

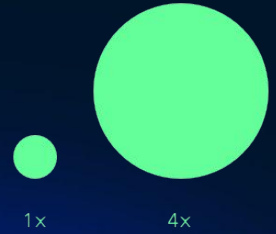
SVG

inside

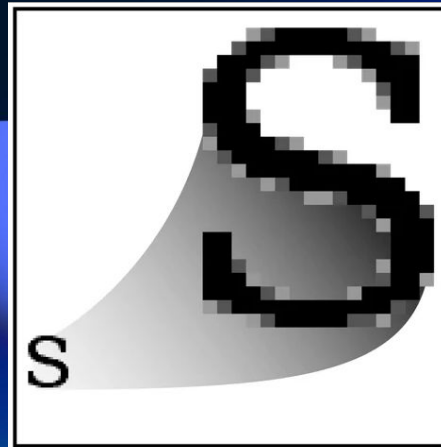


Repeat

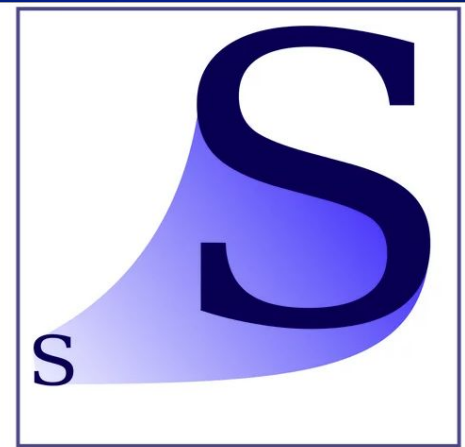
Vector images



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



Raster



Vector

Repeat

Raster vs Vector

[example →](#)

	<code>.jpeg, .png, .avif, .webp</code>	<code><svg></code>
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

