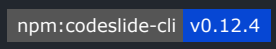
Behind the Scenes of CodeSlide

```
<code id="slide">
```

CodeSlide



Features

- CodeSlide makes a slideshow for code snippets
- Its applications:
  - CodeSlide CLI

Dependencies

- It uses cross-fetch as resource fetcher
- It uses esbuild as module bundler
- It uses gray-matter as YAML Front Matter parser
- It uses Commander.js as CLI framework
- It uses Eta as HTML template engine
- It uses Highlight.js as syntax highlighter
- It uses Marked as Markdown renderer
- It uses Puppeteer as PDF printer
- It uses TypeScript as the main programming language
- It uses Zod as JSON schema validator

Documents

- See Reference for more usage information
- See Change Log for more version information

Creator

- AsherJingkongChen

The abstract process

1. Build a **Renderer**
2. Render the HTML template and CSS with the built renderer
3. Print thet slideshow to the output

Build a Renderer

```
export * from './Format';
export * from './Layout';
export * from './PageSize';
export * from './Renderer';
```

Renderer

```
import fetch from 'cross-fetch';
import hljs from 'highlight.js';
import matter from 'gray-matter';
import { Stylesheets, Template } from './slides';
import { isNode } from 'browser-or-node';
import { marked } from 'marked';
import { pathToFileURL } from 'url';
import { readFileSync } from 'fs';
import { render as renderEta } from 'eta';
import { z } from 'zod';
import { isFormat } from './Format';
import { isLayout } from './Layout';
import { isPageSize } from './PageSize';

export type Renderer = z.infer<typeof _Renderer>;

export namespace Renderer {
  export const parse = async (
    manifest: string
  ): Promise<Renderer> => {
    manifest = manifest.replace(
      /^[\u200B\u200C\u200D\u200E\u200F\uFEFF]/, ''
    );
    const { content, data } = matter(manifest);
    if (! data.codeslide) {
      throw new Error(
        'Cannot find "codeslide" scalar in the Front Matter section'
      );
    }

    const renderer = _Renderer.parse(data.codeslide);
    renderer.slides = await _parse(content)
      .then((html) => html.split('<hr>').map((s) => s.trim()));
    renderer.styles = await Promise.all(
```

```
      renderer.styles.map((path) => _getContent(path))
    );
    return renderer;
  };

  export const render = (
    renderer: Renderer
  ): string => renderEta(
    Template,
    {
      layout: renderer.layout,
      slides: renderer.slides,
      style: `\
<style>
${
  [
    Stylesheets['github'],
    Stylesheets[renderer.layout],
    ...renderer.styles,
    `\
code {
  font-family: ${renderer.fontFamily};
  font-size: 85%;
}`,
    `\
#slides {
  font-family: system-ui;
  font-size: ${renderer.fontSize};
  font-weight: ${renderer.fontWeight};
  line-height: 1.5;
}`,
  ].join('\n')
}
  </style>`,
    },
    {
      autoTrim: false,
      tags: ['{%', '%}'],
    }
  );
}

export const _Renderer = z.object({
  fontFamily: z
    .string()
    .default('')
    .transform((arg) => `\
${arg ? `${arg}, ` : ''}ui-monospace, SFMono-Regular, \
SF Mono, Menlo, Consolas, Liberation Mono, monospace`
    ),
  fontSize: z
    .string()
    .default('large'),
  fontWeight: z
```

```
    .string()
    .default('normal'),
  format: z
    .string()
    .refine(isFormat)
    .default('html'),
  layout: z
    .string()
    .refine(isLayout)
    .default('horizontal'),
  pageSize: z
    .string()
    .refine(isPageSize)
    .default('A4'),
  slides: z
    .array(z.string())
    .default([]),
  styles: z
    .array(z.string())
    .default([]),
})
.transform((arg) => {
  if (
    arg.layout === 'horizontal' &&
    arg.format === 'pdf'
  ) {
    arg.layout = 'vertical';
  }
  return arg;
});

const _parse = async (manifest: string) => (
  marked.parse(manifest, {
    async: true,
    highlight: (code, language) => (
      hljs.highlight(code, { language }).value
    ),
    walkTokens: async (token: marked.Token) => {
      if (token.type === 'link') {
        const { href, text, raw } = token;
        if (! text.startsWith(':')) {
          return;
        }
        const [prefix, suffix] = <[string, string | undefined]>
          text.split('.');
        if (prefix === ':slide') {
          token = _toHTMLToken(token);
          token.raw = raw;
          token.text = await _getContent(href)
            .then((content) => _parse(content));
        } else if (prefix === ':code') {
          token = _toHTMLToken(token);
          token.raw = raw;
          const code = await _getContent(href).then((content) => (
```

```
            hljs.highlight(content, {
              language: suffix ?? 'plaintext'
            })
          ));
          token.text = `\
<pre><code${
  code.language ? ` class="language-${code.language}"` : ''
}>${
  code.value
}</code></pre>`;
        }
      }
    },
  }
));

const _toHTMLToken = (
  token: marked.Token
): marked.Tokens.HTML => {
  for (const p in token) {
    if (token.hasOwnProperty(p)){
      delete token[p as keyof marked.Token];
    }
  }
  token = token as marked.Token;
  token.type = 'html';
  token = token as marked.Tokens.HTML;
  token.pre = false;
  return token;
};

const _getContent = async (
  path: string | URL,
): Promise<string> => {
  if (typeof path === 'string') {
    path = _parseURL(path);
  }
  if (path.protocol === 'file:') {
    return readFileSync(path).toString();
  } else {
    return fetch(path).then(async (r) => {
      if (r.ok) { return r.text(); }
      throw new Error(await r.text());
    });
  }
};

const _parseURL = (path: string): URL => {
  try {
    return new URL(path);
  } catch (err) {
    if (isNode) {
      return pathToFileURL(path);
    }
```

```
    throw err;
  }
};
```

