



# **Human-Computer Interaction**

## **INFR11017**

### **Week 4: Task and Simple Evaluation**

**10<sup>th</sup> October 2023**

**Aurora Constantin**



# Content

## **About the Course:**

- Weekly schedule
- Assessment

## **HCI "in the world":**

- Workshop - Heather Hepburn, Head of Accessibility at Skyscanner

## **Questions**

# About the course

# Course overview and status

- **Lectures**
  - This week (Week 4): Task and simple evaluation
- **Coursework 1**
  - Last week
    - Finish: Mock up the design
    - Write the report
  - Deadlines
    - CW1 – group work – deadline 12/10/2023, 16:00
    - Quiz 1 - individual work – deadline 13/10/2023, 16:00

# HCI “in the world”

Heather Hepburn

- *Head of Accessibility at Skyscanner*

# Intro to digital accessibility

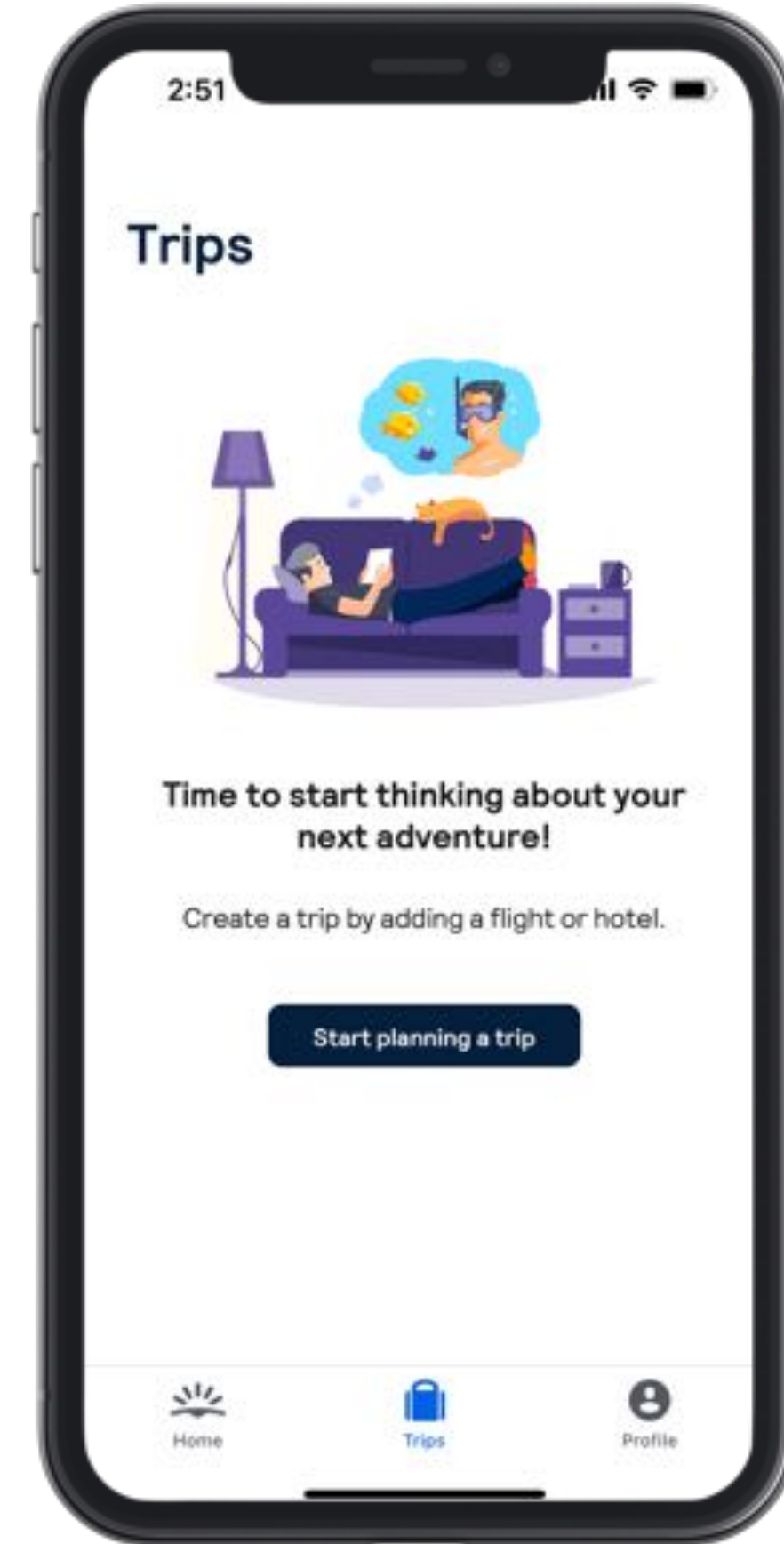
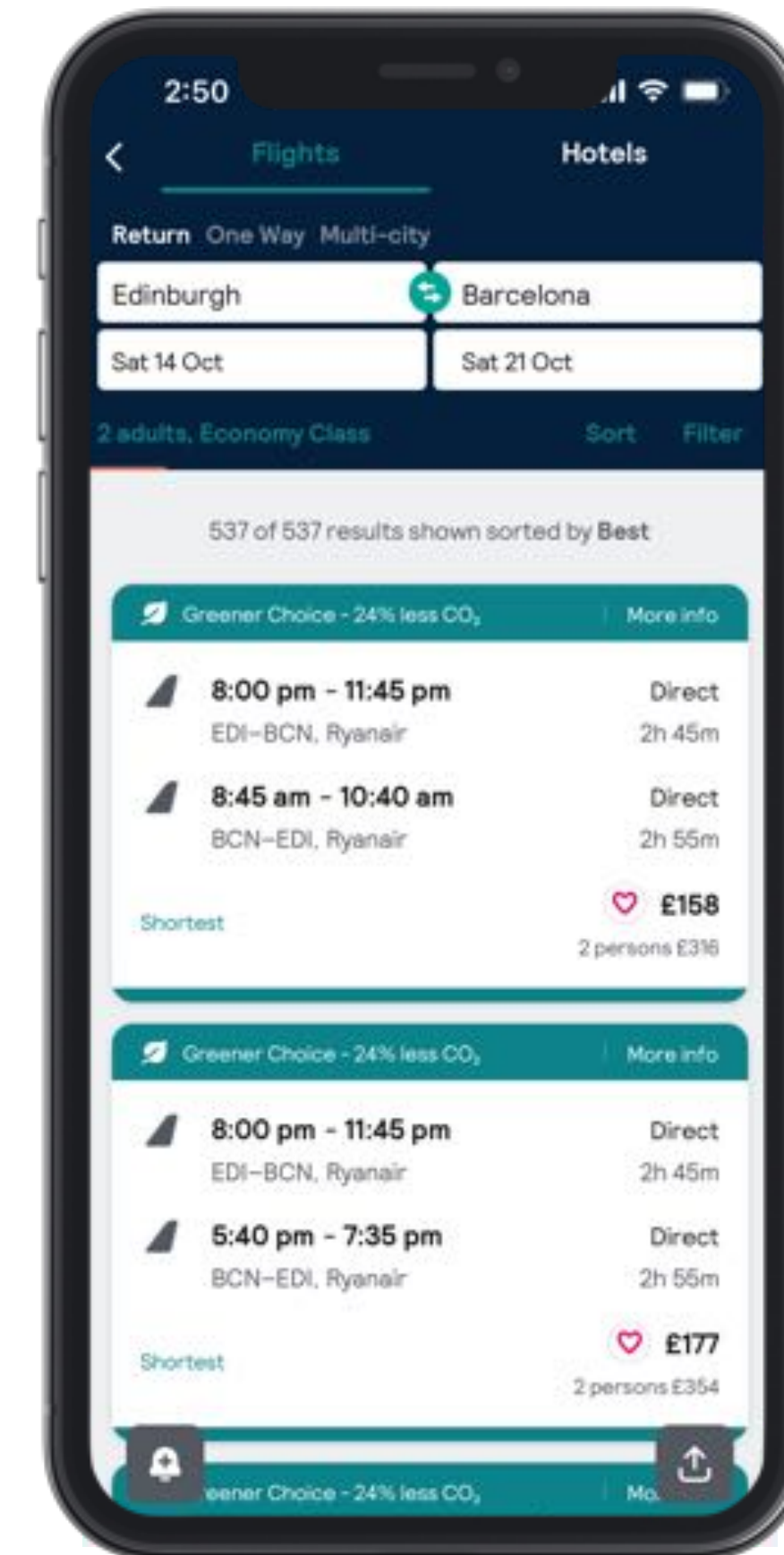
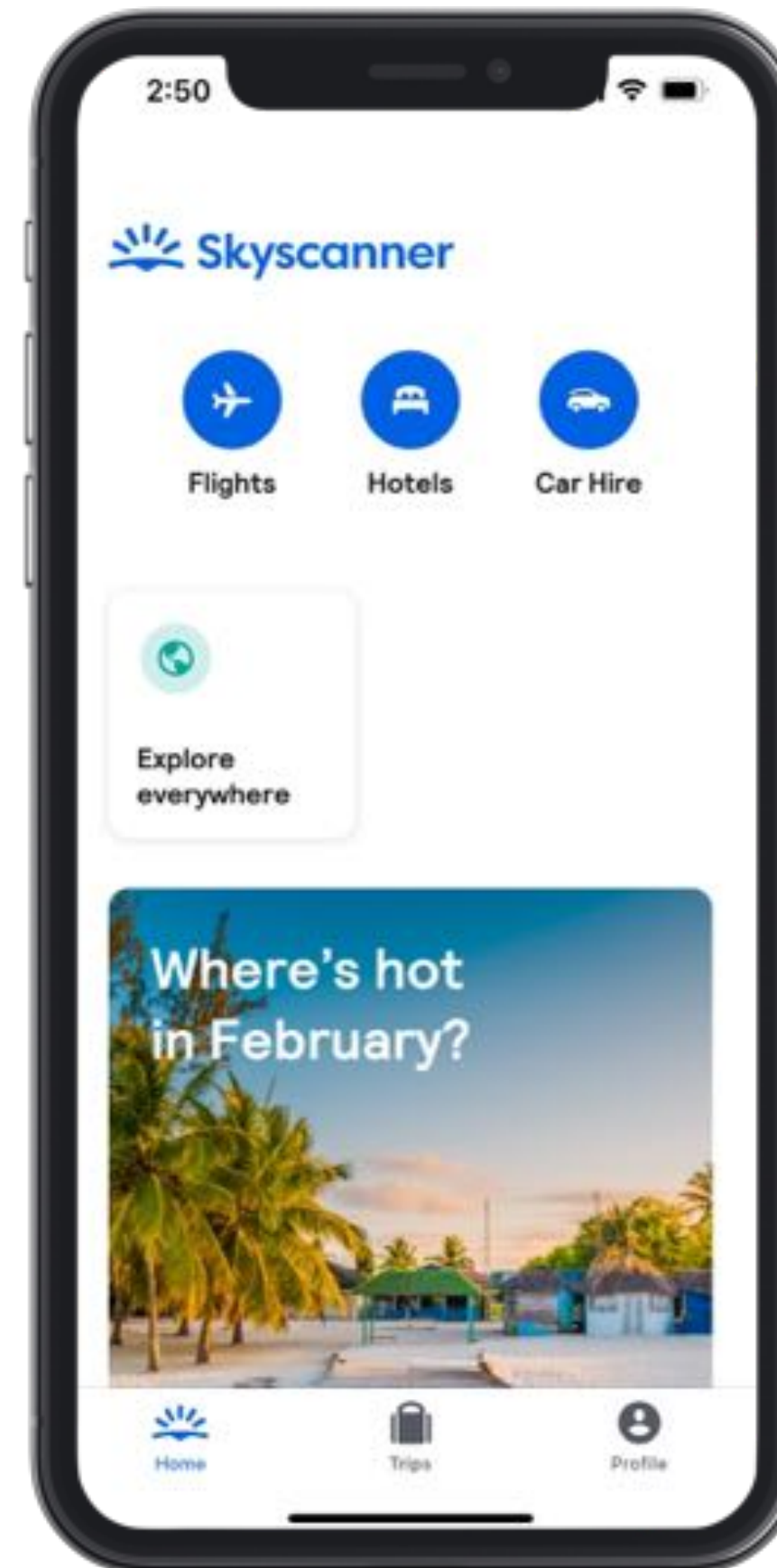
Heather Hepburn, Head of Accessibility



