



# devfest

```
// You'll need  
// com.google.  
listRef.listAll  
.addOn  
prefixes.  
// All  
// You  
}  
it  
each { item  
the items  
}  
}
```

## Designing for Neurodiversity, Empathy, Human Centric Design and Inclusion in Software Applications



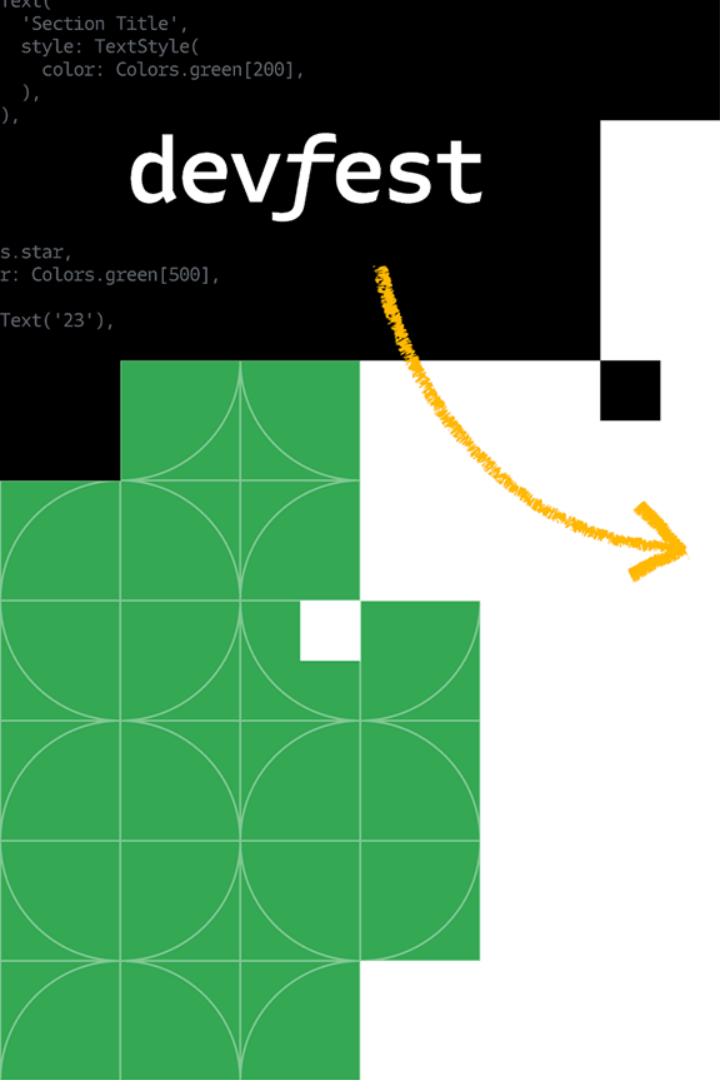
Google Developer Groups

Vancouver



# Glossophobia





# Agenda

What is Neurodiversity?

Accessibility vs ND

Guidelines for Design

Concluding Remarks

devfest

A horizontal illustration of a diverse group of people with various physical disabilities. From left to right: a man with a beard using a walker; a man in a wheelchair being assisted by a woman; a woman in a wheelchair being assisted by a man; a woman in a wheelchair being assisted by a man; a man in a wheelchair being assisted by a woman; a man in a wheelchair being assisted by a woman; a man in a wheelchair being assisted by a woman; a man in a wheelchair being assisted by a woman; a man in a wheelchair being assisted by a woman; a man in a wheelchair being assisted by a woman. The illustration shows a variety of people of different ages and ethnicities using various mobility aids like wheelchairs, walkers, and canes.

A colorful illustration of a diverse group of eleven people standing in a row. From left to right: a young woman with blonde hair in a purple shirt and blue pants; a young man with dark skin in a blue t-shirt and black pants; a young man with pink hair in a green t-shirt and yellow pants; a woman in a green hijab and green dress; a woman in a yellow shirt and blue pants; a woman in a green dress; a woman in a green hijab and green dress; a man in a green shirt and brown pants; a man in a white shirt and yellow pants; a man in a yellow shirt and red pants; an older woman in a striped shirt and red pants; a man in a purple shirt and blue pants; and a man in a blue suit. They are all smiling and looking towards the camera.