Build a Renderer

Options

- Export slideshow file as HTML or PDF format

```
export type Format = keyof typeof Format;

export const Format = {
  html: true,
  pdf: true,
} as const;

export const isFormat = (
  raw: string
): raw is Format => raw in Format;
```

- Specify page size for PDF format

```
export type PageSize = keyof typeof PageSize;

export const PageSize = {
  letter: true,
  legal: true,
  tabloid: true,
  ledger: true,
  A0: true,
  A1: true,
  A2: true,
  A3: true,
  A4: true,
  A5: true,
  A6: true,
} as const;

export const isPageSize = (
  raw: string
): raw is PageSize => raw in PageSize;
```

- Present the slideshow in horizontal or vertical layout

```
export type Layout = keyof typeof Layout;
```

```
export const Layout = {
  'horizontal': true,
  'vertical': true,
} as const;

export const isLayout = (
  raw: string
): raw is Layout => raw in Layout;
```

The HTML template

CodeSlide uses Eta to render {% and %} are interpolation symbols

```
<!DOCTYPE HTML>
<html class="hljs">
<head>
  <meta
    name="viewport"
    charset="utf-8"
    content="width=device-width, initial-scale=1, user-scalable=no">
  {%~ it.style %}
</head>
<body class="hljs">
  <div id="slides">
{%_ for (const [index, slide] of it.slides.entries()) { %}
  <div class="slide" id="slide_{%~ index %}">
  {%_ if (index !== 0 && it.layout === 'vertical') { %}
    <hr>
  {%_ } %}
{%~ slide %}
  </div>
{%_ } %}
  </div>
</body>
</html>
```

CSS (Horizontal layout)

```
/*! CodeSlide slides.horizontal.css */
html, body {
  margin: 0;
  -webkit-print-color-adjust: exact;
  print-color-adjust: exact;
  overflow: hidden;
```

```
  overscroll-behavior: none;
  scrollbar-width: none;
}
a {
  color: dodgerblue;
}
body::-webkit-scrollbar {
  display: none;
}
li {
  margin-top: 0.3em;
}
p:empty {
  display: none;
}
pre {
  white-space: pre-wrap;
  word-wrap: break-word;
}
pre > code {
  display: block;
  padding: 1em;
}
.slide {
  min-width: calc(100vw - 4em);
  height: calc(100vh - 2em);
  overflow-y: scroll;
  scroll-snap-align: start;
  scroll-snap-stop: always;
  scrollbar-width: none;
  padding: 1em 2em;
}
#slides {
  display: flex;
  flex-direction: row;
  position: absolute; /* fix height on mobile */
  width: 100vw;
  height: 100vh;
  overflow-x: scroll;
  scroll-behavior: smooth;
  scroll-snap-type: x mandatory;
}
@media only screen and (max-width: 768px) {
  .slide {
    height: calc(100dvh - 2em);
  }
}
.slide::-webkit-scrollbar {
  display: none;
}
@page {
  margin: 0;
  size: auto;
}
```

```
@media print {
  #slides {
    width: auto;
    height: auto;
  }
}
```

