

theme systems at scale

how to build highly customizable software

guilherme carreiro /// june 9th







OMSOM

Larb Starter 3-Pack

\$12.00 CAD

Quantity

-

1

+

Add to cart

Buy it now

This is a demonstration store. You can purchase products like this from Omsom.

ลาบ: a fiery minced salad finished with nutty toasted rice powder.

Fire up Thai Larb with everything from chicken to mushrooms in under 20 minutes!

- 🍏

Ingredients

▾
- 🍷

Nutritional info

▾
- 🚚

Shipping

▾

🔗 Share

Inside a meal starter





Free shipping on orders \$35+ 🚚

CRAVE

Shop ▾Meet usRecipesContact

🔍

🛒

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🍏 Ingredients ▾

📖 Nutritional info ▾

🚚 Shipping ▾

🔗 Share

<

>

Inside a meal starter

FIRE IT UP

$\approx 58 \text{ M req / min}$

LIAM FASHIONS

Chequered Red Shirt

€68,00 EUR

Taxes included.

Title

xs

small

medium

large

xl

xxl

Quantity

–

1

+

Add to cart

Buy it now



Classic mens plaid flannel shirt with long sleeves, in chequered style, with two chest pockets.

You may also like



Ocean Blue Shirt

From €37,00 EUR



White Cotton Shirt

From €55,00 EUR



Sale

Example T-Shirt

€24,99 EUR €19,99 EUR



LIAM FASHIONS

Classic Leather Jacket

€50,00 EUR €40,00 EUR

Sale

Taxes included.

★★★★☆

Title

xs

small

medium

large

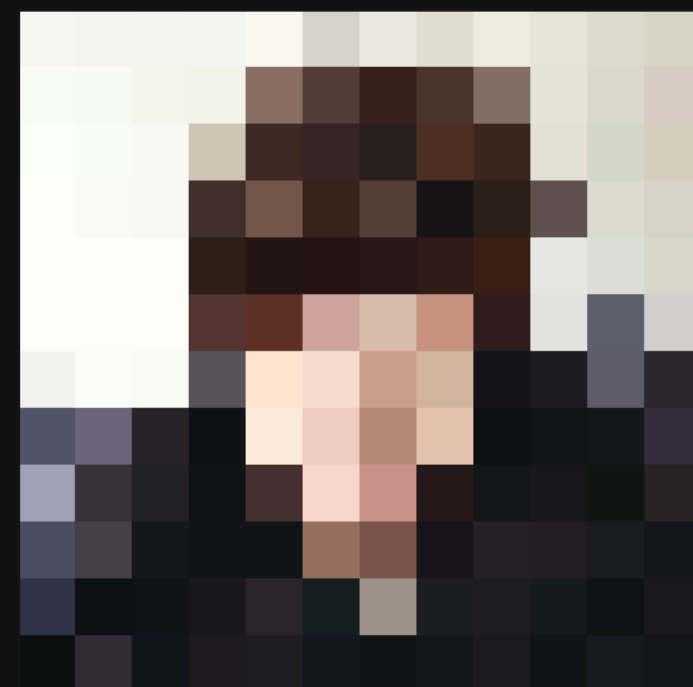
xl

xxl

Add to cart

Buy it now

Womans zipped leather jacket. Adjustable belt for a comfortable fit, complete with shoulder pads and front zip pocket.



guilherme carreiro

@karreiro

staff engineer @ shopify

developer tools



theme



theme system



theme system



merchants



theme system



merchants



buyers



theme system



merchants



theme devs
selling in the
theme store



buyers



theme system



merchants



theme devs
selling in the
theme store



app devs
selling apps with
theme extensions
in the app store



buyers



theme system



merchants



theme devs
working with
merchants



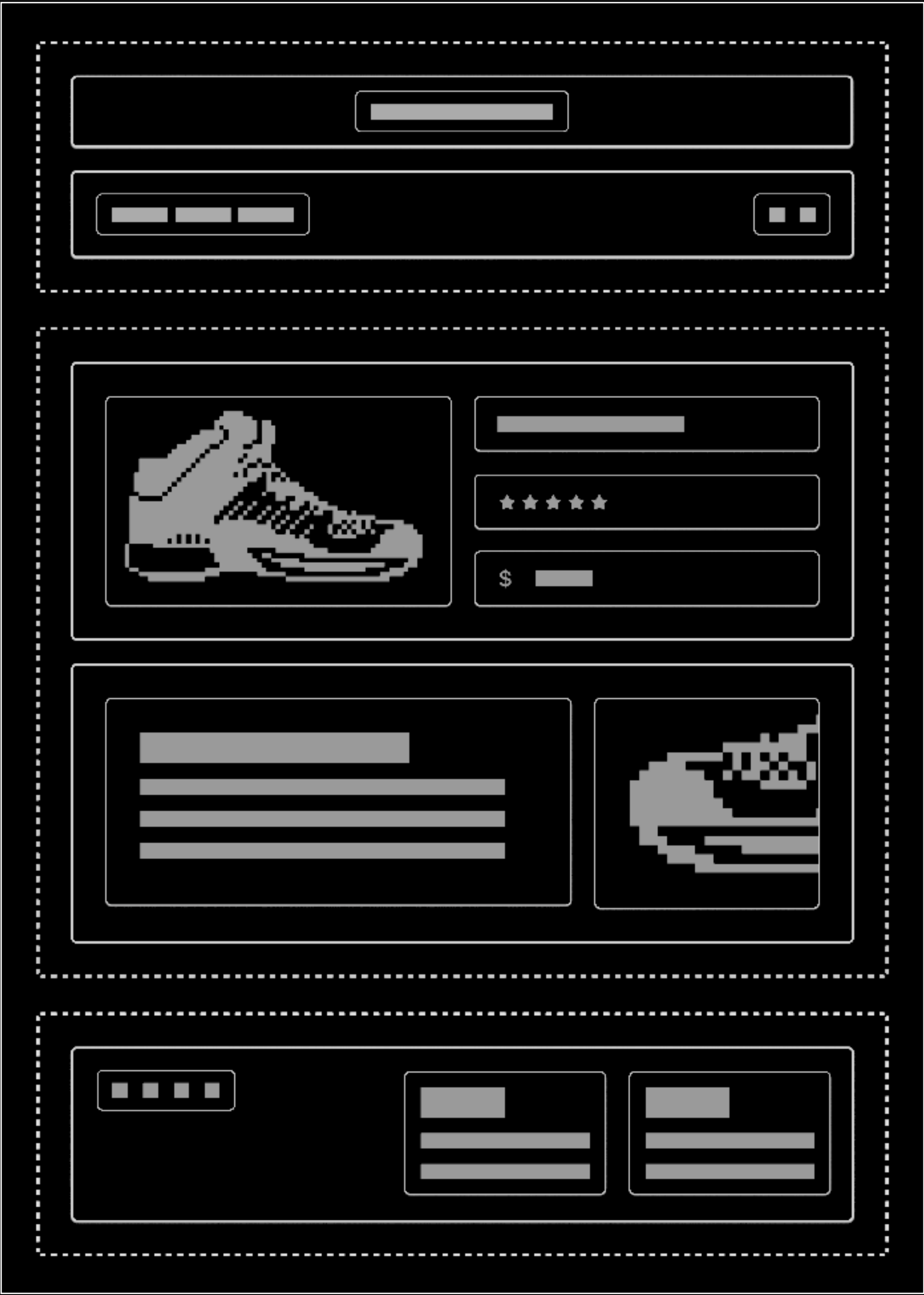
theme devs
selling in the
theme store



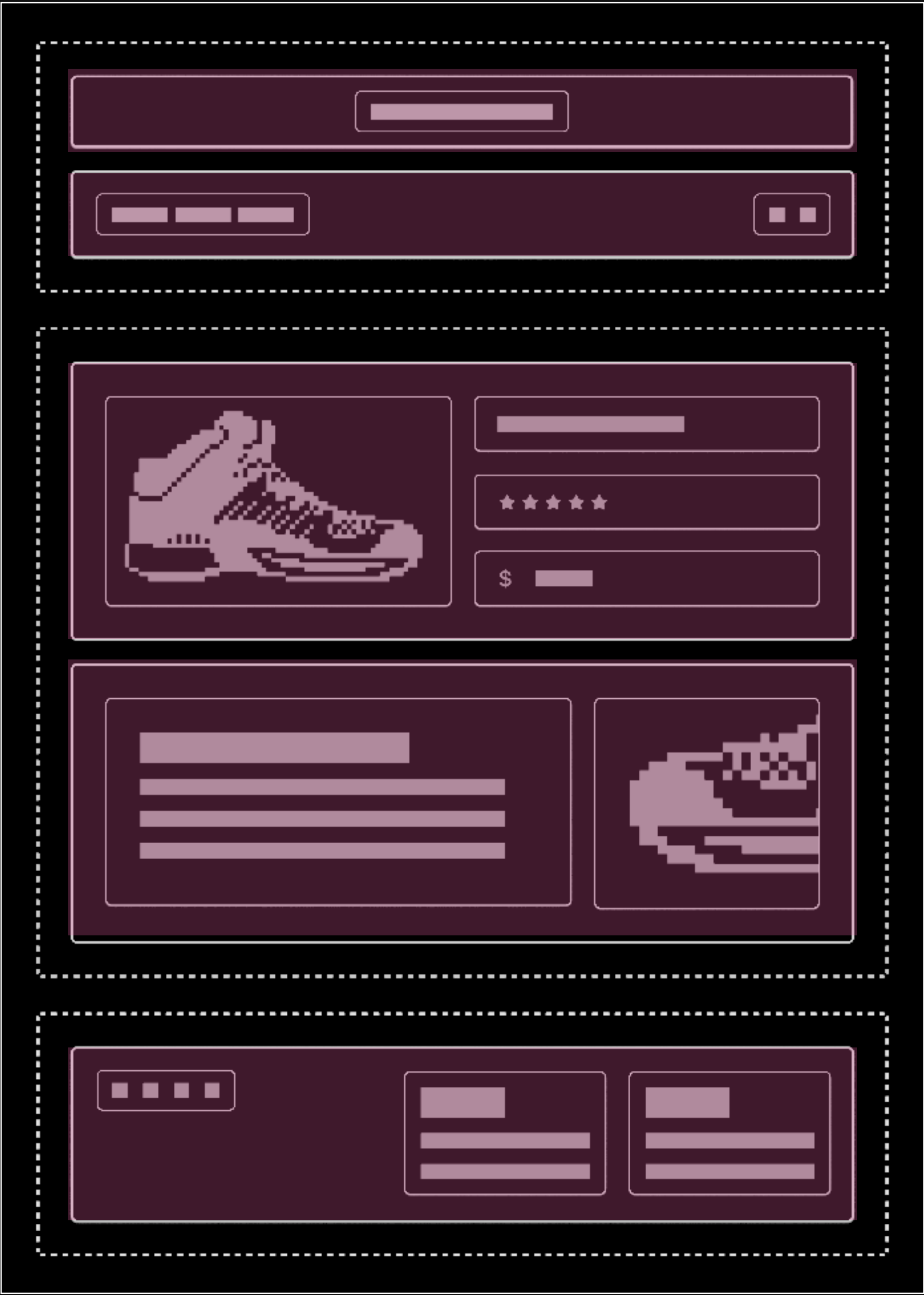
app devs
selling apps with
theme extensions
in the app store

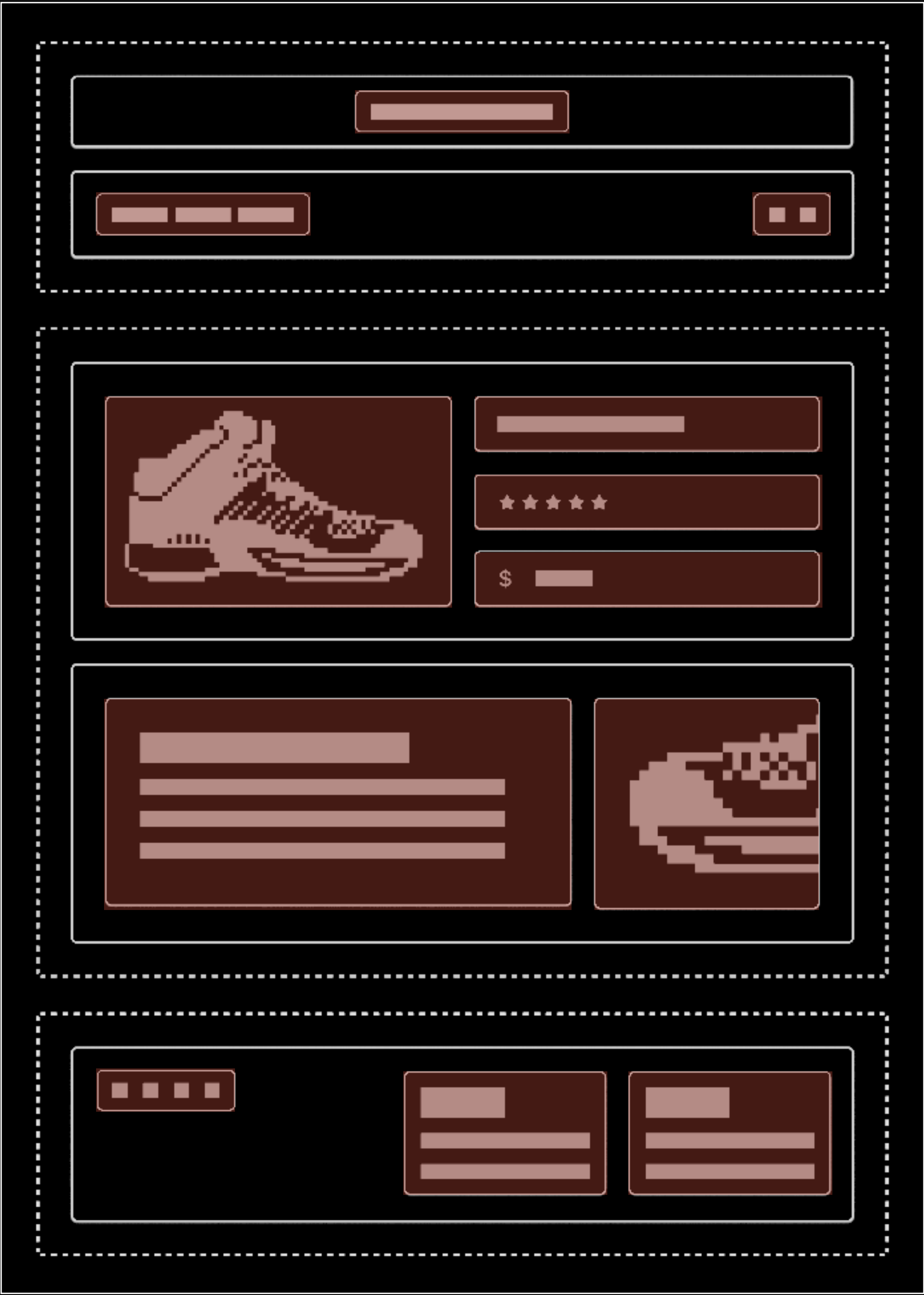


buyers









*developers must be able to build themes that are
customizable by merchants*

liquid & why to another dsl

erb templates

```
vim theme.erb
5 <% Product.all.each do |product| %>
4   <h2><%= product.title %></h2>
3   <ul>
2     <% product.variants.each do |variant| %>
1       <li>
6         <%= variant.sku %> - <%= variant.price %>
1       </li>
2     <% end %>
3   </ul>
4 <% end %>
```

erb templates

```
vim theme.erb
5 <% Product.all.each do |product| %>
4   <h2><%= product.title %></h2>
3   <ul>
2     <% product.variants.each do |variant| %> ←
1       <li>
6         <%= variant.sku %> - <%= variant.price %>
1       </li>
2     <% end %>
3   </ul>
4 <% end %>
```


erb templates

```
vim theme.erb
1 <% if user.admin? %>
2   |   <%= File.delete('/etc/passwd') %>
1 <% end %>
```

safety and boundaries

templates can:

- have conditions
- perform iterations
- print values
- transform data

templates can't:

- execute arbitrary code
- modify persistent state
- interact with the database
- access system resources

```
vim example.rb
16 require 'liquid'
15
14 template = Liquid::Template.parse('
13   {% if product %}
12     Product: {{ product.title }}
11     Price: {{ product.price | money }}
10   {% endif %}
9   ')
8
7 output = template.render({
6   'product' => {
5     "title" => "Portable Speaker",
4     "price" => 1999
3   }
2 })
1
17 puts output
```

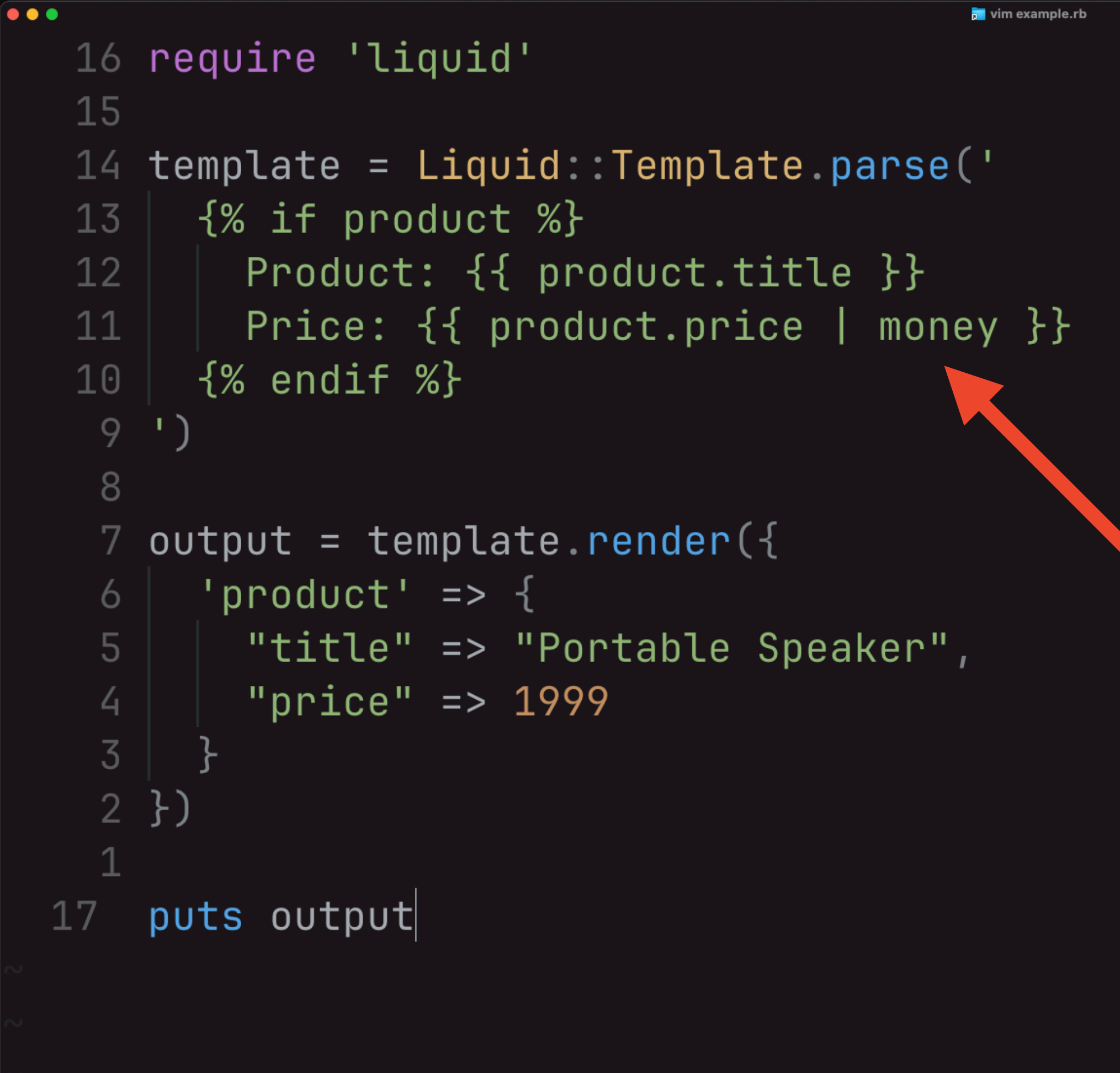

safety and boundaries

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- interact with the database
- access system resources



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```

safety and boundaries

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```
vim example.rb
16 require 'liquid'
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13   {% if product %}
12     Product: {{ product.title }}
11     Price: {{ product.price | money }}
10   {% endif %}
9   ')
8
7 output = template.render({
6   'product' => {
5     "title" => "Portable Speaker",
4     "price" => 1999
3   }
2 })
1
17 puts output
```

```
12 <!DOCTYPE html>
11 <html lang="en">
10 <head>
  9   <meta charset="UTF-8">
  8   <title>{{ collection.title }}</title>
  7 </head>
  6 <body>
  5   <h1>{{ collection.title }}</h1>
  4   <ul>
  3     {% for product in collection.products %}
  2       {% if product.available %}
  1         <li>
13         <strong>{{ product.title }}</strong><br>
  1         {{ product.price | money }}
  2       </li>
  3     {% endif %}
  4   {% endfor %}
  5 </ul>
  6 </body>
  7 </html>
```

theme.liquid [+]

utf-8 65% 13,35

-- INSERT --

liquid drops

```
17 require 'liquid'
16 require_relative 'product'
15
14 template = Liquid::Template.parse('
13   {% if product %}
12   |   Product: {{ product.title }}
11   |   Price: {{ product.price | money }}
10   {% endif %}
9   ')
8
7 output = template.render({
6   'product' => {
5     "title" => "Portable Speaker",
4     "price" => 1999
3   }
2 })
1
18 puts output
```

2
2
2

example.rb

utf-8 99% 18,12

-- INSERT --


```
17 require 'liquid'
16 require_relative 'product'
15
14 template = Liquid::Template.parse('
13   {% if product %}
12   |   Product: {{ product.title }}
11   |   Price: {{ product.price | money }}
10   {% endif %}
9   ')
8
7 output = template.render({
6   'product' => {
5     "title" => "Portable Speaker",
4     "price" => 1999
3   }
2 })
1
18 puts output
```



2
2
2

example.rb

utf-8 99% 18,12

-- INSERT --

```
17 require 'liquid'
16 require_relative 'product'
15
14 template = Liquid::Template.parse('
13   {% if product %}
12   |   Product: {{ product.title }}
11   |   Price: {{ product.price | money }}
10   {% endif %}
9   ')
8
7 output = template.render({
6   'product' => {
5   |   "title" => "Portable Speaker",
4   |   "price" => 1999
3   | }
2 })
1
18 puts output
```



2
2
2

example.rb

utf-8 99% 18,12

-- INSERT --

```
12 require 'liquid'
11 require_relative 'product'
10
 9 template = Liquid::Template.parse('
 8   {% if product %}
 7     Product: {{ product.title }}
 6     Price: {{ product.price | money }}
 5   {% endif %}
 4 ')
 3
 2 output = template.render('product' => @product_drop)
 1
13 puts output
```

2
2
2
2
2
2
2
2
2

example.rb

utf-8 99% 13,12

-- INSERT --


```
vim example.rb
12 require 'liquid'
11 require_relative 'product'
10
9 template = Liquid::Template.parse('
8 | {% if product %}
```

```
vim example.rb
8
7 class ProductDrop < Liquid::Drop
6   def initialize(product)
5     @product = product
4     @cache = {}
3   end
2
1   def title
13 | @cache[:title] ||= @product.title
1   end
2
3   def price
4 | @cache[:price] ||= @product.price
5   end
6 end
7
8 @product_drop = ProductDrop.new(@product)
```

liquid resource limits


```
require 'liquid'
```

```
source = <<~EOS
```

```
  {%- for n in numbers -%}
```

```
    {{ n }},
```

```
  {%- endfor -%}
```

```
EOS
```

resource_1.rb

utf-8 5% 1,1

1 • zsh

0

```
require 'liquid'

source = <<~EOS
  {%- for n in numbers -%}
  |  {{ n }},
  {%- endfor -%}
EOS

template = Liquid::Template.parse(source)
template
  .resource_limits
  .render_length_limit = 50

puts template.render({
  | 'numbers' => 1..10
  | })
```

resource_1.rb

utf-8 5% 1,1

```
require 'liquid'
```

```
source = <<~EOS
```

```
  {%- for n in numbers -%}
```

```
    {{ n }},
```

```
  {%- endfor -%}
```

```
EOS
```

```
template = Liquid::Template.parse(source)
```

```
template
```

```
  .resource_limits
```

```
  .render_length_limit = 50
```

```
puts template.render({
```

```
  'numbers' => 1..10
```

```
})
```

```
$ ruby resource_1.rb  
1,2,3,4,5,6,7,8,9,10,
```

resource_1.rb

utf-8 5% 1,1


```
require 'liquid'
```

```
source = <<~EOS
```

```
  {%- for n in numbers -%}
```

```
    {{ n }},
```

```
  {%- endfor -%}
```

```
EOS
```

```
template = Liquid::Template.parse(source)
```

```
template
```

```
  .resource_limits
```

```
  .render_length_limit = 50
```

```
puts template.render({
```

```
  'numbers' => 1..10
```

```
})
```

```
puts '--'
```

```
puts template.render({
```

```
  'numbers' => 1...100
```

```
})
```

```
resource_1.rb
```

```
utf-8 5% 1,1
```

```
$ ruby resource_1.rb  
1,2,3,4,5,6,7,8,9,10,
```

```
require 'liquid'
```

```
source = <<~EOS
```

```
  {%- for n in numbers -%}
```

```
    {{ n }},
```

```
  {%- endfor -%}
```

```
EOS
```

```
template = Liquid::Template.parse(source)
```

```
template
```

```
  .resource_limits
```

```
  .render_length_limit = 50
```

```
puts template.render({
```

```
  'numbers' => 1..10
```

```
})
```

```
puts '--'
```

```
puts template.render({
```

```
  'numbers' => 1...100
```

```
})
```

resource_1.rb

utf-8 5% 1,1

```
$ ruby resource_1.rb
```

```
1,2,3,4,5,6,7,8,9,10,
```

```
--
```

```
Liquid error: Memory limits exceeded
```



```
require 'liquid'
```

```
source = <<~EOS
```

```
  {%- assign a = 1 -%}
```

```
  {%- assign b = 2 -%}
```

```
  {%- assign c = 3 -%}
```

```
  It works!
```

```
EOS
```

```
template = Liquid::Template.parse(source)
```

```
template
```

```
  .resource_limits
```

```
  .assign_score_limit = 3
```

```
puts template.render
```

resource_1.rb

utf-8 5% 1,1

```
require 'liquid'
```

```
source = <<~EOS
```

```
  {%- assign a = 1 -%}
```

```
  {%- assign b = 2 -%}
```

```
  {%- assign c = 3 -%}
```

```
  It works!
```

```
EOS
```

```
template = Liquid::Template.parse(source)
```

```
template
```

```
  .resource_limits
```

```
  .assign_score_limit = 3
```

```
puts template.render
```

```
$ ruby resource_1.rb
```

```
It works!
```

resource_1.rb

utf-8 5% 1,1

```
require 'liquid'
```

```
source = <<~EOS
```

```
  {%- assign a = 1 -%}
```

```
  {%- assign b = 2 -%}
```

```
  {%- assign c = 3 -%}
```

```
  It works!
```

```
EOS
```

```
template = Liquid::Template.parse(source)
```

```
template
```

```
  .resource_limits
```

```
  .assign_score_limit = 3
```

```
puts template.render
```

```
puts '--'
```

```
template
```

```
  .resource_limits
```

```
  .assign_score_limit = 2
```

```
puts template.render
```

```
resource_1.rb
```

```
utf-8  5%  1,1
```

```
$ ruby resource_1.rb
```

```
It works!
```

```
--
```

```
Liquid error: Memory limits exceeded
```


liquid backward compatibility


```
require 'liquid'
```

```
source = '{{ index == "template" }}'
```

```
p Liquid::Template  
  .parse(source, error_mode: :lax)  
  .render('index' => 'hello')
```

```
require 'liquid'
```

```
source = '{{ index == "template" }}'
```

```
p Liquid::Template
```

```
  .parse(source, error_mode: :lax)
```

```
  .render('index' => 'hello')
```

```
$ ruby mode.rb  
"hello"
```

```
require 'liquid'
```

```
source = '{{ index == "template" }}'
```

```
p Liquid::Template  
  .parse(source, error_mode: :lax)  
  .render('index' => 'hello')
```

```
puts '--'
```

```
p Liquid::Template  
  .parse(source, error_mode: :strict)  
  .render('index' => 'hello')
```

```
$ ruby mode.rb  
"hello"
```



```
require 'liquid'

source = '{{ index == "template" }}'

p Liquid::Template
  .parse(source, error_mode: :lax)
  .render('index' => 'hello')

puts '--'

p Liquid::Template
  .parse(source, error_mode: :strict)
  .render('index' => 'hello')
```

```
$ ruby mode.rb
"hello"
--
/Users/karreiro/.rbenv/versions/3.1.4/
lib/ruby/gems/3.1.0/gems/liquid-5.8.1/
lib/liquid/parser.rb:18:in `consume':
Liquid syntax error: Expected end_of_s
tring but found comparison in "{{ inde
x == "template" }}" (Liquid::SyntaxErr
or)

    from /Users/karreiro/.rbenv/ve
rsions/3.1.4/lib/ruby/gems/3.1.0/gems/
liquid-5.8.1/lib/liquid/variable.rb:74
:in `strict_parse'

    from /Users/karreiro/.rbenv/ve
rsions/3.1.4/lib/ruby/gems/3.1.0/gems/
liquid-5.8.1/lib/liquid/parser_switchi
ng.rb:34:in `strict_parse_with_error_c
ontext'

    from /Users/karreiro/.rbenv/ve
rsions/3.1.4/lib/ruby/gems/3.1.0/gems/
liquid-5.8.1/lib/liquid/parser_switch$
```

```
require 'liquid'
```

```
source = '{{ index == "template" }}'
```

```
p Liquid::Template
```

```
  .parse(source, error_mode: :lax)
```

```
  .render('index' => 'hello')
```

```
$ ruby mode.rb  
"hello"
```



```
require 'liquid'

source = '{{ index == "template" }}'

p Liquid::Template
  .parse(source, error_mode: :lax)
  .render('index' => 'hello')

puts '--'

p Liquid::Template
  .parse(source, error_mode: :strict)
  .render('index' => 'hello')
```

```
$ ruby mode.rb
"hello"
--
/Users/karreiro/.rbenv/versions/3.1.4/
lib/ruby/gems/3.1.0/gems/liquid-5.8.1/
lib/liquid/parser.rb:18:in `consume':
Liquid syntax error: Expected end_of_s
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or)

    from /Users/karreiro/.rbenv/ve
rsions/3.1.4/lib/ruby/gems/3.1.0/gems/
liquid-5.8.1/lib/liquid/variable.rb:74
:in `strict_parse'

    from /Users/karreiro/.rbenv/ve
rsions/3.1.4/lib/ruby/gems/3.1.0/gems/
liquid-5.8.1/lib/liquid/parser_switchi
ng.rb:34:in `strict_parse_with_error_c
ontext'

    from /Users/karreiro/.rbenv/ve
rsions/3.1.4/lib/ruby/gems/3.1.0/gems/
liquid-5.8.1/lib/liquid/parser_switch$
```


it must be customizable

Free shipping on orders \$35+ 🚚

CRAVE

Shop ▾Meet usRecipesContact

🔍

🛒





omsom

Larb Starter 3-Pack

\$12.00 CAD

Quantity

-1+

Add to cart

Buy it now

This is a demonstration store. You can purchase products like this from [Omsom](#).

ลาบ: a fiery minced salad finished with nutty toasted rice powder.

Fire up Thai Larb with everything from chicken to mushrooms in under 20 minutes!

🍏 Ingredients ▾

📖 Nutritional info ▾

🚚 Shipping ▾

🔗 Share

Inside a meal starter

Hard-to-get ingredients, but we got them. No substitutes, no swaps, just proud, loud Asian flavors without

FIRE IT UP