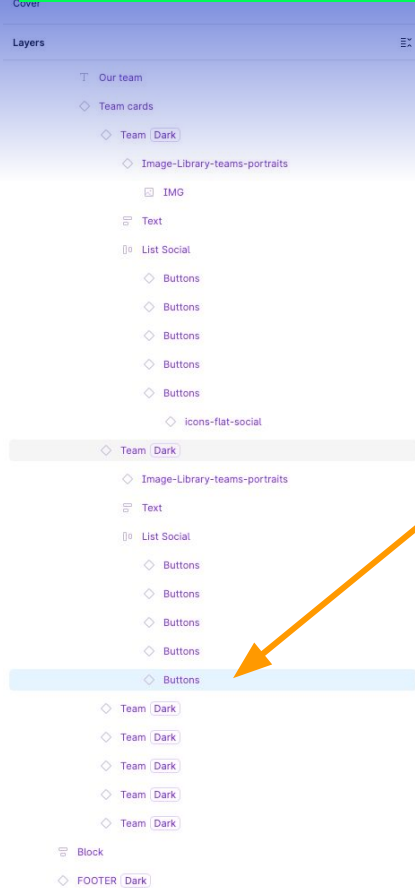
Scalable Vector Graphics

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



choose layer

Jason Smith
Co - Founder

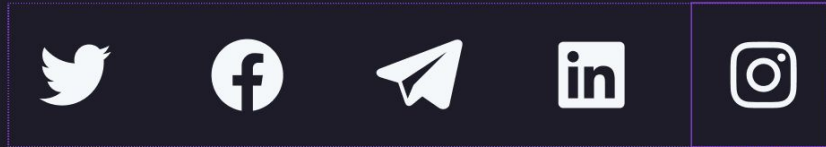
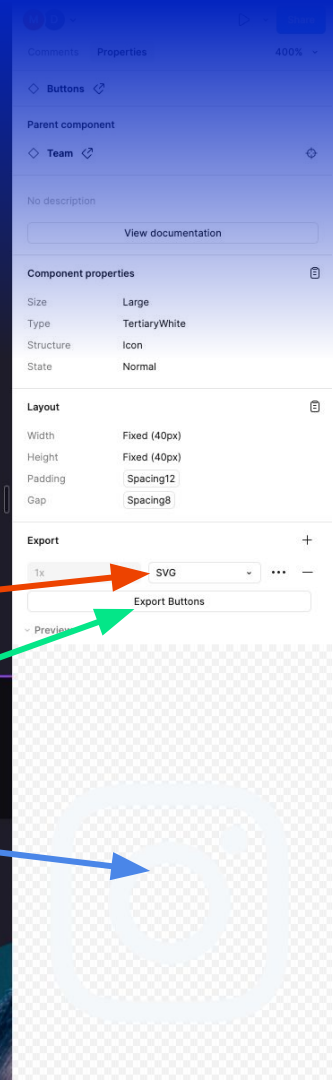
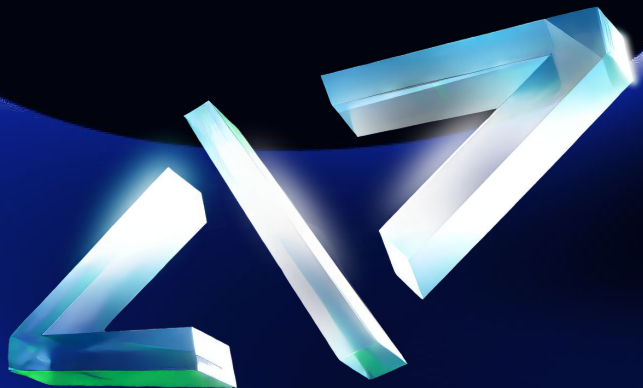


image format

Export button

image preview





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
12-12A143 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 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 →](#)