# About us

## Company

- Online global travel brand
- Offer flights, hotels & car hire
- 1,300+ staff
- 9 offices worldwide
- 35 languages
- 100 million monthly active users





# About me

## Heather Hepburn

- UX Writer for 7 years
- Now Head of Accessibility at Skyscanner
- Co-founder of Champions of Accessibility Network (CAN)
- On a mission!





# Content

- **Accessibility – what, who, why**
- **Our accessibility programme**
- **Digital Empathy Lab (interactive!)**
- **How to make things accessible**
- **Q&A**

# Accessibility – what, who, why

## Q. Who is disabled here?



**A: Neither**

Both can enter the building as there are no barriers.



## Medical model

Disability is caused by a health condition, disease or trauma



## Social model

Disability is caused by society and the environment – not the condition



## Good to know

# Accessibility

---

- Often shortened to “a11y”
- Global set of standards:
  - Web Content Accessibility Guidelines (WCAG)
  - Just launched Version 2.2
  - We’re aiming for Level AA

## Definition

# Accessible products

---

“Websites, apps, tools, and technologies that are designed and developed so that people with disabilities can use them.”

1 in 5

people have a disability



80%

**of disabilities are hidden**

## Accessibility – who



---

**Physical**



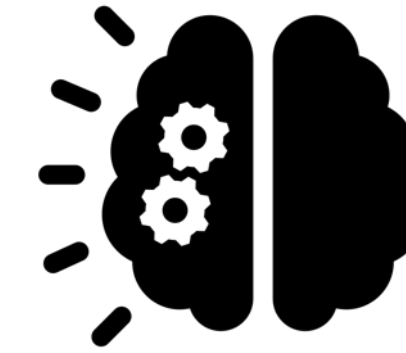
---

**Vision**



---

**Hearing**



---

**Cognitive**



Accessibility – who

# Assistive technology

Breath



Xbox Adaptive Controller



Magnification



Braille keyboard



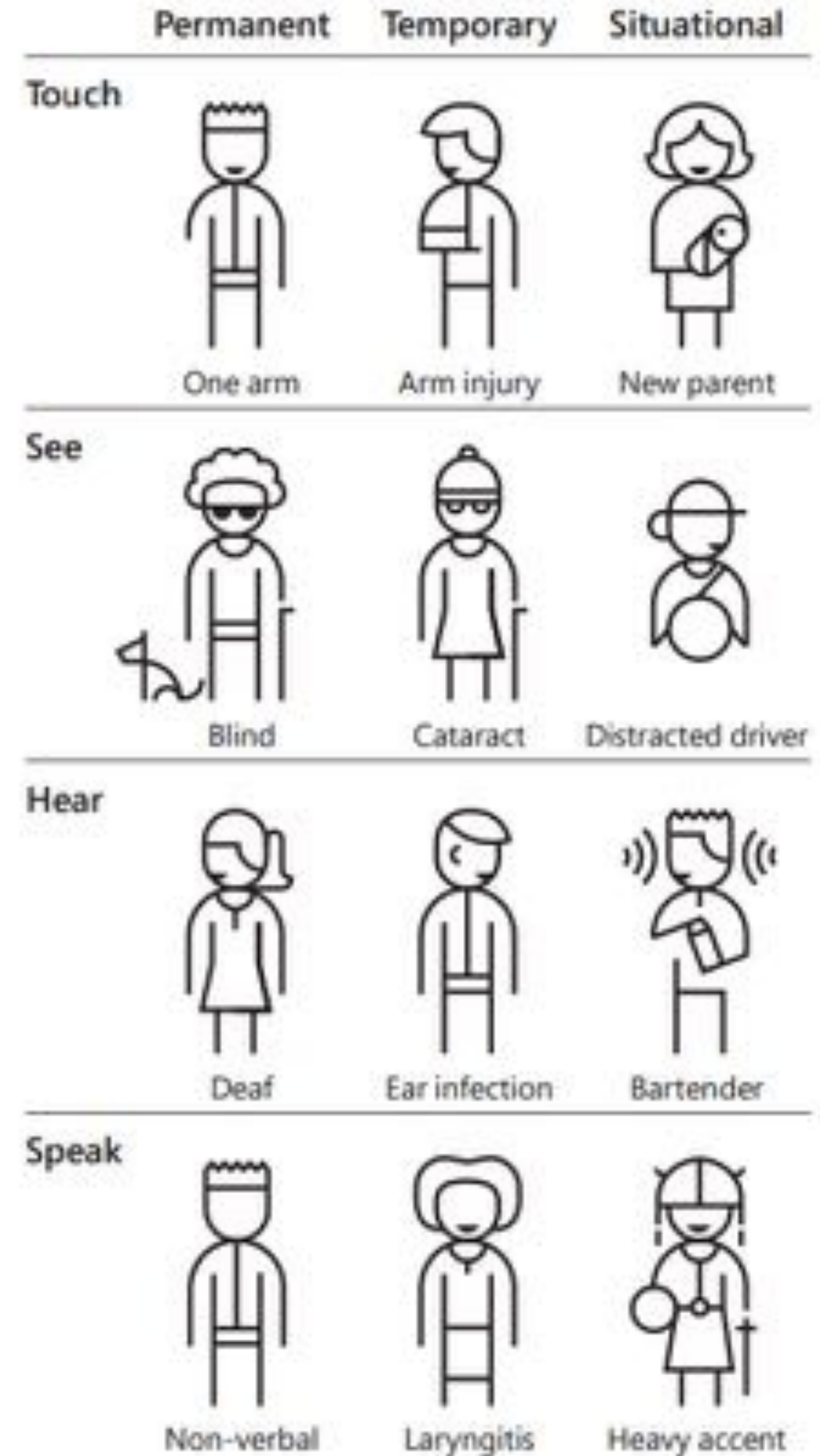
Voice recognition



Switch device



# Disabilities can affect us **all**



“The results of inclusive design for accessibility always leads to a better product for **everyone.**”



**Phil Spencer**  
Head of Xbox

# Business Case

## Commercial

- Increase audience size
- Increase revenue
- Breed loyalty
- Avoid reputational damage
- Great for SEO

## Legal

- **UK Equality Act 2010:** make *“reasonable adjustments”* to enable disabled persons to access our services
- **EU Accessibility Act:** by June 2025 our services should be designed to *“maximise their foreseeable use by persons with disabilities”*