```

8 <!DOCTYPE html>
7 <html lang="en">
6
5 <head>
4   <meta charset="UTF-8">
3   <meta name="viewport" content="width=device-width, initial-scale=1.0">
2   <title>My store</title>
1 </head>
9
1 <body>
2   <div class="color-{{ color_scheme }} gradient">
3     <div
4       class="collapsible-content collapsible-{{ layout }}-layout isolate{% if layout == 'section' %} page-width{% elsif layout == 'none' %} cont
5     <div
6       class="collapsible-content__wrapper section-{{ section.id }}-padding{% if layout == 'section' %} content-container color-{{ container_co
7     <div
8       class="{% if image == blank %}collapsible-content-wrapper-narrow{% else %}page-width{% endif %}">
9       <div
10        class="collapsible-content__header{% if settings.animations_reveal_on_scroll %} scroll-trigger animate--slide-in{% endif %}"
11        style="text-align: {{ heading_alignment }};">
12        {%- if caption != blank -%}
13        <p class="caption-with-letter-spacing">
14          {{ caption | escape }}
15        </p>
16        {% endif %}
17        {%- if heading != blank -%}
18        <h2 class="collapsible-content__heading inline-richtext {{ heading_size }}">
19          {{ heading }}
20        </h2>
21        {%- else -%}
22        <h2 class="visually-hidden">{{ 'accessibility.collapsible_content_title' | t }}</h2>
23        {% endif %}
24      </div>
25      <div
26        class="grid grid--1-col grid--2-col-tablet collapsible-content__grid{% if desktop_layout == 'image_second' %} collapsible-content__g
27        {%- if image != blank -%}
28        <div class="grid__item collapsible-content__grid-item">
29          <div
30            class="collapsible-content__media collapsible-content__media--{{ image_ratio }} media global-media-settings gradient"
31            {% if image_ratio=='adapt' %}

```


Free shipping on orders \$35+ 🚚

CRAVE

Shop ▾Meet usRecipesContact

🔍

🛒

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🍷

🔗 Share

🍷

Inside a meal starter

Hard-to-get ingredients, but we got them. No substitutes, no swaps, just proud, loud Asian flavors without

FIRE IT UP

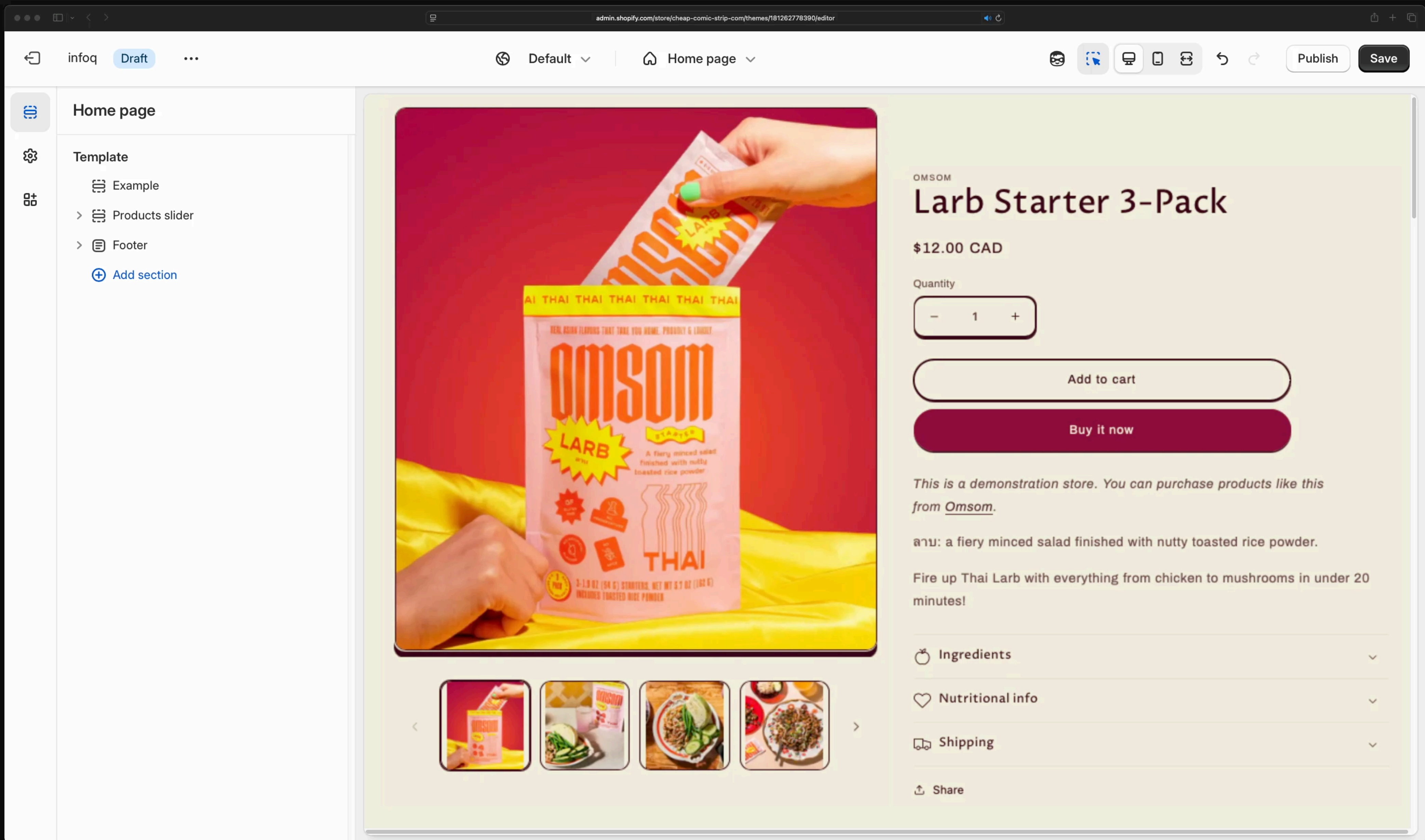
```
8 <div>
7   <div class="image image--{{ section.settings.image_position }}">
6     {% render 'image' %}
5   </div>
4   <div class="description">
3     {% render 'description' %}
2   </div>
1 </div>
9
1 {% schema %}
2   {
3     "name": "Example",
4     "settings": [
5       {
6         "id": "image_position",
7         "label": "Image position",
8         "type": "select",
9         "options": [
10          { "value": "left", "label": "Left" },
11          { "value": "right", "label": "Right" }
12        ]
13      }
14    ],
15    "presets": [{ "name": "Example" }]
16  }
17 {% endschema %}
```



```
8 <div>
7   <div class="image image--{{ section.settings.image_position }}">
6     {% render 'image' %}
5   </div>
4   <div class="description">
3     {% render 'description' %}
2   </div>
1 </div>
9
1 {% schema %}
2   {
3     "name": "Example",
4     "settings": [
5       {
6         "id": "image_position",
7         "label": "Image position",
8         "type": "select",
9         "options": [
10        { "value": "left", "label": "Left" },
11        { "value": "right", "label": "Right" }
12      ]
13    }
14  ],
15  "presets": [{ "name": "Example" }]
16 }
17 {% endschema %}
```



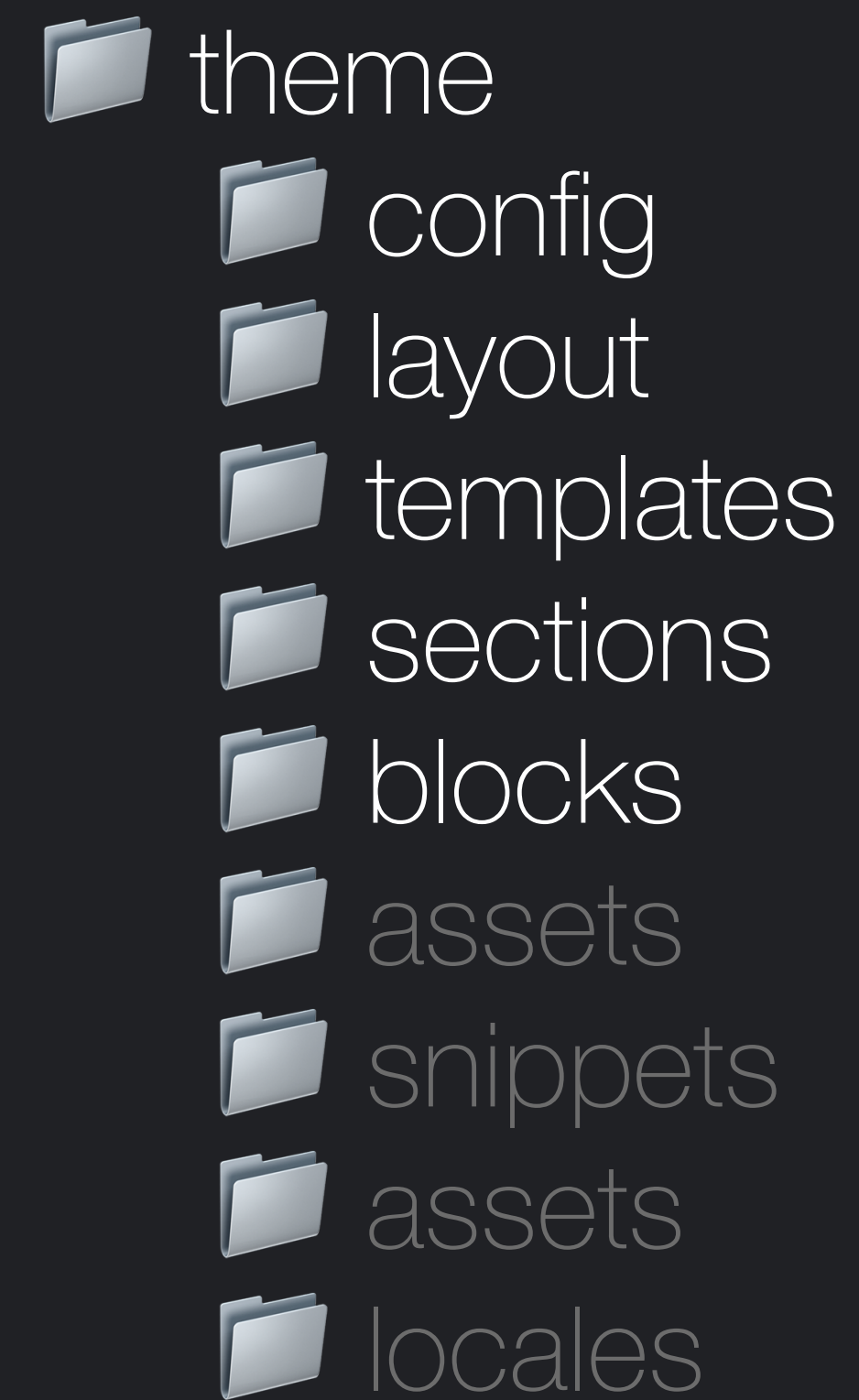
```
8 <div>
7   <div class="image image--{{ section.settings.image_position }}">
6     {% render 'image' %}
5   </div>
4   <div class="description">
3     {% render 'description' %}
2   </div>
1 </div>
9
1 {% schema %}
2   {
3     "name": "Example",
4     "settings": [
5       {
6         "id": "image_position",
7         "label": "Image position",
8         "type": "select",
9         "options": [
10        { "value": "left", "label": "Left" },
11        { "value": "right", "label": "Right" }
12      ]
13    }
14  ],
15  "presets": [{ "name": "Example" }]
16 }
17 {% endschema %}
```

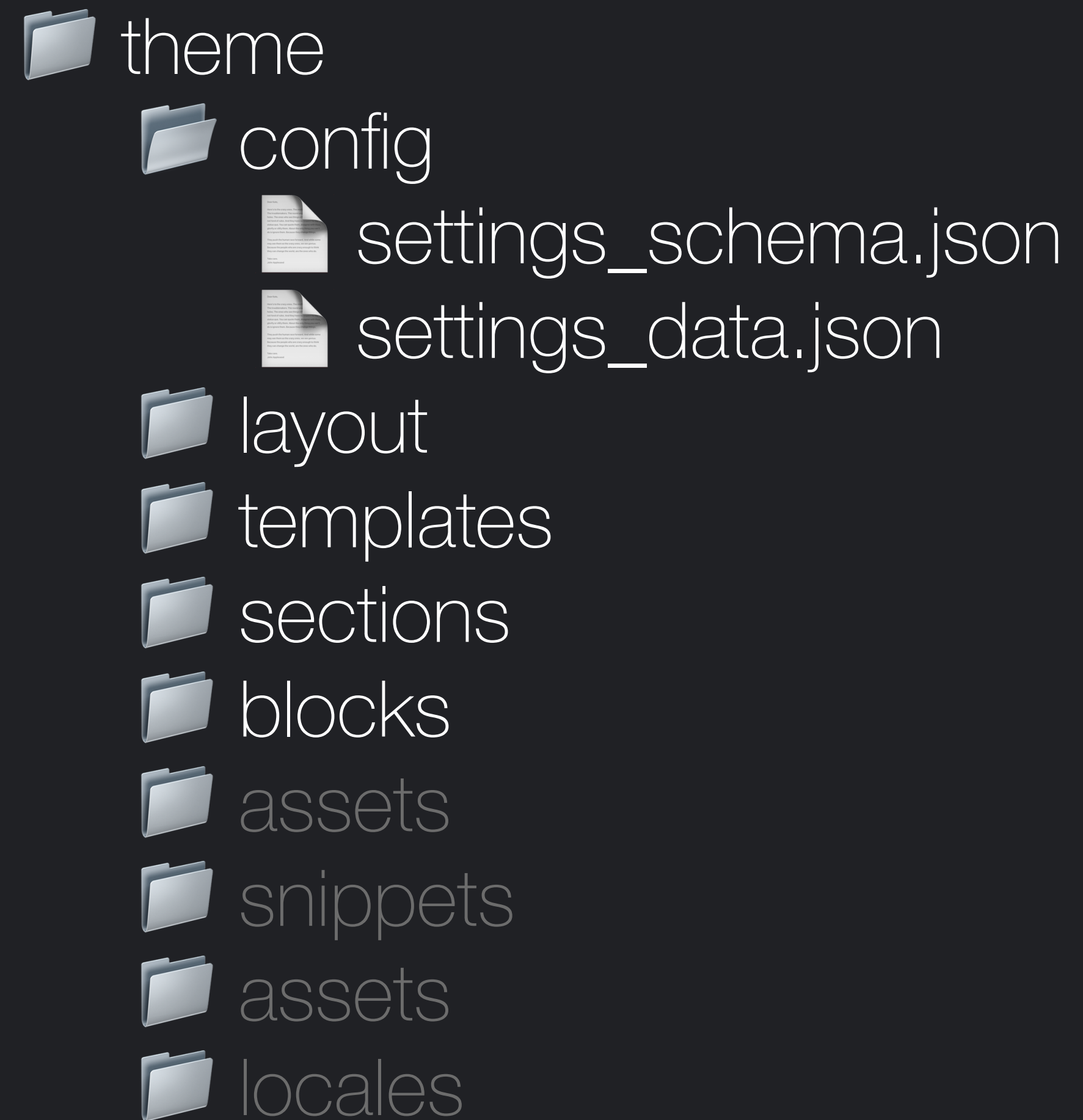
the theme architecture &
the request life cycle

- <https://fun-food.myshopify.com/products/larb-starter-pack>

- <https://fun-food.myshopify.com/products/larb-starter-pack>
- shop ID / theme ID

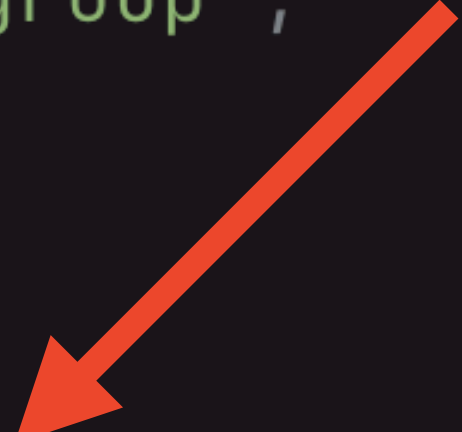


- <https://fun-food.myshopify.com/products/larb-starter-pack>
- shop ID / theme ID
- settings



- <https://fun-food.myshopify.com/products/larb-starter-pack>
- shop ID / theme ID
- settings

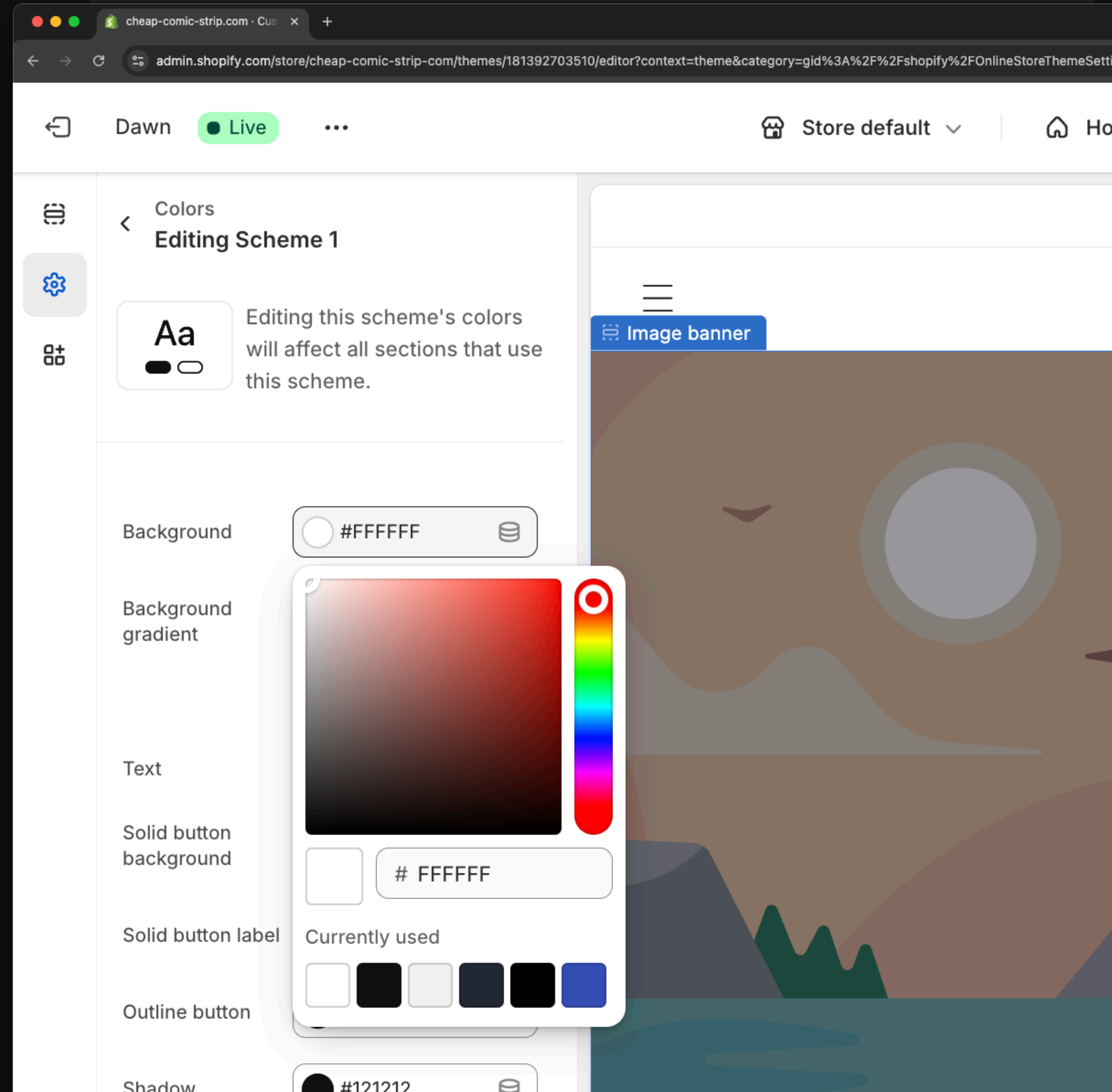
```
vim config/settings_schema.liquid
11      "info": "t:settings_schema.logo.settings.t",
10    }
9  ]
8  },
7  {
6    "name": "t:settings_schema.colors.name",
5    "settings": [
4      {
3        "type": "color_scheme_group",
2        "id": "color_schemes",
1        "definition": [
43      {
1        "type": "color",
2        "id": "background",
3        "label": "t:settings_schema.colors.set",
4        "default": "#FFFFFF"
5      },
6    ],
7    "type": "color_background",
8    "id": "background_gradient",
9    "label": "t:settings_schema.colors.set",
10   "info": "t:settings_schema.colors.sett",
11   },
12   {
13     "type": "color",
14     "id": "text_color",
15     "label": "t:settings_schema.colors.set",
16     "default": "#000000",
17     "info": "t:settings_schema.colors.sett",
18   },
19 ]
20 }
```



- <https://fun-food.myshopify.com/products/larb-starter-pack>

- shop ID / theme ID

- settings



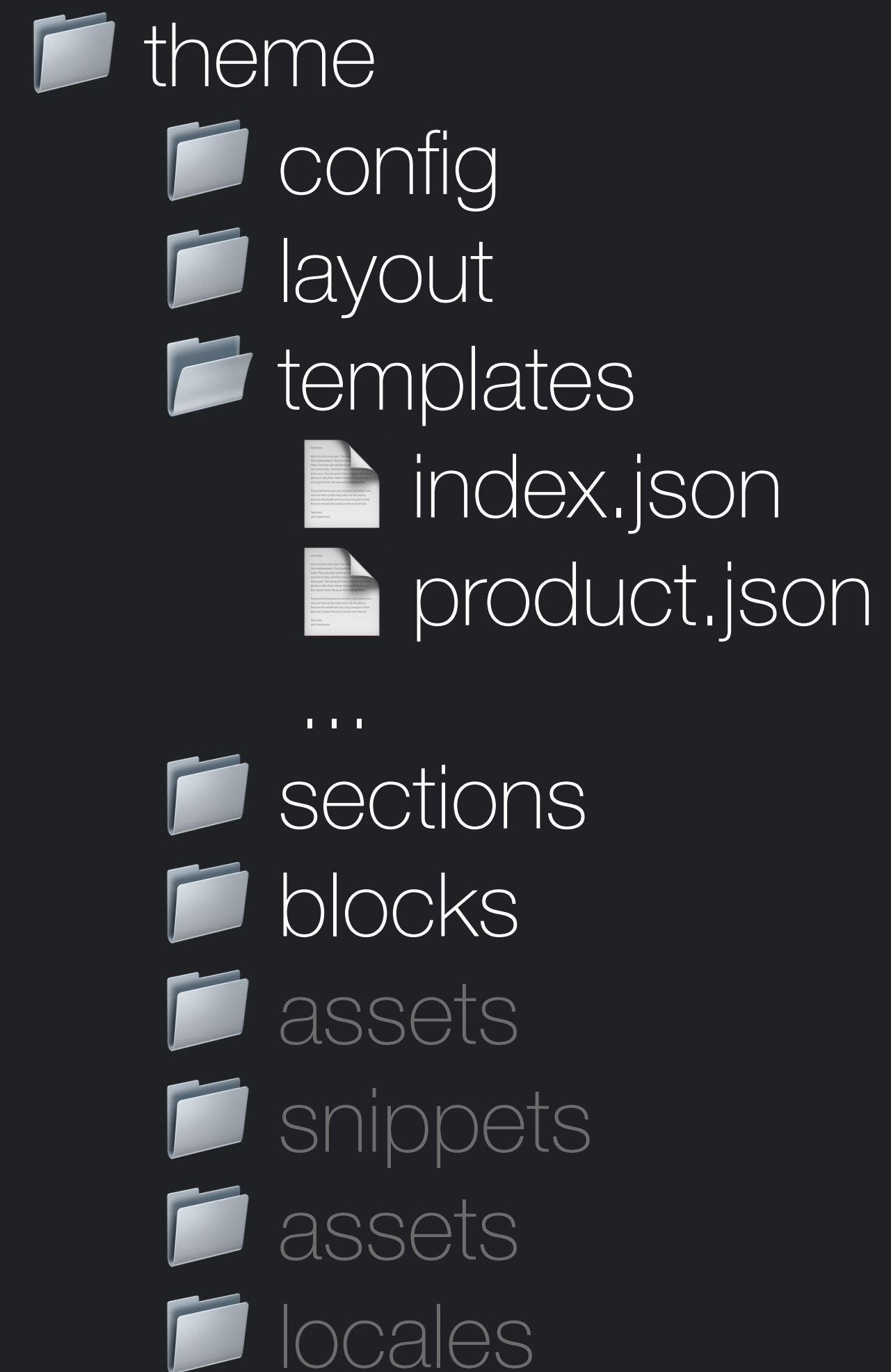
- <https://fun-food.myshopify.com/products/larb-starter-pack>

- shop ID / theme ID

- settings