## NOT ALL DISABILITIES ARE VISIBLE

```
Text(  
    'Simple Statement or URL',  
    style: TextStyle(  
        color: Colors.green[200],  
    ),  
),  
),  
s.star,  
r: Colors.green[500],  
Text('23'),
```

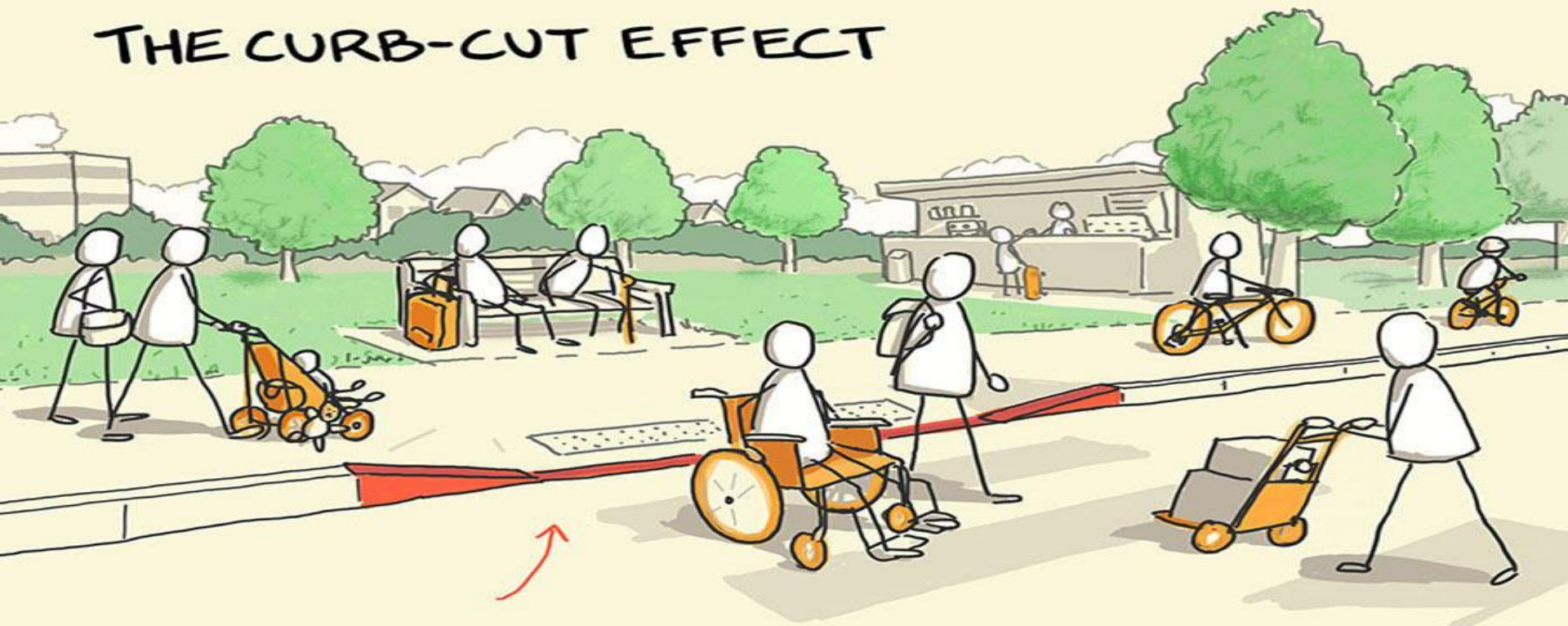
# devfest

**Neurodivergent brains are  
biologically different.**

**One cannot be "trained out  
of" the way their brain works**



# THE CURB-CUT EFFECT



WHEN WE DESIGN  
FOR DISABILITIES

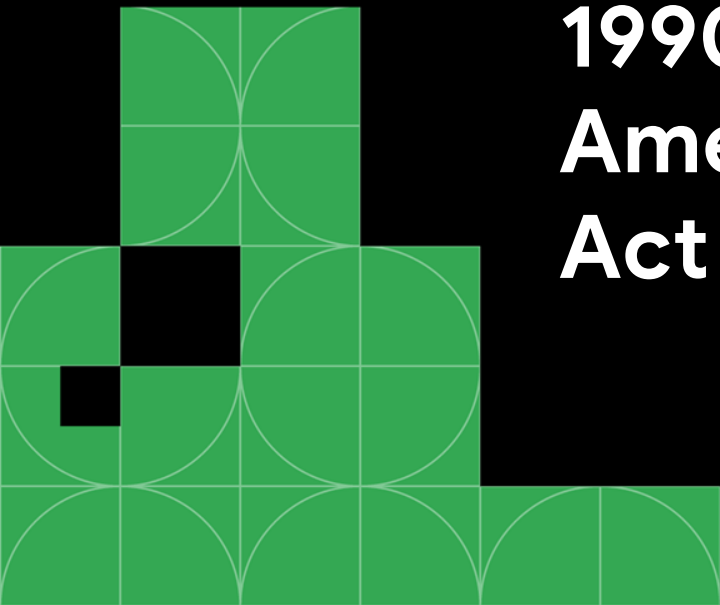
... WE MAKE THINGS  
