

theme systems at scale

how to build highly customizable software

guilherme carreiro /// june 9th





Free shipping on orders \$35+ 🚚

CRAVE

Shop ▾ Meet us Recipes Contact



OMSOM

Larb Starter 3-Pack

\$12.00 CAD

Quantity

Add to cart

Buy it now

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

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

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

apple Ingredients

heart Nutritional info

truck Shipping

up Share

Inside a meal starter



SCOTTIAIS

digital tools so
portant work.

Free shipping on orders \$35+ 

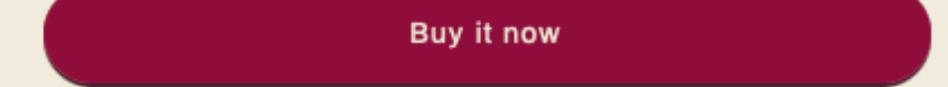
CRAVE Shop Meet us Recipes Contact

Search 

OMSOM
Larb Starter 3-Pack
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⌄ Ingredients

⌄ Nutritional info

⌄ Shipping

⌄ Share

Inside a meal starter

FIRE IT UP 

TINKER

Introducing
Our Newes

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

Welcome to our store

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.

You may also like



Ocean Blue Shirt

From €37,00 EUR



White Cotton Shirt

From €55,00 EUR



Example T-Shirt

€24,99 EUR €19,99 EUR

Subscribe to our emails

Email



cheap-comic-strip.com · The x Classic Leather Jacket – cheap-comic-strip.com.myshopify.com/products/classic-leather-jacket

Welcome to our store

My shop

Spain | EUR € English Search User icon Cart icon



LIAM FASHIONS
Classic Leather Jacket

€50,00 EUR ~~€40,00 EUR~~ Sale

Taxes included.

★★★★★☆

Title

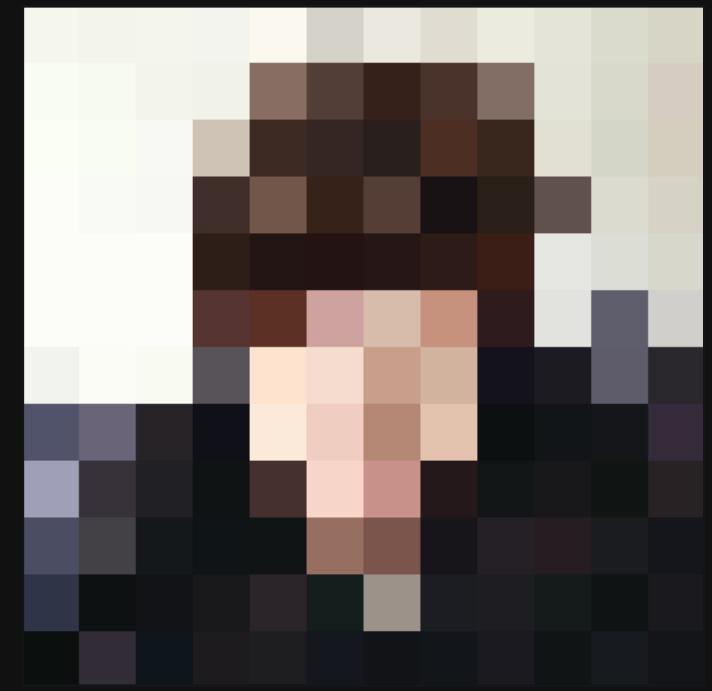
xs small medium
large xl xxl

Add to cart

Buy it now

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

You may also like



guilherme carreiro

@karreiro

staff engineer @ shopify

developer tools



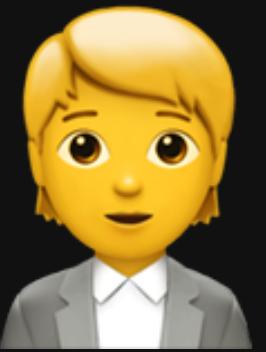
theme



theme system



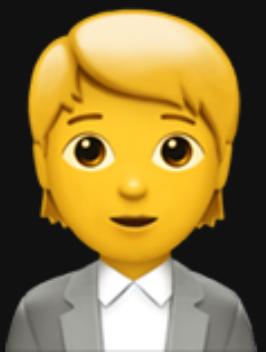
theme system



merchants



theme system



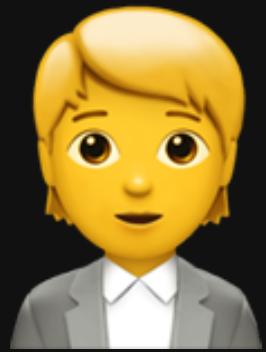
merchants



buyers



theme system



merchants



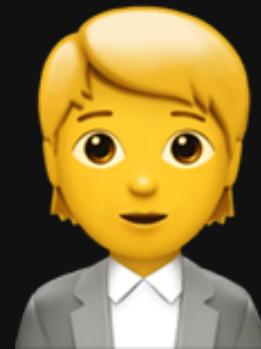
theme devs
selling in the
theme store



buyers



theme system



merchants



theme devs
selling in the
theme store



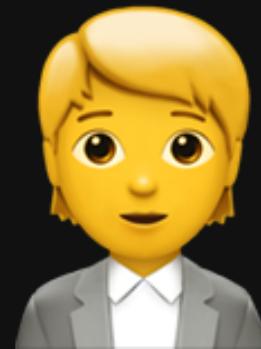
app devs
selling apps with
theme extensions
in the app store