```
vim config/settings_data
8 {
7   "current": "Default",
6   "presets": {
5     "Default": {
4       "logo_width": 90,
3       "color_schemes": {
2         "scheme-1": {
1           "settings": {
9             "background": "#FFFFFF",
1          "background_gradient": "",
2          "text": "#121212",
3          "button": "#121212",
4          "button_label": "#FFFFFF",
5          "secondary_button_label": "#121212",
6          "shadow": "#121212"
7        }
8      },
9      "scheme-2": {
10       "settings": {
11         "background": "#F3F3F3",
12         "background_gradient": "",
13         "text": "#121212",
14         "button": "#121212",
15         "button_label": "#F3F3F3",
16         "secondary_button_label": "#121212",
17         "button_shadow": "#121212"
```


- <https://fun-food.myshopify.com/products/larb-starter-pack>
- shop ID / theme ID
- settings
- template



- <https://fun-food.myshopify.com/products/larb-starter-pack>

- shop ID / theme ID

- settings

- template



```
3 {
2   "sections": {
1     "main": {
4       "type": "main-product",
1       "blocks": {
2         "vendor": {
3           "type": "text",
4           "settings": {
5             "text": "{{ product.vendor }}",
6             "text_style": "uppercase"
7           }
8         },
9         "title": {
10          "type": "title"
11        },
12        "caption": {
13          "type": "text",
14          "settings": {
15            "text": "{{ product.metafields.description }}",
16            "text_style": "subtitle"
17          }
18        },
19        "price": {
20          "type": "price"
21        },
22        "image": {
23          "type": "image"
24        }
25      }
26     }
27   }
28 }
```


- <https://fun-food.myshopify.com/products/larb-starter-pack>
- shop ID / theme ID
- settings
- template

```
16 "related-products": {
15   "type": "related-products",
14   "settings": {
13     "heading": "You may also like",
12     "heading_size": "h2",
11     "columns_desktop": 4,
10     "color_scheme": "scheme-1",
9     "image_ratio": "square",
8     "show_secondary_image": true,
7     "show_vendor": false,
6     "show_rating": false,
5     "columns_mobile": "2",
4     "padding_top": 36,
3     "padding_bottom": 28
2   }
1 }
209 },
1 "order": [
2   "main",
3   "image-with-text",
4   "multicolumn",
5   "related-products"
6 ]
7 }
```

templates/product.json

- <https://fun-food.myproducts/larb-starte>

- shop ID / theme ID

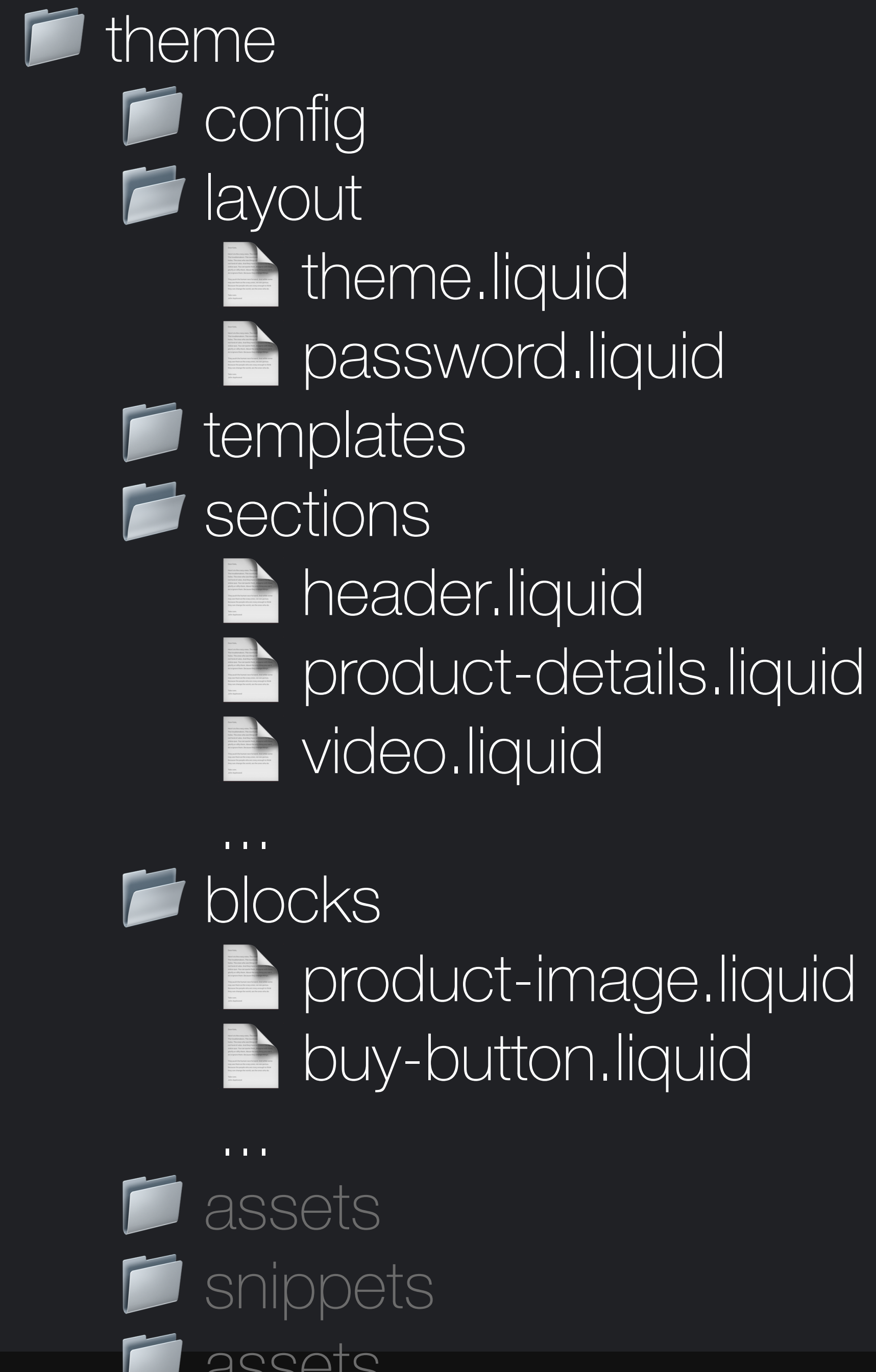
- settings

- template

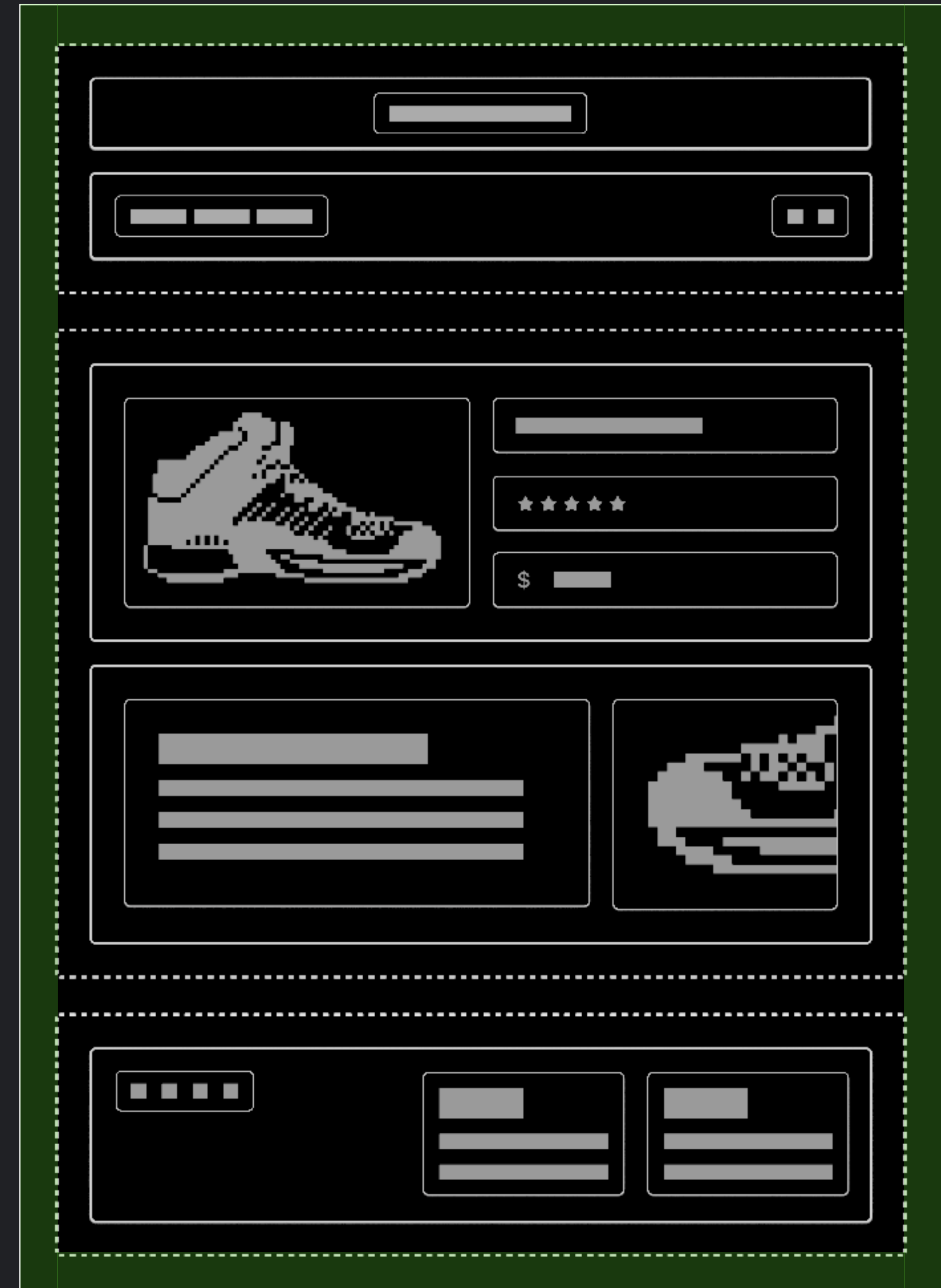
```
vim sections/main-product.liquid
8 <div>
7   <div class="image image--{{ section.settings.image_position }}">
6     {% render 'image' %}
5   </div>
4   <div class="description">
3     {% render 'description' %}
2   </div>
1 </div>

