Sky Graduate Bootcamp

Case Study : Project Brief

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Contents

[1. Welcome to your case study briefing 1](#_Toc203580386)

[1.1. Working methods 1](#_Toc203580387)

[1.2. Cross functional teams 1](#_Toc203580388)

[1.3. The Showcase – what to expect 2](#_Toc203580389)

[1.4. Technologies 2](#_Toc203580390)

[1.5. Project artefacts 2](#_Toc203580391)

[2. Case study objectives 3](#_Toc203580392)

[2.1. Product Ideas 3](#_Toc203580393)

[2.2. Case study iterations 5](#_Toc203580394)

[2.2.1. MVP 5](#_Toc203580395)

[2.2.2. Prototype product 5](#_Toc203580396)

[2.2.3. Improved prototype 5](#_Toc203580397)

[2.3. Stretch objectives 5](#_Toc203580398)

[2.3.1. Suggested AI driven features to consider 5](#_Toc203580399)

[3. Tips for a good project 7](#_Toc203580400)

# Welcome to your case study briefing

This document will walk you through how the case study project will run, what are the roles and expected deliverables, how to approach the project and the applications we are proposing that you work on. You are provided with six case study objectives for your team to select from, along with an option to pitch a new idea to your instructor.

The case study project commences at the end of Week 1 of your ten-week bootcamp. You are not expected to start coding immediately; team formation, ideation, planning, and research should be your first tasks. You have been allocated sections of time throughout the bootcamp to enable you to work on your project in your teams. However, it is expected that you will schedule additional time alongside your bootcamp learning days and during self-study days to work on project tasks.

Reading this document thoroughly will help you be successful in the final showcase event which closes the graduate bootcamp.

## Working methods

Throughout this project, your team should use Agile practices. You should assign a Scrum Master for each sprint. You should practice pair-programming where appropriate and incorporate a robust testing plan into your development schedule. You must conduct rituals such as daily stand-ups, sprint planning, sprint reviews and retrospectives.

For the duration of the project, you will showcase your daily/weekly progress to your instructor, discussing the outcomes of your reviews and retrospectives, including any action points identified during these rituals.

By a process of continual assessment and involvement, your instructor will ensure that each member of the team contributes in each of the key areas of development.

## Cross functional teams

Each project team will be comprised of graduates from the three cohorts which are running side by side, including members of both expertise streams – Super Tech and Hybrid Engineering. This means that your team will be **cross functional** – by design your individual skills, strengths and experience will be different to those of others in your team. You may also have a Cyber Graduate in your team. Between you, you should ensure that all facets of the brief are completed to a good standard.

One big difference to how a team might work in a BAU setting is that in this case study project **each team member must contribute** to the final presentation, must evidence their contribution to the team and you must also rotate the responsibilities of running the team between you, so that everyone in the team has experienced what its like to be the scrum master for a sprint. You should endeavour to share and rotate team responsibilities wherever feasible to ensure you gain hands-on experience with as many roles as possible and therefore increase your future opportunities within Sky.

It is expected that working in a large team will lead to a bit of frustration and friction, but you should all proactively work on maintaining a successful collaborative environment, be respectful and considerate, and ultimately take responsibility for the successful outcome.

## The Showcase – what to expect

The Showcase will take place at the Osterley campus on the final Thursday of the bootcamp. All teams will present to invited Sky stakeholders and previous Academy alumni. These formal presentations given by each team in turn, will take place in the Sky Cinema and last around 20 minutes each, followed by a Q&A.

The presentation will include an outline of the problem, methodology, technologies employed, and demonstration of the product. This last part is very important – the audience you present to will expect to be able to use and interact with the product you develop. Consider how you will engage with your audience during the showcase and whether you can introduce functionality / features into your application to make the demonstration interactive. Imagine something like asking your audience to fill in some information on the page and receiving a personalised set of recommendations back.

You will be presenting to potential future mentors, line managers and other business stakeholders, so keep in mind that some of your audience may be non-technical when thinking through your script or talking points.