CSS (Vertical layout)

```
/*! CodeSlide slides.vertical.css */
html, body {
  margin: 0;
  -webkit-print-color-adjust: exact;
  print-color-adjust: exact;
  overflow: hidden;
  overscroll-behavior: none;
}
a {
  color: dodgerblue;
}
li {
  margin-top: 0.3em;
}
p:empty {
  display: none;
}
pre {
  white-space: pre-wrap;
  word-wrap: break-word;
}
pre > code {
  display: block;
  padding: 1em;
}
.slide {
  padding: 1em 2em;
}
#slides {
  display: flex;
  flex-direction: column;
  position: absolute; /* fix height on mobile */
  width: 100vw;
  height: 100vh;
  overflow-y: scroll;
  scroll-behavior: smooth;
}
@page {
  margin: 0;
  size: auto;
```

```
}
@media print {
  #slides {
    width: auto;
    height: auto;
  }
}
```

Reference the HTML template and CSS as text

```
declare module '*.css' {
  const _: string;
  export default _;
}
declare module '*.html' {
  const _: string;
  export default _;
}
```

```
import GithubDarkDimmed from './github-dark-dimmed.css';
import HorizontalStylesheet from './slides.horizontal.css';
import VerticalStylesheet from './slides.vertical.css';
import Template from './slides.html';

const Stylesheets = {
  horizontal: HorizontalStylesheet,
  vertical: VerticalStylesheet,
  github: GithubDarkDimmed,
};

export { Stylesheets, Template };
```

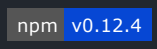
Print the slideshow to the output

The print process is implemented in an application ...

Applications of CodeSlide

1. CodeSlide CLI

CodeSlide CLI



Usage demo

```
<yilan time=11:11:24 dir="cli/examples/rustlings" />
```

See also **Example usages**

Installation

1. Prepare `Node.js` runtime and `NPM` package manager
2. Run `npm install -g codeslide-cli` on the command line

Features

- It is an application of CodeSlide
- It allows you to easily make awesome slideshows for code snippets on command lines
- It is a Node.js Command Line Interface (CLI)

Documents

- See **Reference** for more information

Creator

- AsherJingkongChen

CLI entrypoint

```
import { program } from 'commander';
import { readFileSync } from 'fs';
import { stdin, stdout } from 'process';
import { version, homepage, name } from '../package.json';
import { CLIOptions } from './CLIOptions';
import { print } from './print';

program
  .name(name)
  .description(`\
Example: ${name} -m ./manifest.md -o ./output.html

Make a slideshow (HTML/PDF file) for code snippets
with a manifest (Markdown file).

Go to home page for more information: ${homepage}
` )
  .version(version, '-v, --version', `\
Check the version number.`
  )
  .helpOption('-h, --help', `\
Check all options and their description.`
  )
  .option('-o, --output [local_path]', `\
The "output file path" of slideshow.
By default it writes the output to stdout.`
  )
  .option('-m, --manifest [local_path]', `\
The "manifest file path" of slideshow.
By default it reads manifest from stdin.`
  )
  .action(async (options: CLIOptions) => {
    let { output, manifest } = CLIOptions.parse(options);
    if (manifest) {
      print(output ?? stdout.fd, readFileSync(manifest, 'utf8'));
    } else {
      let data = Buffer.alloc(0);
      stdin
        .on('data', (d) => {
          data = Buffer.concat([data, d]);
        })
        .once('end', () => {
          print(output ?? stdout.fd, data.toString('utf8'));
        });
    }
  })
```

```
  .parseAsync()
  .catch((err) => { throw err; });
```

CLI options validation

1. Manifest path
2. Output path

```
import { z } from 'zod';

export type CLIOptions = z.infer<typeof CLIOptions>;

export const CLIOptions = z.object({
  manifest: z.string().optional(),
  output: z.string().optional(),
})
.strict();
```

Build a Renderer and Print to the output

```
import { PathOrFileDescriptor, writeFileSync } from 'fs';
import { launch } from 'puppeteer';
import { Renderer } from '../../../src';

export const print = async (
  output: PathOrFileDescriptor,
  manifest: string,
): Promise<void> => {
  const renderer = await Renderer.parse(manifest);
  if (renderer.format === 'html') {
    writeFileSync(output, Renderer.render(renderer), 'utf8');
  } else if (renderer.format === 'pdf') {
    const browser = await launch();
    const page = await browser.newPage();
    await page.setContent(Renderer.render(renderer));
    const result = await page.pdf({
      printBackground: true,
      format: renderer.pageSize,
    });
    const closeBrowser = browser.close();
    writeFileSync(output, result, 'base64');
    await closeBrowser;
```

```
  }
};
```

Thanks for your watching!

See other CodeSlide CLI examples here

The installation guide here