9
1 {% schema %}
2   {
3     "name": "Example",
4     "settings": [
5       {
6         "id": "image_position",
7         "label": "Image position",
8         "type": "select",
9         "options": [
10          { "value": "left", "label": "Left" },
11          { "value": "right", "label": "Right" }
12        ]
13      }
14    ],
15    "presets": [{ "name": "Example" }]
16  }
17 {% render 'description' %}
```

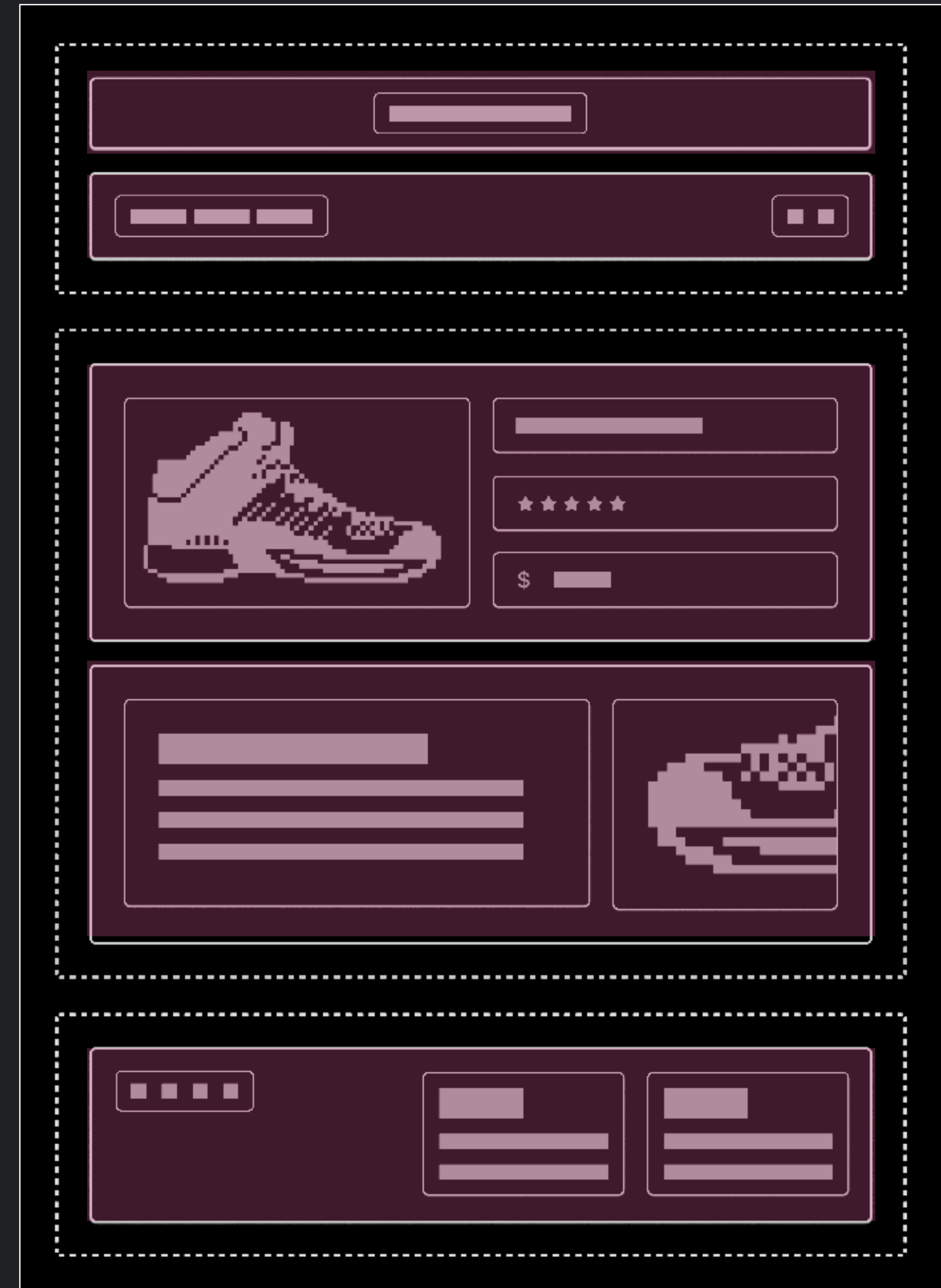
- <https://fun-food.myshopify.com/products/larb-starter-pack>
- shop ID / theme ID
- settings
- template
- sections
- blocks



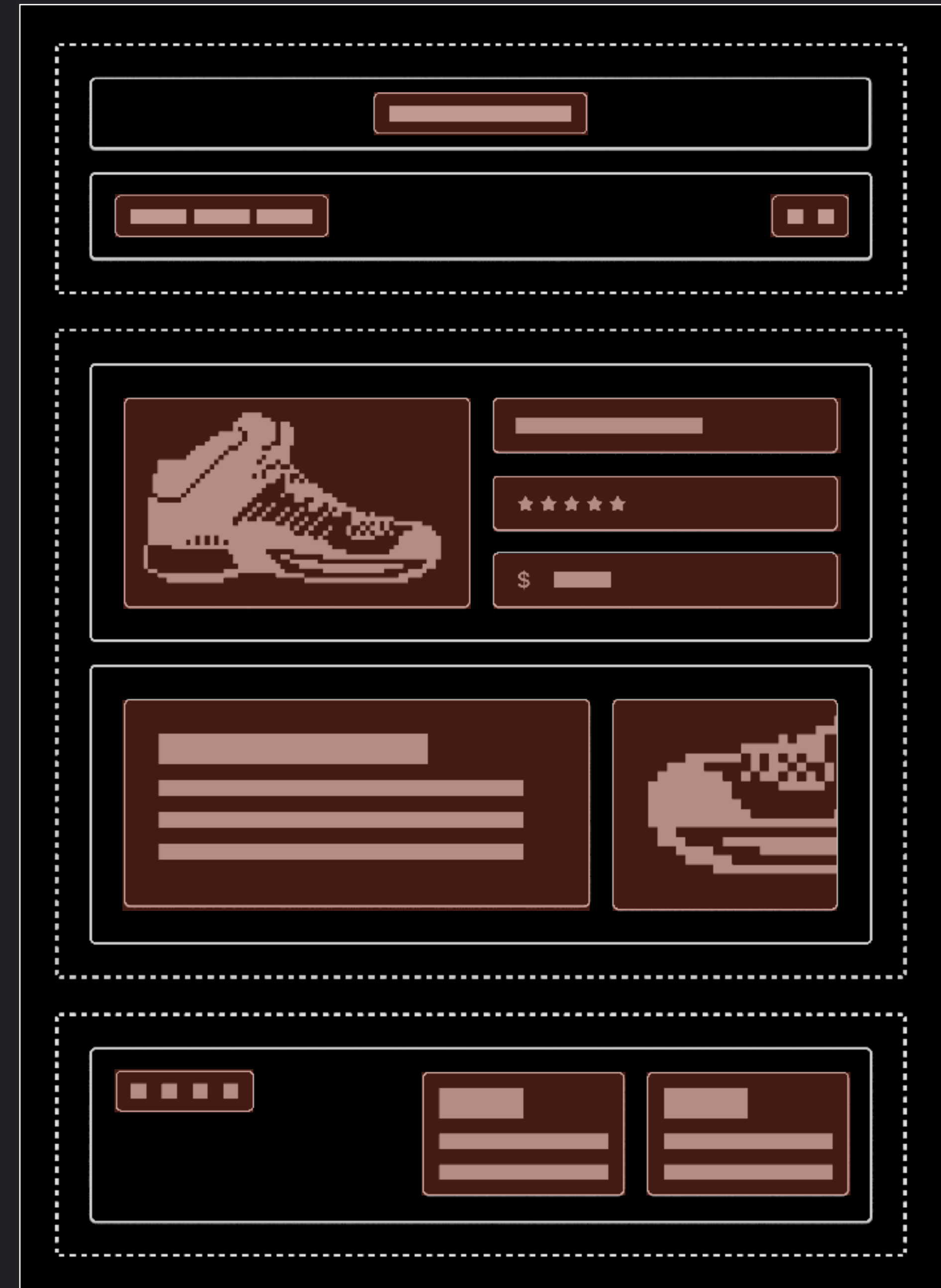
- <https://fun-food.myshopify.com/products/larb-starter-pack>
- shop ID / theme ID
- settings
- template
- sections
- blocks



- <https://fun-food.myshopify.com/products/larb-starter-pack>
- shop ID / theme ID
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- sections
- blocks



- <https://fun-food.myshopify.com/products/larb-starter-pack>
- shop ID / theme ID
- settings
- template
- sections
- blocks



- <https://fun-food.myshopify.com/products/larb-starter-pack>

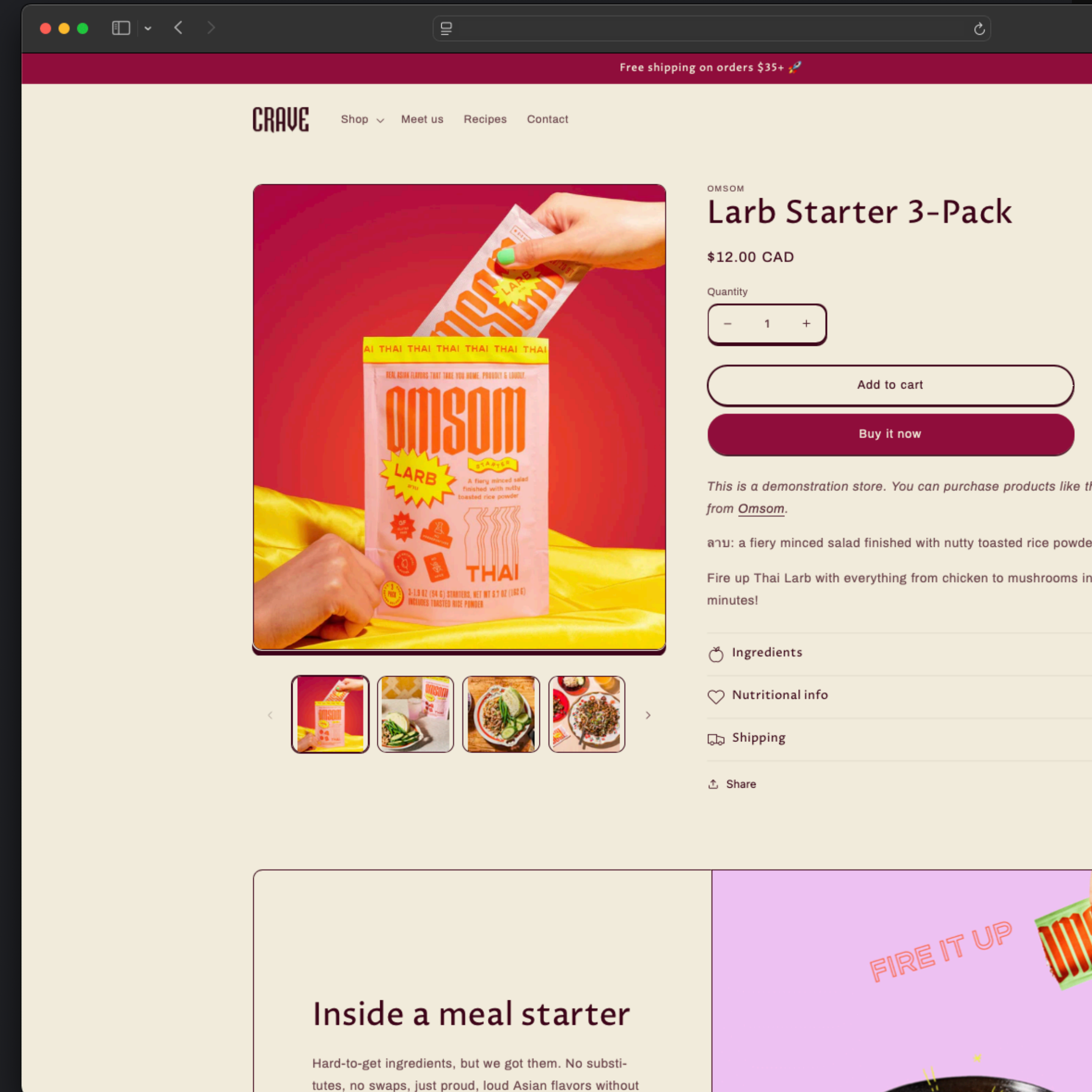
- shop ID / theme ID

- settings

- template

- sections

- blocks





merchants



theme devs
working with
merchants



theme devs
selling in the
theme store



app devs
selling apps with
theme extensions
in the app store



buyers



merchants



theme devs
working with
merchants



theme devs
selling in the
theme store



app devs
selling apps with
theme extensions
in the app store



buyers

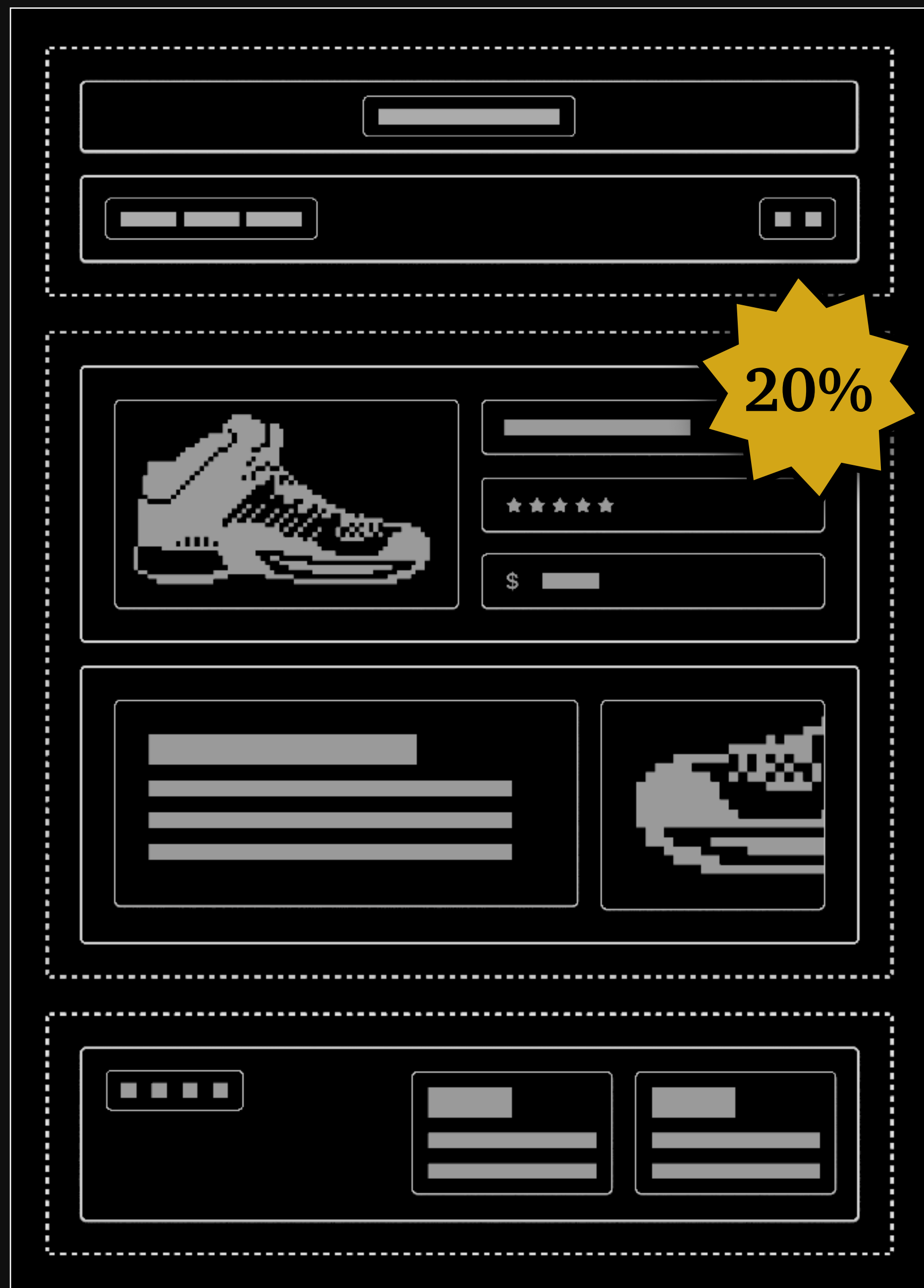
it must be extensible



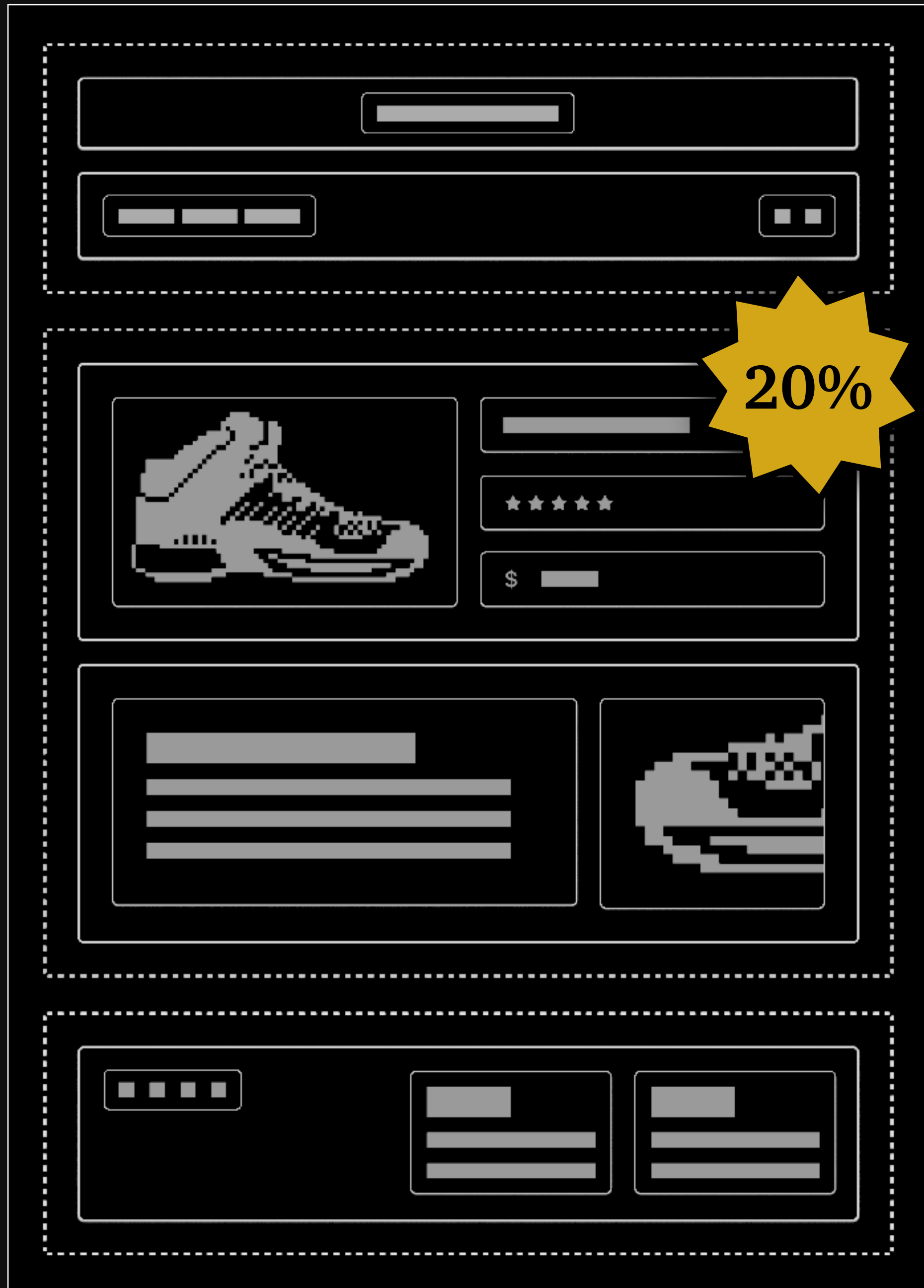
★★★★★

\$





theme extensions



theme extensions

