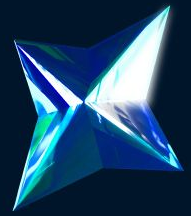
BRO Academy

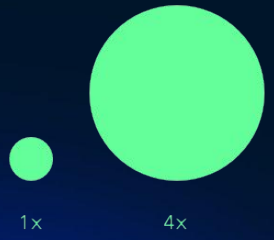


SVG inside

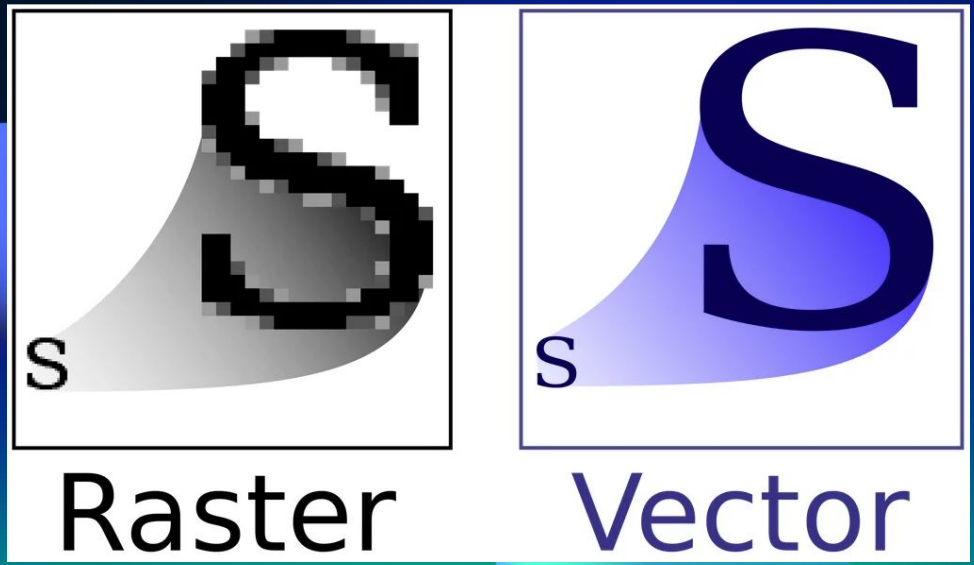
HTML course: Lesson 14

Repeat

Vector images



Created using **mathematical formulas** and geometric **shapes**, such as **lines and curves**



Repeat

Raster vs Vector

example →

	`.jpeg, .png, .avif, .webp`	`<svg>`
Scales without quality loss	❌	✅
Usually has smaller size	❌	✅
How can be changed?	In special programs for graphics	In text editor or IDE
Usage for	complex images	logos, icons, decor
Parts inside can be affected through css and js	❌	✅
Can be converted to	other raster formats only	vector and raster formats

