenge project

Many Sprinternship challenge projects spring from the question "**How might we ... ?**" Below is an example of how the Guggenheim Museum in New York City asked their Sprinterns to approach one such question.

The central question

How might we more effectively use technology to improve our digital experience and convert online fans into museum visitors, while leveraging existing resources and maintaining low overhead?

The approach

1 - Complete a digital communications audit, with a specific focus on YouTube and the "Plan Your Visit" page and homepage of guggenheim.org.

2 - Conduct comparative research on peer institutions, including an in-depth analysis of YouTube content strategies and the hierarchy of information featured on museum website homepages and visit pages.

3 - Propose solutions, content ideas, and best practices for the identified channels.

Sample prompts

For the Guggenheim website:
Within our existing design and back-end abilities, what improvements can be made to the homepage and Plan Your Visit page to provide a better service to our visitors and convert more into ticket buyers?

For the Guggenheim YouTube channel:
How might we rank better in searches, reach more viewers, and grow our subscribership? For instance, what types of content are most effective and what is the ideal video length and posting frequency?
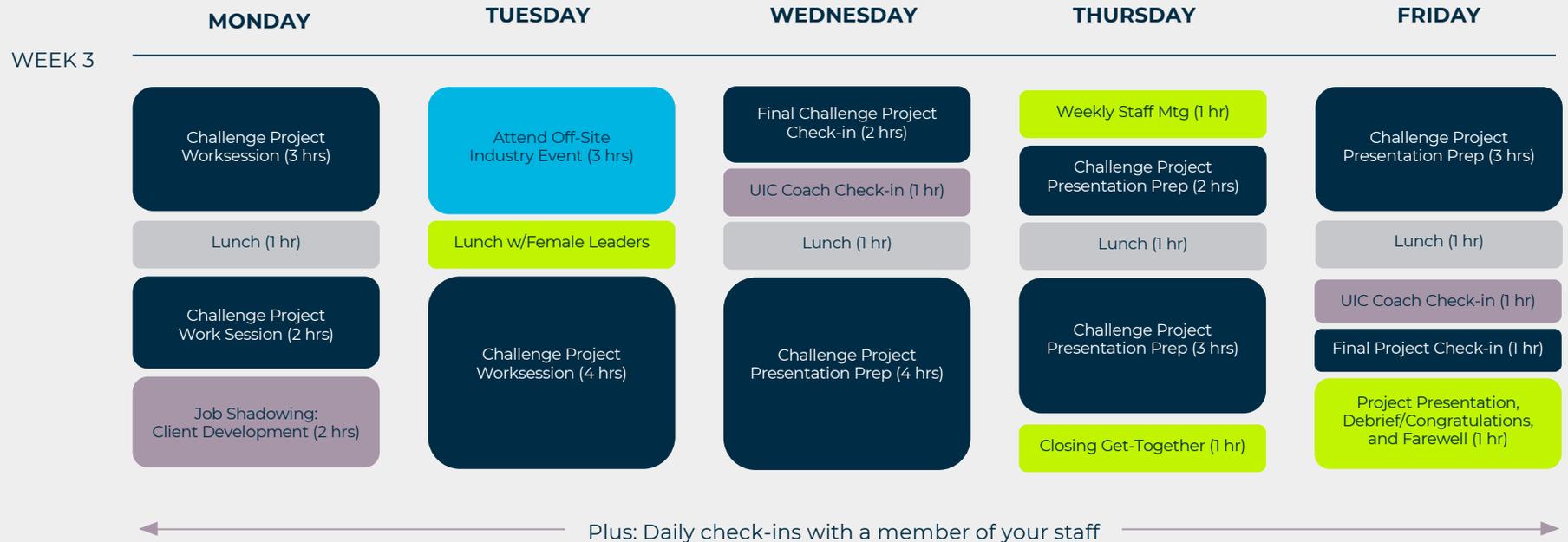
Deliverables

Recommendations based on the team's investigation and experience, including and not limited to analytics, prototypes, and other mediums to make the case for the suggested solution.

Sample schedule: Weeks 1 and 2

WEEK 1

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Orientation (3 hrs)	Intro to Operations (1 hr)	Intro to Engineering (2 hrs)	Weekly Staff Mtg (1 hr)	Job Shadowing: Programmer (2 hrs)
	Intro to Product Development (2 hrs)	Project Worksession (1 hr)	Intro to Market Research (2 hrs)	Project Status Check (1 hr)
Lunch (1 hr)	Welcome lunch (1 hr)	Lunch (1 hr)	Lunch (1 hr)	Lunch (1 hr)
Challenge Project Kickoff (2 hrs)	Challenge Project Worksession (4 hrs)	Intro to Retail Ops (1 hr)	Diversity Comm. Mtg (1 hr)	UIC Coach Check-in (1 hr)
Project Brainstorm (1hr)		Job Shadowing: Project Manager (2 hrs)	Challenge Project Worksession (3 hrs)	Challenge Project Worksession (3 hrs)
Intro to Mission (1 hr)		Hiring/ Career Paths (1 hr)		

← Plus: Daily check-ins with a member of your staff →

WEEK 2

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Challenge Project Worksession (3 hrs)	Challenge Project Worksession (2 hrs)	Résumé Review and Workshop (2 hrs)	Weekly Staff Mtg (1 hr)	Intro to a Client Case Study (2 hrs)
	Meet the CTO (1 hr)	Meet the COO (1 hr)	Leadership Training (2 hrs)	Project Status Check (1 hr)
Lunch (1 hr)	Lunch (1 hr)	Lunch (1 hr)	Lunch (1 hr)	Lunch (1 hr)
Challenge Project Worksession (4 hrs)	Site Visit to a Location Relevant to Organizational Operations (4 hrs)	Challenge Project Worksession (4 hrs)	Challenge Project Worksession (2 hrs)	UIC Coach Check-in (1 hr)
			Intro to Partnerships (1 hr)	Challenge Project Worksession (3 hrs)
			Intro to Business Dev. (1 hr)	

Sample schedule: Week 3

WEEK 3

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Challenge Project Worksession (3 hrs)	Attend Off-Site Industry Event (3 hrs)	Final Challenge Project Check-in (2 hrs)	Weekly Staff Mtg (1 hr)	Challenge Project Presentation Prep (3 hrs)
Lunch (1 hr)	Lunch w/Female Leaders	UIC Coach Check-in (1 hr)	Challenge Project Presentation Prep (2 hrs)	Lunch (1 hr)
Challenge Project Work Session (2 hrs)	Challenge Project Worksession (4 hrs)	Lunch (1 hr)	Lunch (1 hr)	UIC Coach Check-in (1 hr)
Job Shadowing: Client Development (2 hrs)		Challenge Project Presentation Prep (4 hrs)	Challenge Project Presentation Prep (3 hrs)	Final Project Check-in (1 hr)
			Closing Get-Together (1 hr)	Project Presentation, Debrief/Congratulations, and Farewell (1 hr)

← Plus: Daily check-ins with a member of your staff →

GUIDE TO COLOR CODES

- ■ Events that bring Sprinterns together with a large group from the organization

- ■ Challenge project-related worksessions, technical training, and check-ins

- ■ Events that help Sprinterns to get to know the organization and/or industry

- ■ Career enrichment, job shadowing, and mentoring activities

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