A blind date with an APEX application

APEX World | 20 March 2025

Bart Limbeek

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Who am I?

| Bart Limbeek

| Oracle APEX developer

| Transfer Solutions

| Playing clarinet in a concert band

| Playing theatre

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Overview of the presentation

Why do I want to talk about it?

Why is it relevant for you?

What kind of impairments are there?

How does a screen reader work?

How accessible is an APEX application in general?

How could you improve your application?

What message do I want to give you?

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Why do I want to talk about it?

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Session with colleagues about visible impairments

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My grandfather Theo

- Last years of his life completely blind
- Consequence of diabetes
- Working in the garden
- Listen to audio books

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Why is it relevant for you?

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Answers

Becoming aware of the influence as a developer

Small adjustments could make a difference

You are never sure if there will be users who will use it

Law and regulations enforce it

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Digital accessibility

Everyone should be able to participate in the digital world

The European Accessibility Act:

- June 2022: Start of act
- June 2025: Everything has to be implemented

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Web shops

Smartphones

The European Accessibility Act

Computers and operating systems

Payment terminals (ATMs, ticket services and check-in machines)

Online & offline services related to passenger transport, such as apps and websites

All financial services, like digital banking

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What kind of impairments are there?

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Physical/motor limitations

Missing fingers/limbs

Decreased eye-hand coordination

Repetitive strain injury (RSI)

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Motor limitations
Pay attention to:

| Keyboard accessibility

| Sufficiently long response times & time limits

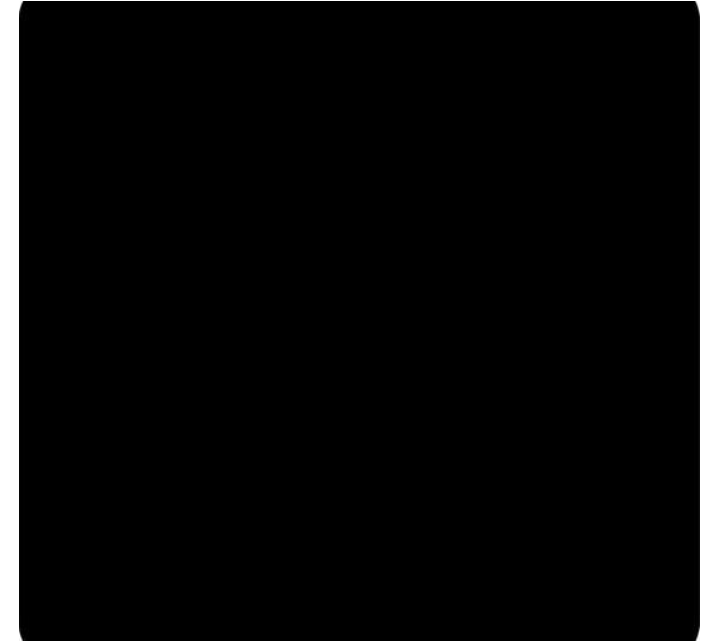| The size of buttons and links incl. tooltips
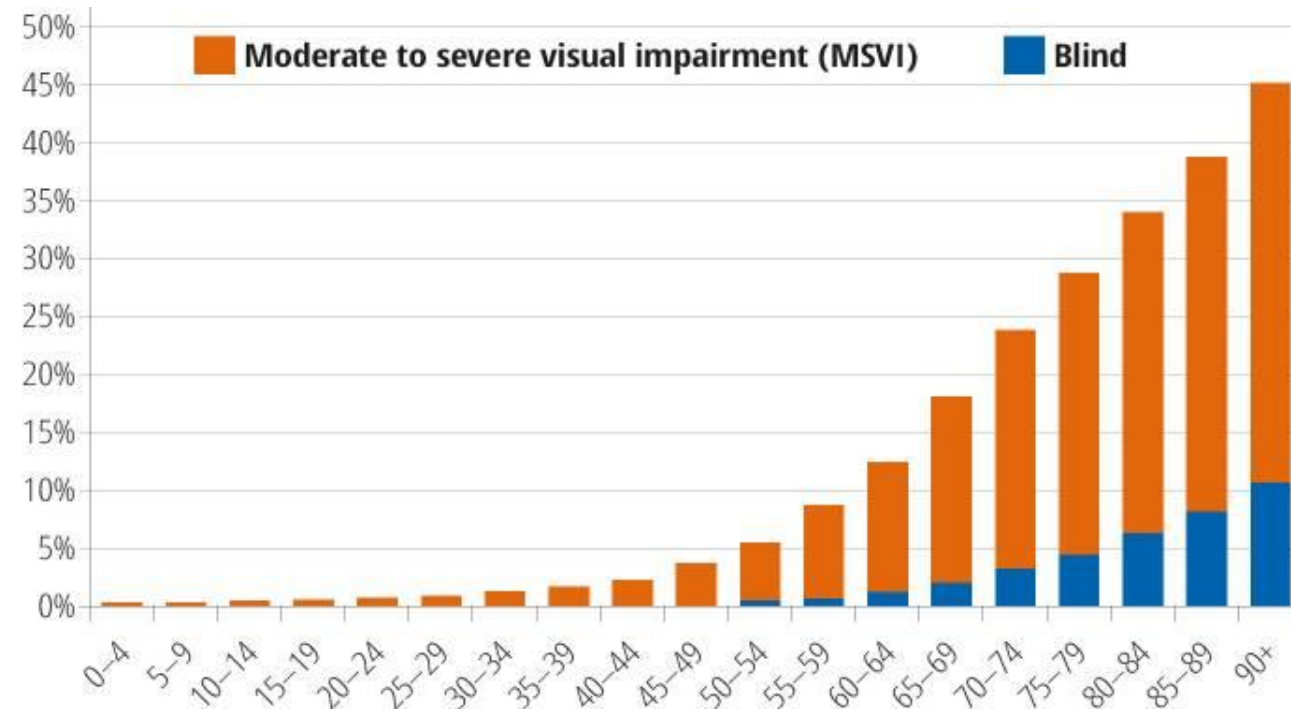
| Simple navigation structure