## Moral

- It’s the right thing to do
- Provide equitable experience for everyone
- Exclude nobody
- Advocate for diversity, equity & inclusion



# Our accessibility programme

## Our vision

To make Skyscanner a **flagship of disability inclusion, our products accessible to all, and travel easier for people with disabilities.**

our people

our travellers

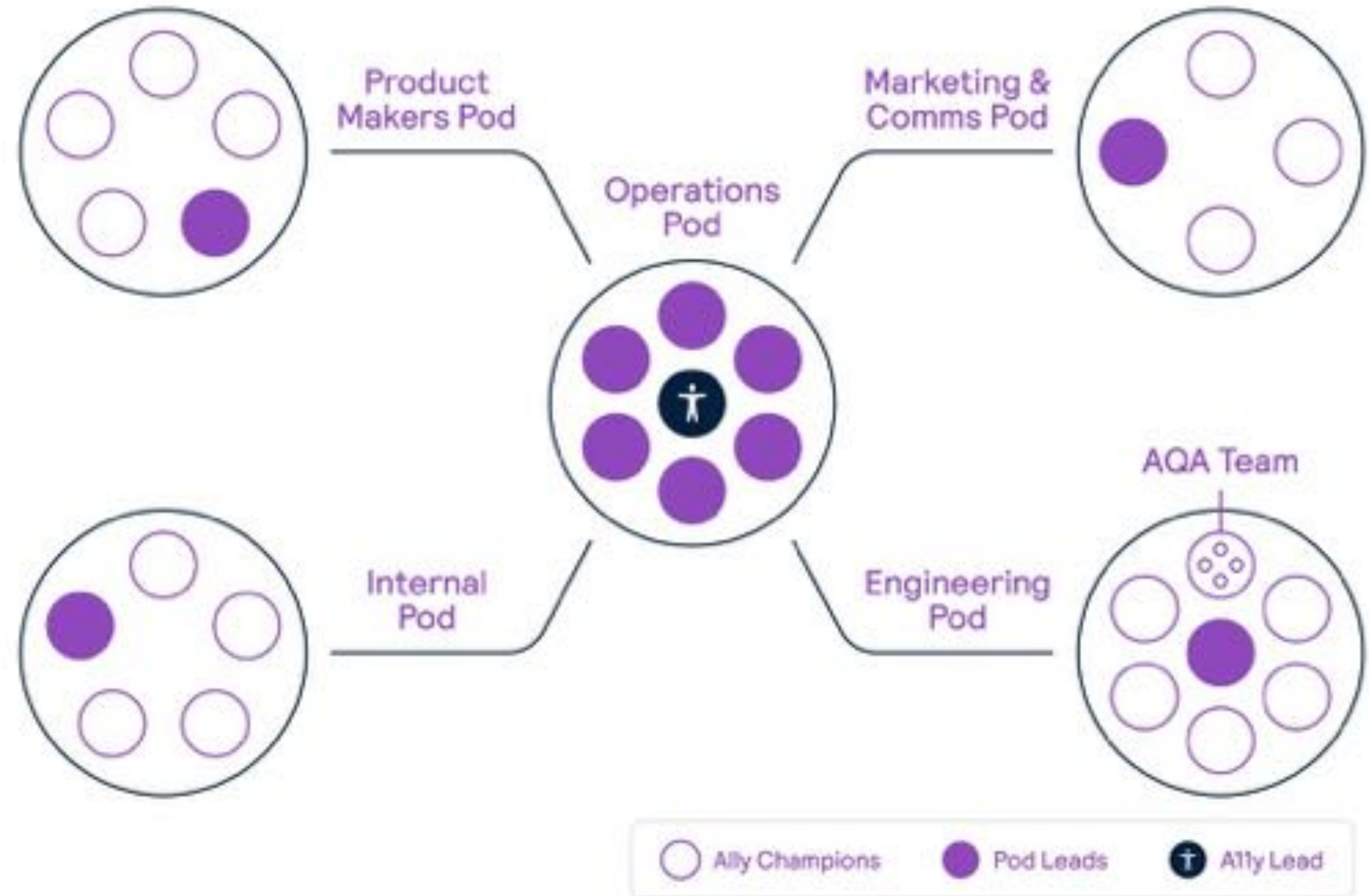
our industry

## Our strategy



Our accessibility programme

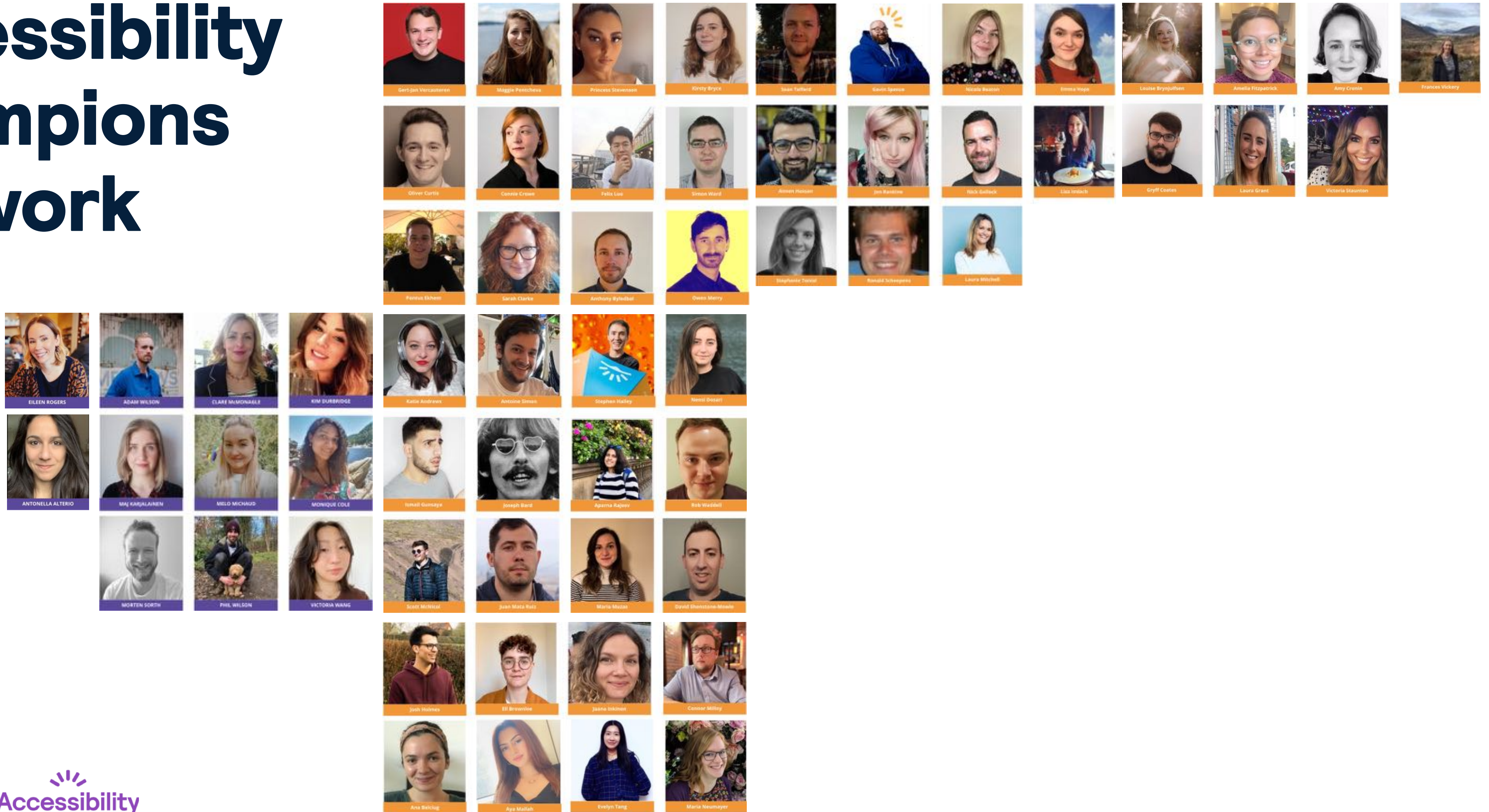
# Accessibility Champions Network





Our accessibility programme

# Accessibility Champions Network





# Digital Empathy Lab

# What's an Empathy Lab?



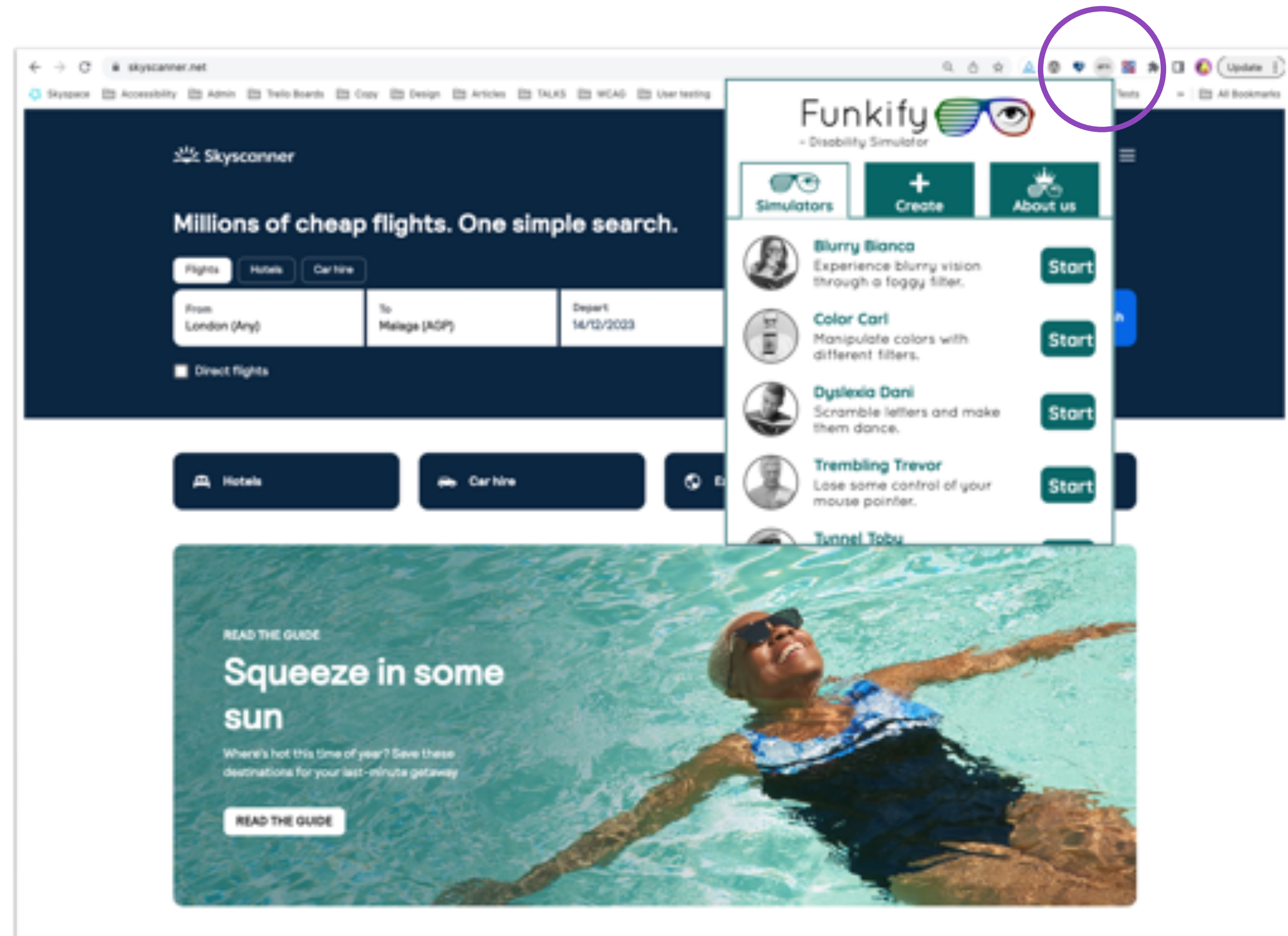
**These experiences are simulations only. Everyone experiences disability differently, and some simulations are more accurate than others.**

# Task!

Download the **Funkify Chrome plugin** and try out the disabled personas.

## Steps:

1. Go to Funkify.org
2. Hit the “Try it” button for “Funkify Free”
3. Open a website in Chrome, then open the extension by clicking on the glasses icon
4. Try out the different disability personas by hitting “start”