```
vim discount.liquid
3 <div class="discount-component">
2   {{ block.settings.amount_of_discount }}%
1 </div>
4
1 {% schema %}
2 {
3   "name": "Discount",
4   "target": "section",
5   "settings": [
6     {
7       "type": "number",
8       "id": "amount_of_discount",
9       "label": "Discount"
10    }
11  ]
12 }
13 {% endschema %}
```


cheap-comic-strip.com · Cus

admin.shopify.com/store/cheap-comic-strip-com/themes/181891006486/editor?previewPath=%2Fproducts%2Fchequered-red-shirt

Crave

Draft

...

Default product

👤

🔄

📱

🖨️

↶

↷

Publish

Save

Default product

Preview

Chequered Red Shirt

Header

Template

Footer

Announcement bar

Header

Add section

Product information

Text

Title

Price

Variant picker

Quantity selector

Buy buttons

Description

Related products

Add section

Footer

My shop

Spain | EUR € | English





LIAM FASHIONS

Chequered Red Shirt

€68,00 EUR

Taxes included.

Title

xs

small

medium

large

xl

xxl

Quantity

1

Add to cart

Buy it now

Classic mens plaid flannel shirt with long sleeves, in chequered style, with two chest pockets.

Customize your templates

Select a section or block in the sidebar to start.

Keyboard shortcuts

Undo

Redo

Save

Preview inspector

See all shortcuts

- <https://fun-food.myshopify.com/products/larb-starter-pack>
- shop ID / theme ID
- settings
- template
- sections
- blocks

- <https://fun-food.myshopify.com/products/larb-starter-pack> ← templates drops (product)
- shop ID / theme ID
- settings
- template
- sections
- blocks

- <https://fun-food.myshopify.com/products/larb-starter-pack> ← templates drops (product)

- shop ID / theme ID

- settings ← store the global settings state

- template

- sections

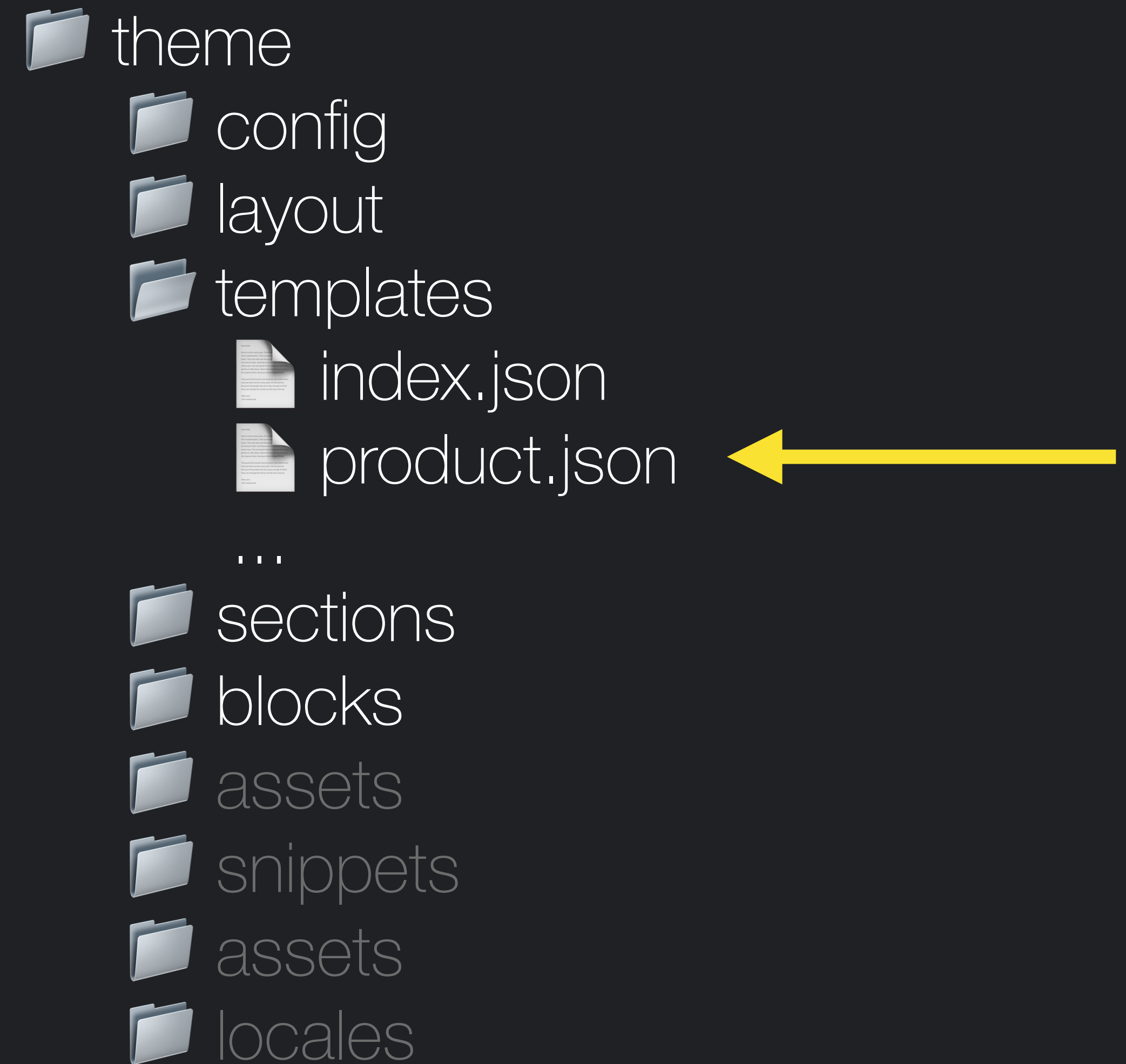
- blocks

- <https://fun-food.myshopify.com/products/larb-starter-pack> ← templates drops (product)
- shop ID / theme ID
- settings ← store the global settings state
- template ← stores the page layout, the order of sections, the order of blocks, and their data
- sections
- blocks

- <https://fun-food.myshopify.com/products/larb-starter-pack> ← templates drops (product)
- shop ID / theme ID
- settings ← store the global settings state
- template ← stores the page layout, the order of sections, the order of blocks, and their data
- sections ← expose interfaces to configure large elements (sections)
- blocks

- <https://fun-food.myshopify.com/products/larb-starter-pack> ← templates drops (product)
- shop ID / theme ID
- settings ← store the global settings state
- template ← stores the page layout, the order of sections, the order of blocks, and their data
- sections ← expose interfaces to configure large elements (sections)
- blocks ← expose interfaces to configure small elements (blocks)

- <https://fun-food.myshopify.com/products/larb-starter-pack>
- shop ID / theme ID
- settings
- template ←
- sections
- blocks



- <https://fun-food.myshopify.com/products/larb-starter-pack>

- shop ID / theme ID

- settings

- template  stores the page layout, the order of sections, the order of blocks, and their data

- sections

...and theme extensions still are blocks

- blocks

liquid

schemas

runtime

tools

your domain



it must be fast

$\approx 58 \text{ M req / min}$

runtime infrastructure

- kubernetes (running on gcp)
- multi-tenant architecture
- storefront renderer



native extensions and ffi

native extensions

- gc

native extensions

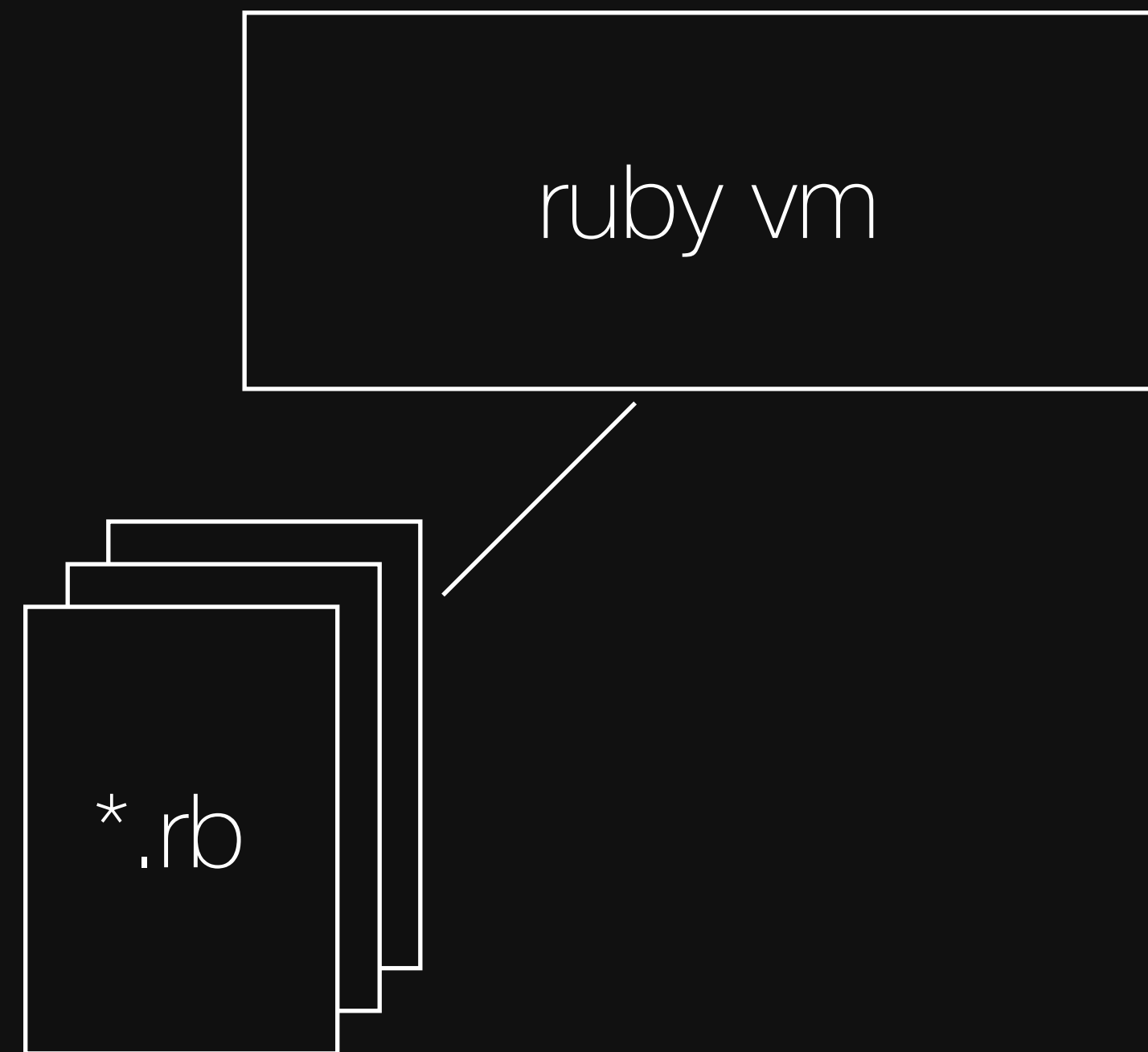
- gc
- performance

native extensions

- gc
- performance
- reusability

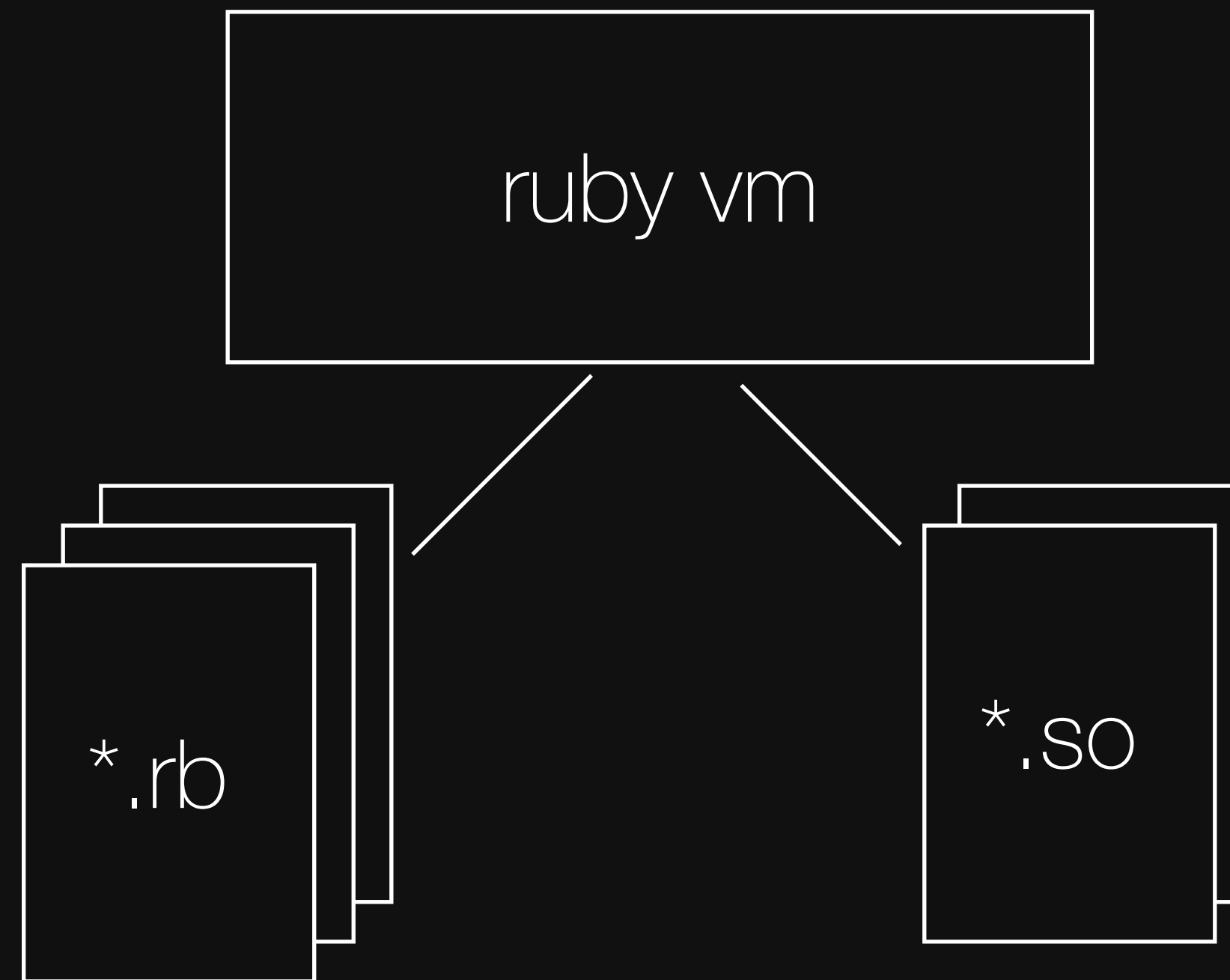
native extensions

- gc
- performance
- reusability



native extensions

- gc
- performance
- reusability



ruby vs rust performance

ruby vs rust performance