Lesson Plan

1
What is it **inside**

2
How to insert on a page

3
SVG container

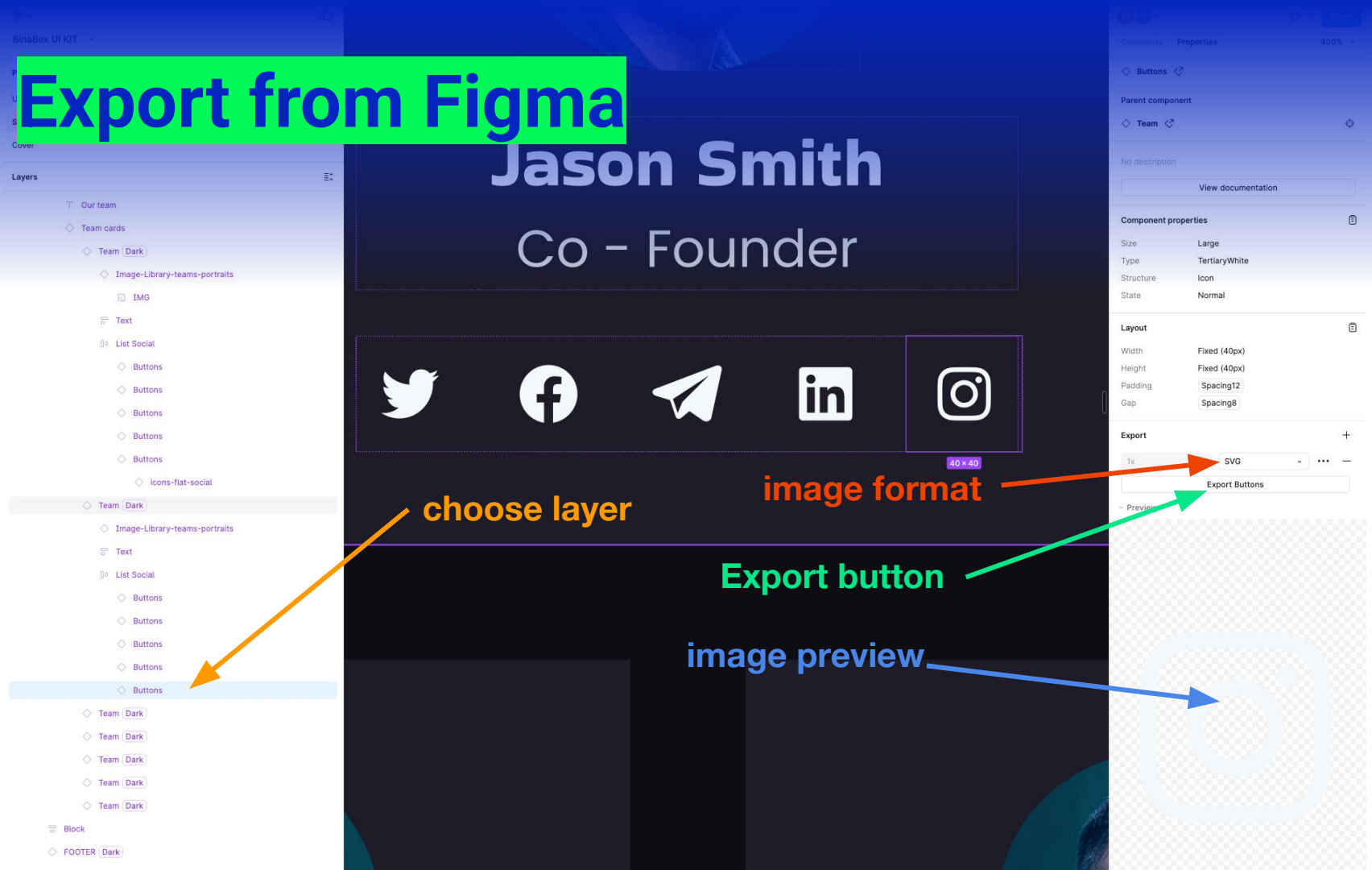
4
SVG tags

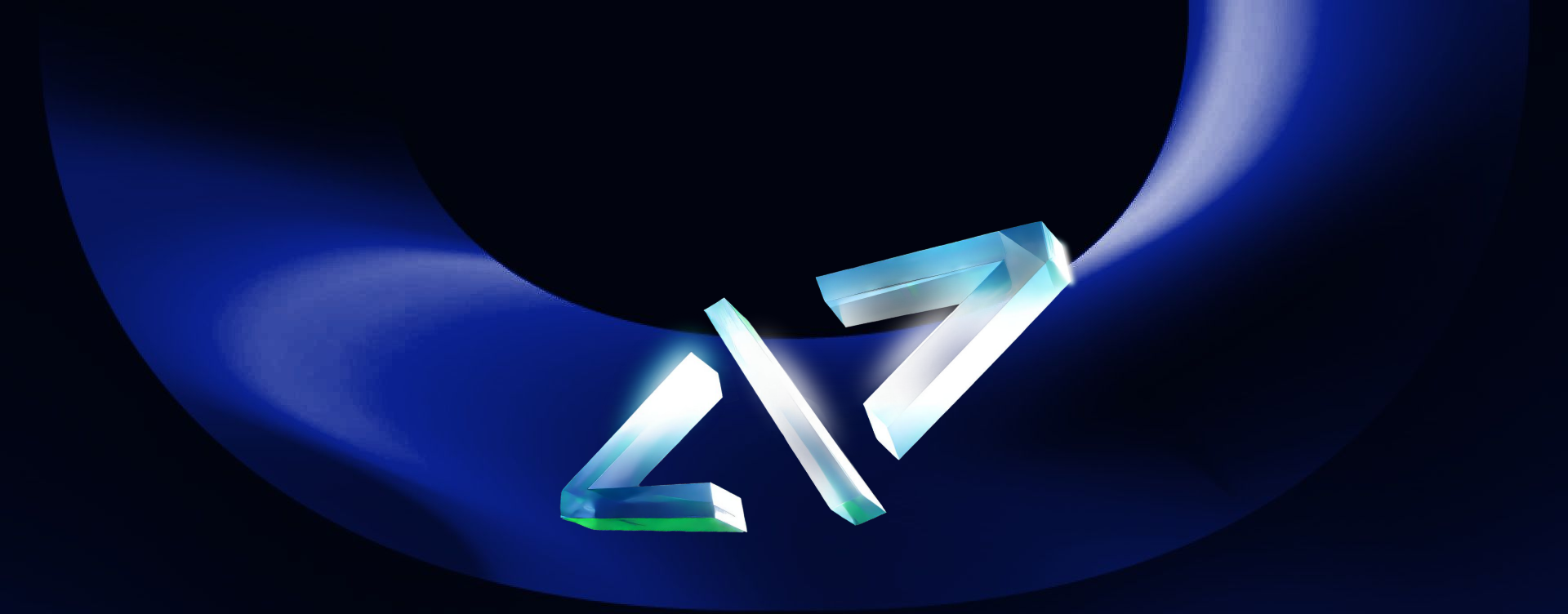
Scalable Vector Graphics

A markup language extended from XML for describing two-dimensional vector graphics