example →

Repeat

<picture>



```

```

👉 don't forget to use **lazy load** if image not in first viewport

Repeat

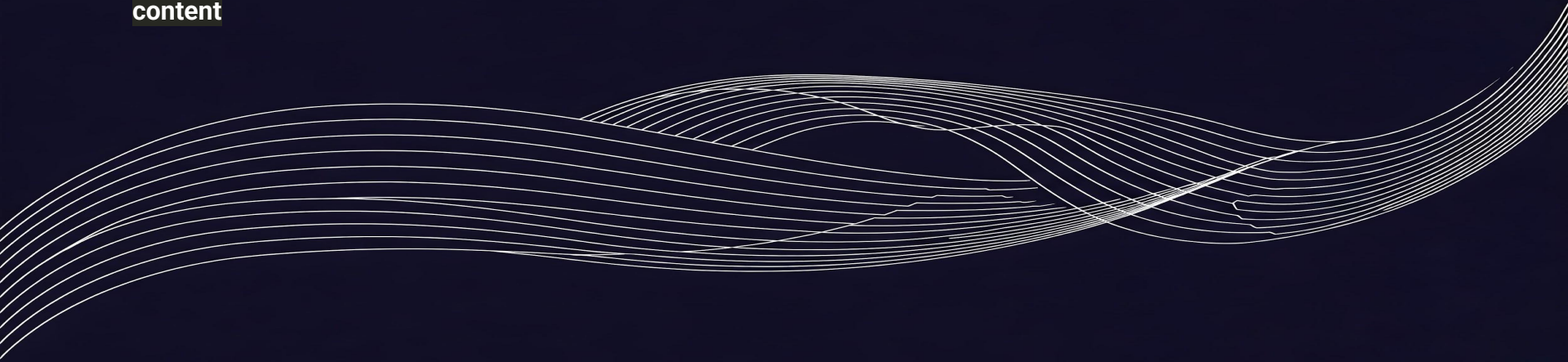
css background

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

list-style-image

border-image

content



SVG container

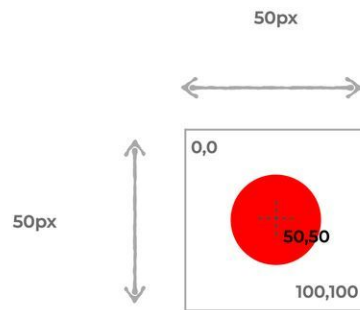


viewBox and dimensions

- Defines the aspect ratio
- Responsible for scaling

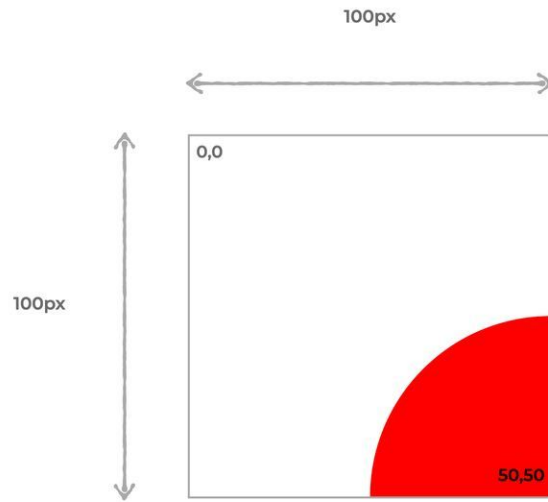
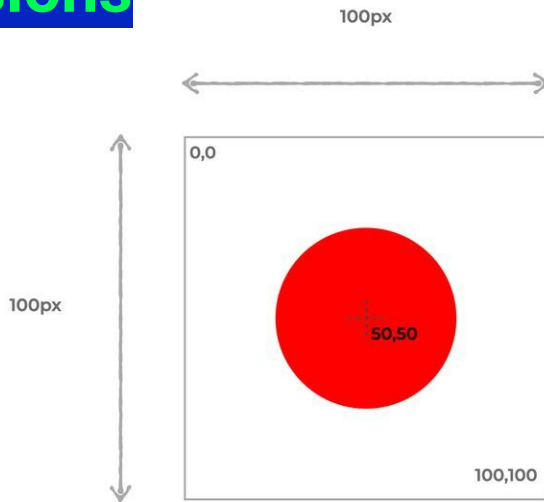
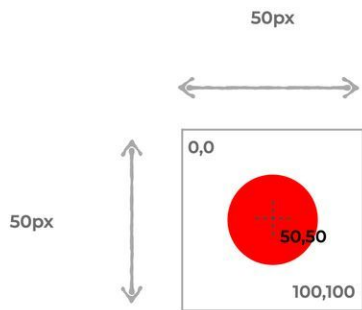
`viewBox="0 0 512 512"`

- **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'](#)
 - ['marker-end'](#)
 - ['marker-mid'](#)
 - ['marker-start'](#)
 - ['shape-rendering'](#)
- Filter Effects properties:
 - ['enable-background'](#)
 - ['filter'](#)
 - ['flood-color'](#)
 - ['flood-opacity'](#)
 - ['lighting-color'](#)
 - ['stroke'](#)
 - ['stroke-dasharray'](#)
 - ['stroke-dashoffset'](#)
 - ['stroke-linecap'](#)
 - ['stroke-linejoin'](#)
 - ['stroke-miterlimit'](#)
- Gradient properties:
 - ['stop-color'](#)
 - ['stop-opacity'](#)
 - ['stroke-opacity'](#)
 - ['stroke-width'](#)
 - ['text-rendering'](#)
- Interactivity properties:
 - ['pointer-events'](#)
- Color and Painting properties:
 - ['color-interpolation'](#)
 - ['color-rendering'](#)
 - ['fill'](#)
 - ['fill-opacity'](#)
 - ['fill-rule'](#)
 - ['image-rendering'](#)
 - ['marker'](#)
 - ['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 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")