BETTER FOR EVERYONE

sketchplanations

```
Text(  
  'Simple Statement or URL',  
  style: TextStyle(  
    color: Colors.green[200],  
  ),  
),  
),  
s.star,  
r: Colors.green[500],  
Text('23'),
```

# devfest

**Not legally required until  
1990 with the signing of  
Americans with Disabilities  
Act**



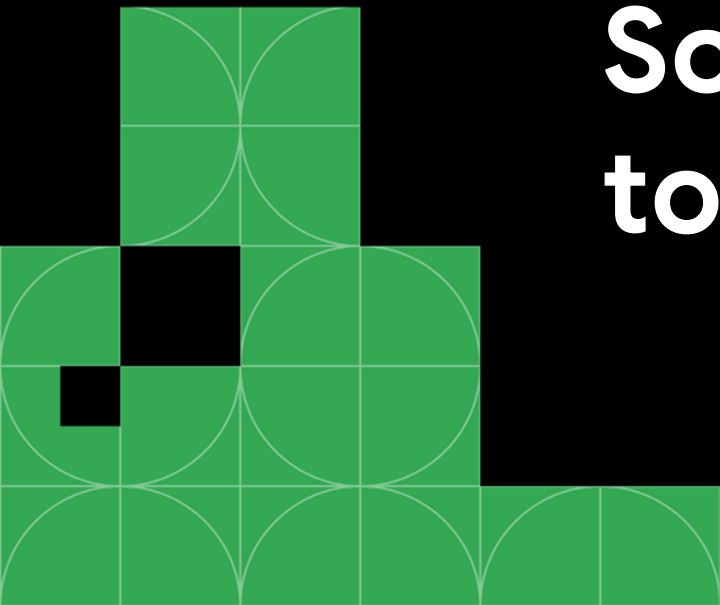


```
Text('Simple Statement or URL',  
  style: TextStyle(  
    color: Colors.green[200],  
  ),  
),  
),  
s.star,  
r: Colors.green[500],  
Text('23'),
```