SVG files can be created and edited with any text editor and drawing programs

Export from Figma



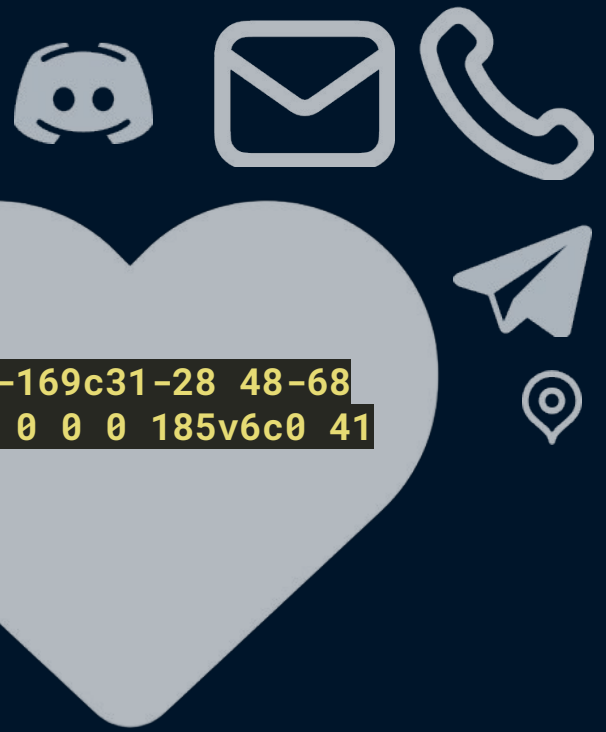


Ways to insert SVG on a page

You have an <SVG>

```
<svg viewBox="0 0 512 512"
xmlns="http://www.w3.org/2000/svg">
    <path d="m48 300 180 169a41 41
0 0 0 56 0l180-169c31-28 48-68
48-109v-6A143 143 0 0 0 268 84l-12
12-12-12A143 143 0 0 0 0 185v6c0 41
17 81 48 109z"/>
</svg>
```

Insert SVG content right into HTML



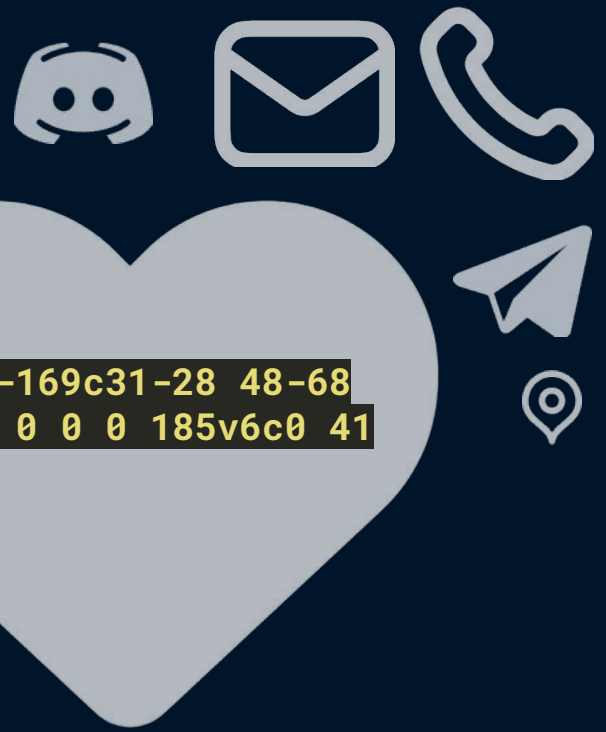
```
<a href="/" class="logo">
    <svg viewBox="0 0 512 512">
        <path d="m48 300 180 169a41 41 0 0 0 56 0l180-169c31-28 48-68
48-109v-6A143 143 0 0 0 268 84l-12 12-12-12A143 143 0 0 0 185v6c0 41
17 81 48 109z"/>
    </svg>
</a>
```

👆don’t use xmlns on svg tag

(`xmlns="http://www.w3.org/2000/svg"`)

[example →]

Insert SVG content right into HTML



```
<a href="/" class="logo">
    <svg viewBox="0 0 512 512" class="logo__icon">
        <path d="m48 300 180 169a41 41 0 0 0 56 0l180-169c31-28 48-68
48-109v-6A143 143 0 0 0 268 84l-12 12-12-12A143 143 0 0 0 185v6c0 41
17 81 48 109z"/>
    </svg>
</a>
```

```
.logo__icon {
    fill: red;
}
```

👆don’t use xmlns on svg tag

(`xmlns="http://www.w3.org/2000/svg"`)

[example →]

Repeat

<picture>

example →

```
<img src="/icons/lamborghini.svg"
alt="lamborghini" load="lazy">
```