buyers



theme system



merchants



theme devs
working with
merchants



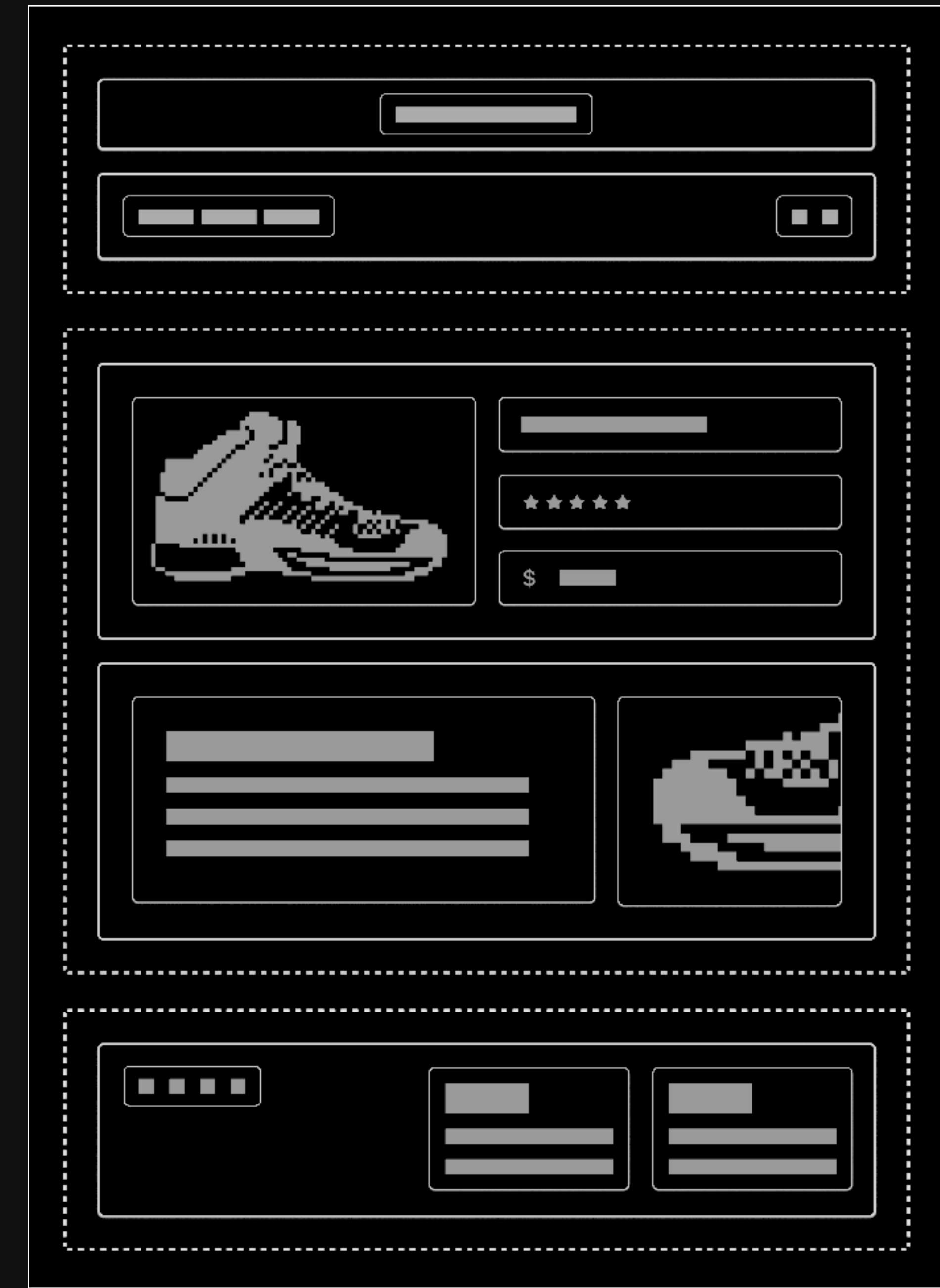
theme devs
selling in the
theme store

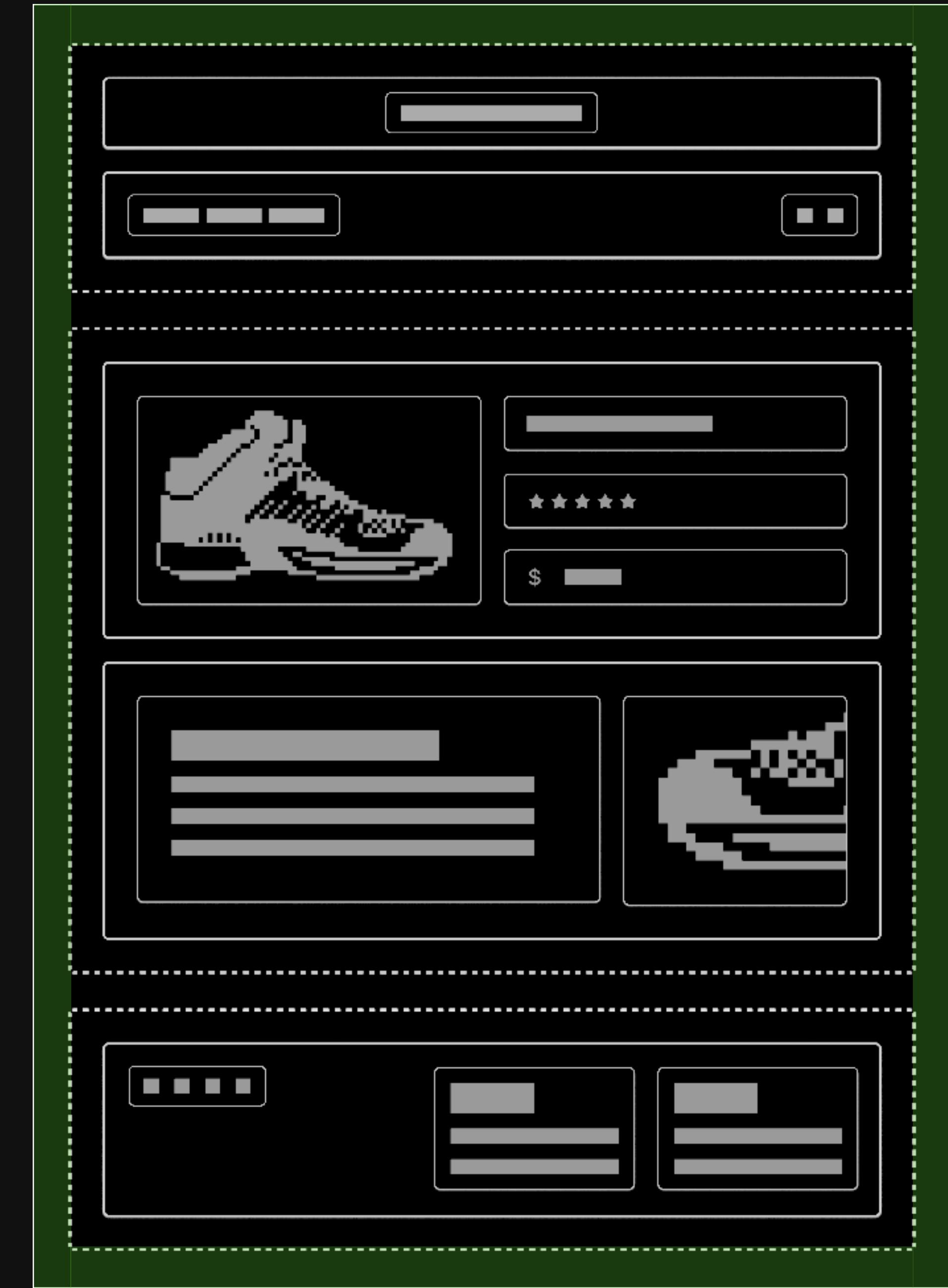


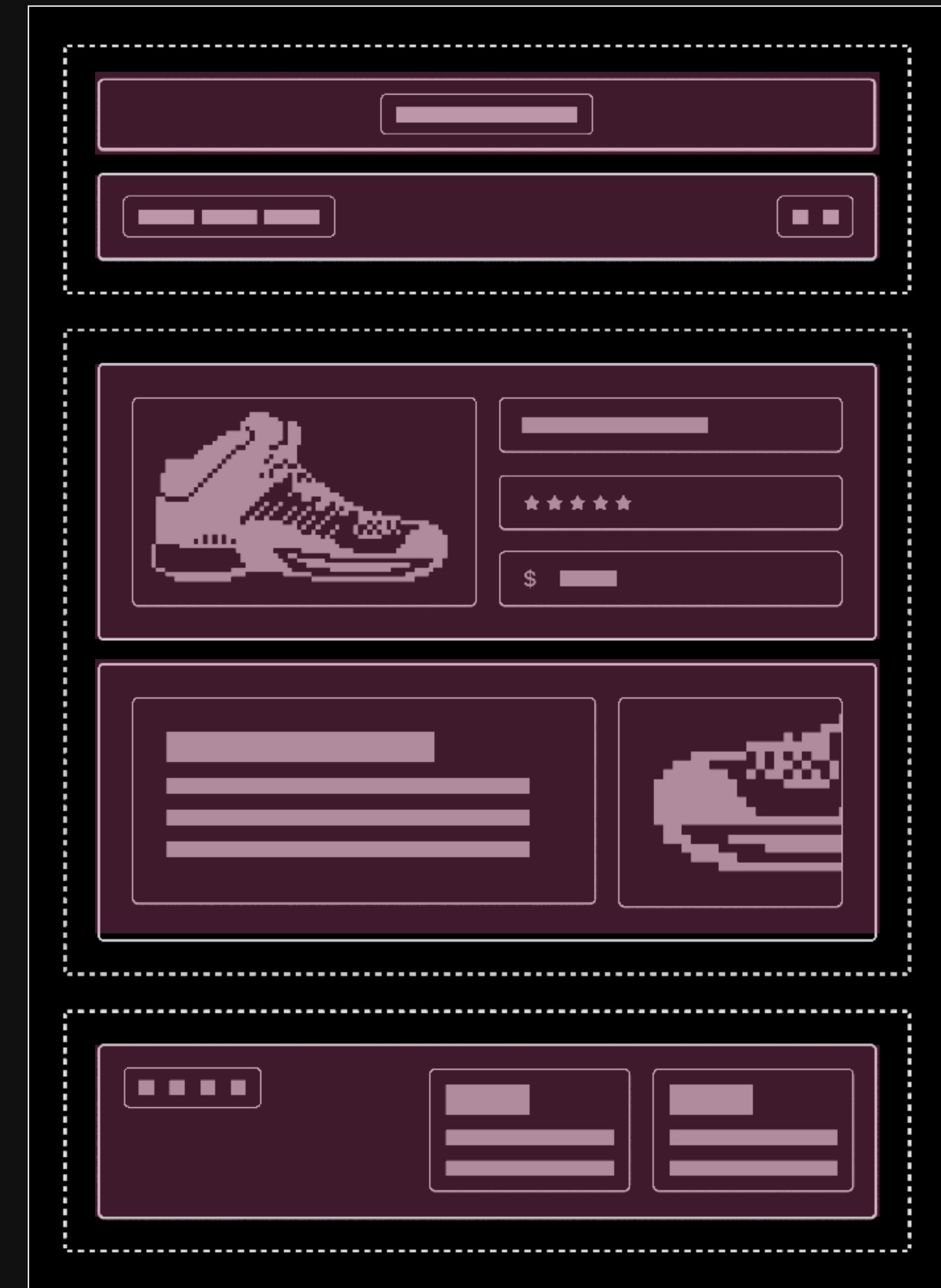
app devs
selling apps with
theme extensions
in the app store

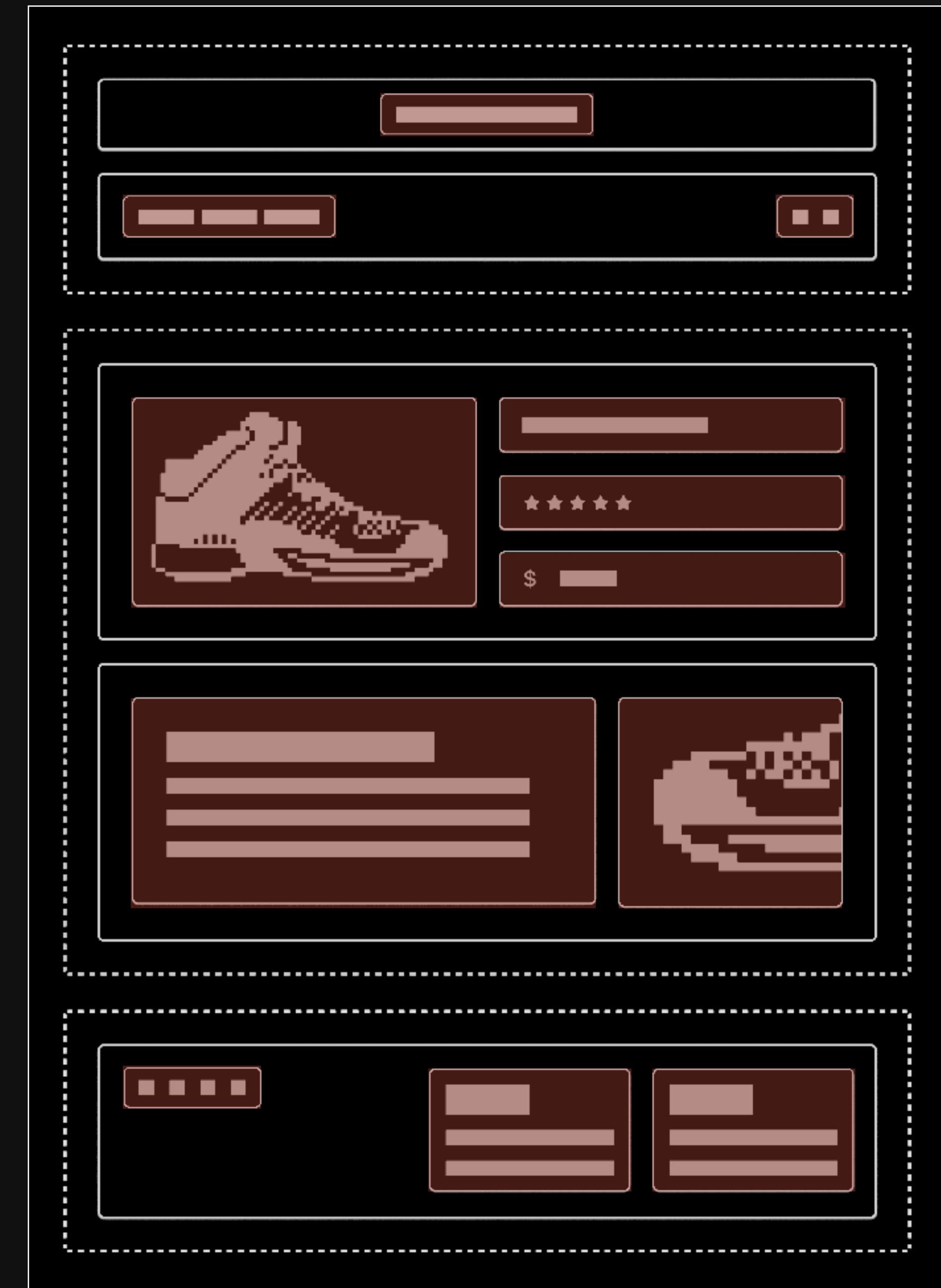


buyers









*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

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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6 |  'product' => {
5 |    "title" => "Portable Speaker",
4 |    "price" => 1999
3 |  }
2 |})
1
17 puts output|
```

```
vim theme.liquid
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
```

example.rb

-- INSERT --

utf-8 99% 18,12

vim example.rb

```
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({
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5 |    "title" => "Portable Speaker",
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3 |
2 })
1
18 puts output
```



example.rb

-- INSERT --

utf-8 99% 18,12

```
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 | ')
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7 output = template.render({
6 |   'product' => {
5 |     | "title" => "Portable Speaker",
4 |     | "price" => 1999
3 |   }
2 | })
1
18 puts output
```



example.rb

-- INSERT --

utf-8 99% 18,12


```
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



tmux

```
require 'liquid'

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

resource_1.rb

utf-8 5% 1,1

⊕ 1·zsh

0

```
● ● ● tmux
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
                                     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

```
$ 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
```

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

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,
--
Liquid error: Memory limits exceeded
```

```
● ● ● tmux
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
                                     0
```

```
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!
```

```
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



tmux

```
require 'liquid'

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

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

```
require 'liquid'

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

p Liquid::Template
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```

```
$ 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')
```

tmux

```
$ 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)
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```

```
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"hello"
--
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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 us Recipes Contact

OMSOM

Larb Starter 3-Pack

\$12.00 CAD

Quantity

Add to cart

Buy it now

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

anu: 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



```
● ● ● vim code/theme.liquid
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' %}>
```

code/theme.liquid ↵ main

"code/theme.liquid" 43L, 2202B written

utf-8 20% 9,1

Free shipping on orders \$35+ 🎉

CRAVE Shop Meet us Recipes Contact

Search icon

OMSOM
Larb Starter 3-Pack

\$12.00 CAD

Quantity: 1

Add to cart

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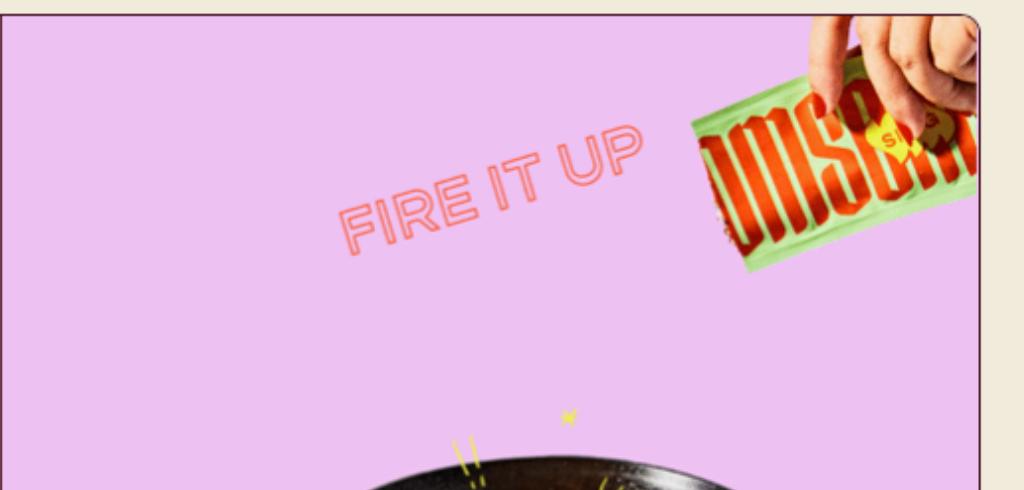
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Search