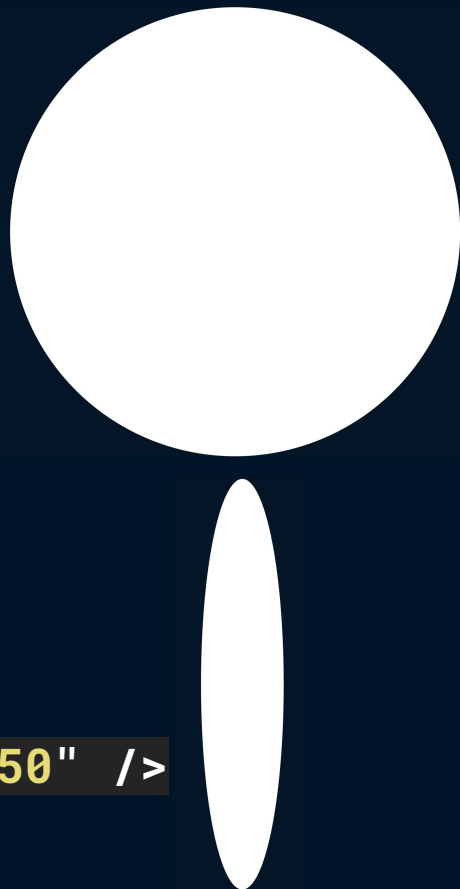
[example →](#)

SVG tags



circle

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



ellipse

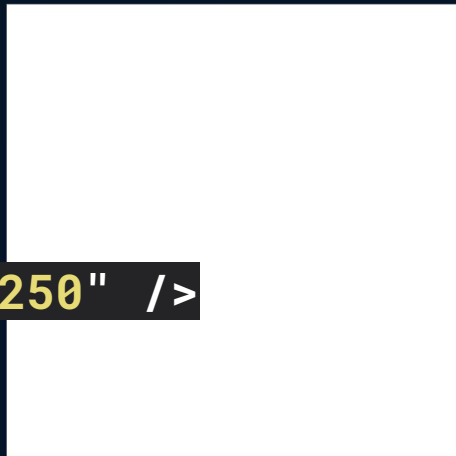
```
<svg viewBox="0 0 512 512">  
  <ellipse cx="250" cy="250" rx="50" ry="250" />  
</svg>
```

rect

```
<svg viewBox="0 0 512 512">
```

```
  <rect x="50" y="50" width="250" height="250" />
```

```
</svg>
```