# devfest



## Solve for one, extend to many



# “NOTHING ABOUT US WITHOUT US”



**IDA**  
International  
Disability Alliance

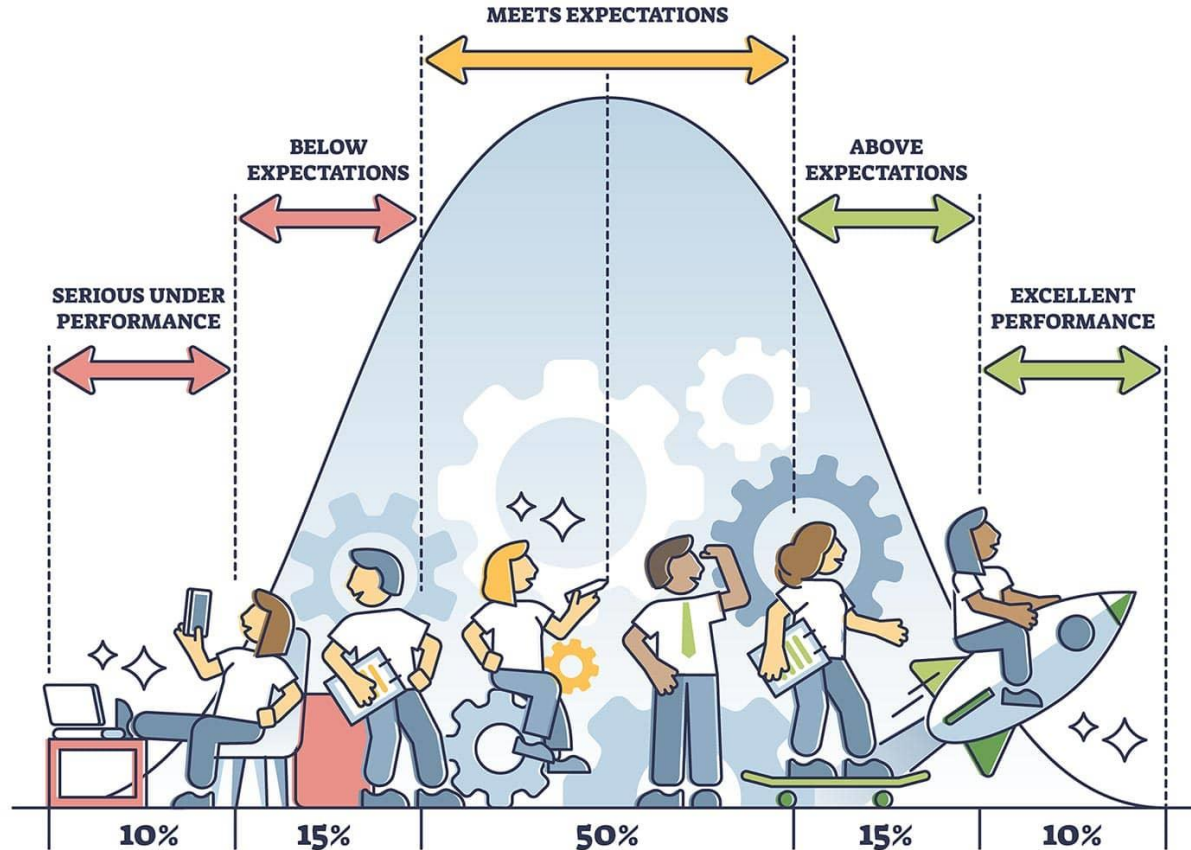
**#IDPD21**

```
Text('Simple Statement or URL',  
style: TextStyle(  
  color: Colors.green[200],  
),  
),  
),  
s.star,  
r: Colors.green[500],  
Text('23'),
```