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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 |
10 1  {% schema %}
11 2  {
12 3    "name": "Example",
13 4    "settings": [
14 5      {
15 6       "id": "image_position",
16 7       "label": "Image position",
17 8       "type": "select",
18 9       "options": [
19 10         { "value": "left", "label": "Left" },
20 11         { "value": "right", "label": "Right" }
21 12     ]
22 13   }
23 14 ],
24 15   "presets": [{ "name": "Example" }]
25 16 }
26 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 |
10 1  {% schema %}
11 2  {
12 3    "name": "Example",
13 4    "settings": [
14 5      {
15 6       "id": "image_position",
16 7       "label": "Image position",
17 8       "type": "select",
18 9       "options": [
19 10         { "value": "left", "label": "Left" },
20 11         { "value": "right", "label": "Right" }
21 12     ]
22 13   }
23 14 ],
24 15   "presets": [{ "name": "Example" }]
25 16 }
26 17 {% endschema %}
```



infoq Draft ... Default Home page Publish Save

Home page

Template

- Example
- Products slider
- Footer
- + Add section



AI THAI THAI THAI THAI THAI THAI THAI
REAL ASIAN FLAVORS THAT TAKE YOU HOME. PROUDLY & LOCALLY

OMSOM
LARB STARTER
A fiery minced salad finished with nutty toasted rice powder

THAI

3-1.0 OZ (84 g) SERVINGS, NET WT 3.0 OZ (84 g)
INCLUDES TOASTED RICE POWDER

◀ ▶

OMSOM

Larb Starter 3-Pack

\$12.00 CAD

Quantity

- 1 +

Add to cart

Buy it now

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

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Nutritional info

Shipping

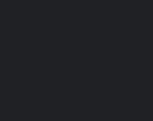
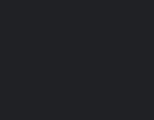
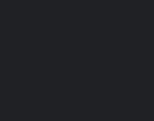
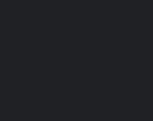
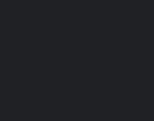
Share

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)

- [https://fun-food.myshopify.com/
products/larb-starter-pack](https://fun-food.myshopify.com/products/larb-starter-pack)

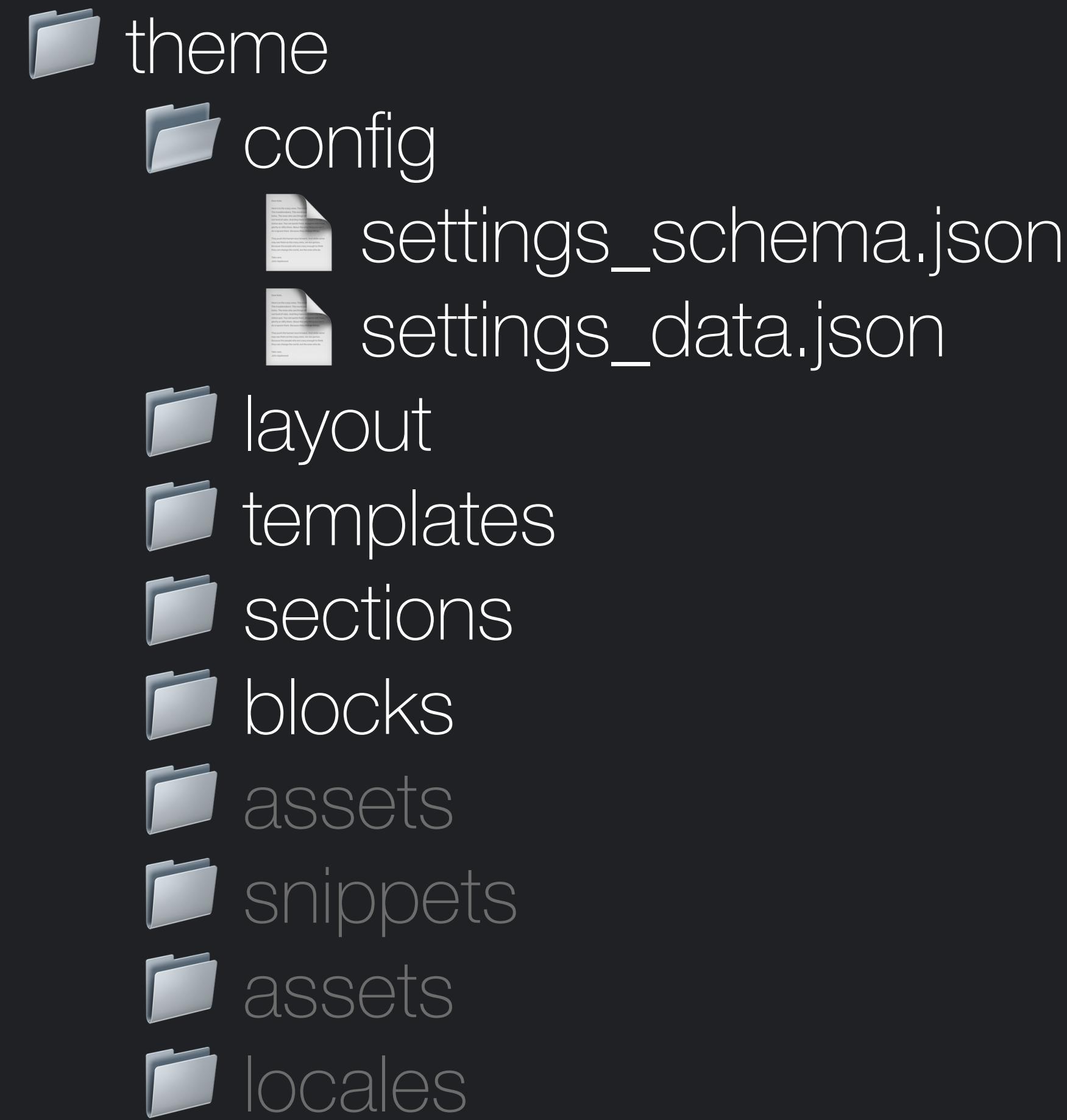
- shop ID / theme ID

-  theme
-  config
-  layout
-  templates
-  sections
-  blocks
-  assets
-  snippets
-  assets
-  locales

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

- shop ID / theme ID

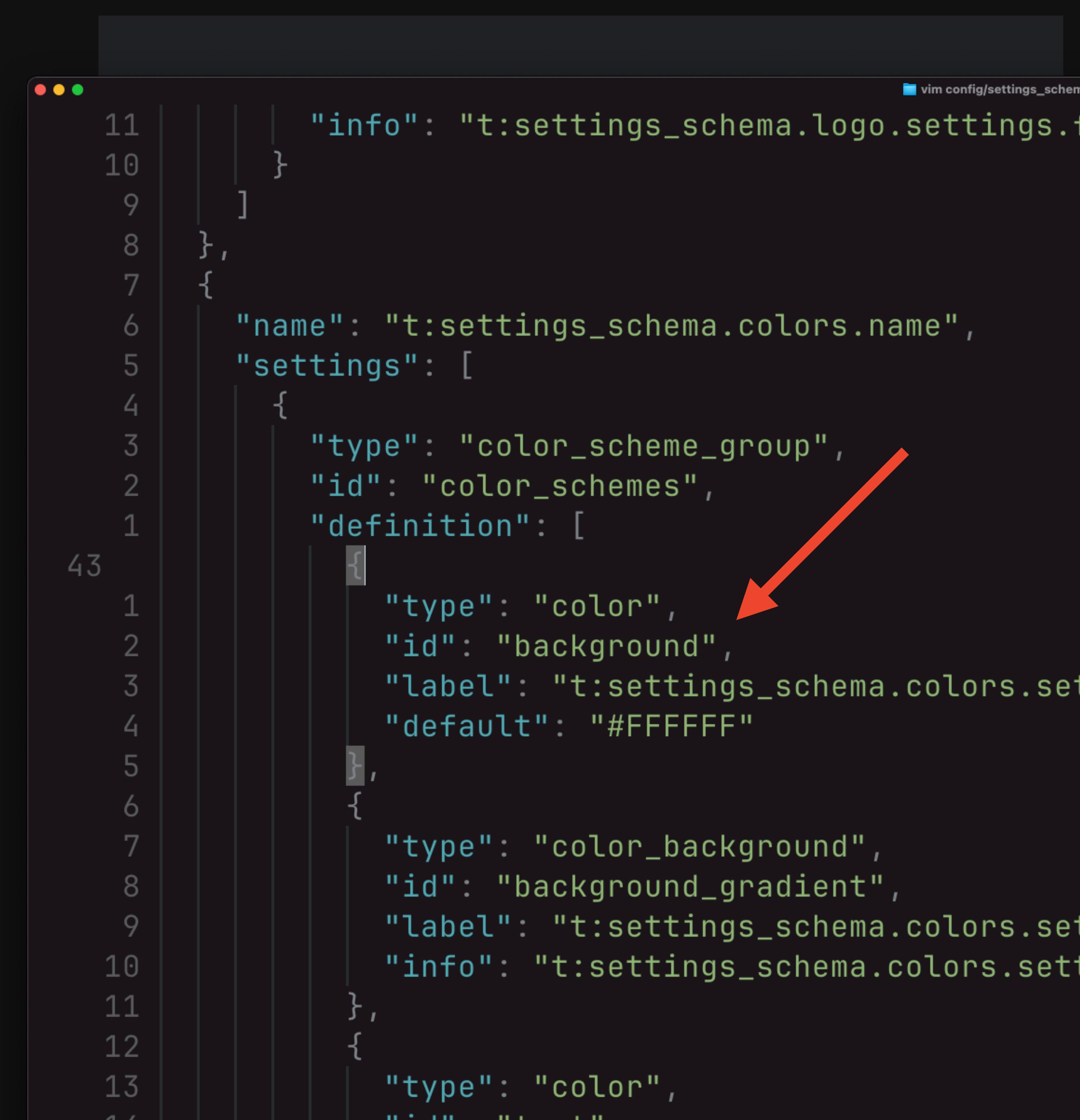
- settings



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

- shop ID / theme ID

- settings



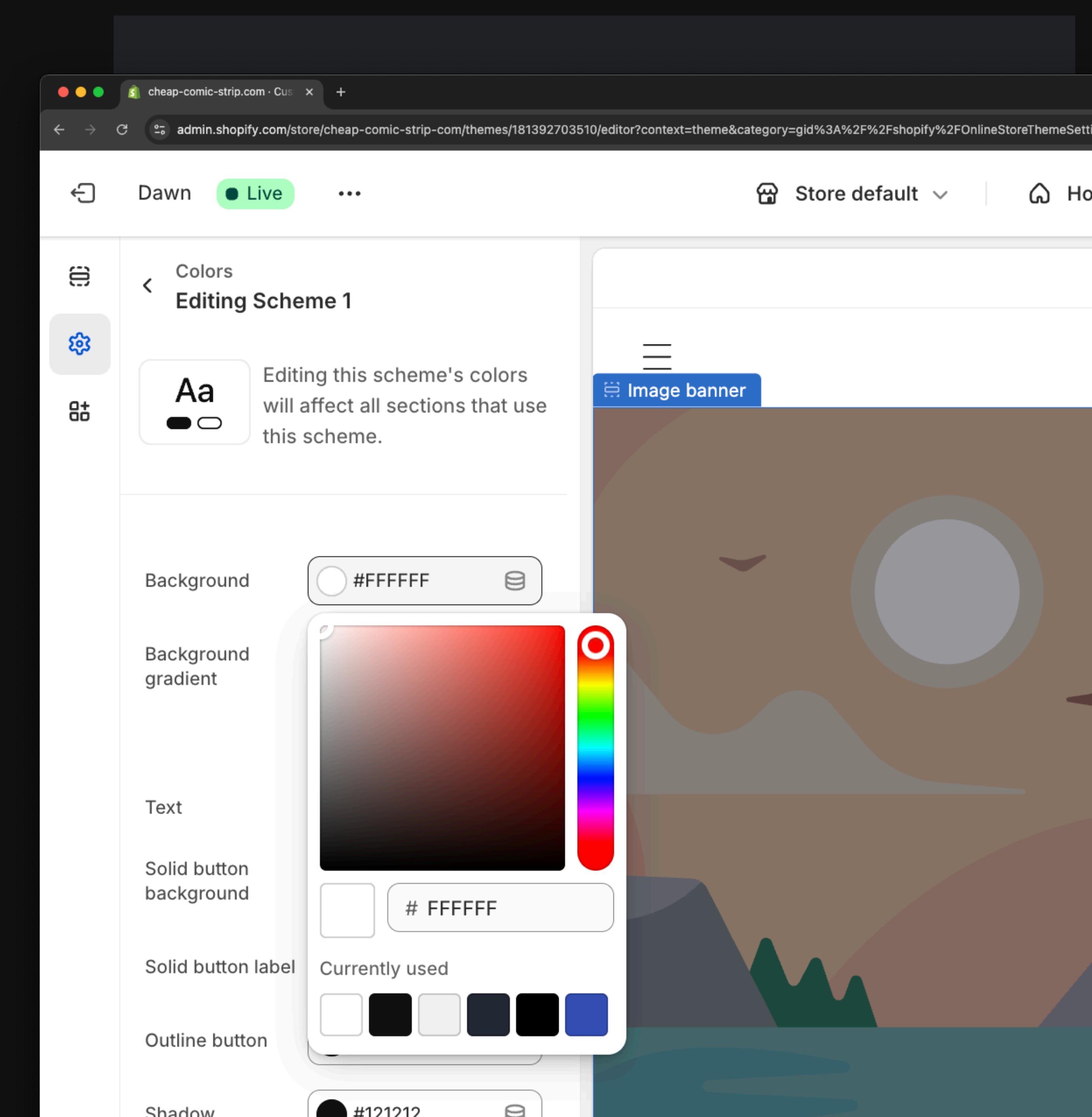
```
vim config/settings_schema.json
```