```
def compute1(iterations)
  result = 0

  iterations.times do |i|
    result += i * 2
  end

  result
end
```

No Rust!

ruby vs rust performance

```
def compute1(iterations)
  result = 0

  iterations.times do |i|
    result += i * 2
  end

  result
end
```

No Rust!

```
def compute2(iterations)
  result = 0

  iterations.times do |i|
    result += Ext.compute(i)
  end

  result
end
```

```
fn compute(input: i32) -> i32 {
  input * 2
}
```

ruby vs rust performance

```
def compute1(iterations)
  result = 0

  iterations.times do |i|
    result += i * 2
  end

  result
end
```

No Rust!

```
def compute2(iterations)
  result = 0

  iterations.times do |i|
    result += Ext.compute(i)
  end

  result
end
```

```
fn compute(input: i32) -> i32 {
  input * 2
}
```

```
def compute3(iterations)
  Ext.compute(iterations)
end
```

```
fn compute_all(iterations: i32) -> i32 {
  let mut result = 0;
  for i in 0..iterations {
    result += i * 2;
  }
  result
}
```

ruby vs rust performance

```
def compute1(iterations)
  result = 0

  iterations.times do |i|
    result += i * 2
  end

  result
end
```

No Rust!

```
def compute2(iterations)
  result = 0

  iterations.times do |i|
    result += Ext.compute(i)
  end

  result
end
```

```
fn compute(input: i32) -> i32 {
  input * 2
}
```

```
def compute3(iterations)
  Ext.compute(iterations)
end
```

```
fn compute_all(iterations: i32) -> i32 {
  let mut result = 0;
  for i in 0..iterations {
    result += i * 2;
  }
  result
}
```

 **Fastest**

ruby vs rust performance