## Technologies

The below is a non-exhaustive list of the technical applications each team is expected to use to complete the case study:

* You are encouraged to use AI applications include code generation tools and GenAI troubleshooting tools throughout your project.
* The core technology to be used for the back end is Java or Python.
* The core technology to be used for the front-end is JavaScript / ReactJS.
* You can choose from an extensive tech stack to emulate Sky’s development practices, including frameworks, libraries, and styling.
* Each team should capture and store their traffic and page interaction data in a purpose-built relational SQL database. The interface between backend and database can be any appropriate CRUD.
* You should produce data visualisations using python libraries to analyse test results.
* Your presentation will be delivered using any web-based or local slide application. Think about using co-pilot to produce a visually compelling presentation, use a bright engaging design, storytelling skills and limit the amount of text on each slide.
* Your product will need to be deployed to the cloud and you will be provided with an AWS login to set up any resources you require for this purpose. You must proactively limit and control the cloud-spend of your team.

## Project artefacts

The following artefacts will be naturally produced during your work on the case study and these should be stored in such a way so they are visible to your instructor:

* List of stakeholders
* Requirements analysis
* Design documentation, such as ERDs, class diagrams and wireframes
* Development breakdown or backlog
* Technical specifications including vulnerability risk assessment
* Test methodology and results
* Scrum boards, retrospectives, and product reviews

# Case study objectives

## Product Ideas

In the below table you will find the six case study objectives your team can choose to design manage and build. Each case study definition has been defined based on a SKY Impact strategic goal. It does not matter if a similar site currently exists in real life – you can still develop your team’s version of this product.

|  |  |  |
| --- | --- | --- |
| Sky Impact Goal | Outline | Potential features list |
| [Sky Zero](https://www.skygroup.sky/impact/sky-zero) A | Build a web-based dashboard application that allows Sky employees to track and reduce their individual carbon footprints at work — with insights on commuting, travel, energy usage, and sustainability challenges. | Simple onboarding questionnaire (e.g., commute method, remote days).  Personal carbon impact calculator based on responses.  Tips and challenges (e.g., “Bike to work week”, “No-print day”) with any kind of gamification.  Team leader board to encourage friendly competition between colleagues.  Monthly reports to show collective progress across departments.  + Back end relational database that stores the questionnaire input, all visitor interactions and web page traffic.  + appropriate controls in place to protect the product from vulnerabilities and protect data privacy |
| [Sky Zero](https://www.skygroup.sky/impact/sky-zero) B | Develop a public-facing website that shows Sky customers how to reduce their environmental impact, both while using Sky services (like set-top boxes) and in daily life. | Carbon impact information on common devices (e.g., Sky Q vs Sky Stream).  Energy-saving tips (e.g., setting boxes to Eco mode, unplugging habits).  Eco-content recommendations (TV shows, documentaries on climate).  Lifestyle challenges (e.g., meat-free week, energy-saving pledges).  Shareable achievements and progress tracker.  + Back end relational database that stores limited personal data with progress / achievements, all visitor interactions and web page traffic.  + appropriate controls in place to protect the product from vulnerabilities and protect data privacy |
| [Sky Up](https://www.skygroup.sky/impact/changing-lives-with-sky-up) A | Create a website that aggregates and maps the location of free or low-cost digital resources — such as public Wi-Fi zones, device loan programs, free training classes — throughout the UK. | Postcode-based search and filters (e.g., device loans, free internet, courses).  Admin panel for trusted partners (libraries, councils, NGOs) to add/update listings.  Mobile-first design which enables accessibility even on low-end smartphones.  Option to download info as PDF (useful for offline sharing and enhanced readability).  + Back end relational database that stores the searches raised, admin interactions, all visitor interactions and web page traffic.  + appropriate controls in place to protect the product from vulnerabilities and protect data privacy |
| [Sky Up](https://www.skygroup.sky/impact/changing-lives-with-sky-up) B | Develop a responsive, accessible web portal that offers bite-sized tutorials, videos, and interactive exercises to help people build basic digital skills — like setting up email, using social media safely, applying for jobs online, or using video calls. | Simple UI with large text, clear buttons, and accessible navigation.  Multi-language support to reach diverse communities.  Video tutorials – embedded components eg youtube  Interactive quizzes and simple certifications  A "Find Local Support" map to connect users to nearby training, libraries, or community events.  + Back end relational database that stores the searches raised, admin interactions, all visitor interactions and web page traffic.  + appropriate controls in place to protect the product from vulnerabilities and protect data privacy |
| [Sky Cares](https://www.skygroup.sky/impact/giving-back) A | Build a dedicated internal platform where Sky employees can easily discover, sign up for, and track volunteering opportunities across the UK — tailored to their interests, skills, and location. | Searchable and filterable volunteer opportunities by location, date, or cause.  Personal dashboards showing hours volunteered, impact stats, and badges earned.  Team-based sign-ups to encourage department-wide volunteering days.  Option for employees to submit, vote for or suggest new causes Sky could support.  Stories section where volunteers can share photos and reflections.  + Back end relational database that stores the searches raised, admin interactions, all visitor interactions and web page traffic.  + appropriate controls in place to protect the product from vulnerabilities and protect data privacy |
| [Sky Cares](https://www.skygroup.sky/impact/giving-back) B | Develop a public-facing website that celebrates the outcomes of Sky Cares — highlighting personal stories from employees, not for profit organisations and communities helped through the program. | Interactive map showing where and how much time Sky employees have volunteered.  Filter volunteering hours by cause (e.g., digital inclusion, environmental clean-ups).  Volunteer spotlight stories, photo galleries, and video embeds.  Live counter of hours volunteered or # people helped.  "Get Involved" section for partner organisations to submit opportunities for future volunteering or to send thank you messages and updates to volunteers.  + Back end relational database that stores filter / search results, volunteer event data, all visitor interactions and web page traffic.  + appropriate controls in place to protect the product from vulnerabilities and protect data privacy |
| Sky Project X | Wildcard! The site can be for any product or service of your choosing, but it must be related to Sky as an organisation in some way. The site can be externally facing, targeted at existing or potential Sky customers, or it could be internally facing, and something that employees would find value in. | Identify your own features!  Prepare a short pitch for your instructor to get agreement on what you plan to develop.  Ensure your solution will provide ample opportunity for your team to demonstrate the skills gained through the bootcamp.  + Back end relational database that stores feature-based data, all visitor interactions and web page traffic.  + appropriate controls in place to protect the product from vulnerabilities and protect data privacy |