# How to make things accessible

# 5 key elements

<b>1 Design</b>	Use good colour contrast, large font size, clean layout, controlled motion, consistent navigation and accessible interactions
<b>2 Content</b>	Write copy in plain language. Use clear and unique links and Calls to Action (CTAs), alternative (ALT) text for images and hidden labels
<b>3 Keyboard only</b>	When only using a keyboard, have a clear focus indicator, move in the correct order and make all interactive elements reachable
<b>4 Screen readers</b>	Make it work with a screen reader by creating a meaningful focus order and including heading tags, image descriptions (ALT text) and labels
<b>5 Magnification</b>	Allow zoom up to 400% (or 200% text increase) without losing content or functionality



1

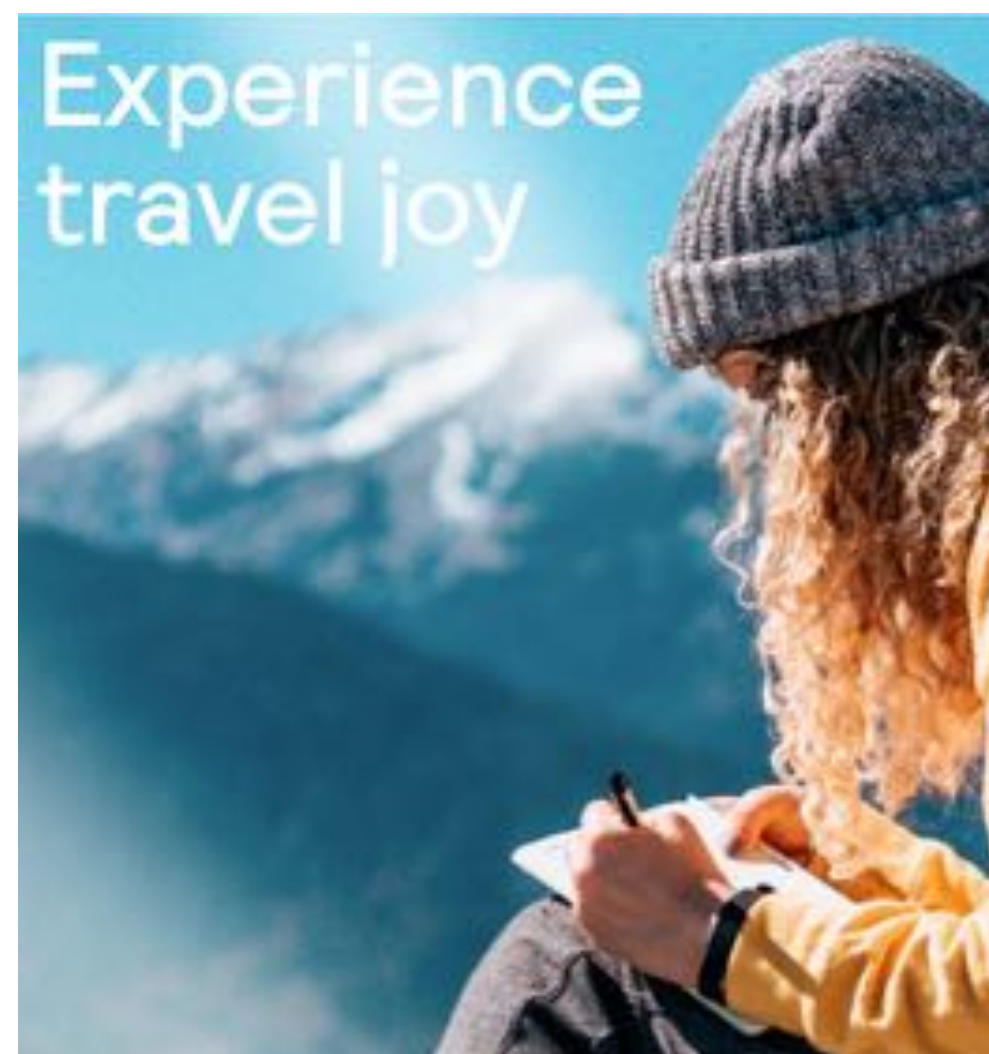
# Design

# Colour

AIM #1: Text is clearly visible against the background

Can you read this heading? ❌

It's not great, as there's not enough contrast between the colour of the heading text and the background.



Can you read this heading? ✅

That's much better. The contrast between the colour of the heading and the background is much higher.