```
11 |     "info": "t:settings_schema.logo.settings."
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.set"
11 |         },
12 |         {
13 |           "type": "color",
14 |           "id": "text"
15 |         }
16 |       ]
17 |     }
18 |   }
19 | }
```

<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



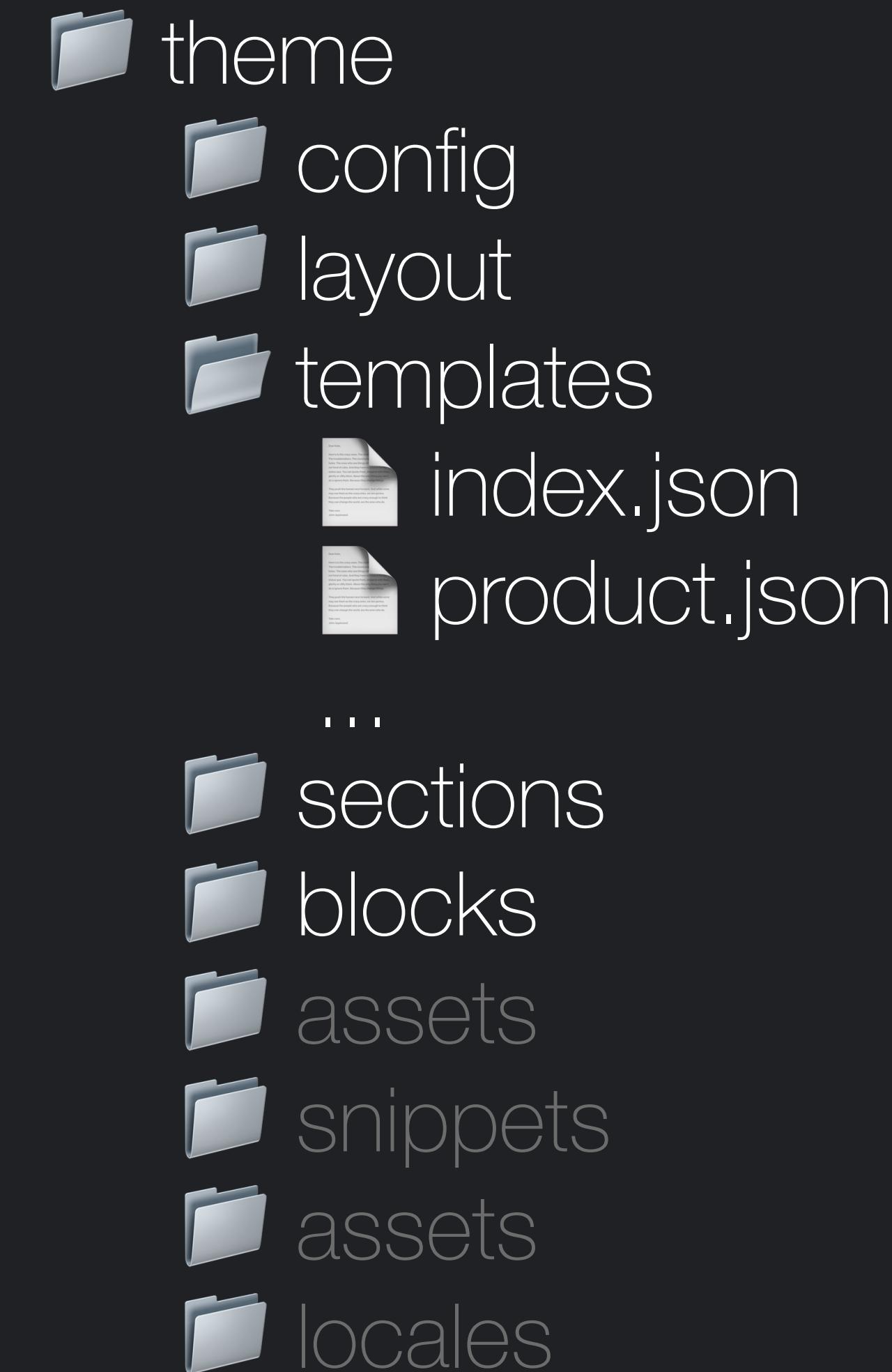
```
vim config/settings_data
8 {
7   "current": "Default",
6   "presets": {
5     "Default": {
4       "logo_width": 90,
3       "color_schemes": {
2         "scheme-1": {
1           "settings": {
9             "background": "#FFFFFF",
8             "background_gradient": "",
7             "text": "#121212",
6             "button": "#121212",
5             "button_label": "#FFFFFF",
4             "secondary_button_label": "#121212",
3             "shadow": "#121212"
2           }
1         },
8       "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          "shadow": "#121212"
18        }
19      }
20    }
21  }
22}
```

- [https://fun-food.myshopify.com/
products/larb-starter-pack](https://fun-food.myshopify.com/products/larb-starter-pack)

- shop ID / theme ID

- settings

- template

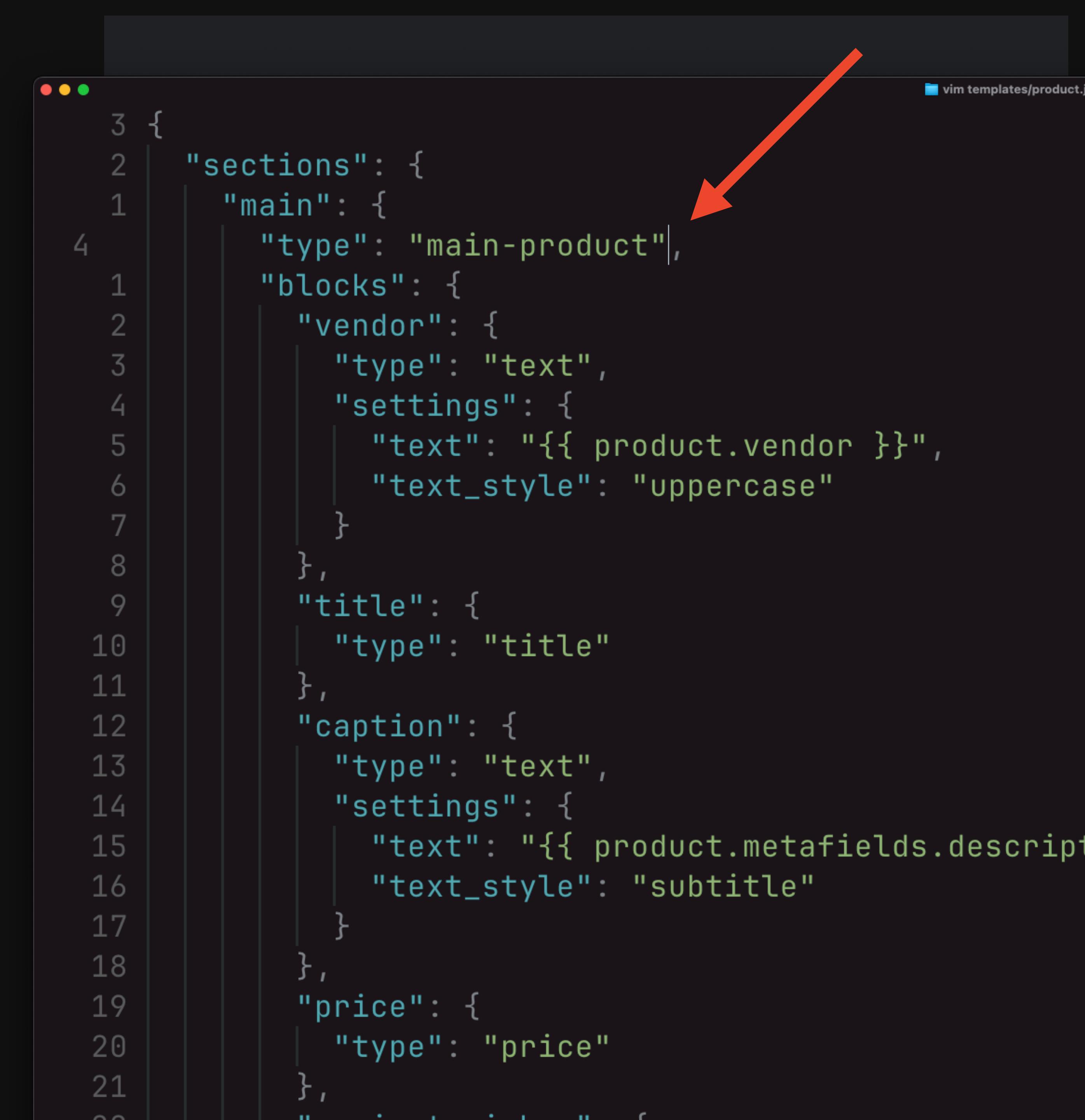


- <https://fun-food.myshopify.com/products/larb-starter-pack>

- shop ID / theme ID

- settings

- template