```
def compute1(iterations)
  result = 0

  iterations.times do |i|
    result += i * 2
  end

  result
end
```

No Rust!

 7.70x slower

```
def compute2(iterations)
  result = 0

  iterations.times do |i|
    result += Ext.compute(i)
  end

  result
end
```

```
fn compute(input: i32) -> i32 {
  input * 2
}
```

 9.55x slower

```
def compute3(iterations)
  Ext.compute(iterations)
end
```

```
fn compute_all(iterations: i32) -> i32 {
  let mut result = 0;
  for i in 0..iterations {
    result += i * 2;
  }
  result
}
```

 Fastest

liquid

schemas

runtime

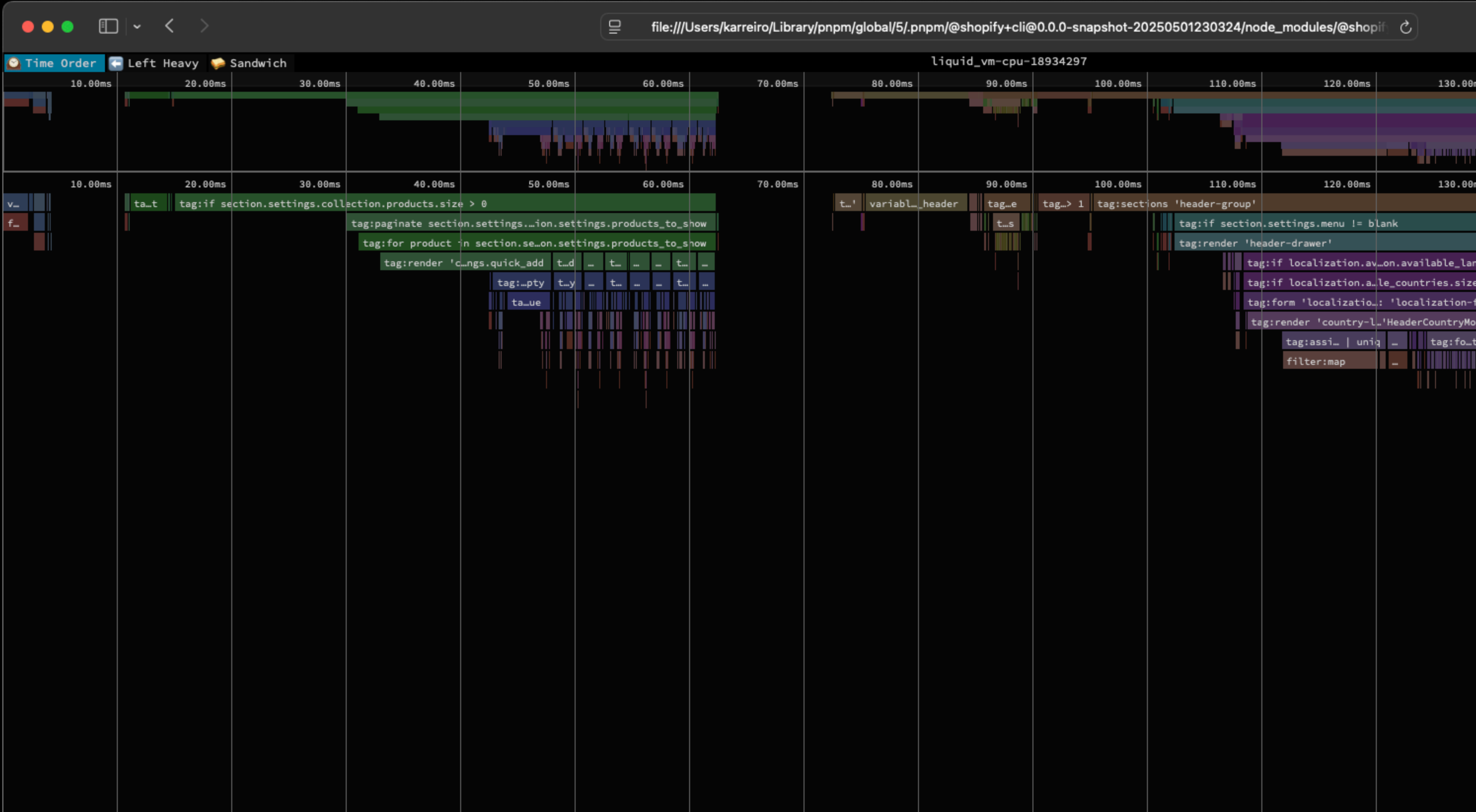
tools

your domain

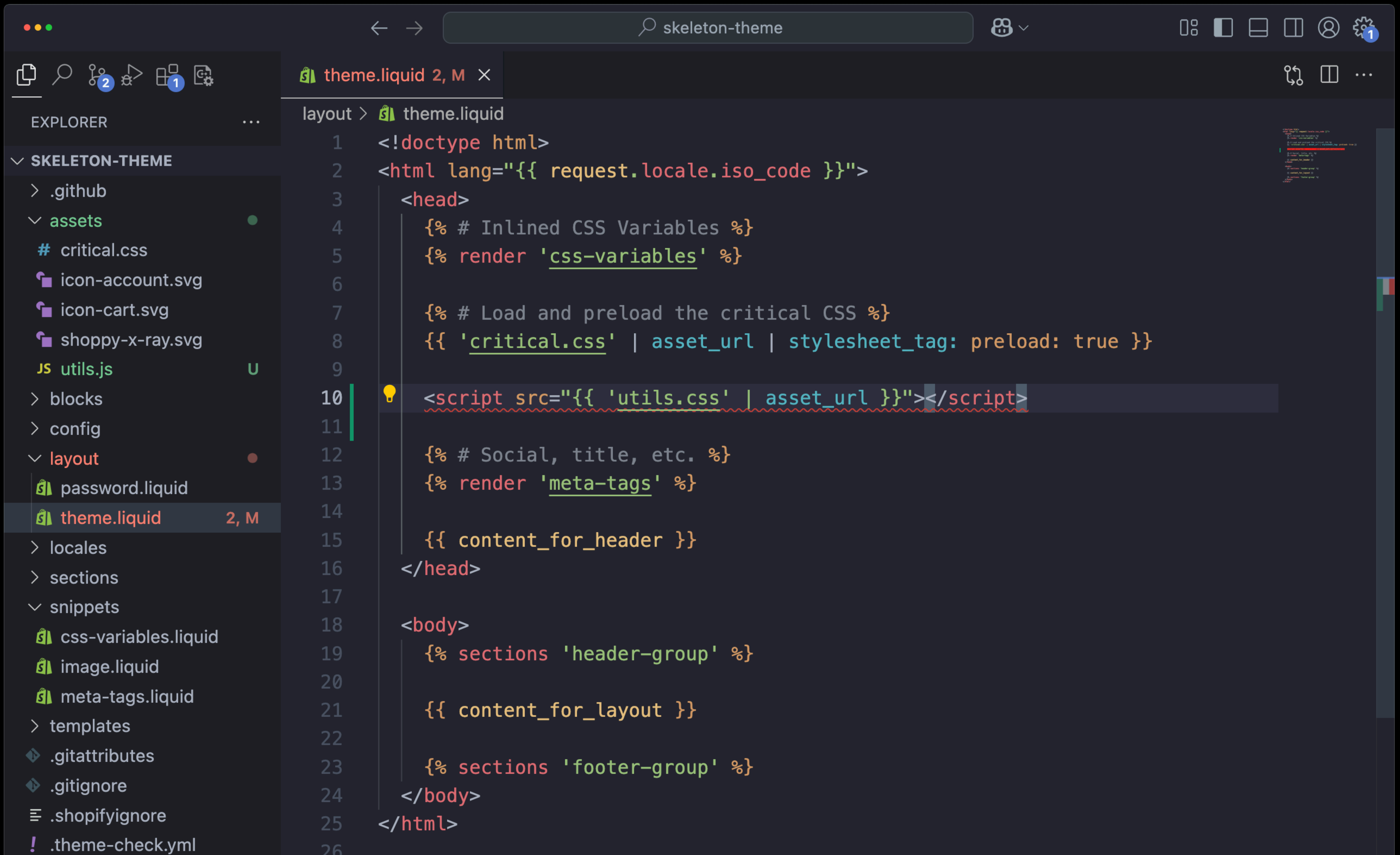


tools must inspire

~ shopify theme profile



~ shopify theme check



⌵

EXPLORER

⋮

✓ SKELETON-THEME

> .github

✓ assets

•

critical.css

📁 icon-account.svg

📁 icon-cart.svg

📁 shoppy-x-ray.svg

JS utils.js

U

> blocks

> config

✓ layout

•

📁 password.liquid

📁 theme.liquid

2, M

> locales

> sections

✓ snippets

📁 css-variables.liquid

📁 image.liquid

📁 meta-tags.liquid

> templates

🔍 .gitattributes

🔍 .gitignore

☰ .shopifyignore

! .theme-check.yml

theme.liquid 2, M

layout > theme.liquid

1<!doctype html>

2<html lang="{{ request.locale.iso_code }}">

3<head>

4|{% # Inlined CSS Variables %}

5

6

7

8

9

10<script src="{{ 'utils.css' | asset_url }}"></script>

11

12{% # Social, title, etc. %}

13{% render 'meta-tags' %}

14

15{{ content_for_header }}

16</head>

17

18<body>

19{% sections 'header-group' %}

20

21{{ content_for_layout }}

22

23{% sections 'footer-group' %}

24</body>

25</html>

26

Avoid parser blocking scripts by adding `defer` or `async` on this tag theme-check(ParserBlockingScript)

'assets/utils.css' does not exist theme-check(MissingAsset)

View Problem (⌘F8) Quick Fix... (⌘.)

← →

🔍 skeleton-theme

1

2

1

EXPLORER

...

✓ SKELETON-THEME

> .github

✓ assets

critical.css

📁 icon-account.svg

📁 icon-cart.svg

📁 shoppy-x-ray.svg

JS utils.js

U

> blocks

> config

> layout

> locales

✓ sections

📁 404.liquid

📁 article.liquid

📁 blog.liquid

📁 cart.liquid

📁 collection.liquid

1, M

📁 collections.liquid

📁 custom-section.liquid

{} footer-group.json

📁 footer.liquid

{} header-group.json

📁 header.liquid

sections > 📁 collection.liquid

1

<h1>{{ collection.title }}</h1>

2

3

{{ market }}

4

5

{% stylesheet %}

6

.collection-products {

7

display: grid;

8

grid-template-columns: repeat(auto-fill, minmax(500px, 1fr));

9

}

10

{% endstylesheet %}

11

12

{% schema %}

13

{

14

"name": "t:general.collection",

15

"settings": []

16

}

17

{% endschema %}

18

1

2

1

EXPLORER

SKELETON-THEME

.github

assets

critical.css

icon-account.svg

icon-cart.svg

shoppy-x-ray.svg

utils.js

blocks

config

layout

locales

sections

404.liquid

article.liquid

blog.liquid

cart.liquid

collection.liquid 1, M

collections.liquid

custom-section.liquid

footer-group.json

footer.liquid

header-group.json

header.liquid

skeleton-theme

collection.liquid 1, M

sections > collection.liquid

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

<h1

Unknown object 'market' used. theme-check(

UndefinedObject)

View Problem (⌘F8)

No quick fixes available

{{

market

}}

{% stylesheet %}

.collection-products {

display: grid;

grid-template-columns: repeat(auto-fill, minmax(500px, 1fr));

}

{% endstylesheet %}

{% schema %}

{

"name": "t:general.collection",

"settings": []

}

{% endschema %}

skeleton-theme

1

2

1

EXPLORER

SKELETON-THEME

.github

assets

critical.css

icon-account.svg

icon-cart.svg

shoppy-x-ray.svg

utils.js

blocks

config

layout

locales

sections

404.liquid

article.liquid

blog.liquid

cart.liquid

collection.liquid 1, M

collections.liquid

custom-section.liquid

footer-group.json

footer.liquid

header-group.json

header.liquid

collection.liquid 1, M

sections > collection.liquid

1<h1>{{ collection.title }}</h1>

2

3<div class="collection-products">

4 {% for product in collection.products %}

5 {{ product }}

6 </div>

7

8 {% stylesheet %}

9 .collection-products {

10 display: grid;

11 grid-template-columns: repeat(auto-fill, minmax(500px, 1fr));

12 }

13 {% endstylesheet %}

14

15 {% schema %}

16 {

17 "name": "t:general.collection",

18 "settings": []

19 }

20 {% endschema %}

21

~ shopify theme language-server

1

2

1

EXPLORER

SKELETON-THEME

.github

assets

critical.css

icon-account.svg

icon-cart.svg

shoppy-x-ray.svg

utils.js

blocks

config

layout

locales

sections

404.liquid

article.liquid

blog.liquid

cart.liquid

collection.liquid

collections.liquid

custom-section.liquid

footer-group.json

footer.liquid

header-group.json

header.liquid

hello-world.liquid

page.liquid

password.liquid

OUTLINE

TIMELINE

collection.liquid

sections > collection.liquid

1<h1>{{ collection.title }}</h1>

2

3<div class="collection-products">

4 {% for product in collection.products %}

5

6 {% endfor %}

7</div>

8

9 {% stylesheet %}

10 .collection-products {

11 display: grid;

12 grid-template-columns: repeat(auto-fill, minmax(500px, 1fr));

13 }

14 {% endstylesheet %}

15

16 {% schema %}

17 {

18 "name": "t:general.collection",

19 "settings": []

20 }

21 {% endschema %}

22

error tolerant parsers

skeleton-theme

1

2

1

EXPLORER

SKELETON-THEME

.github

assets

critical.css

icon-account.svg

icon-cart.svg

shoppy-x-ray.svg

utils.js

blocks

config

layout

locales

sections

404.liquid

article.liquid

blog.liquid

cart.liquid

collection.liquid 1, M

collections.liquid

custom-section.liquid

footer-group.json

footer.liquid

header-group.json

header.liquid

collection.liquid 1, M

sections > collection.liquid

1<h1>{{ collection.title }}</h1>

2

3<div class="collection-products">

4 {% for product in collection.products %}

5 {{ product }}

6 </div>

7

8 {% stylesheet %}

9 .collection-products {

10 display: grid;

11 grid-template-columns: repeat(auto-fill, minmax(500px, 1fr));

12 }

13 {% endstylesheet %}

14

15 {% schema %}

16 {

17 "name": "t:general.collection",

18 "settings": []

19 }

20 {% endschema %}

21

1

2

1

EXPLORER

SKELETON-THEME

.github

assets

critical.css

icon-account.svg

icon-cart.svg

shoppy-x-ray.svg

utils.js

blocks

config

layout

locales

sections

404.liquid

article.liquid

blog.liquid

cart.liquid

collection.liquid 1, M

collections.liquid

custom-section.liquid

footer-group.json

footer.liquid

header-group.json

header.liquid

collection.liquid 1, M

sections > collection.liquid

1<h1>{{ collection.title }}</h1>

2

3<div class="collection-products">

4 {% for product in collection.products %}

5 {{ product. }}

6</div>

7

8 {% stylesheet %

9 .collection-p

10 display: gr

11 grid-templa

12 }

13 {% endstyleshee

14

15 {% schema %}

16 {

17 "name": "t:ge

18 "settings": []

19 }

20 {% endschema %}

21

available

category

collections

compare_at_price

compare_at_price_max

compare_at_price_min

compare_at_price_varies

content

created_at

description

featured_image

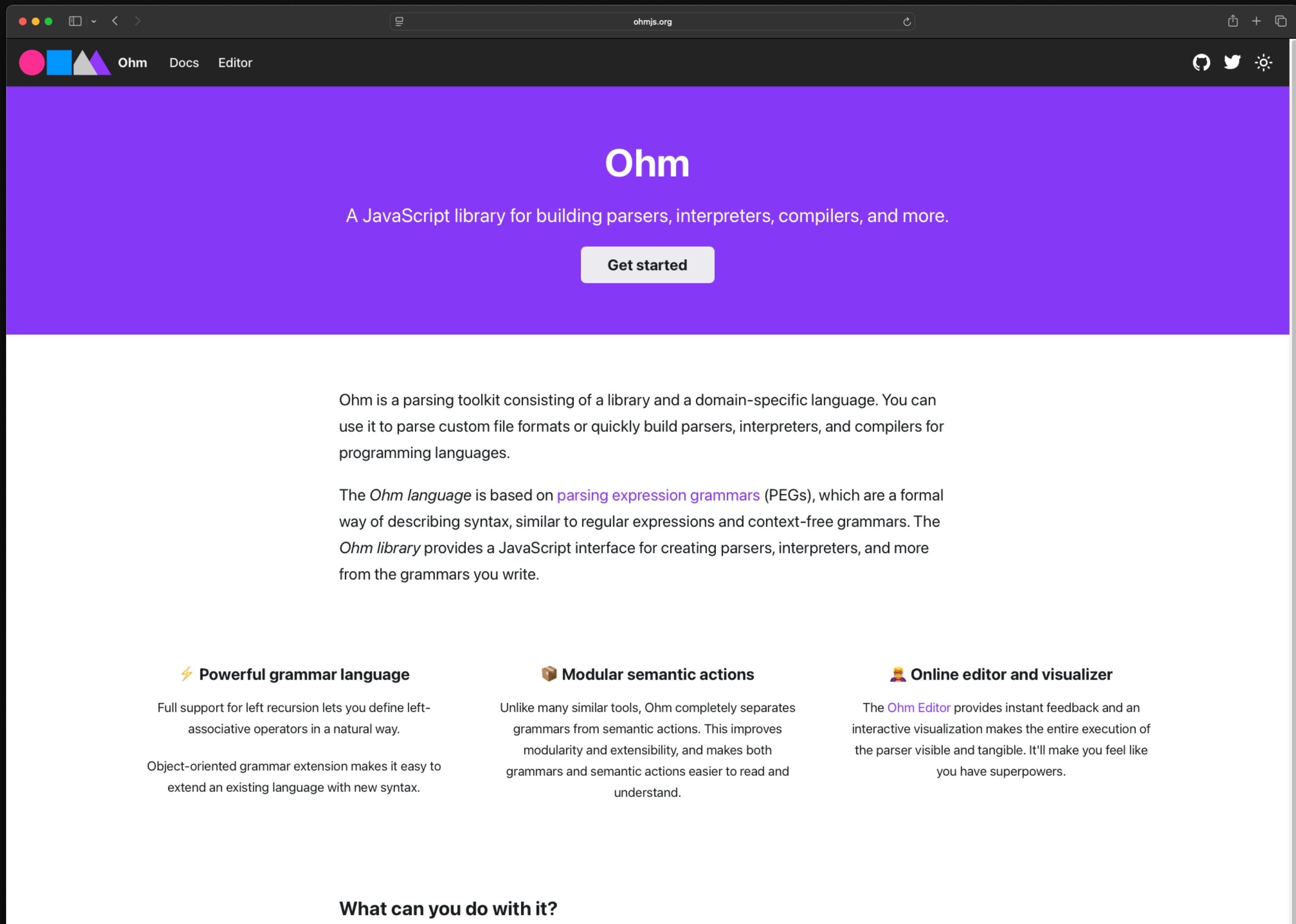
featured_media

available: boolean

Returns true if at least one of the variants of the product is available. Returns false if not.

For a variant to be available, it needs to meet one of the following criteria:

- The variant.inventory_quantity is greater than 0.
- The variant.inventory_policy is set to continue.
- The variant.inventory_management is nil.
- The variant has an associated delivery profile with a valid shipping rate.



Ohm

A JavaScript library for building parsers, interpreters, compilers, and more.

Get started

Ohm is a parsing toolkit consisting of a library and a domain-specific language. You can use it to parse custom file formats or quickly build parsers, interpreters, and compilers for programming languages.

The *Ohm language* is based on [parsing expression grammars](#) (PEGs), which are a formal way of describing syntax, similar to regular expressions and context-free grammars. The *Ohm library* provides a JavaScript interface for creating parsers, interpreters, and more from the grammars you write.

⚡ Powerful grammar language

Full support for left recursion lets you define left-associative operators in a natural way.

Object-oriented grammar extension makes it easy to extend an existing language with new syntax.

📦 Modular semantic actions

Unlike many similar tools, Ohm completely separates grammars from semantic actions. This improves modularity and extensibility, and makes both grammars and semantic actions easier to read and understand.

👤 Online editor and visualizer

The [Ohm Editor](#) provides instant feedback and an interactive visualization makes the entire execution of the parser visible and tangible. It'll make you feel like you have superpowers.

What can you do with it?

microsoft / vscode-json-languageservice

github.com/microsoft/vscode-json-languageservice

Type / to search

<> Code

Issues 52

Pull requests 9

Actions

Projects

Security

Insights

vscode-json-languageservice

Public

Watch 29

Fork 117

Star 290

main

20 Branches

115 Tags

Go to file

Add file

<> Code

aeschli

prepare 5.5.0 (#264) ✓

628c87f · 3 weeks ago

662 Commits

.github	prepare 5.4.2 (#253)	5 months ago
.vscode	add release pipeline & cleanup ci pipelines (#156)	3 years ago
build	do not ask for extra approval when publishing (#252)	5 months ago
src	feat: make the capability of newJSONDocument and JSONDo...	3 weeks ago
.gitignore	update dependencies & adopt eslint	5 years ago
.mocharc.json	update dependencies	5 years ago
.npmignore	prepare 5.4.2 (#253)	5 months ago
CHANGELOG.md	prepare 5.5.0 (#264)	3 weeks ago
LICENSE.md	replace minimatch with globregexp	4 years ago
README.md	add release pipeline & cleanup ci pipelines (#156)	3 years ago
SECURITY.md	Microsoft mandatory file	3 years ago
eslint.config.mjs	prepare 5.4.2 (#253)	5 months ago
package-lock.json	prepare 5.5.0 (#264)	3 weeks ago
package.json	prepare 5.5.0 (#264)	3 weeks ago

README

Code of conduct

License

Security

About

JSON language service extracted from VSCode to be reused, e.g in the Monaco editor.

Readme

View license

Code of conduct

Security policy

Activity

Custom properties

290 stars

29 watching

117 forks

Report repository

Releases 10

v5.5.0

Latest

3 weeks ago

+ 9 releases

Packages

No packages published

Contributors 42

1

EXPLORER

DAWN

> .github

> .vscode

> assets

> config

> layout

> locales

> sections

announcement-bar.liquid

apps.liquid1

bulk-quick-order-list.liquid

cart-drawer.liquid

cart-icon-bubble.liquid

cart-live-region-text.liquid

cart-notification-button.liquid

cart-notification-product.liquid

collage.liquid

collapsible-content.liquid

collection-list.liquid

contact-form.liquid

custom-liquid.liquid

email-signup-banner.liquid

featured-blog.liquid

featured-collection.liquid

featured-product.liquid

footer-group.json

footer.liquid

header-group.json

header.liquid

image-banner.liquid

image-with-text.liquid

main-404.liquid

apps.liquid 1

sections > apps.liquid

1<div class="{% if section.settings.include_margins %}page-width{% endif %}{% if setting: 2{%%- for block in section.blocks -%} 3{% render block %} 4{%- endfor -%} 5</div> 6 7{% schema %} 8{ 9" name": "t:sections.apps.name", 10" tag": "section", 11" class": "section", 12" settings": [13{ 14" type": "checkbox", 15" id": "include_margins", 16" default": true, 17" label": "Include margins", 18} 19], 20" blocks": [21{ 22" type": "image", 23" id": "image", 24" default": "image", 25" label": "Image", 26" settings": { 27" name": "t:sections.apps.blocks.image.name", 28} 29} 30} 31{% endschema %} 32

A setting of type `checkbox` outputs an article picker field that's automatically populated with the available articles for the store. You can use these fields to capture an article selection, such as the article to feature on the homepage.

[Shopify reference](#)

liquid

schemas

runtime

tools

your domain



liquid

schemas

runtime

tools

your domain



liquid

schemas

runtime

tools

your domain



your domain

thank you
karreiro.com/talks