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Visual impairments
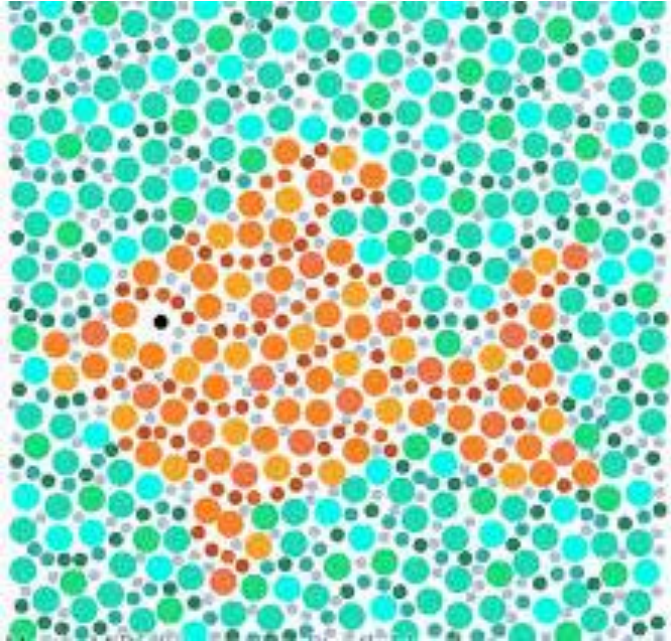
Color blindness

(Partly) visually impaired

Blindness

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Visually impaired people

| 217 million moderate to severe visual impairment

| 36 million blind

| Higher in Africa and Asia than Western Europe

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Visual impairments
Pay attention to

| Use of alternate text

| Responsive text and images

| Audio description and subtitles

| Consistent layout and navigation

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How does a screen reader works?