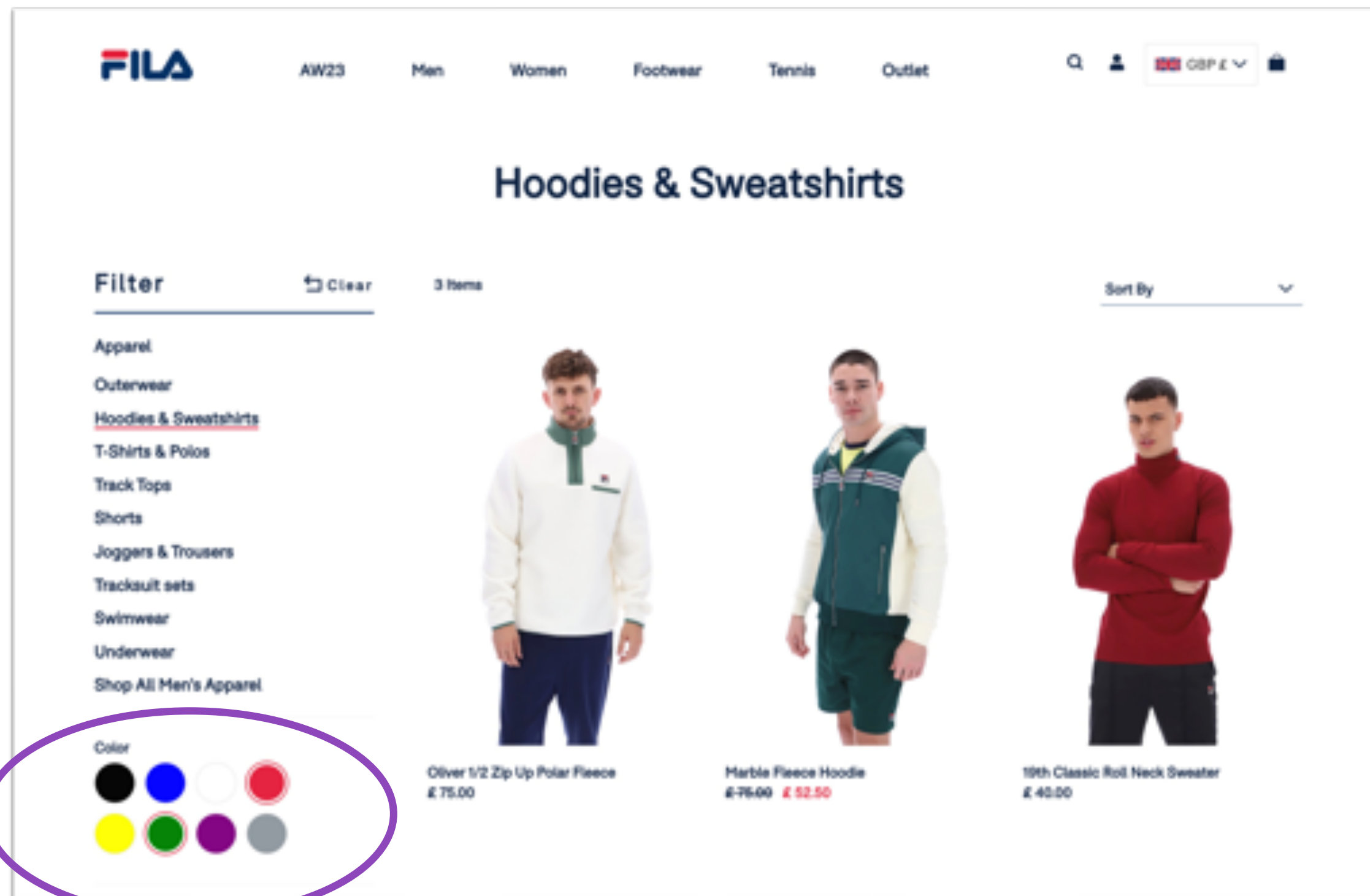


Design

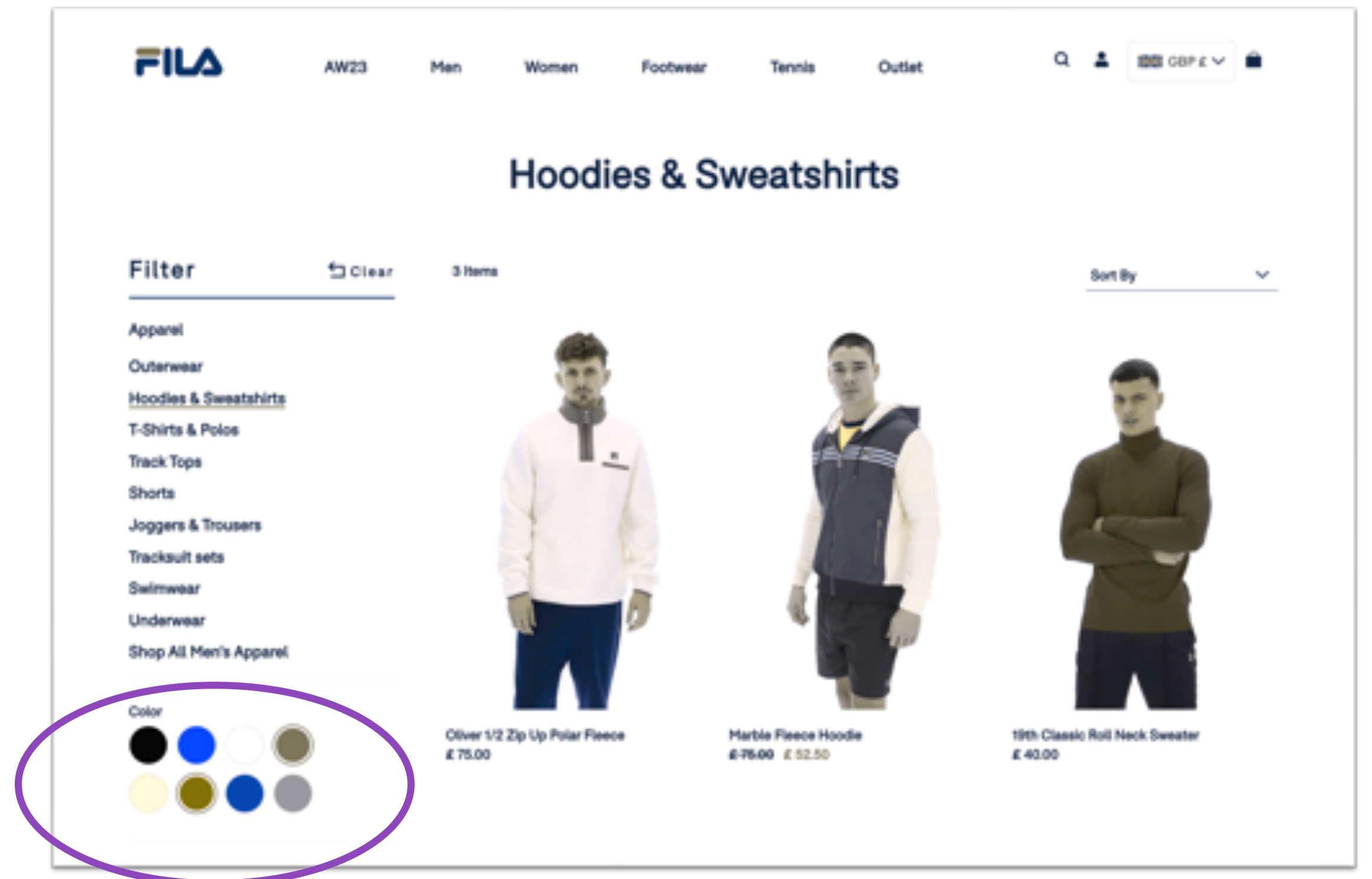
# Colour

AIM #2: Design works for colour blind people

Normal vision



Protanopia – red/green colour blindness





# Colour

## Colour contrast minimums

- Large text = **3:1**  
Larger or equal to 24px or 19px bold
- Small text = **4.5:1**  
Smaller than 24px or 19px bold
- Graphics = **3:1**

## Colour contrast checker

Skyscanner

Millions of cheap flights. One simple search

From London (Any) To Malaga (AGP) Depart 14/12/2023

Direct flights

Hotels Car hire

READ THE GUIDE

Squeeze in some sun

Accessible Web Contrast Checker

Foreground Color #05203c

Background Color #ffffff

Contrast Ratio 16.43:1

WCAG Conformance Results

Reverse Colors

Disclaimer and Additional Info

SMALL sample text (18.5px)	LARGE sample text (24px)	UI Component
Small Text	Large Text	UI Component
AA: ✓ Pass	AA: ✓ Pass	AA: ✓ Pass
AAA: ✓ Pass	AAA: ✓ Pass	AAA: ✓ Pass