```
vim templates/product.json
```

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

- <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.myshopify.com/products/larb-start

shop ID / theme ID

settings

template

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

- shop ID / theme ID

- settings

- template

- sections

- blocks

- theme

- config

- layout

- theme.liquid

- password.liquid

- templates

- sections

- header.liquid

- product-details.liquid

- video.liquid

- ...

- blocks

- product-image.liquid

- buy-button.liquid

- ...

- assets

- snippets

- assets

- <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>

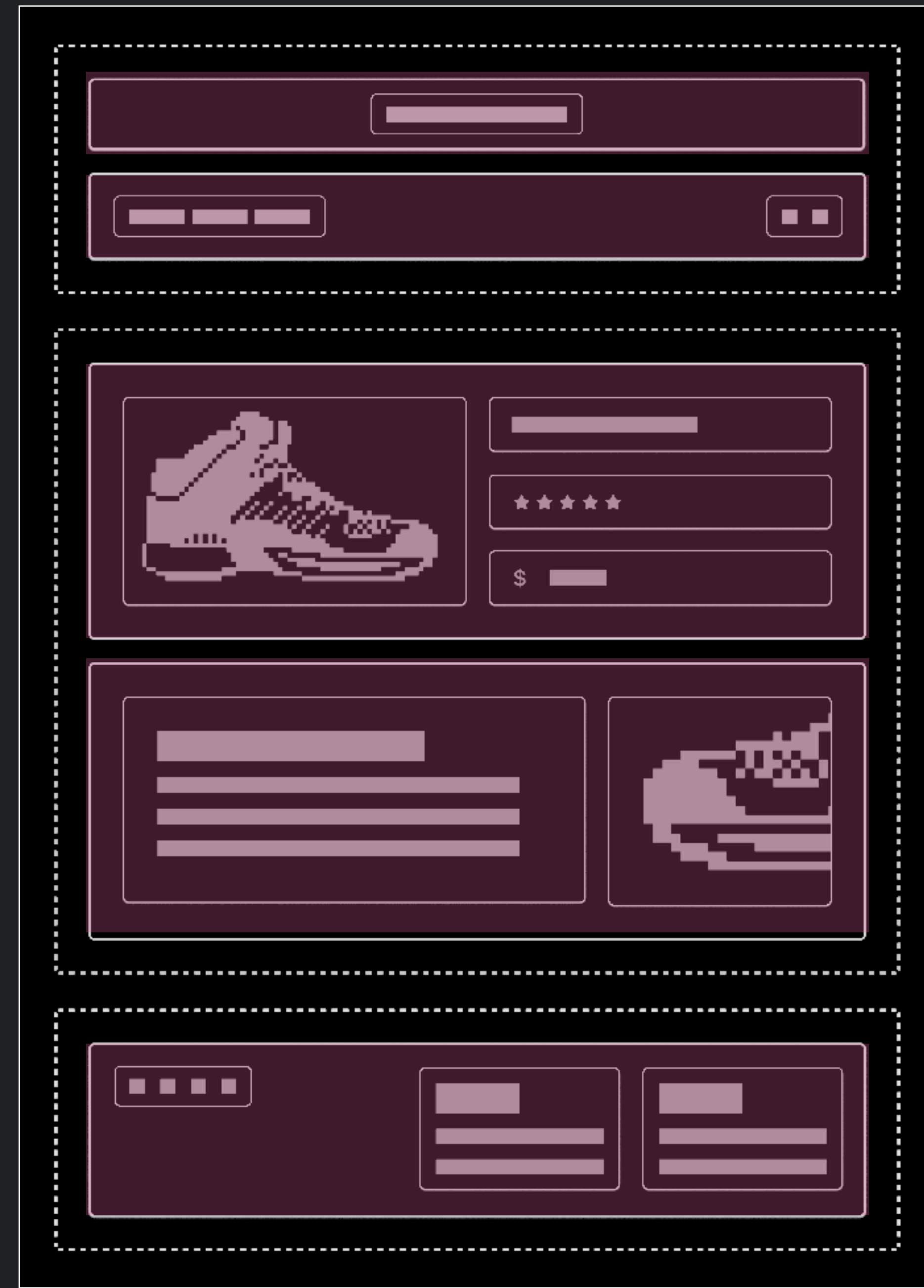
- shop ID / theme ID

- settings

- template

- sections

- blocks



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

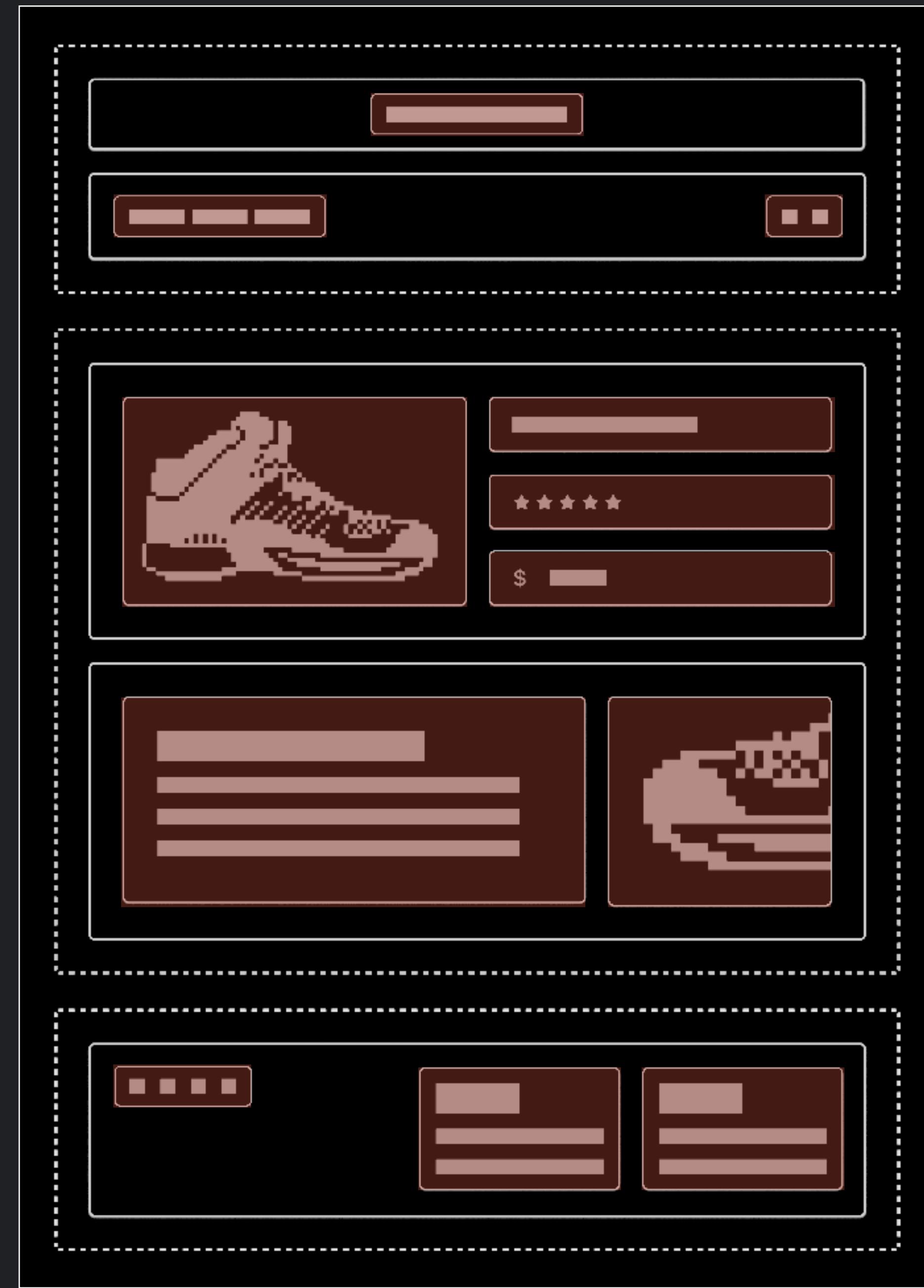
- shop ID / theme ID

- settings

- template

- sections

- blocks



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

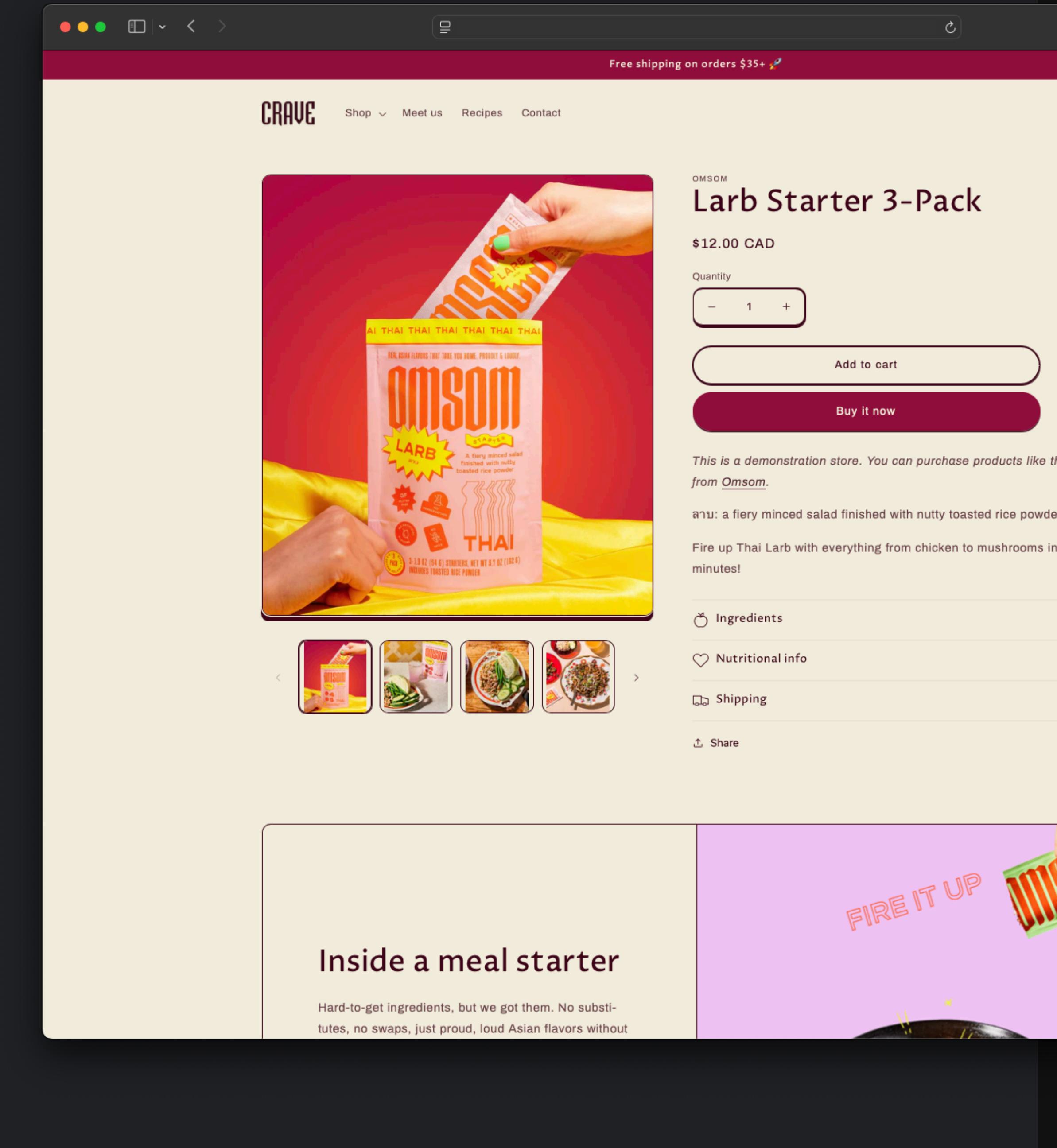
- shop ID / theme ID

- 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



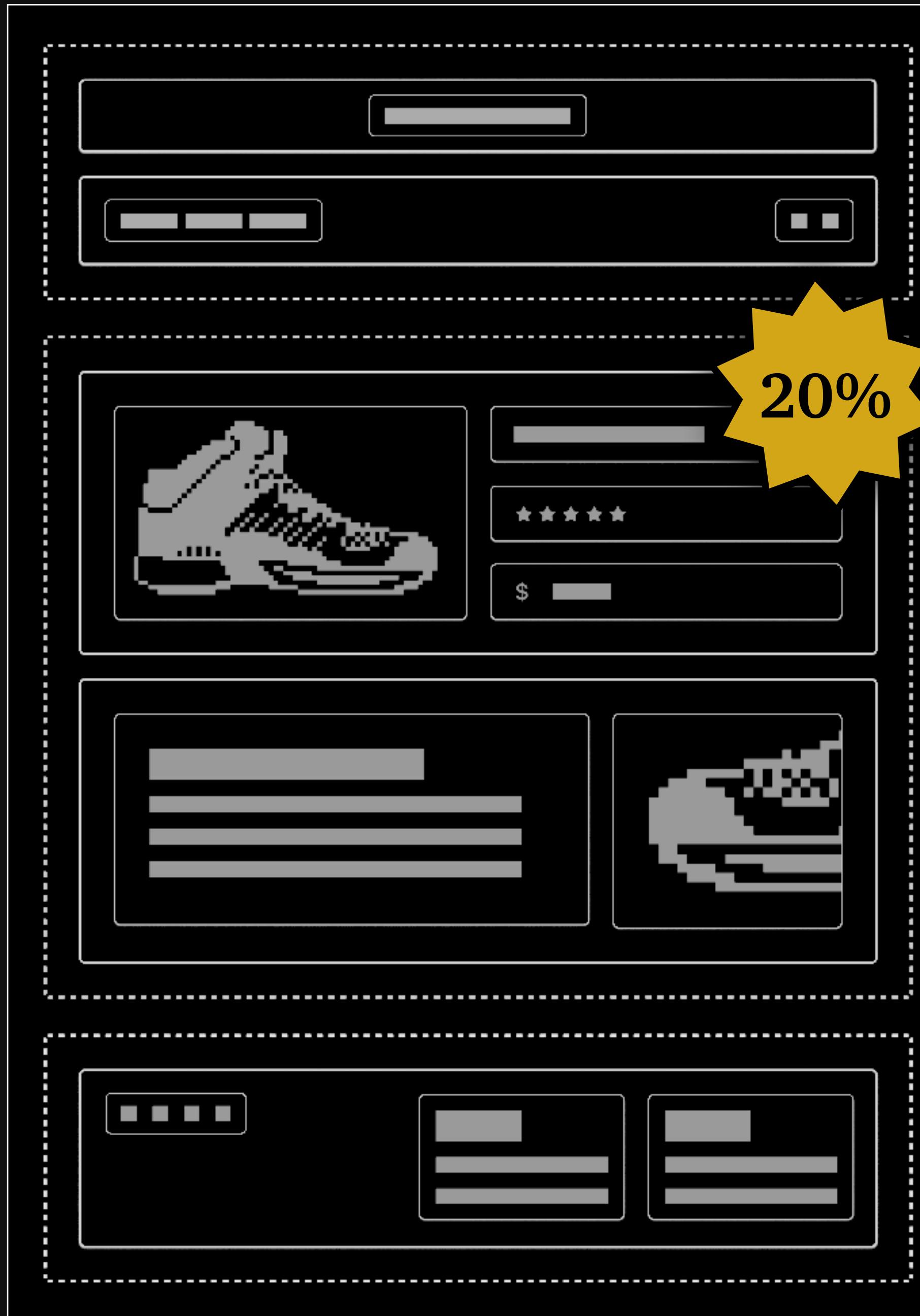
app devs
selling apps with
theme extensions
in the app store



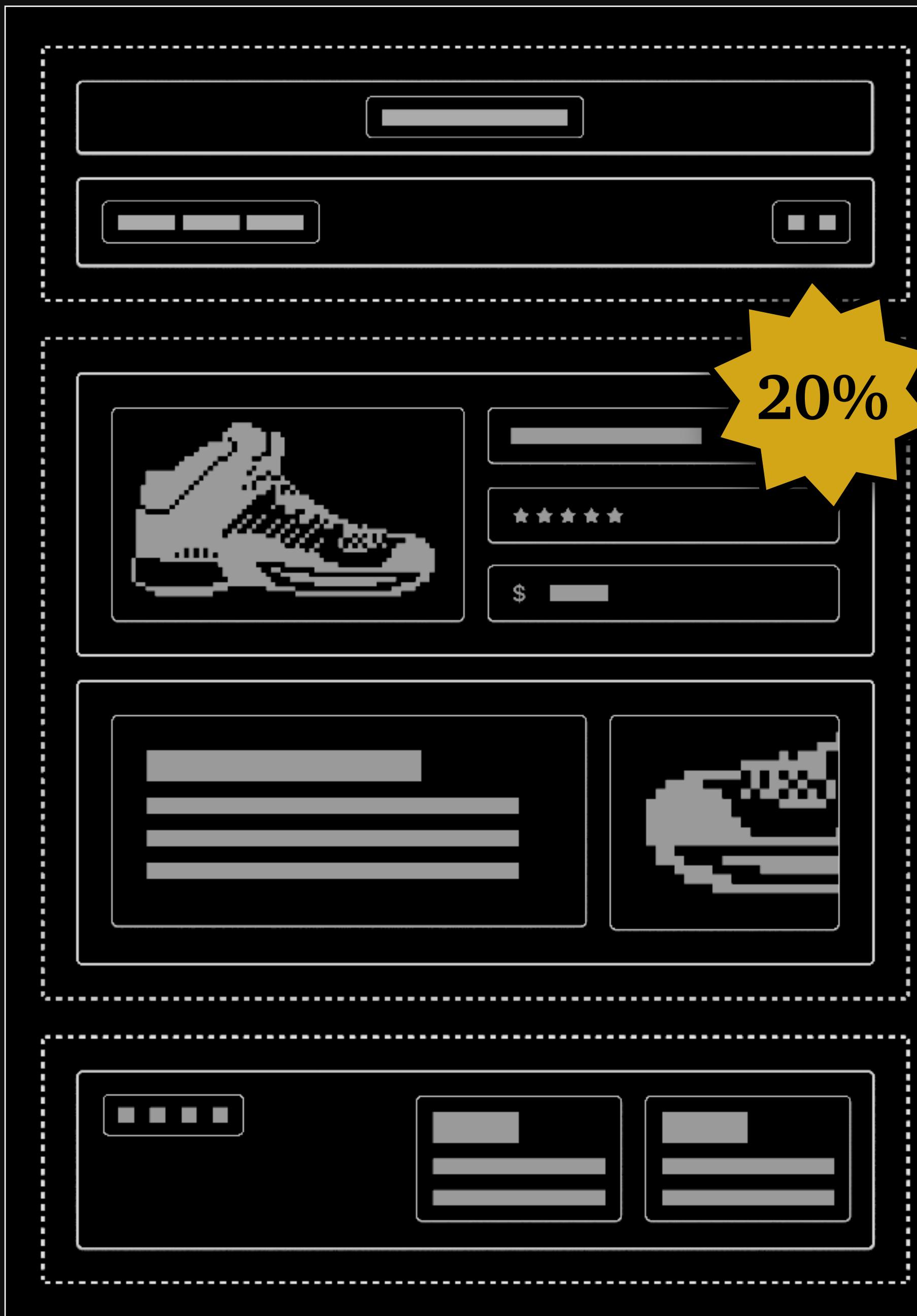
buyers

it must be extensible





theme extensions



theme extensions