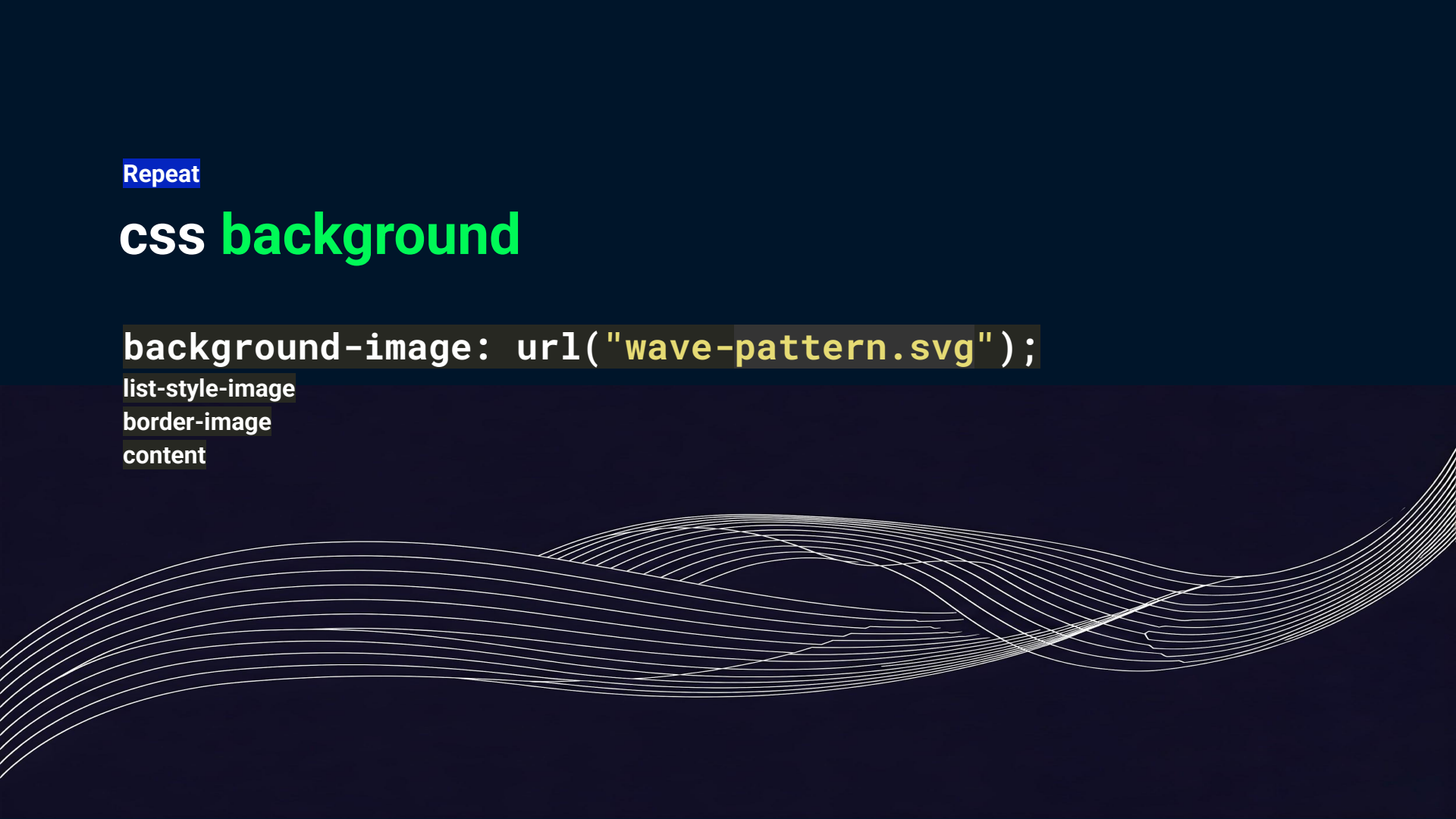
👆 don’t forget to use lazy load if image not in first viewport

Repeat

css background

```
background-image: url("wave-pattern.svg");
```

list-style-image
border-image
content



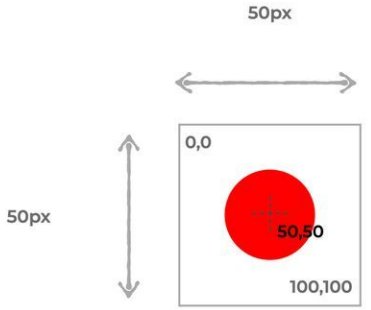
SVG container

viewBox and dimensions

– Defines the aspect ratio
– Responsible for scaling

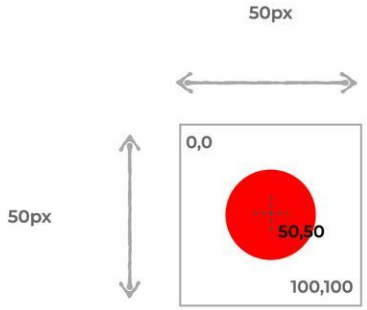
```
viewBox="0 0 512 512"
```

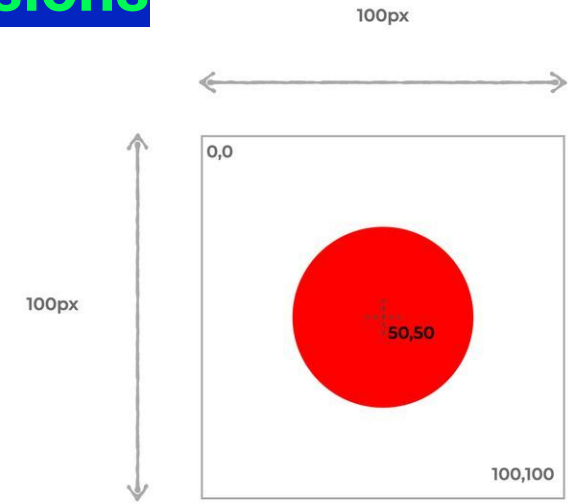
- `x` – Horizontal coordinate
- `y` – Vertical coordinate
- `width`
- `height`

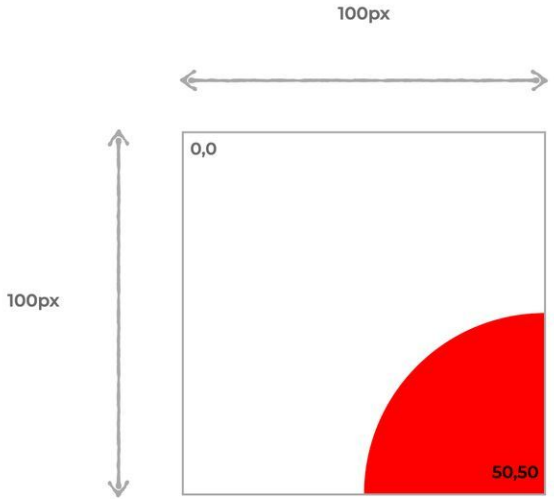



```
<svg
  width="50" height="50"
  viewBox="0 0 100 100"
>
  <circle
    cx="50" cy="50"
    r="25" fill="red"
  />
</svg>
```

viewBox + dimensions








```
<svg
  width="50" height="50"
  viewBox="0 0 100 100"
>
  <circle
    cx="50" cy="50"
    r="25" fill="red"
  />
</svg>
```

```
<svg
  width="100" height="100"
  viewBox="0 0 100 100"
>
  <circle
    cx="50" cy="50"
    r="25" fill="red"
  />
</svg>
```