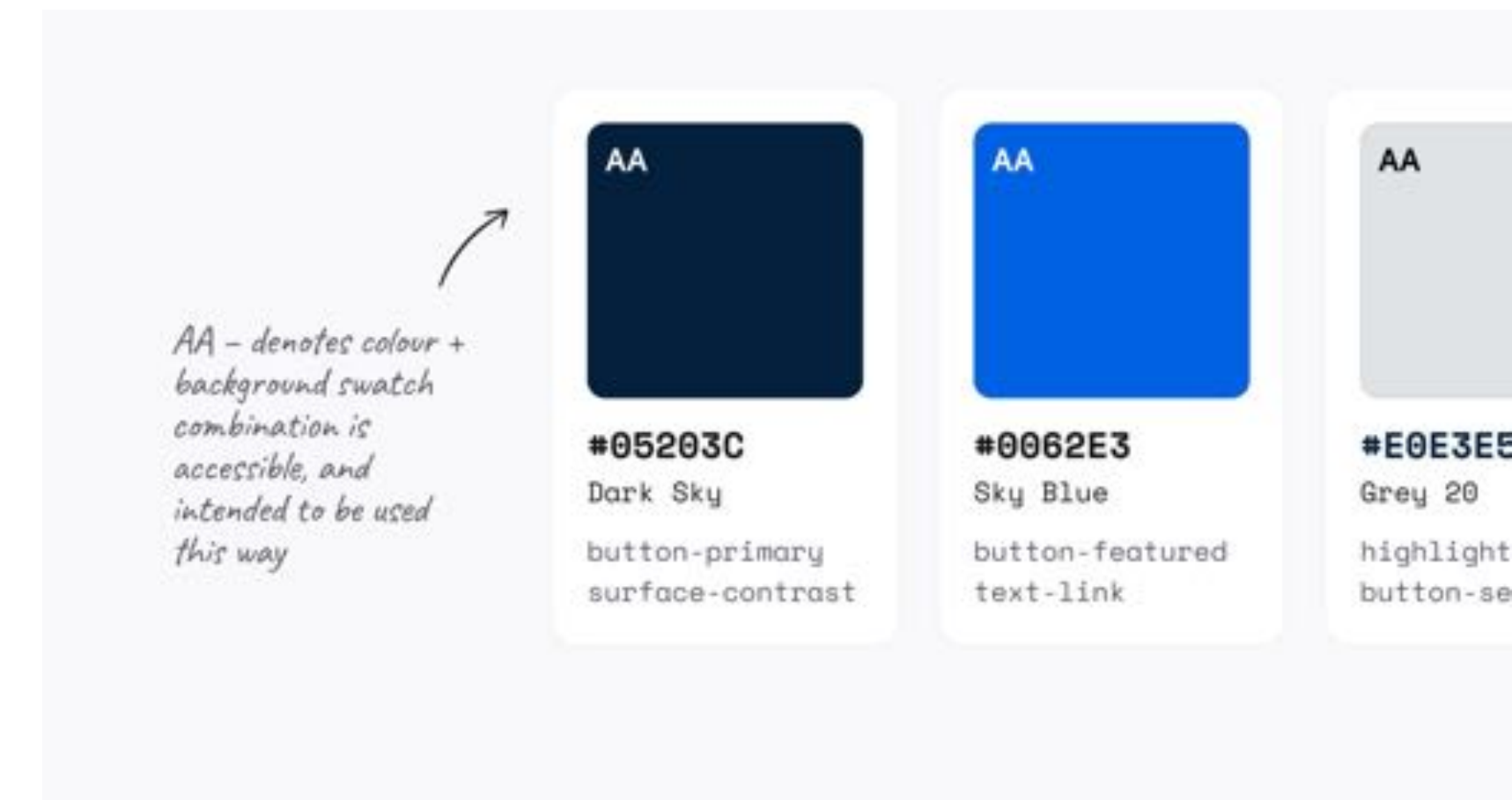
Design

# Colour

## Old palette



## New palette





# Layout

AIM: Make content inviting to read

**Terms of Service**

Last updated: February 2020

**Who are we?**

Skyscanner ("us", "we" or "our" as the context requires) provides online travel search services (including flight, hotel and car hire price comparison) and other travel related services (the "Services") to travellers throughout the world via our websites, apps and other platforms (the "Platforms").

Skyscanner is not a travel agent and is not responsible for providing, setting or controlling the prices applicable to, any of the travel options or products which you find and book via our Services ("Third Party Travel Products"). All such Third Party Travel Products are provided by independent travel agents, airlines, hotels, tour operators or other third parties ("Travel Providers") and are subject to the terms and conditions of those third parties.

Our Services and Platforms are provided by Skyscanner Limited, a private limited company incorporated and registered in England & Wales with company number 04217916. Other entities that directly or indirectly control, are controlled by, or are under common control with Skyscanner and referred to in these terms as "Skyscanner Group Companies". You can find our details, including correspondence address and registered office, on our [Company Details page](#).



**Every traveler is different**

To give you a personalized service, we (and the third parties we work with) use cookies and similar technologies.

**We use cookies for things like...**

- Making our site easier to use
- Remembering your details (like recent searches and the country you're in)
- Showing ads that are more relevant to you

**We never use cookies for...**

- Changing the prices you see



*"Travel allows people to discover new places and gain a level of understanding and empathy for other cultures which simply wouldn't otherwise be possible. It's our responsibility as leaders in this industry to make big bets and take real action to transform travel so we can preserve our world for future generations of travelers to enjoy."*

  
Moshe Rafiah, CEO Skyscanner



**Never standing still**

We're a group of talented, passionate individuals located around the world. Not afraid to innovate or try new things, we're committed to making things better for everyone by tackling the difficult problems of travel.

Part of the Trip.com Group family, Skyscanner is operationally independent and growing fast, with offices across Europe, North America and Asia.

**1,000+**  
employees

**50**  
nationalities

**8 offices**  
worldwide





# Layout

**AIM: Make content inviting to read**

- Minimum font size = 16px or **14px bold**
- Max line length 80 characters
- Use short sentences and paragraphs
- Use headings and subheadings
- Use bullet points
- Create lots of white space
- Align text left
- Don't underline unless it's a link
- Don't overuse **ALL CAPS** or *italics*

## Every traveler is different

To give you a personalized service, we (and the third parties we work with) use cookies and similar technologies.

### We use cookies for things like...

- Making our site easier to use
- Remembering your details (like recent searches and the country you're in)
- Showing ads that are more relevant to you

### We never use cookies for...

- Changing the prices you see

## Never standing still

We're a group of talented, passionate individuals located around the world. Not afraid to innovate or try new things, we're committed to making things better for everyone by tackling the difficult problems of travel.

Part of the Trip.com Group family, Skyscanner is operationally independent and growing fast, with offices across Europe, North America and Asia.

