



А11у Flutter приложений





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1. **Team Lead** в Flutter команде Surf
2. **Разработчик** больше 3-х лет во Flutter
3. Пишу статьи в Телеграм, на Хабр



surfstudio



surf_flutter



Мотивация

Стандарты

Соответствие

Заключение



Мотивация





15% людей имеют проблемы со здоровьем





К 2060 году пожилое население

УДВОИТСЯ



Accessibility фото

ДЛЯ ВСЕХ





90% (!) интернет-ресурсов не адаптированы



10000 дел

~~ATTY~~

ATTY





Заметили что-то, да?

9:41



Поиск



Препараты при аллергии

634 товара

По популярности

Фильтры



Зиртек, табл. п/о 10 мг. №20

USB

339 Р

В корзину



Супракс гранулы
д/приг.сусп. 60мл 100мг/5мл
30

Тева

179 Р

В корзину



Цетрин таб.п/о плен. 10мг
№30

Косметик актив продукт

133 Р



Главная



Каталог



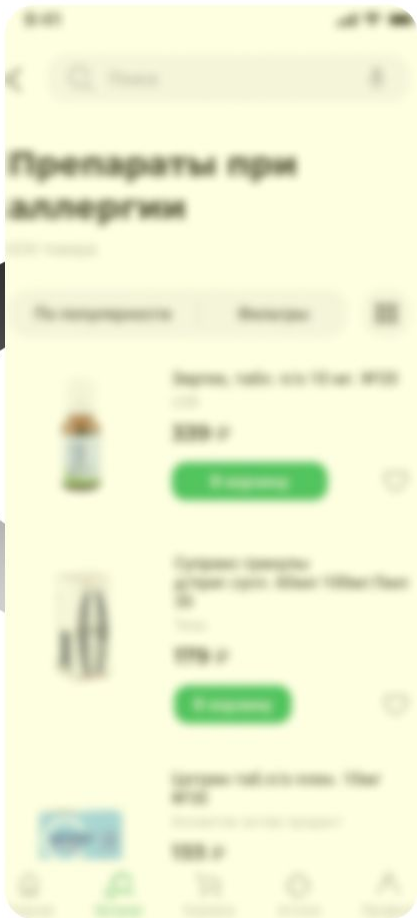
Корзина



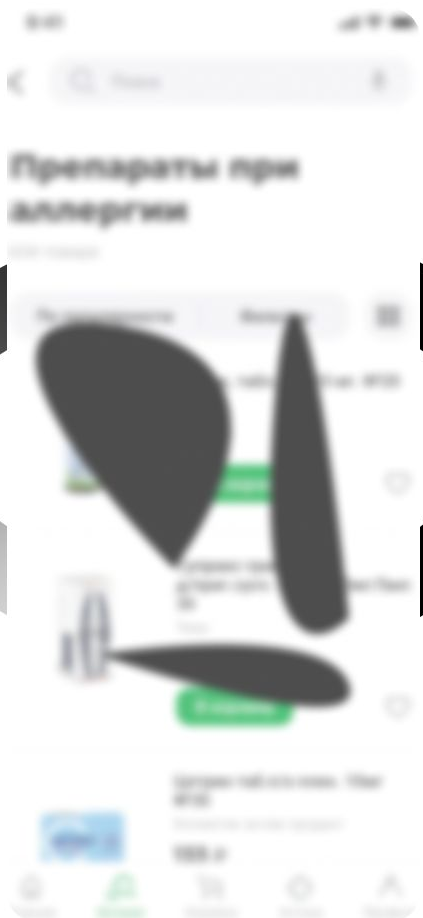
Аптеки



Профиль







9:41



Поиск



Препараты при аллергии

634 товара

Популярности

Фильтры



Зиртек табл.п/о 10 мг №20

USVIB

339₽

В корзину



Сулпрак гранулы д/приг.сусп. 60мг/100мл/5мл

300

Тева

179₽

В корзину



Цетрин таб.п/о плен. 10мг

№30

Косметик актив продукт

133₽



Главная



Каталог



Корзина



Аптека



Профиль



? W3C WCAG ?



A

AA

AAA

I

A

МИНИМУМ

AA

AAA

I

1. No keyboard traps
2. Navigable with a keyboard
3. Non-text content alternatives
4. Video captions
5. Meaning is not conveyed through...