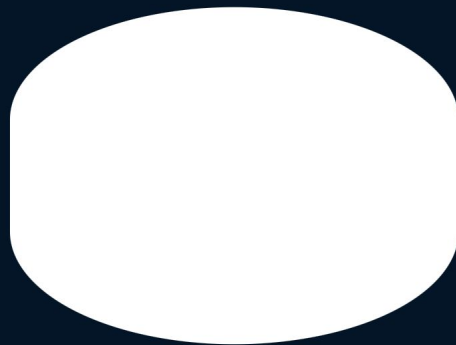


rect with rounded corners

```
<svg viewBox="0 0 512 512">
```

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

```
</svg>
```

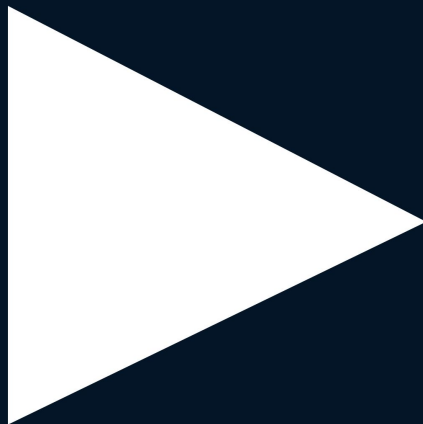


polygon for closed shapes

```
<svg viewBox="0 0 512 512">
```

```
  <polygon points="0 0, 512 264, 0 512, 0 0" />
```

```
</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](https://developer.mozilla.org/en-US/docs/Web/SVG/Tutorial/Paths) 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**