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Screen reader

- Reads the browser DOM

- HTML is the main source for understanding

- Distinction
  - Headers
  - Links
  - Images

- Focus on audio output

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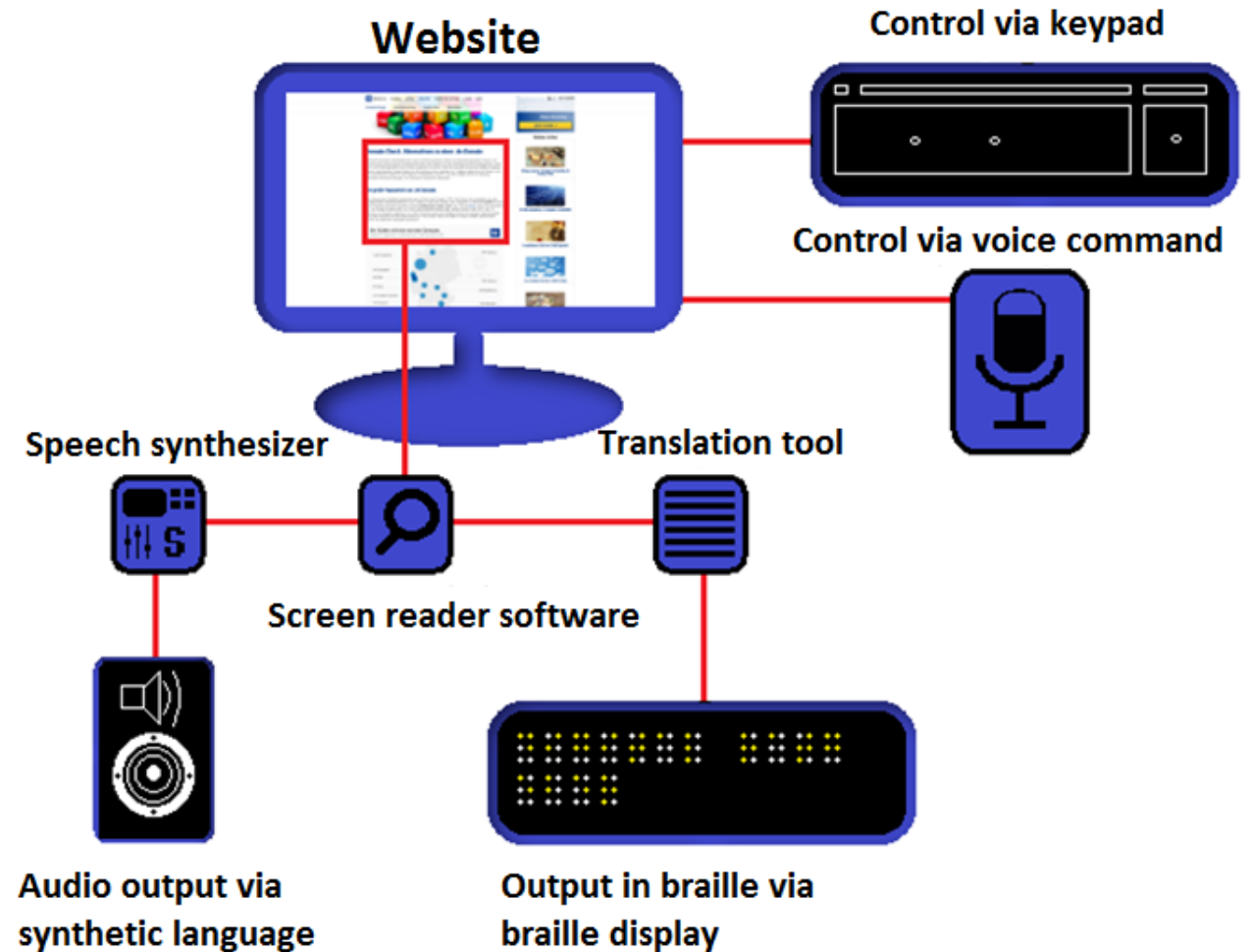
Windows narrator

Keyboard shortcuts	Action
Ctrl + Windows key + enter	Start/Stop Windows narrator
Arrow up/down keys	Go to next/previous element within the same level
Arrow left/right keys	Tab through all elements but also individual characters
Tab	Go to next accessible element
H	All header elements (H1, H2, H3, …)
K	All link elements (A)
P	Go to next paragraph

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Accessible Rich Internet Applications (ARIA)

World Wide Web Consortium (W3C)

Add information where html lacks

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Aria examples

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Landmarks

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How accessible is an APEX application in general?