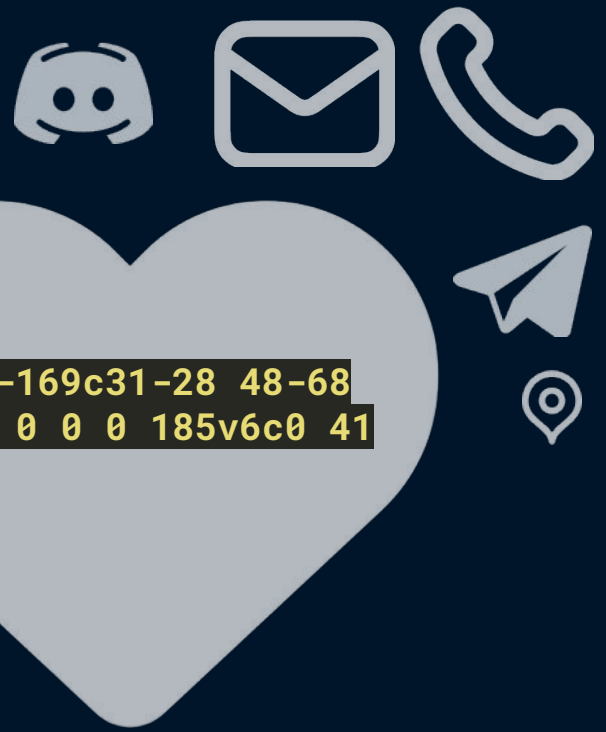
```
<svg
  width="100" height="100"
  viewBox="0 0 50 50"
>
  <circle
    cx="50" cy="50"
    r="25" fill="red"
  />
</svg>
```

Common attributes

- fill – background color
- stroke – border color
- stroke-width - border width

- Clipping, Masking and Compositing properties:
  - 'clip-path'
  - 'clip-rule'
  - 'mask'
  - 'opacity'
- Filter Effects properties:
  - 'enable-background'
  - 'filter'
  - 'flood-color'
  - 'flood-opacity'
  - 'lighting-color'
- Gradient properties:
  - 'stop-color'
  - 'stop-opacity'
- Interactivity properties:
  - 'pointer-events'
- Color and Painting properties:
  - 'color-interpolation'
  - 'color-rendering'
  - 'fill'
  - 'fill-opacity'
  - 'fill-rule'
  - 'image-rendering'
  - 'marker'
  - 'marker-end'
  - 'marker-mid'
  - 'marker-start'
  - 'shape-rendering'
  - 'stroke'
  - 'stroke-dasharray'
  - 'stroke-dashoffset'
  - 'stroke-linecap'
  - 'stroke-linejoin'
  - 'stroke-miterlimit'
  - 'stroke-opacity'
  - 'stroke-width'
  - 'text-rendering'
- Text properties:
  - 'alignment-baseline'
  - 'baseline-shift'
  - 'dominant-baseline'
  - 'glyph-orientation-horizontal'
  - 'glyph-orientation-vertical'
  - 'text-anchor'
  - 'writing-mode'

Insert SVG content right into HTML



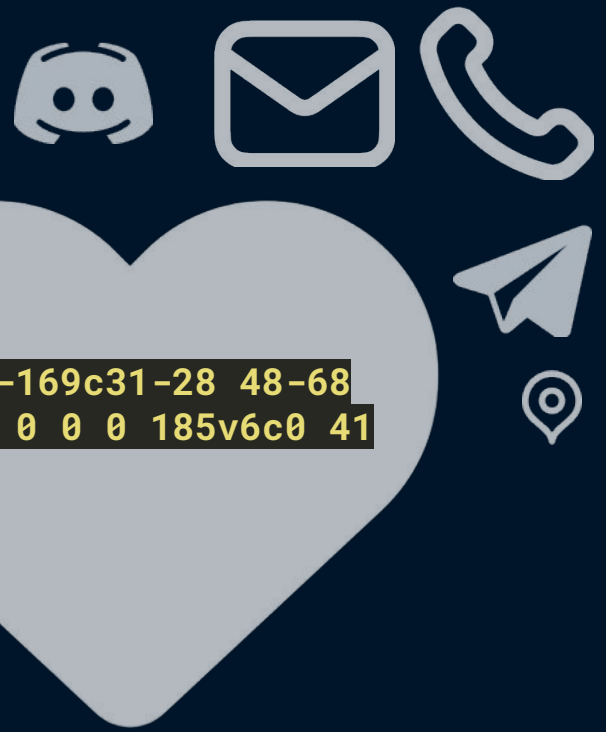
```
<a href="/" class="logo">
    <svg viewBox="0 0 512 512">
        <path d="m48 300 180 169a41 41 0 0 0 56 0l180-169c31-28 48-68
48-109v-6A143 143 0 0 0 268 84l-12 12-12-12A143 143 0 0 0 185v6c0 41
17 81 48 109z"/>
    </svg>
</a>
```

👆don’t use xmlns on svg tag

(`xmlns="http://www.w3.org/2000/svg"`)