```
vim discount.liquid
1 <div class="discount-component">
2   {{ block.settings.amount_of_discount }}%
3 </div>
4
5 1 {%- schema %}
6 2 {
7 3   "name": "Discount",
8 4   "target": "section",
9 5   "settings": [
10 6     {
11 7       "type": "number",
12 8       "id": "amount_of_discount",
13 9       "label": "Discount"
14 10    }
15 11  ]
16 12  }
17 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 Change
Chequered Red Shirt

Header

- > Announcement bar
- > Header
- + Add section

Template

Product information

- Text
-
-

- Title
- Price
- Variant picker
- Quantity selector
- Buy buttons
- Description
- Related products
- + Add section

Footer

- + Add section
- > Footer

My shop Spain | EUR € English Search User Cart



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 ⌘ Z
- Redo ⌘ Y
- Save ⌘ S
- Preview inspector ⌘ I
- See all shortcuts ⌘ /

- [https://fun-food.myshopify.com/
products/larb-starter-pack](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
- 

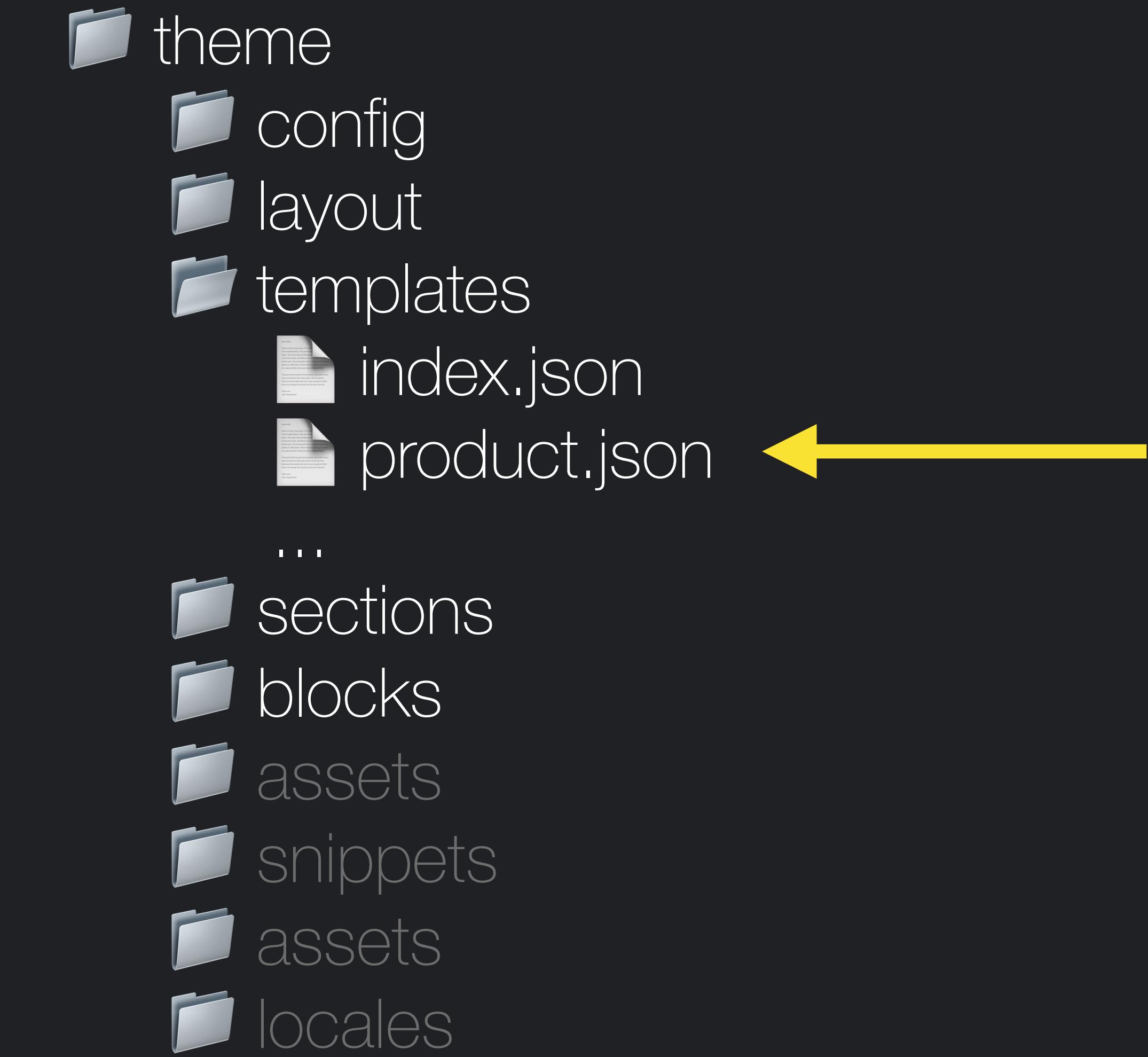
- https://fun-food.myshopify.com/
products/larb-starter-pack  templates drops (product)
- shop ID / theme ID
- settings  store the global settings state
- template
- sections
- blocks







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



- [https://fun-food.myshopify.com/
products/larb-starter-pack](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