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Blind date

Blind date

Search...

Dating profiles

	User Name	Age	Country	Interests	Gender	Search For
✎	Arianne	30	Netherlands	Cooking, Hiking, Movies	Female	Love
✎	Casee	32	USA	Ice hockey, Clubs, Dogs	Male	Love
✎	Cecilia	39	Germany	Cats, Cycling, Reading	Female	Friendship

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Release 1.0

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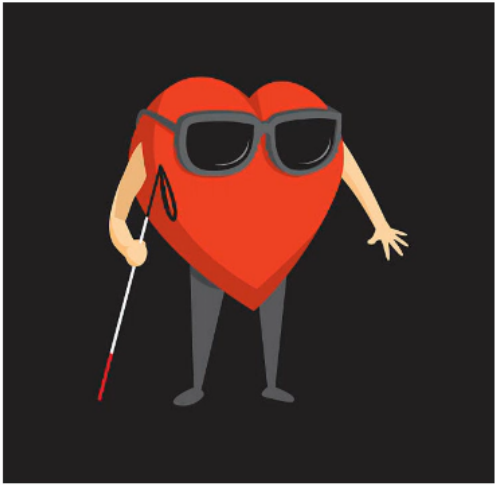
How accessible is APEX?

Landmarks are automatically assigned to regions

APEX Items, regions and menus are all accessible

Clear extended help information for accessibility in APEX builder

Aria attributes and roles are present in the html

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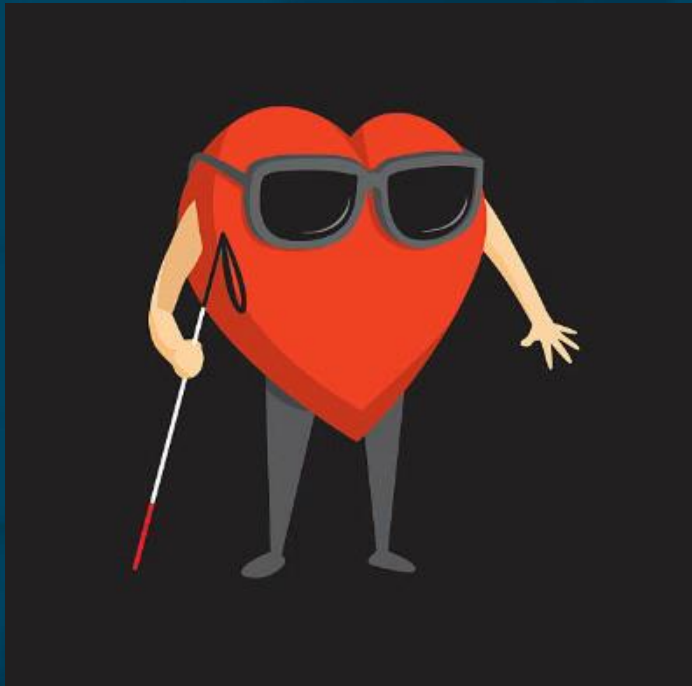# How could you improve your application?

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Context - issues

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Context - alternatives

Alt = "Cartoon of a humanized blind heart wearing sunglasses and a white cane"

3   bart ⌄

< > **List Entry**

Show All   Entry   Target   Subentries   Current List Entry   Conditions   Authorization   Configuration

User Defined Attributes

Substitution strings #A01# - #A10# are optional attributes within a list template, which can be used to reference list entry us
Attributes to view a more meaningful description of the substitution strings in use in the list templates available in the curre

Theme   Universal Theme - 42   ⌄   (?)