[example →]

Insert SVG content right into HTML



```
<a href="/" class="logo">
    <svg viewBox="0 0 512 512" class="logo__icon">
        <path d="m48 300 180 169a41 41 0 0 0 56 0l180-169c31-28 48-68
48-109v-6A143 143 0 0 0 268 84l-12 12-12-12A143 143 0 0 0 185v6c0 41
17 81 48 109z"/>
    </svg>
</a>
```

```
.logo__icon {
    fill: red;
}
```

👆don’t use xmlns on svg tag

(`xmlns="http://www.w3.org/2000/svg"`)

[example →]

Check Binabox design

Break time

SVG tags

Anatomy of SVG

```
<div class="h-screen flex justify-center items-center">
  <svg
    xmlns="http://www.w3.org/2000/svg"
    fill="none"
    viewBox="0 0 24 24"
    stroke-width="1"
    stroke="rebeccapurple"
    class="h-72 w-72"
  >
    <path
      stroke-linecap="round"
      stroke-linejoin="round"
      d="M21 8.25c0-2.485-2.099-4.5-4.688-4.5-1.935 0-3.597
      1.126-4.312 2.733-.715-1.607-2.377-2.733-4.313-2.733C5.
      1 3.75 3 5.765 3 8.25c0 7.22 9 12 9 12s9-4.78 9-12z"
    />
  </svg>
</div>
```

<circle>
<rect>
<path>
<ellipse>
<polygon>
<text>

Grouping container – <g>
Hidden element – <defs>
Reuse an element – <use>

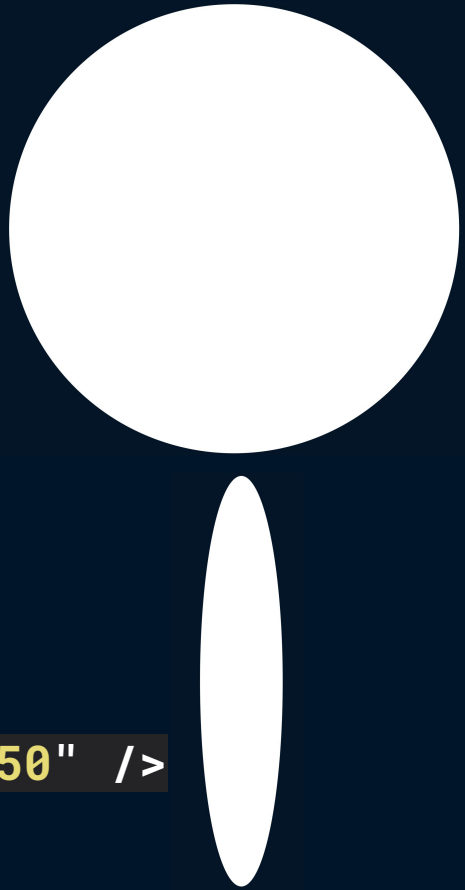
Layering of shapes goes from top to bottom in the code; the last element is most visible.

circle

```
<svg viewBox="0 0 512 512">
  <circle cx="250" cy="250" r="250" />
</svg>
```

ellipse

```
<svg viewBox="0 0 512 512">
  <ellipse cx="250" cy="250" rx="50" ry="250" />
</svg>
```

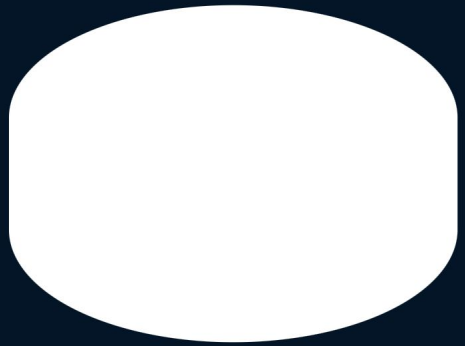


rect

```
<svg viewBox="0 0 512 512">
  <rect x="50" y="50" width="250" height="250" />
</svg>
```

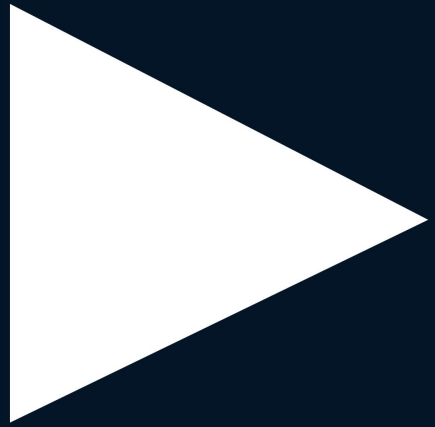
rect with rounded corners

```
<svg viewBox="0 0 512 512">
    <rect x="50" y="50" width="250"
height="150" rx="200" ry="50" />
</svg>
```



polygon for closed shapes

```
<svg viewBox="0 0 512 512">
  <polygon points="0,0 512,256, 0,512" />
</svg>
```



path for custom shapes

```
<svg viewBox="0 0 100 100">
  <path d="m 48 300 180 169
           a 41 41 0 0 0 56 0
           l 180-169c31-28 48-68 48-109
           v-6
           A 143 143 0 0 0 268 84
           l-12 12-12-12
           A 143 143 0 0 0 0 185
           v 6
           c 0 41 17 81 48 109 z" />
</svg>
```