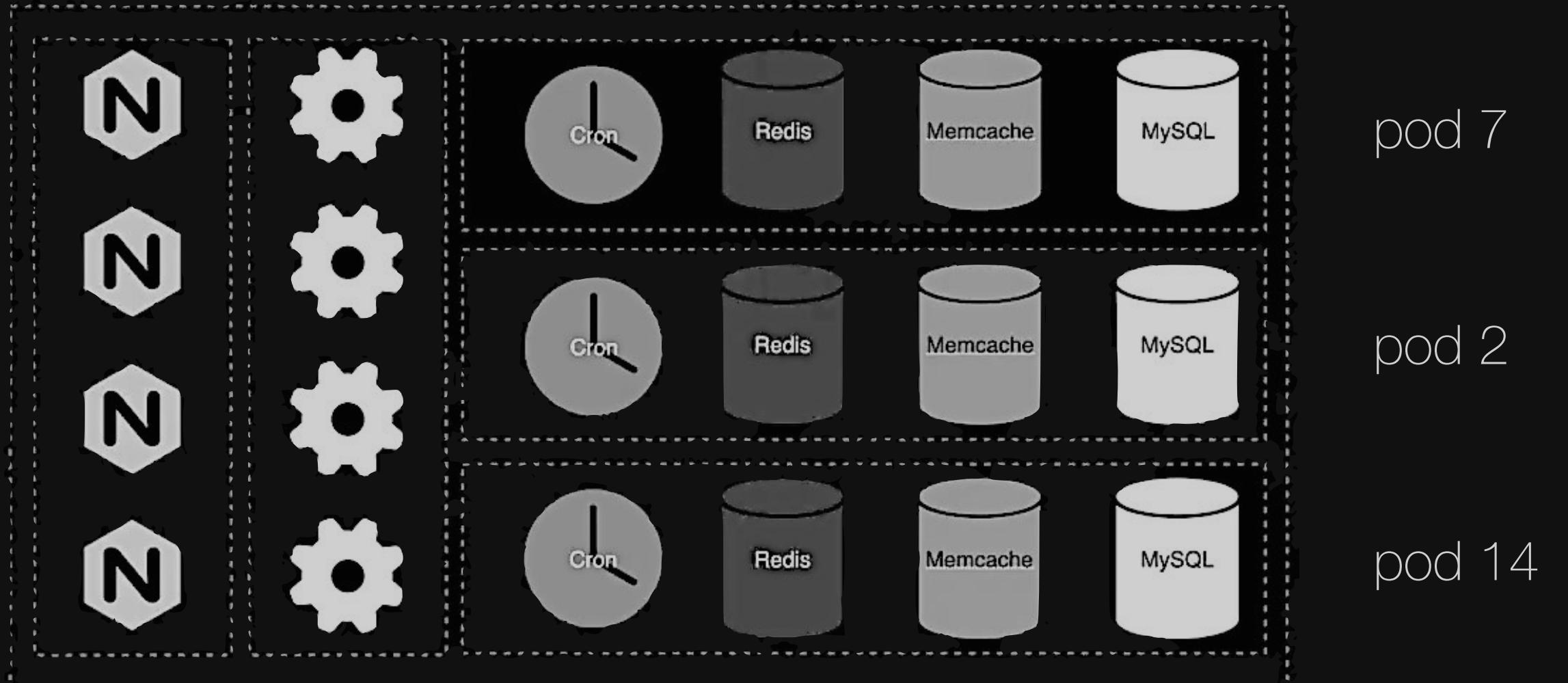


it must be fast

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

runtime infrastructure

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



native extensions and ffi

native extensions

- gc

native extensions

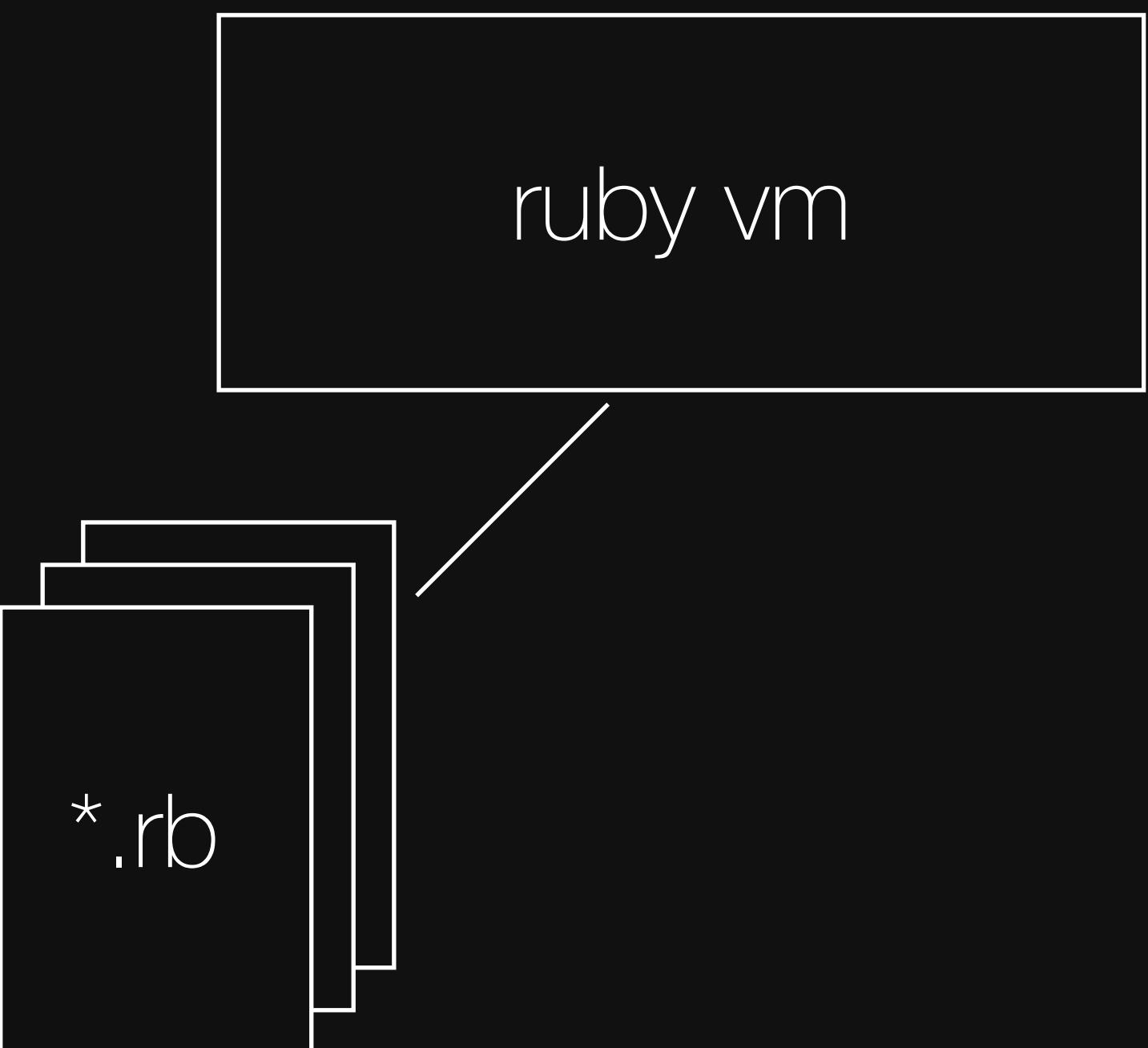
- gc
- performance

native extensions

- gc
- performance
- reusability

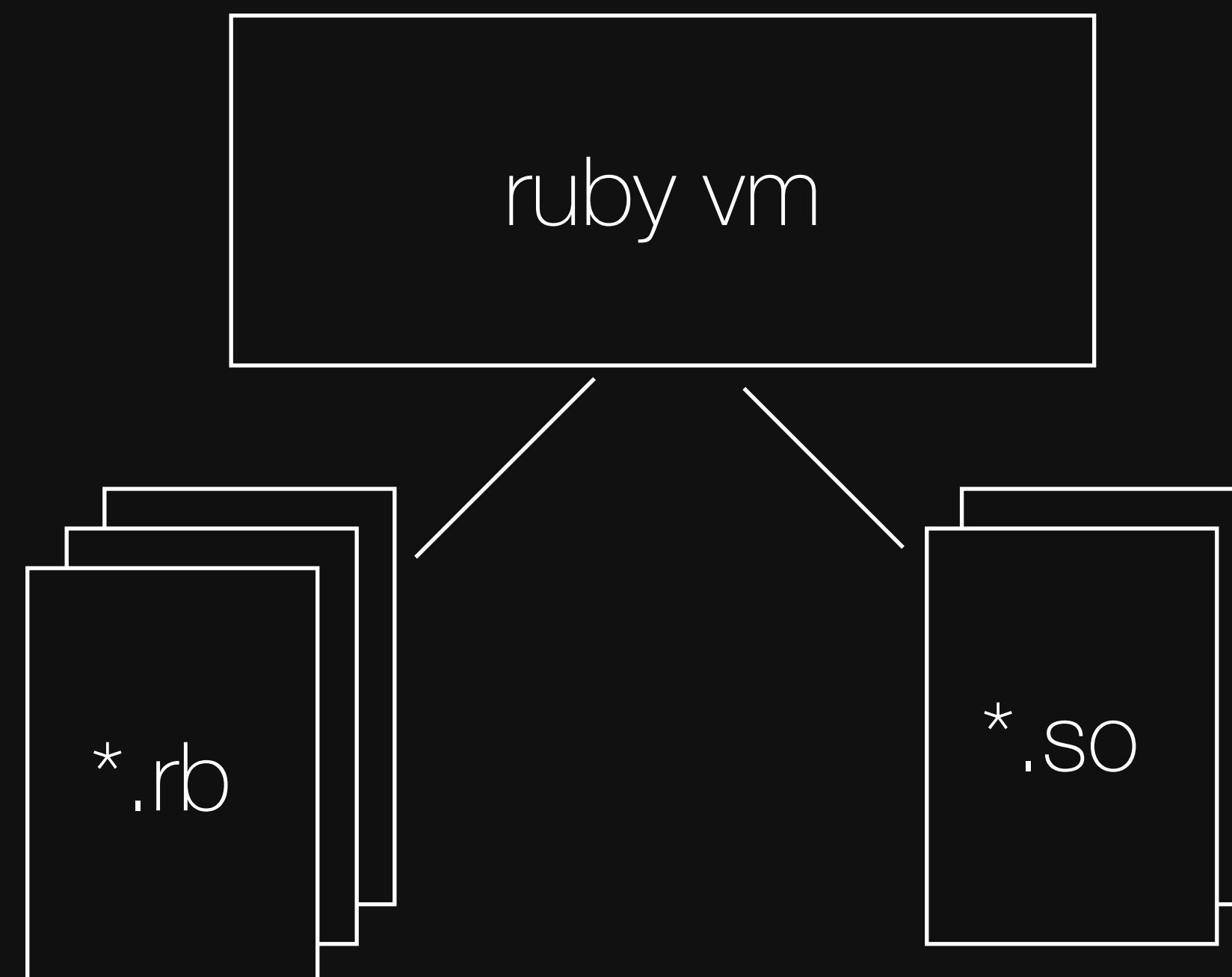
native extensions

- 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!

2 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
}
```

3 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
}
```

1 Fastest

liquid schemas runtime tools your domain

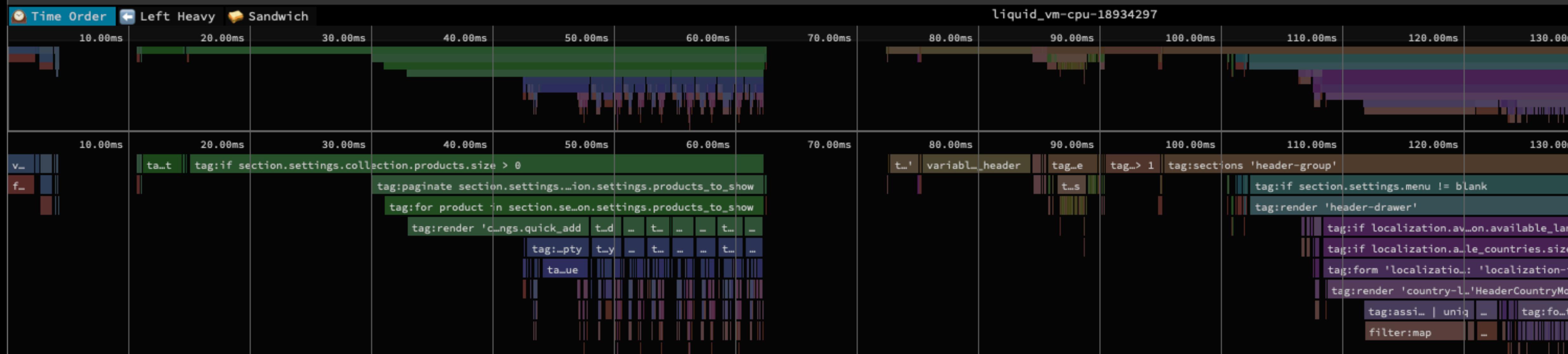


tools must inspire

~ shopify theme profile



file:///Users/karreiro/Library/pnpm/global/5/.pnpm/@shopify+cli@0.0.0-snapshot-20250501230324/node_modules/@shopif



~ shopify theme check

The screenshot shows a dark-themed code editor interface with the following details:

- Top Bar:** Includes standard OS X window controls (red, yellow, green), a back/forward button, a search bar containing "skeleton-theme", a tab switcher, and system status icons.
- Left Sidebar (EXPLORER):** Shows the project structure under "SKELETON-THEME".
 - Assets:** .github, assets (containing critical.css, icon-account.svg, icon-cart.svg, shoppy-x-ray.svg), utils.js.
 - Layout:** blocks, config, password.liquid, theme.liquid (selected, 2, M).
 - Snippets:** css-variables.liquid, image.liquid, meta-tags.liquid.
 - Others:** locales, sections, templates, .gitattributes, .gitignore, .shopifyignore, .theme-check.yml.
- Central Area:** The main editor pane displays the "theme.liquid" file content.

```
layout > theme.liquid
1  <!doctype html>
2  <html lang="{{ request.locale.iso_code }}>
3  <head>
4  {% # Inlined CSS Variables %}
5  {% render 'css-variables' %}

6  {% # Load and preload the critical CSS %}
7  {{ 'critical.css' | asset_url | stylesheet_tag: preload: true }}

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
26  </html>
```
- Right Sidebar:** A small sidebar on the right shows a preview of the theme's header section.