List Template   Navigation Bar (1 references) ⌄   (?)   View List Utilization

■ Translatable

1. Badge Value   `<span class="u-VisuallyHidden">Unread love messages</span>`

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Reports with links - issues

✖ Not clear what to expect

✖ Has to remember headings

✖ All information is equal in importance

Dating profiles

	User Name	Age	Country	Interests	Gender	Search For
✎	Arianne	30	Netherlands	Cooking, Hiking, Movies	Female	Love
✎	Casee	32	USA	Ice hockey, Clubs, Dogs	Male	Love
✎	Cecilia	39	Germany	Cats, Cycling, Reading	Female	Friendship

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Reports with links - alternatives

✓Specify row headers

✗No improvement for windows narrator

✓Use a card region
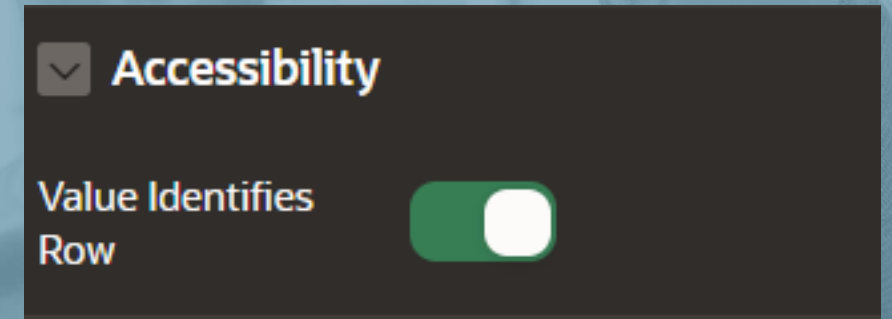
Accessibility

Value Identifies Row

Dating profiles

	User Name	Age	Country	Interests	Gender	Search For
✎	Arianne	30	Netherlands	Cooking, Hiking, Movies	Female	Love
✎	Casee	32	USA	Ice hockey, Clubs, Dogs	Male	Love
✎	Cecilia	39	Germany	Cats, Cycling, Reading	Female	Friendship

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Date picker - issues

Display as Popup

✕ No direct label of item

✕ Unknown date format

✕ Feedback of date format only on submit

✕ Hardly accessible popup for not recent dates

My profile

User Name
Bart

Gender

Female | **Male** | Other

Date of birth

Country
Netherlands

My Profile

Paragraph | **B** | *I* | <> | 🔗 | ≔ | ≔ | 66 | 🖥 | ↩ ↪

Interests
Playing theater, Hiking, Playing clarinet and piano, Cooking

Looking for

Friendship | **Love**

Cancel | Delete | **Apply Changes**

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Date picker - alternatives

Display as Native HTML

✓ Label of item is called

✓ Clear information of date format

✓ Not possible to write wrong date

✓ Easier accessible popup

My profile

User Name
Bart

Gender

| Female | Male | Other |

Date of birth
dd/mm/yyyy

Country
Netherlands

My Profile

Paragraph | **B** | *I* | <> | 🔗 | ≔ | ≝ | 66 | 📄

Interests
Playing theater, Hiking, Playing clarinet and piano, Cooking

Looking for

| Friendship | Love |

Cancel   Delete   Apply Changes

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Template components

Freedom for the Developer

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Template components

But you are now responsible for accessibility
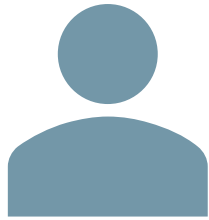
The right heading elements

Roles for some html elements

Add aria attributes

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What message do I want to give you?

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Final message

Take impaired users into account

An APEX application is highly accessible, but the developer can take it to the next level

Play with screen readers

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Accessibility testing

| Empathize with the user
   I Use screen readers

| Accessibility audit
   I Accessibility Scanner voor Android
   I Accessibility Inspector voor iOS

| Manual and automated tests

| Involve users with disabilities

| Document and report

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Questions?

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Please fill in your evaluations

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