# devfest

**Risk marginalization  
and only cater to the  
central, normal values  
as peak users in the  
Gaussian(bell) curve.**

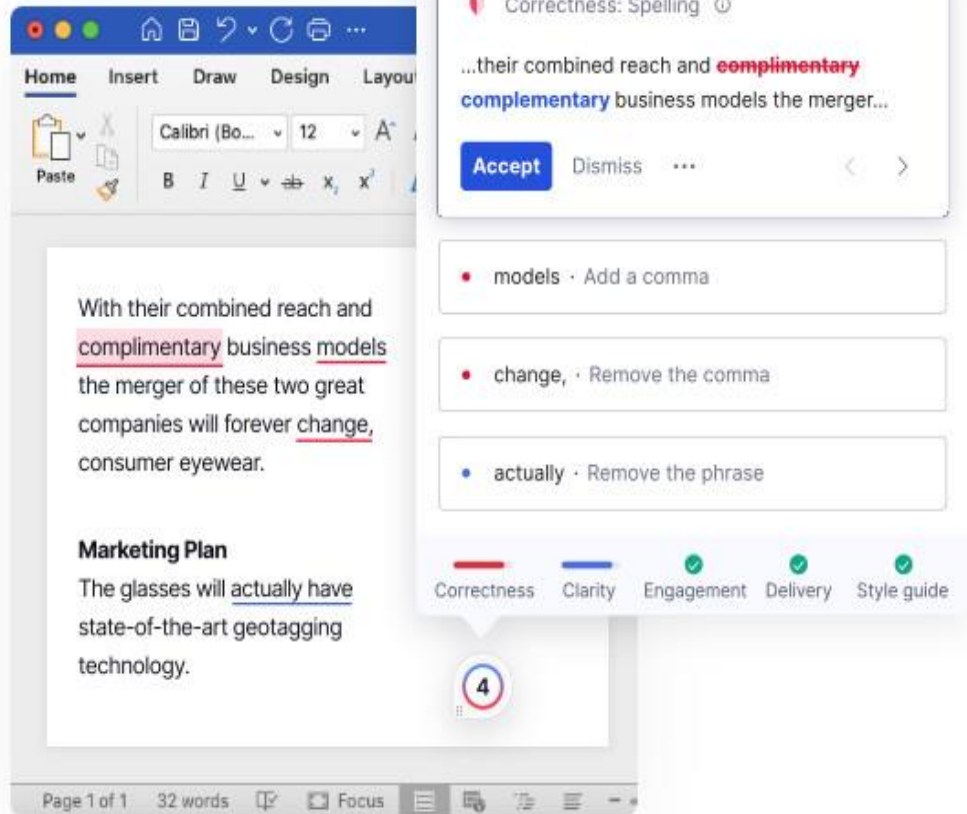
# BELL CURVE



Source : <https://www.simplypsychology.org/normal-distribution.html>

# Be Kind and Forgiving

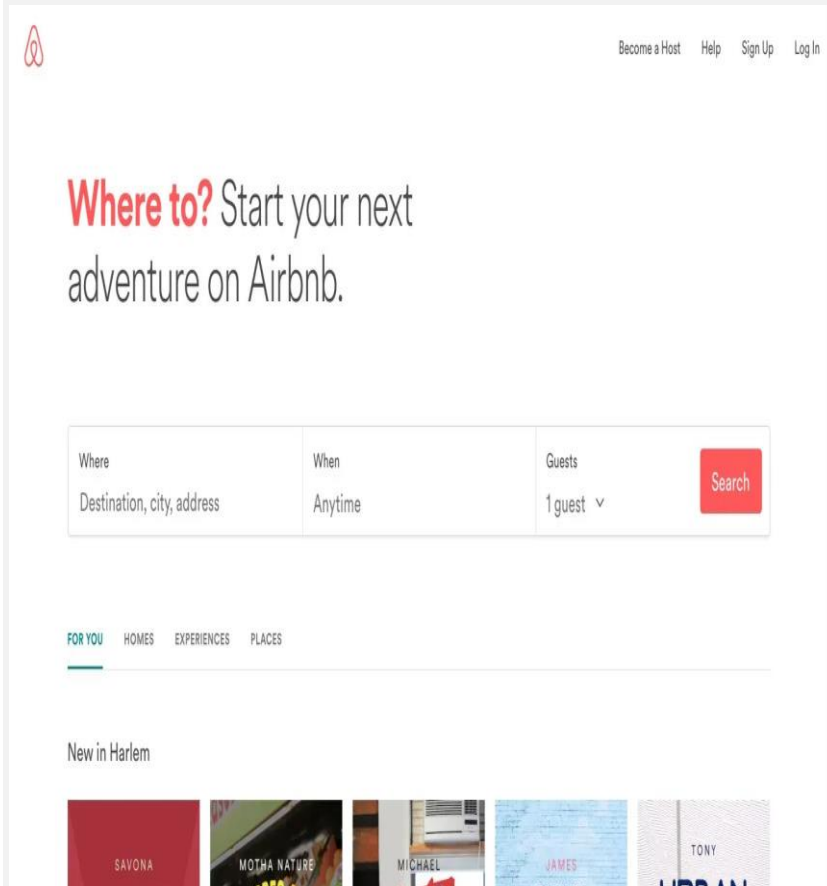
# Grammarly - Disneyland of Spelling





# Implement a Forgiving Format to Accommodate Users' Mistakes

*“We don’t make mistakes, just happy little accidents.”*  
—Bob Ross, American painter, painting instructor, and TV show host