The screenshot shows a dark-themed code editor interface with the following details:

- Top Bar:** Includes standard OS X-style window controls (red, yellow, green), a back/forward button, a search bar containing "skeleton-theme", a dropdown menu, and a series of small icons.
- Left Sidebar (EXPLORER):** Shows the project structure under "SKELETON-THEME".
 - Assets:** Contains files like ".github", "critical.css", "icon-account.svg", "icon-cart.svg", and "shoppy-x-ray.svg".
 - Layout:** Contains files like "blocks", "config", "password.liquid", "theme.liquid" (which is currently selected), "locales", "sections", and "snippets".
 - Snippets:** Contains files like "css-variables.liquid", "image.liquid", and "meta-tags.liquid".
 - Templates:** Contains files like ".gitattributes", ".gitignore", ".shopifyignore", and ".theme-check.yml".
- Central Editor Area:** Displays the content of "theme.liquid".

```
<!doctype html>
<html lang="{{ request.locale.iso_code }}>
  <head>
    {% # Inlined CSS Variables %}
    Avoid parser blocking scripts by adding `defer` or `async` on this tag theme-
    check(ParserBlockingScript)
    'assets/utils.css' does not exist theme-check(MissingAsset)
  <script src="{{ 'utils.css' | asset_url }}></script>
    {% # Social, title, etc. %}
    {% render 'meta-tags' %}

    {{ content_for_header }}
  </head>

  <body>
    {% sections 'header-group' %}

    {{ content_for_layout }}

    {% sections 'footer-group' %}

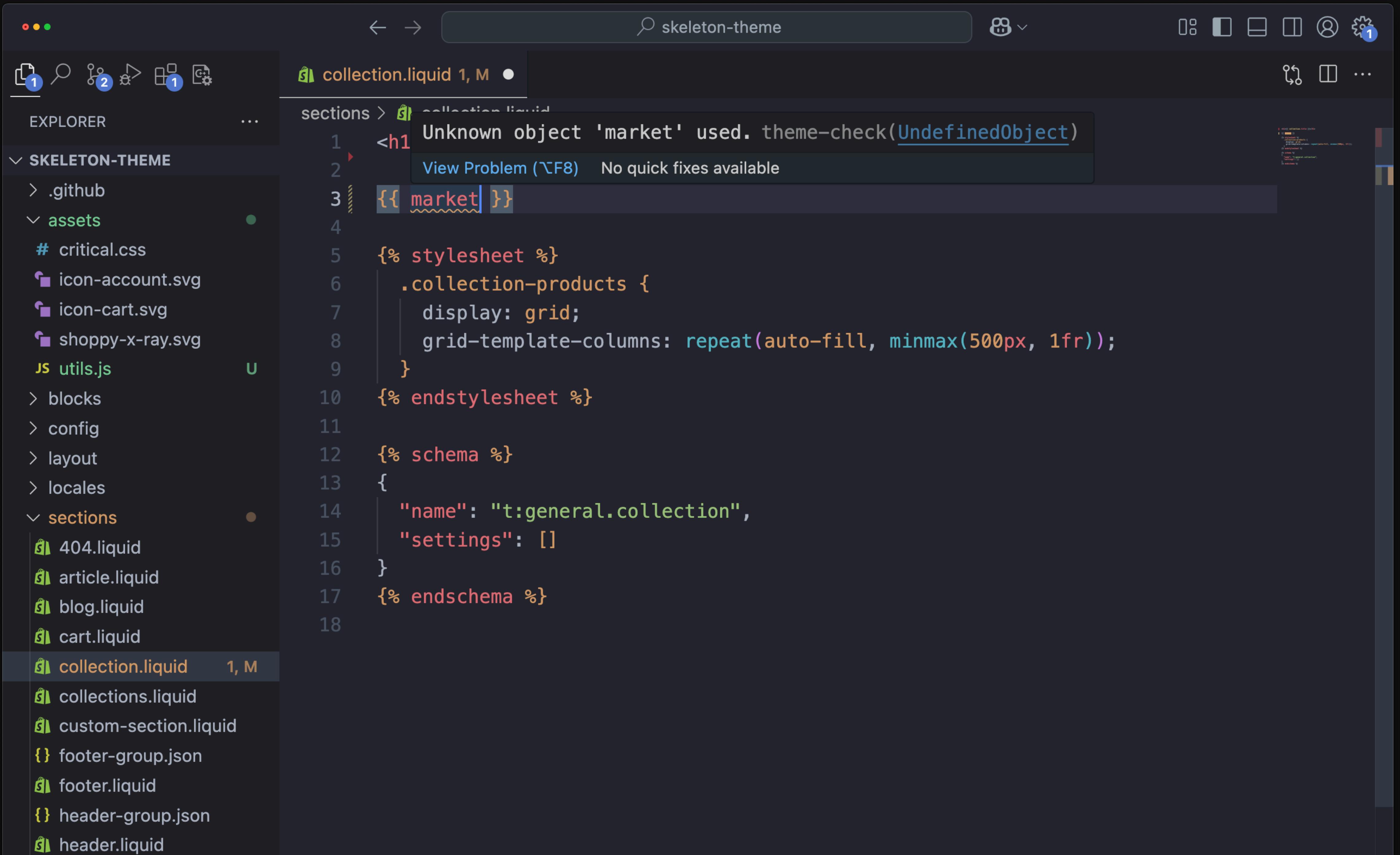
  </body>
</html>
```
- Bottom Status Bar:** Shows line numbers from 10 to 26.

The screenshot shows a dark-themed code editor interface with the following details:

- Top Bar:** Includes standard window controls (minimize, maximize, close), a search bar containing "skeleton-theme", and a tab bar with multiple tabs.
- Left Sidebar (Explorer):** Shows a tree view of the project structure under "SKELETON-THEME".
 - assets:** .github, 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 (selected), collections.liquid, custom-section.liquid, footer-group.json, footer.liquid, header-group.json, header.liquid
- Central Area:** Displays the content of the selected file, "collection.liquid".

```
<h1>{{ collection.title }}</h1>
{{ market }}
{% stylesheet %}
.collection-products {
  display: grid;
  grid-template-columns: repeat(auto-fill, minmax(500px, 1fr));
}
{% endstylesheet %}

{% schema %}
{
  "name": "t:general.collection",
  "settings": []
}
{% endschema %}
```
- Right Sidebar:** Shows a preview of the current page state and a status bar indicating "1 file changed".



A screenshot of the Visual Studio Code (VS Code) interface. The title bar shows the search term "skeleton-theme". The Explorer sidebar on the left lists files and folders under the "SKELETON-THEME" root, including ".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" (which is currently selected), "collections.liquid", "custom-section.liquid", "footer-group.json", "footer.liquid", "header-group.json", and "header.liquid".

The main editor area displays the "collection.liquid" file. The code is as follows:

```
sections > collection.liquid
1 <h1 Unknown object 'market' used. theme-check(UndefinedObject)
2 View Problem (F8) No quick fixes available
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
```

A tooltip is displayed over the word "market" at line 3, showing the error message: "Unknown object 'market' used. theme-check(UndefinedObject)". Below the message are links to "View Problem (F8)" and "No quick fixes available".

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

A screenshot of a dark-themed code editor, likely Visual Studio Code, displaying a Liquid template file named `collection.liquid`. The file is located in the `sections` directory of a theme named "SKELETON-THEME". The code includes Liquid tags for displaying the collection title and products, a CSS rule for the collection products container, and JSON schema definitions.

```
<h1>{{ collection.title }}</h1>
<div class="collection-products">
  {% for product in collection.products %}
    ...
  {% endfor %}
</div>

{% stylesheet %}
.collection-products {
  display: grid;
  grid-template-columns: repeat(auto-fill, minmax(500px, 1fr));
}

{% endstylesheet %}

{% schema %}
{
  "name": "t:general.collection",
  "settings": []
}
{% endschema %}
```

error tolerant parsers

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
```

The screenshot shows a dark-themed version of Visual Studio Code. The title bar says "skeleton-theme". The left sidebar (EXPLORER) lists files under "SKELETON-THEME", including ".github", "assets", "# critical.css", "icon-account.svg", "icon-cart.svg", "shoppy-x-ray.svg", "utils.js", and various Liquid template files like "404.liquid", "article.liquid", "blog.liquid", "cart.liquid", "collection.liquid", "collections.liquid", "custom-section.liquid", "footer-group.json", "footer.liquid", "header-group.json", and "header.liquid".

The main editor area shows the "collection.liquid" file:

```
sections > collection.liquid
1  <h1>{{ collection.title }}</h1>
2
3  <div class="collection-products">
4    {% for product in collection.products %}
5      {{ product. }}<br/>
6    {% endfor %}
7
8  {% stylesheet %}
9    .collection-product {
10      display: grid;
11      grid-template-columns: 1fr 1fr;
12    }
13  {% endstylesheet %}
14
15  {% schema %}
16  {
17    "name": "t:grid",
18    "settings": []
19  }
20  {% endschema %}
```

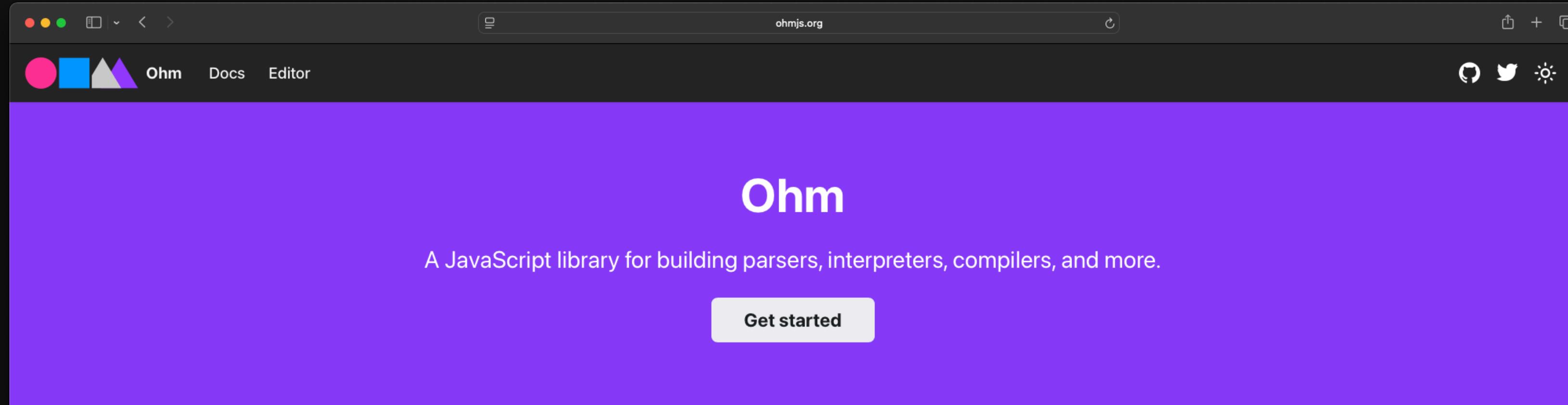
A tooltip is open over the code at line 5, showing the documentation for the Liquid variable `{{ product. }}`:

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 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.

The screenshot shows a dark-themed version of the VS Code interface. The sidebar on the left is titled 'EXPLORER' and displays a tree view of a 'DAWN' folder. Inside 'DAWN', there are several sub-folders and files: '.github', '.vscode', 'assets', 'config', 'layout', 'locales', and a 'sections' folder containing 'announcement-bar.liquid', 'apps.liquid', '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', and 'main-404.liquid'. The 'apps.liquid' file is currently selected in the sidebar.

The main editor area shows the content of the 'apps.liquid' file:

```
1 <div class="{% if section.settings.include_margins %}page-width{% endif %}{% if settings.-%}>
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": "article",
15      "id": "in" "article"
16      "default": "blog"
17      "label": "checkbox"
18    },
19    {
20      "type": "collection"
21      "id": "in" "collection"
22      "default": "collection_list"
23    },
24    {
25      "type": "color"
26      "id": "in" "color"
27      "default": "color_background"
28    },
29    {
30      "type": "color_scheme"
31      "id": "in" "color_scheme"
32      "default": "color_scheme_group"
33    },
34    {
35      "type": "font_picker"
36      "id": "in" "font_picker"
37    }
38  ],
39  "presets": [
40    {
41      "name": "t:sections.apps.presets.name"
42    }
43  ]
44 }
45
46 {%- endschema -%}
```

A tooltip is displayed over the 'type' field in the JSON schema, providing the following documentation:

A setting of type `article` 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](#)

github.com/microsoft/vscode-json-languageservice

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aeschli prepare 5.5.0 (#264) ✓ 628c87f · 3 weeks ago 662 Commits

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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

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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

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

```
sections > apps.liquid
1  <div class="{% if section.settings.include_margins %}page-width{% endif %}{% if settings.-%}
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": "article",
15             "id": "in"
16             "default": "blog"
17             "label": "checkbox"
18         },
19         {
20             "type": "collection"
21             "label": "collection_list"
22         },
23         {
24             "type": "color"
25             "label": "color_background"
26         },
27         {
28             "type": "color_scheme"
29             "label": "color_scheme_group"
30         },
31         {
32             "type": "font_picker"
33         }
34     ],
35     "blocks": [
36         {
37             "type": "header"
38             "label": "html"
39         }
40     ],
41     "presets": [
42         {
43             "name": "t:sections.apps.presets.name"
44         }
45     ]
46 }
47 {%- endschema %}
```

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