## Case study iterations

Your team is expected to apply agile principles to your design and development work. Specifically you are asked to develop 3 major iterations of your case study product, inserting a user testing cycle before progressing to the next major iteration of your product. Each test cycle must capture test results of at least 25 unique personas. You can generate personas or share your latest product with your peers in other teams to test it.

Capturing the data from your testing cycle will help you identify what the improvements should be for the next iteration. You should be looking for evidence of poor data quality generated during testing, bugs and glitches, along with more general usability feedback. It will be helpful to design your test scenarios in line with features on your product backlog. Your team must analyse and visualise the results of each test cycle.

### MVP

An MVP is defined as the minimum viable product that can be released to early users. It includes just enough features to be usable and to gather feedback for future development phases. Set a relatively low bar for your first project iteration, then try to reach that first iteration quickly. It doesn't have to look nice. The idea is that it provides a good foundation for further development and improvement.

It is advisable you develop an MVP before the end of week 5.

### Prototype product

The goal of the first prototype product is to add additional features and functionality to the MVP as a baseline, and design decisions should be based on the results of the previous user testing cycle. Features at this stage may be incomplete, limited or even non-functional. The focus can also be on appearance, structure and interactivity. This iteration can be helpful for aligning the team on the final product vision.

It is advisable you develop the prototype product before the end of week 8.

### Improved prototype

This final iteration of your case study product is the version that you will demonstrate at the Showcase. Ideally your team will have deployed most of the features on your backlog to a limited or functional extent.