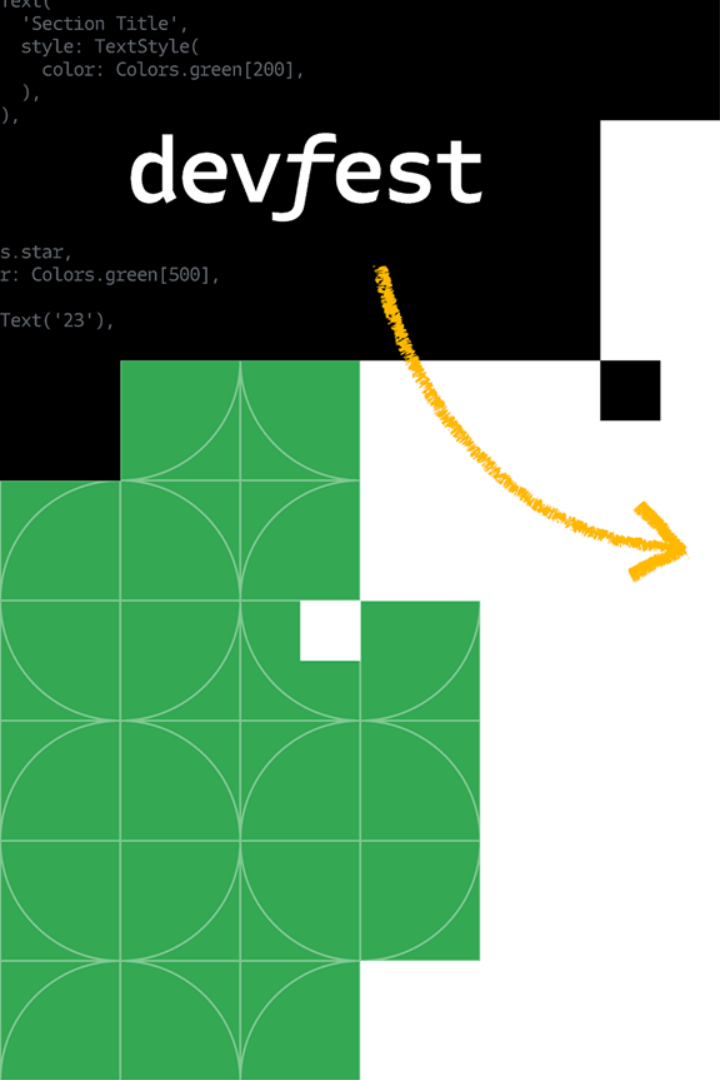


The screenshot shows the Airbnb homepage. At the top right, there are links for "Become a Host", "Help", "Sign Up", and "Log In". The main heading reads "Where to? Start your next adventure on Airbnb." Below this is a search bar with three input fields: "Where" (placeholder: "Destination, city, address"), "When" (placeholder: "Anytime"), and "Guests" (placeholder: "1 guest" with a dropdown arrow). A red "Search" button is to the right of the "Guests" field. Below the search bar is a navigation bar with links for "FOR YOU" (highlighted with a teal underline), "HOMES", "EXPERIENCES", and "PLACES". Under the "FOR YOU" section, there is a heading "New in Harlem" followed by a row of five featured listings: "SAVONA", "MOTHA NATURE", "MICHAEL", "JAMES", and "TONY".

# Forgot attachment?

Attachments first, message second, subject third, and recipients last. This is my way.





# Abundance and not redundancy



Home



My Tasks



Inbox



Portfolios



Goals

Show less

Favorites



Recruiting weekly mee...



Website Launch



Rebranding video



Marketing



Editorial Calendar



Customer Stories - Q4



Website Design Reque...

Show more

Reports



Teams



Marketing



## Customer Stories - Q4



On Track



12

Share



Search



List

**Board**

Timeline

Calendar

Dashboard

More...

Last task completed on 12 Oct

Incomplete tasks

Filter

Sort

Rules

Apps

Fields

...

### Recurrent pieces



### New formats



### Content



### Design



Edit customer testimonial



19 Nov

1



Customer Stories - Q4 submission



18 Nov



Content marketing campaign!