👆 see MDN to get how d attribute works

MoveTo: M, m
LineTo: L, l, H, h, V, v
Cubic Bézier curve: C, c, S, s
Quadratic Bézier curve: Q, q, T, t
Elliptical arc curve: A, a
ClosePath: Z, z

g for grouping

```
<svg viewBox="0 0 100 100">
    <g fill="white" stroke="green" stroke-width="5">
        <circle cx="40" cy="40" r="25" />
        <circle cx="60" cy="60" r="25" />
    </g>
</svg>
```

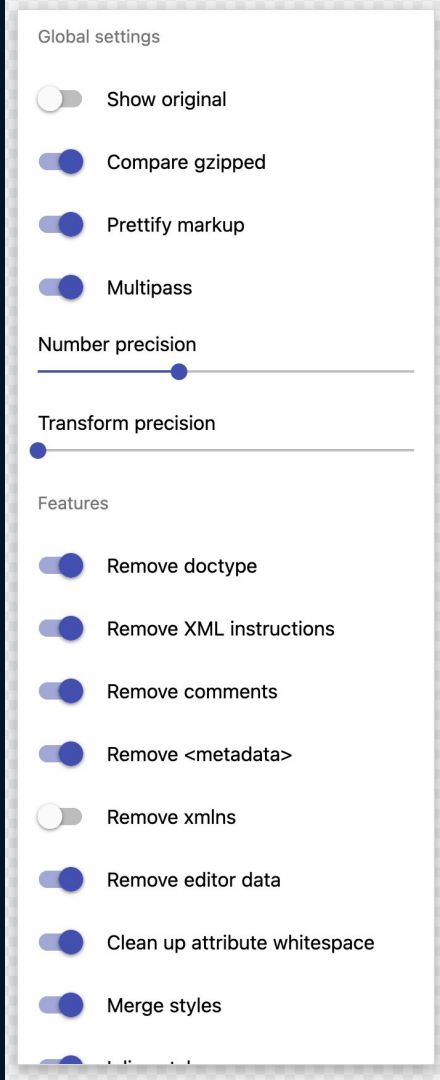
Practice: markup youtube logo SVG

Bonus tip

How to clean up the file

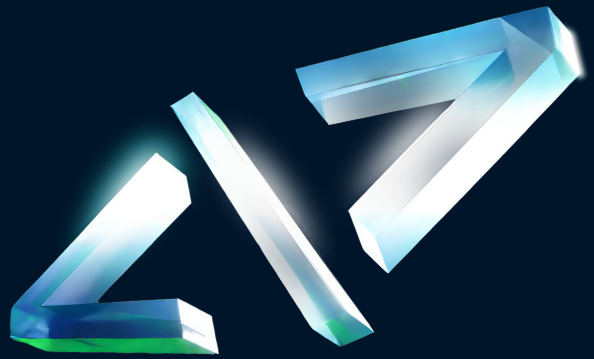
How to remove all waste extra markup after export

jakearchibald.github.io/SVGOMG



Homework

1. Put all sprite vector images into the src/images/sprite folder.
2. Use them on pages from sprite by #id.
3. Implement color changes on hover and focus using only CSS for icons that need interactive effects.