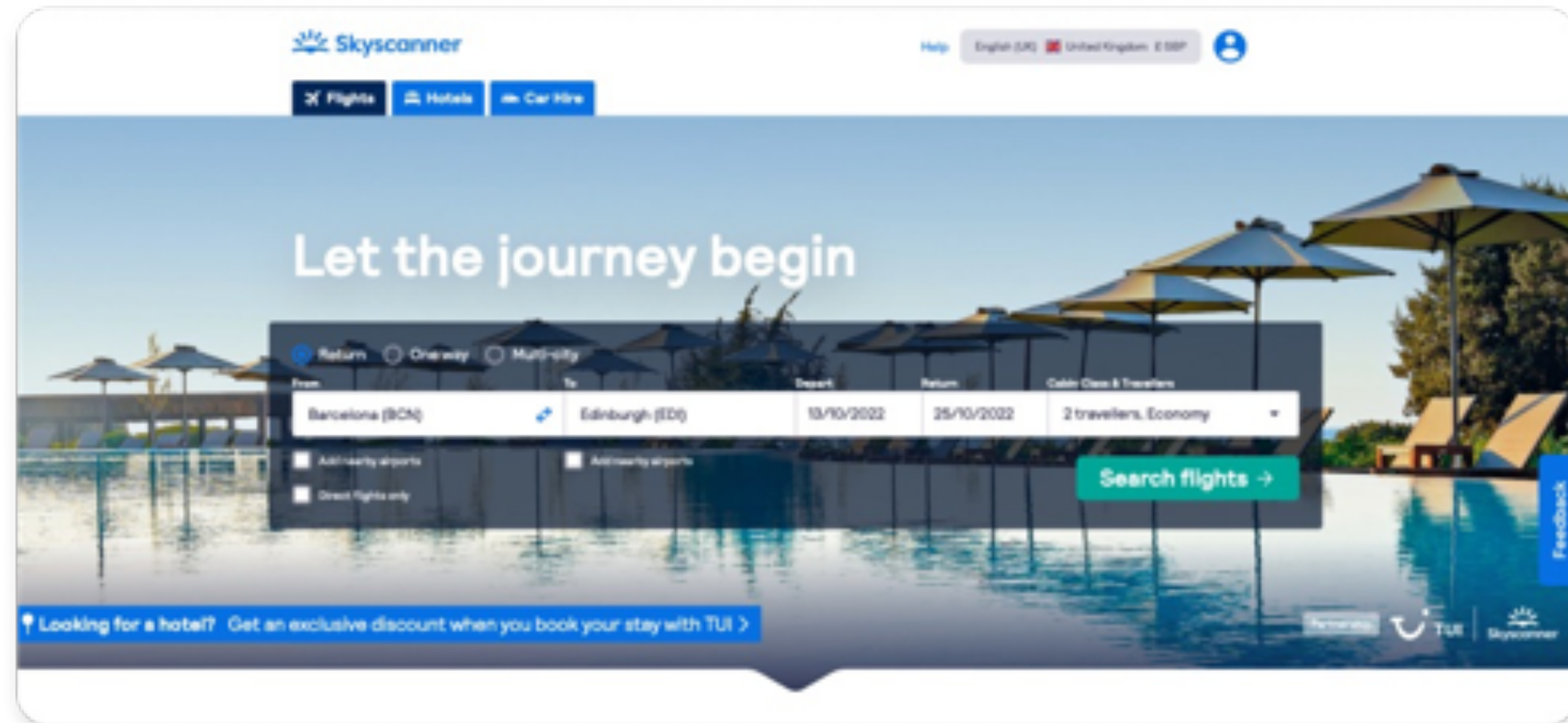
**1,000+**  
employees

**50**  
nationalities

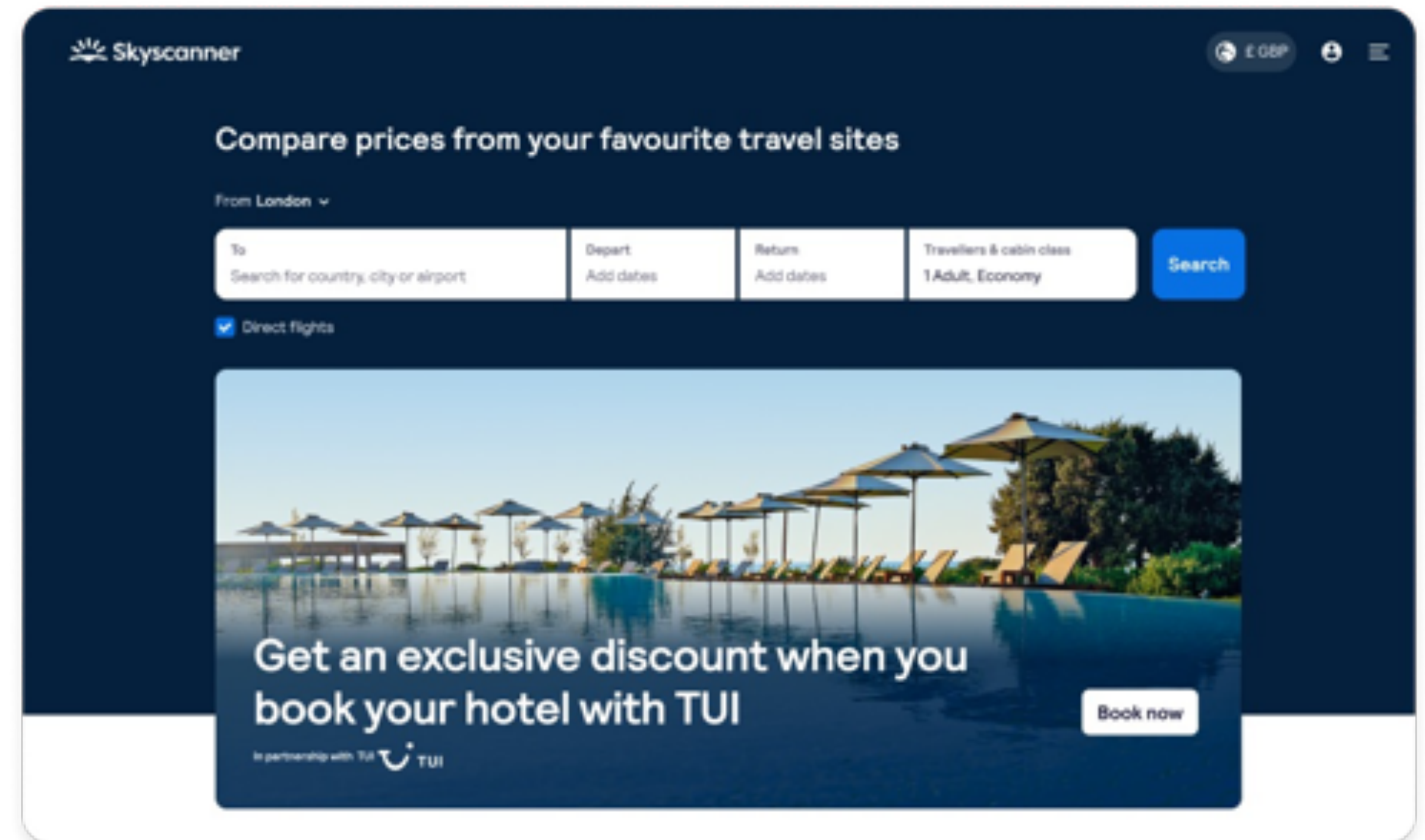
**8 offices**  
worldwide

# Case study – Search controls

Old home page



New home page





2

# Content

# Copy

AIM: Make content easy to read

- Check the readability of your copy, aiming for a reading age of 9 years (USA Grade 4)
- Use common words and phrases
- Write in short sentences
- Use an “active” voice (not passive)

The screenshot shows the Hemingway Editor interface. The main text area contains the following content:

**Hemingway App makes your writing bold and clear.**

**University of Edinburgh Admissions Policy**

**4. Defintions**

4.1. Asylum seeker: someone whose request for sanctuary has yet to **be processed** (UNHCR).

4.2. **Care-experienced: Anyone who has been or is currently in care or from a looked-after background at any stage of their life, no matter how short, including adopted children who were previously looked after. Care may have been provided in one of many different settings, such as residential care, foster care, kinship care, or looked after at home with a supervision requirement (Universities Scotland).**

4.3. **Widening participation: The process of creating opportunities for individuals who have been traditionally under-represented in higher education, including those from lower socio-economic backgrounds or other life disadvantage, such care experience (COWA).**

4.4. **Diversity The recognition and valuing of difference within society, in terms of factors such as age, disability, gender, gender identity, race, religion or belief, sexual orientation, marriage and civil partnership, and pregnancy and maternity. It encompasses the acceptance of these differences and the understanding that they contribute to the richness of society, and the belief that everyone should have the opportunity to reach their full potential, free from discrimination or prejudice (Scottish Government).**

The right-hand sidebar shows the Hemingway Editor logo and readability metrics:

- Readability**
- Grade 12**
- OK. Aim for 9.
- Words: 203
- Show More ▾

Below the metrics are five colored boxes with feedback:

- 1 adverb, meeting the goal of 2 or fewer.
- 2 uses of passive voice, meeting the goal of 3 or fewer.
- 3 phrases have simpler alternatives.
- 6 of 14 sentences are hard to read.
- 5 of 14 sentences are very hard to read.



Bold Italic H1 H2 H3 Quote Bullets Numbers Link

Hemingway App makes your writing bold and clear.

## University of Edinburgh Admissions Policy

### 4. Defintions

4.1. Asylum seeker: Someone who is asking for safety, but they are still waiting to know if they can stay in a new place.

4.2. Care-experienced: Anyone who has been taken care of or helped in their life, like living with foster families or in special homes. Even kids who were adopted after being taken care of are included.

4.3. Widening participation: Making sure that more people, especially those who didn't get many chances before, can go to college or university.

4.4. Diversity: This means understanding that people can be different in many ways, like how old they are, if they have a disability, their gender, race, religion, who they love, and more. We should accept these differences and believe that everyone should have the chance to do their best without being treated badly because they're different.

Write Edit

Hemingway  
Editor

Readability

Grade 6

Good

Reading time: 00:00:37

Letters: 734

Characters: 914

Words: 156

Sentences: 14

Paragraphs: 7

Show Less ↵

1 adverb, meeting the goal of 2 or fewer.

2 uses of passive voice. Cut to 3 or fewer.

3 phrases have simpler alternatives.

1 of 14 sentences is hard to read.

3 of 14 sentences are very hard to read.

Bold Italic H1 H2 H3 Quote Bullets Numbers Link

Hemingway App makes your writing bold and clear.

## University of Edinburgh Admissions Policy

### 4. Defintions

4.1. Asylum seeker: someone whose request for sanctuary has yet to be processed (UNHCR).

4.2. Care-experienced: Anyone who has been or is currently in care or from a looked-after background at any stage of their life, no matter how short, including adopted children who were previously looked after. Care may have been provided in one of many different settings, such as residential care, foster care, kinship care, or looked after at home with a supervision requirement (Universities Scotland).

4.3. Widening participation: The process of creating opportunities for individuals who have been traditionally under-represented in higher education, including those from lower socio-economic backgrounds or other life disadvantage, such care experience (COWA).

4.4. Diversity The recognition and valuing of difference within society, in terms of factors such as age, disability, gender, gender identity, race, religion or belief, sexual orientation, marriage and civil partnership, and pregnancy and maternity. It encompasses the acceptance of these differences and the understanding that they contribute to the richness of society, and the belief that everyone should have the opportunity to reach their full potential, free from discrimination or prejudice (Scottish Government).

Write Edit

Hemingway  
Editor

Readability

Grade 12

OK. Aim for 9.

Words: 203

Show More ▾

1 adverb, meeting the goal of 2 or fewer.

2 uses of passive voice, meeting the goal of 3 or fewer.

3 phrases have simpler alternatives.

1 of 14 sentences are hard to read.

3 of 14 sentences are very hard to read.



**Keyboard  
only**

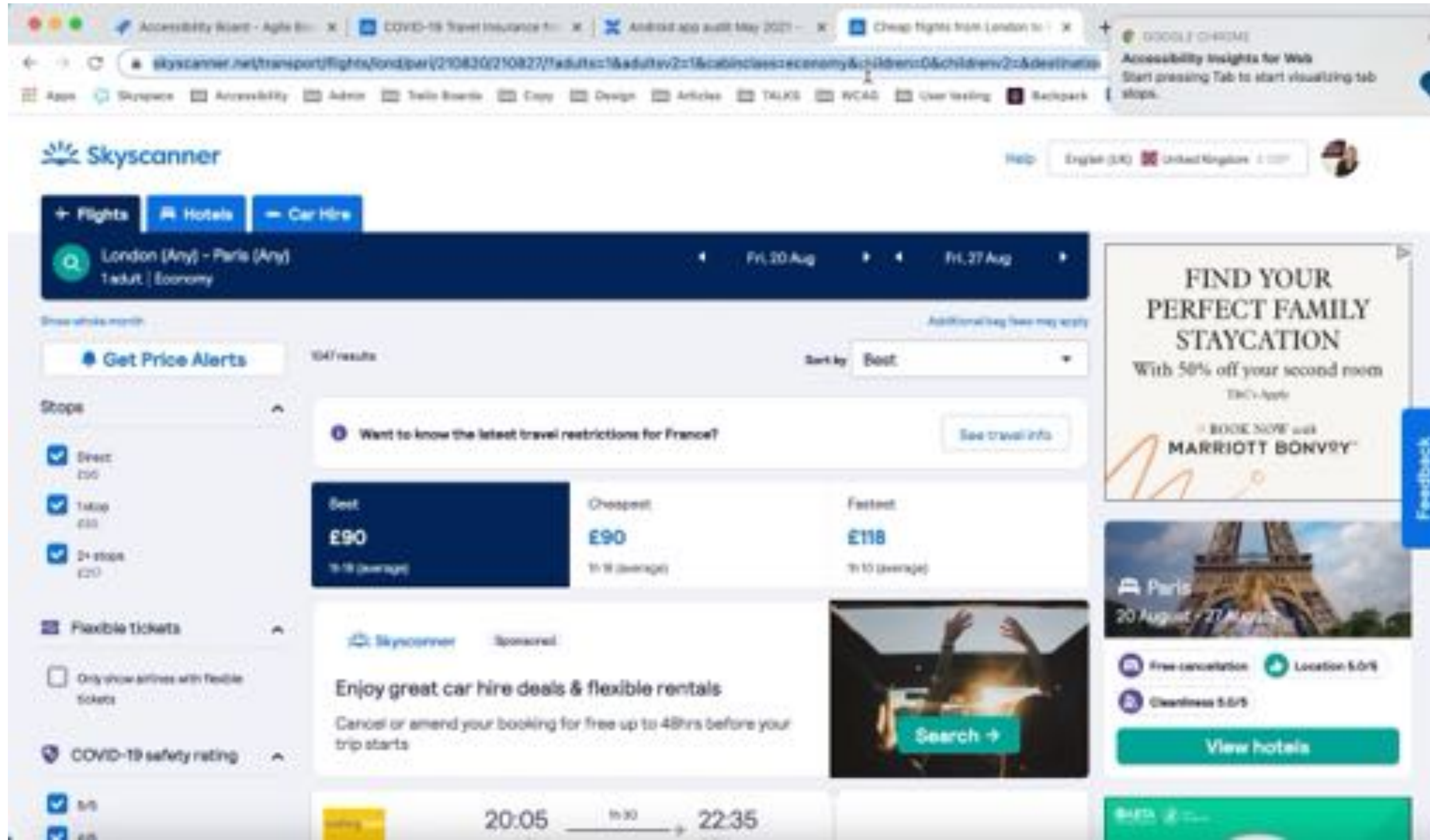


Keyboard only

# Keyboard only navigation

AIM: Make it easy to navigate just using a keyboard (no mouse or trackpad)