16 Dec



Editorial calendar



22 Dec



Create campaign



Work-life balance newsletter



24 Nov



Apollo for nonprofits



14 Jan, 2021

2



Quarter in review



25 Nov

2



Press release on acquisition



23 Dec

1



Add testimonials



22 Dec



new



Monday



Changes



30 Dec



Rewrite blog post



19 Jan, 2021



Choose customer for February spotlight



20 Aug, 2021



Editorial calendar



29 Dec



Customer spotlight



18 Jan, 2021



Create new in



17 Dec

+

```
Text(  
  'Section Title',  
  style: TextStyle(  
    color: Colors.green[200],  
  ),  
,  
,  
),  
s.star,  
r: Colors.green[500],  
Text('23'),
```

# devfest

 Google Developer Groups

## Canary in the coalmine





**Often the first to  
sense danger akin to  
canaries in the coal  
mine**

**Preventing  
miscommunication  
and not overwhelming  
the users**



# Guidelines

- **Interpretable messages**

Avoid use of characters that look alike

E.g. 1ll, B8, QO0CD, and try to break up long strings in phone numbers e.g. (000) 000-0000

- **Stick to active voice:** Passive voice sentences are longer and harder to comprehend. Users with ADHD will get bored, dyslexics will have even more trouble reading, and so will readers on the spectrum.
- **Avoid metaphors:** Trouble understanding metaphors, such as idioms and other abstract figures of speech.

E.g. Instead of calling it a day, it's more inclusive to say that something is done.

# Guidelines

**Format your writing** : Divide large chunks of text into smaller paragraphs.  
It is challenging for people struggling with limited attention spans.

**Use descriptive buttons** : No vague microcopy, such as *Click here*.

Describe the purpose of the button.

Example: *Upload images, Register, Download the e-book*.

This simple change makes navigation smoother and reduces anxiety.

**Be careful with animations** : Too much stimulation can induce anxiety in people on the autism spectrum, which may even lead to physical pain, withdrawal, or meltdown.

**Use of animated elements** : should be limited to instances when it serves a purpose.  
Also remember not to make them too invasive.

## Avoid autoplay

Unexpected movement is surprising and scary, not to mention the sound!

## Add subtitles and captions

## Bring in the perspective of ND users

Perform user testing and focus groups with them.



# Takeaways

Aim to visually please, rather than disturb.

Abstain from auto play and music that suddenly appears out of nowhere.

Skip highly vibrant colors.



# Designing for users on the autistic spectrum



## Do...

use simple colours



write in plain English

**Do this.**

use simple sentences and bullets



make buttons descriptive

**Attach files**

build simple and consistent layouts



## Don't...

use bright contrasting colours



use figures of speech and idioms



create a wall of text



make buttons vague and unpredictable

**Click here!**

build complex and cluttered layouts



# Designing for users with dyslexia



## Do...

use images and diagrams to support text



align text to the left and keep a consistent layout



consider producing materials in other formats (for example, audio or video)



keep content short, clear and simple



let users change the contrast between background and text



## Don't...

use large blocks of heavy text



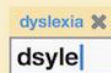
underline words, use italics or write in capitals

*DON'T*  
*DO THIS*

force users to remember things from previous pages - give reminders and prompts



rely on accurate spelling - use autocorrect or provide suggestions



put too much information in one place



DIMINISHING VISUAL GLARE WHEN DESIGNING COURSE MATERIAL FOR

# NEURO-DIVERGENT KIDS



Use a neutral colored background.



Employ lower intensity of black color.



Separate sections or bullets by colors.



Reduce the intensity of screen brightness.



Avoid neon or bright hues, use natural tones.



Use contrast to highlight call-to-action.

of **reusable** components,  
ords,

**Great Minds Think  
Unlike And Learn  
Differently**

**Representation Matters!**



of reusable components,  
rds,

**A design with  
inclusivity and  
neurodiversity in mind  
is not just 'nice to  
have' – it's imperative**







**THANK YOU FOR WATCHING OUR  
PRESENTATION**



[makeameme.org](http://makeameme.org)