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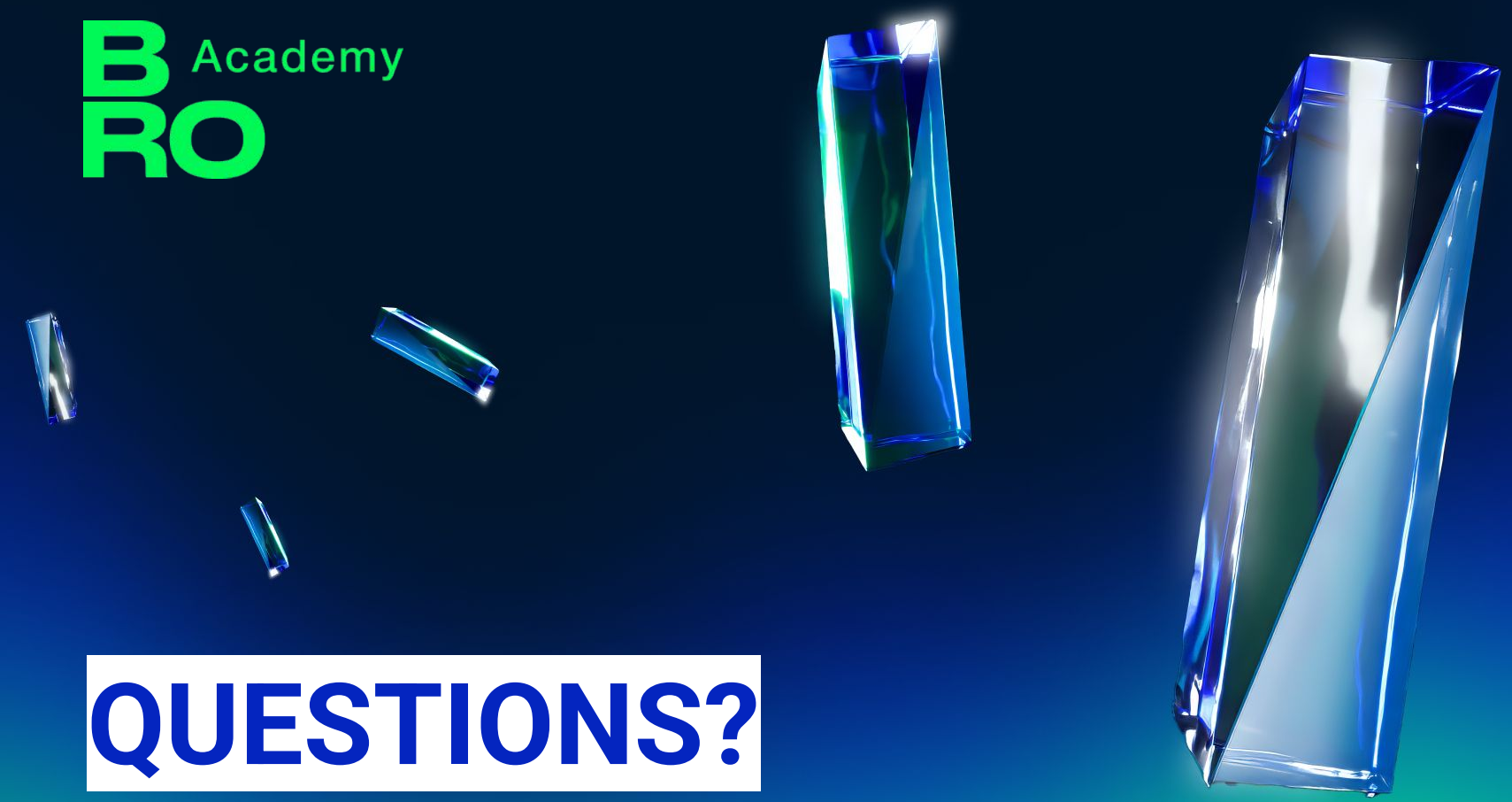
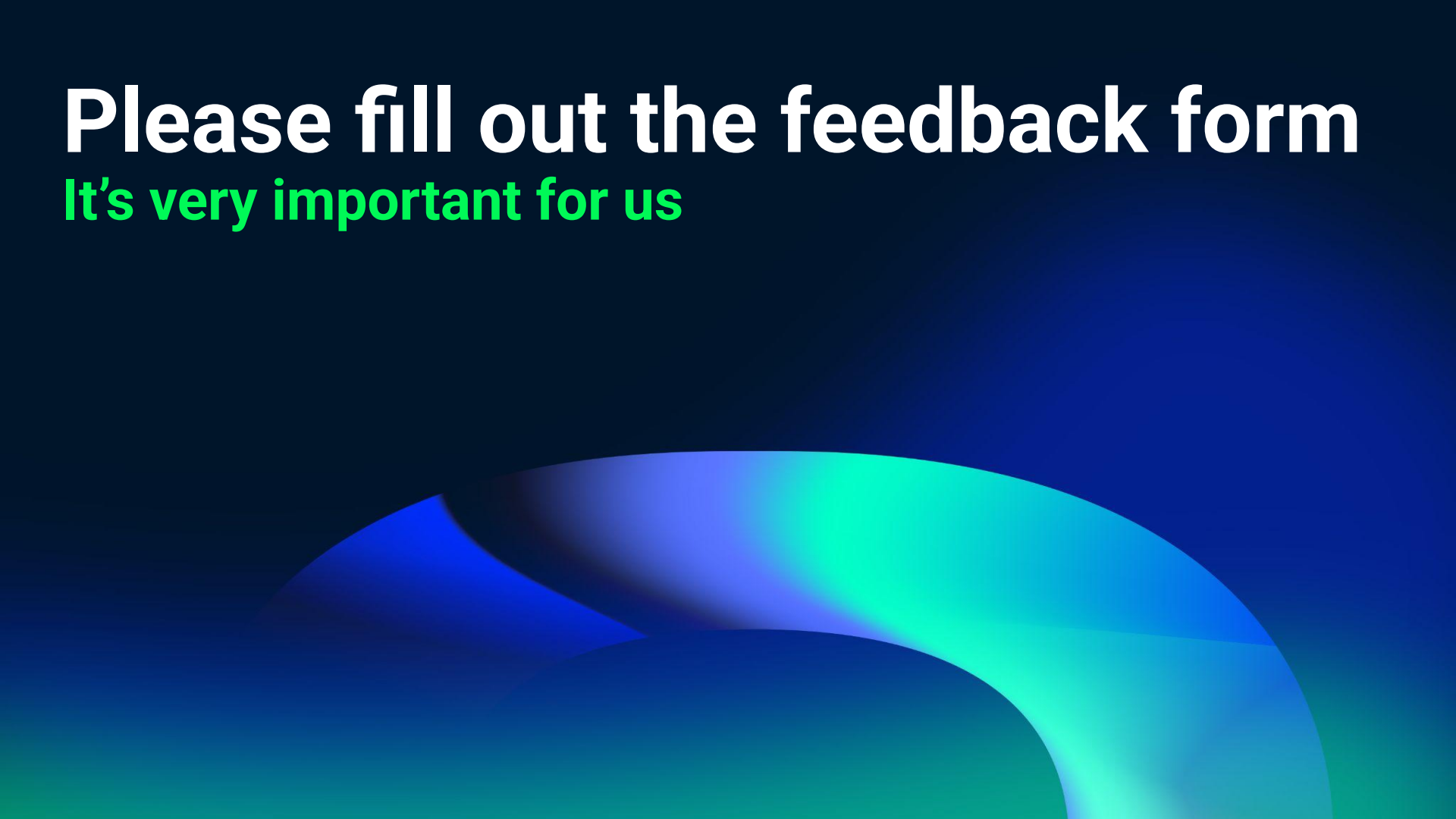


QUESTIONS?

Please fill out the feedback form

It’s very important for us




THANK YOU!
Have a good evening!