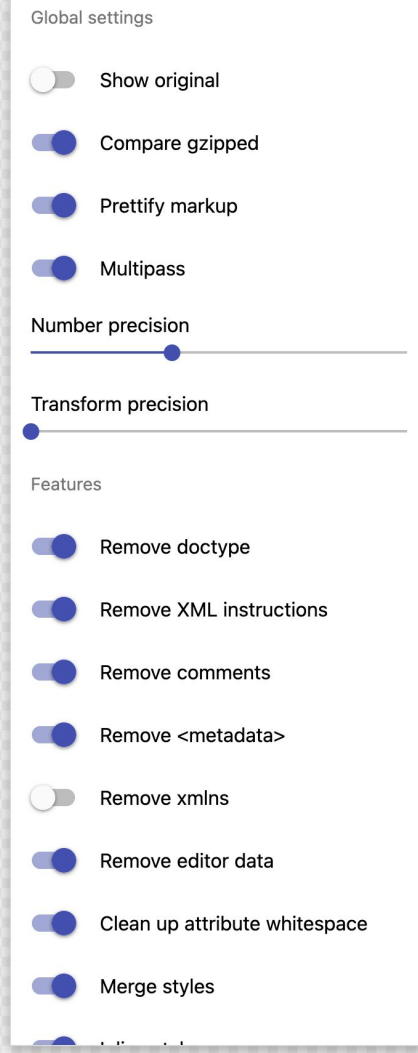
Bonus tip



How to clean up the file

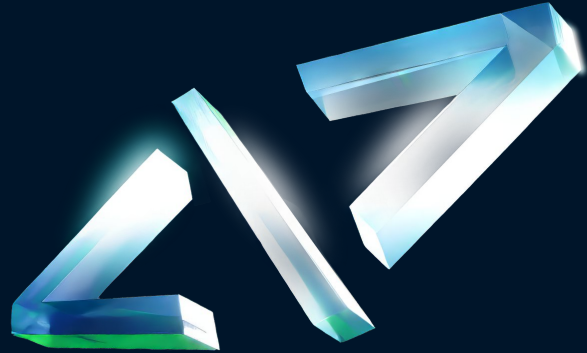
How to remove all waste extra markup after export

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.

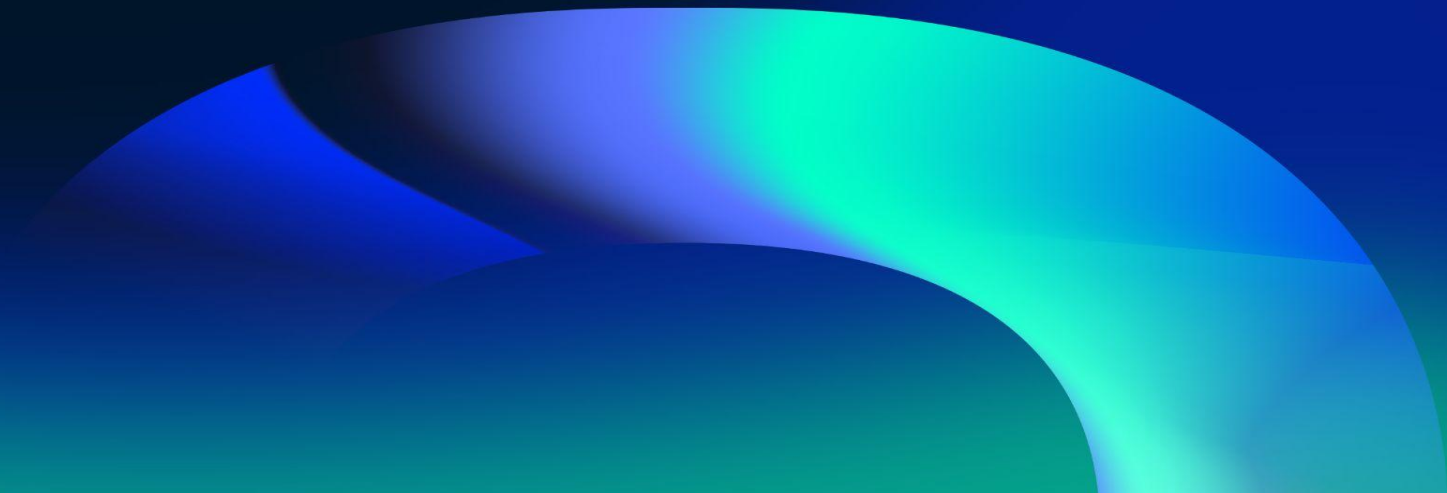


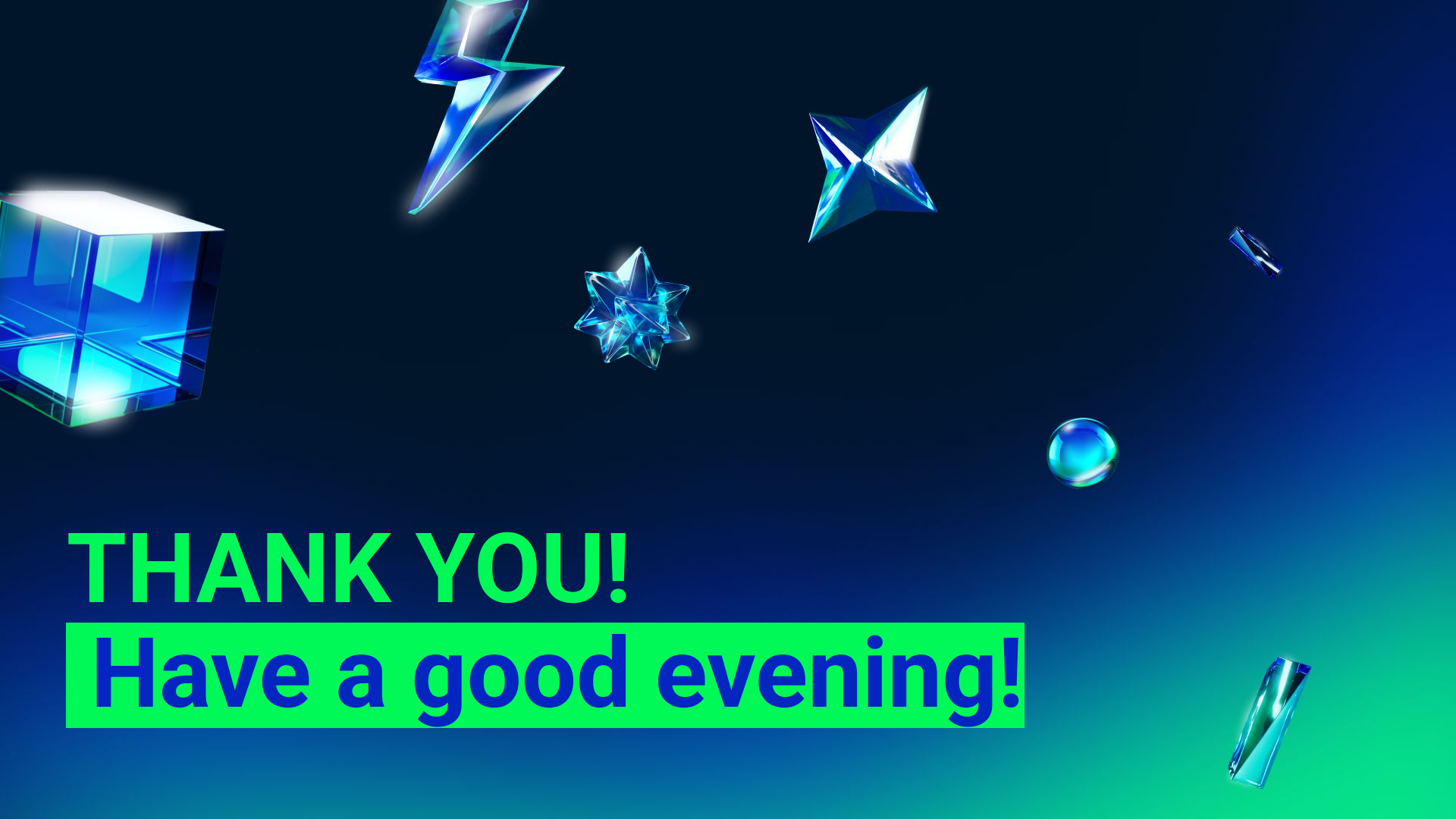
B Academy
RO



QUESTIONS?

Please fill out the feedback form
It's very important for us





THANK YOU!

Have a good evening!