Before





Keyboard only

# Keyboard only navigation

AIM: Make it easy to navigate just using a keyboard (no mouse or trackpad)

After

The screenshot displays the Skyscanner website interface for a flight search. The search parameters are Edinburgh (EDI) to Athens (ATH) for one adult in Economy class on Monday, 26 October. The results are sorted by 'Best' and show a total price of £39 for the selected flight. The page includes a sidebar with filters for stops, flexible tickets, and COVID-19 safety ratings. A 'Get Price Alerts' button is visible at the top left of the results area.

- Use skip links
- Have a clear focus indicator
- Tab through in correct order
- Reach all interactive elements
- Avoid keyboard traps!



# Screen readers

# Screen readers

- Add labels to all buttons
- Write alt text for images
- Use heading tags
- Include "hidden text" if needed







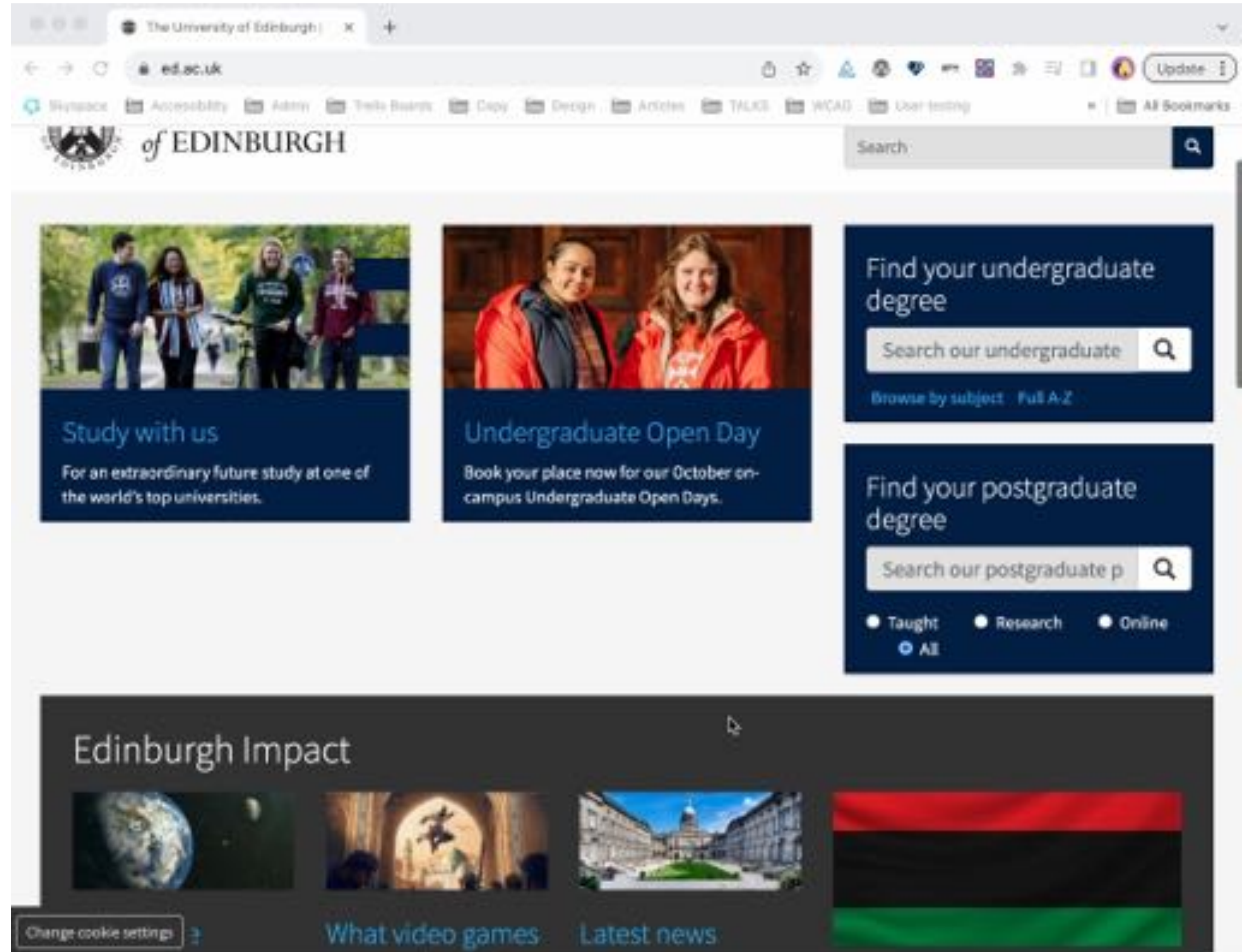
# Magnification

## Magnification

# Zooming in

**AIM: Content is still readable and usable at 400% zoom**

- Check all content is still there
- Make sure you can still interact with everything
- Rethink sticky elements that get in the way





How to make things accessible

# Our guidelines

Please scan!



A screenshot of the Backpack website's Accessibility page. The page has a dark blue header with the 'Backpack' logo and a search icon. A left-hand navigation menu lists 'Welcome to Backpack', 'Getting started', 'Foundations', 'Components', 'Content', and 'Accessibility'. Under 'Accessibility', there are sub-links for 'Overview', 'For Product Designers', 'For Engineers', 'For Content Designers', and 'For Product Owners'. The main content area features a large heading 'Accessibility' followed by a paragraph: 'We believe that travel should be for everyone. We want our products to be usable by all, which means making them accessible for all.' Below this is a horizontal navigation bar with tabs for 'Overview', 'For Product Designers', 'For Engineers', 'For Content Designers', and 'For Product Owners'. The 'Overview' tab is active. The main text reads: 'We're working hard to create a design system that's full of accessible components and guidance on how to implement them in an accessible way. We've also created guides for specific roles – Designers, Engineers and Content Designers – to help you do this.' A section titled 'What we can do' contains two sub-sections: 'Understand the people who use our product' and 'Remember we can all experience disabilities every day'. A right-hand sidebar titled 'ON THIS PAGE' lists links for 'What we can do', 'Understand the people who use our product', 'Remember we can all experience disabilities every day', and 'Recognise that people use products differently'.



# Resources

- **Accessibility Insights auditing tool (web):**  
[accessibilityinsights.io](https://accessibilityinsights.io)
- **Adi Latif screen reader video:**  
[youtube.com/watch?v=QUZ091A73bk](https://youtube.com/watch?v=QUZ091A73bk)
- **BBC Mobile Guidelines:**  
[bbc.co.uk/accessibility/forproducts/guides/mobile](https://bbc.co.uk/accessibility/forproducts/guides/mobile)
- **Brandwood tool (testing text on images):**  
[brandwood.com/a11y](https://brandwood.com/a11y)
- **Colour Contrast Checker:**  
[monido.com/tools/contrast-checker](https://monido.com/tools/contrast-checker)
- **Funkify disability simulator:**  
[funkify.org](https://funkify.org)
- **Home Office accessibility posters:**  
[ukhomeoffice.github.io/accessibility-posters/posters/accessibility-posters.pdf](https://ukhomeoffice.github.io/accessibility-posters/posters/accessibility-posters.pdf)
- **Microsoft's inclusive design kit:**  
[microsoft.com/design/inclusive](https://microsoft.com/design/inclusive)
- **Readability test:**  
[hemingwayapp.com](https://hemingwayapp.com)
- **Sim Daltonism colour blindness simulator:**  
[michelf.ca/projects/sim-daltonism](https://michelf.ca/projects/sim-daltonism)
- **Stark accessibility plugin:**  
[getstark.co](https://getstark.co)
- **The A11Y Project resources:**  
[a11yproject.com/resources](https://a11yproject.com/resources)
- **W3C tips:**  
[w3.org/WAI/gettingstarted/tips/index](https://w3.org/WAI/gettingstarted/tips/index)
- **WAI-ARIA Authoring Practices:**  
[w3.org/TR/wai-aria-practices](https://w3.org/TR/wai-aria-practices)
- **WCAG 2.1:**  
[w3.org/TR/WCAG21](https://w3.org/TR/WCAG21)

# Q&A