## Stretch objectives

Your team should demonstrate their understanding of Generative AI and Large Language Model functionality by integrating these into your project. It is essential that you integrate these features ethically, transparently, and responsibly. When integrating LLMs or generative AI, think about the broader implications, such as bias and fairness, misinformation and explainability. You are expected to put guardrails in place to ensure your AI features behave appropriately. These might include content filters, input validation, response moderation and fallbacks.

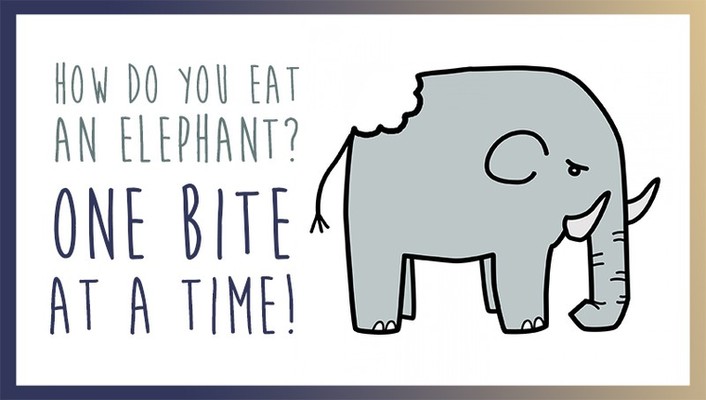
### Suggested AI driven features to consider

You are not to implement all of these; choose one or two that fit your product best.

|  |  |
| --- | --- |
| Use Case | Feature Description |
| Smart Chatbot | |  |  | | --- | --- | |  | Build a contextual chatbot that answers questions about your app or topic (e.g., carbon footprint, volunteering). Make it dynamic and helpful. | |
| AI-Powered Search | Implement semantic search so users can find resources or content even if they do not type the exact keywords. |
| AI Form Filler / Recommender | Auto-complete forms based on user input or suggest personalised resources, tutorials, or volunteering events. |
| Voice-to-Text + Summariser | Add voice input for accessibility and summarise user audio into text using AI (useful in digital inclusion tools). |
| Report Generator | Automatically generate personalised reports or dashboards in natural language (e.g., “Your monthly carbon report”). |
| AI Tutor or Quiz Assistant | If your app teaches skills (e.g., Sky Up B), use AI to explain concepts, generate questions, or give instant feedback on quizzes |
| LLM Evaluation Bot | Use an LLM to review your app’s test data, feedback, or retrospectives and suggest improvements. |
| Multilingual GenAI | Let your app auto-translate content or respond in different languages for accessibility and reach. |
| AI Feedback Summariser | Collect and summarise persona feedback from your test cycles using LLMs for faster iteration cycles. |

# Tips for a good project

* **Breadth and depth:** You should use this project to try out techniques you have seen in the lessons and to explore related concepts in greater depth. You will work on this case study at your own pace– but keep in mind that it will be more beneficial for your team to complete a less ambitious product at a higher quality, rather than rushing through too many features at 50%.
* **Ask for help:** Throughout the bootcamp you will encounter experts in their field who are training and coaching you in their area of expertise. Be proactive in asking them questions about your project during the training session Q&A opportunities, as well as using your bootcamp instructor as a sounding board and go-to for technical help.
* **Collaborate:** There is no “correct way” or prescriptive steps in which you must meet your case study brief. Diversity amongst project approaches will naturally arise from individual creativity and differences in interpretation. Listen to the ideas of your teammates and work together to reach compromises wherever you have differing approaches in mind. REHEARSE your presentation and demonstrations together to ensure you all feel comfortable delivering your parts, and that any transitions between you are smooth.
* **Organise yourselves**: Set up regular meetings with your team so that you can keep on track of where each person is up to in their tasks, even if this serves as a positive ‘check-in’. Create a repository (GitHub) to collectively save your work to and checkpoint it frequently so if someone misses a day your whole team doesn’t get caught behind. You could also use something like a Trello, Kanban, Backlog or Scrum board so that you can keep track of your progress, issues and any potential delays. This will ensure that there are no unpleasant surprises when it comes to showcasing your project.
* **Bitesize:** When project deliverables appear overwhelming at first sight, take heed of this ***proverb*** to break down the tasks into smaller pieces….



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