A
AA

1. Color contrast
2. Alt text

ОПТИМАЛЬНО

AAA
I

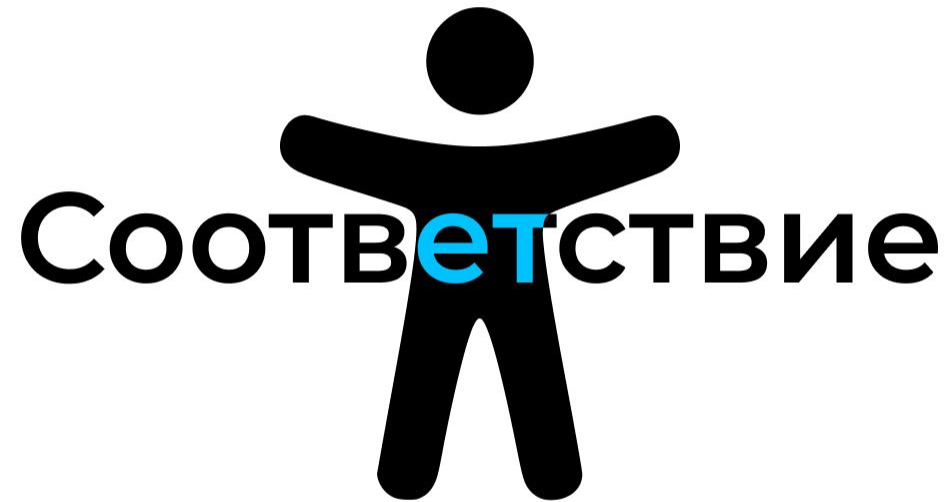
1. Navigation elements are consistent
2. Form fields have accurate labels
3. Status updates through a screen reader
4. Headings are used in logical order

A
AA
AAA

1. Sign language interpretation
2. Color contrast is at least 7:1
3. Timing is not an essential
4. Context-sensitive help

уважение+

!



Соответствие



Sale

[View all](#)

Product on sale limited time, huge discount



2020-08-01-01
Pumps

Skirts

100.00 \$ 200.00 \$



2020-08-01-01
Access

Accessories

101.00 \$



2020-08-01-01
Access

Accessories

102.00 \$

New

[View all](#)



Home



Shop



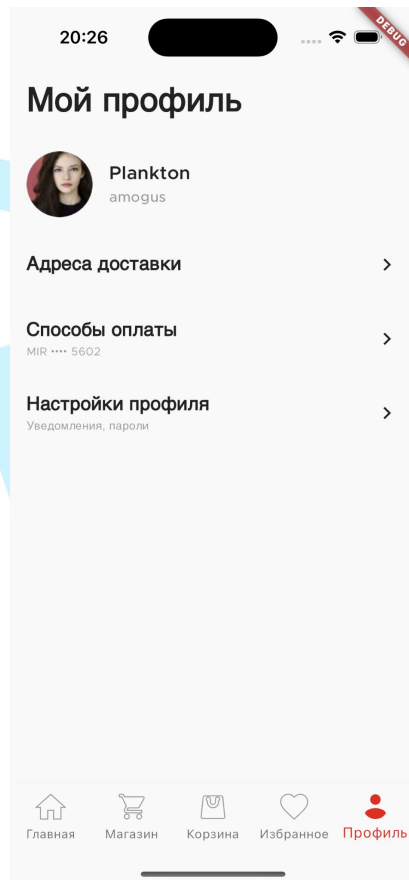
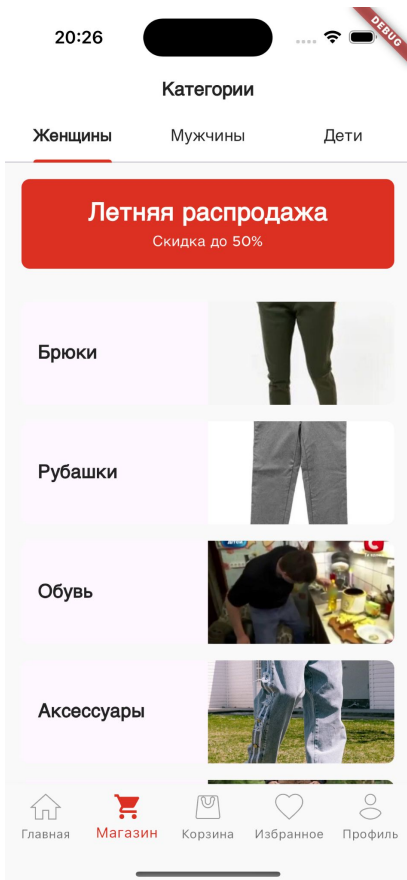
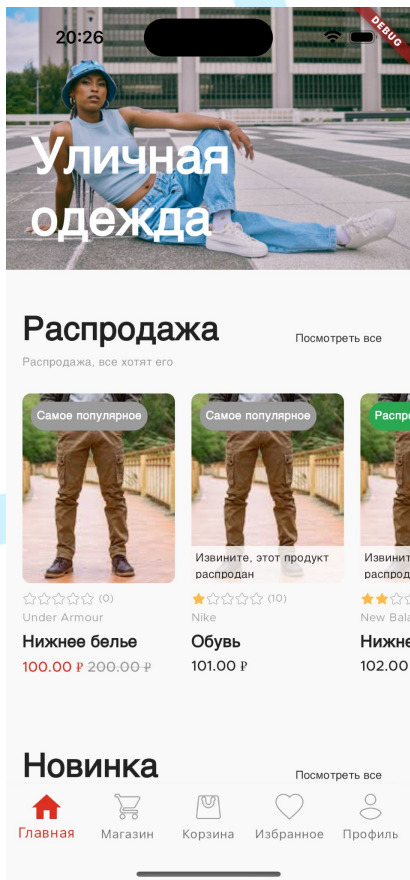
Bag



Favorites

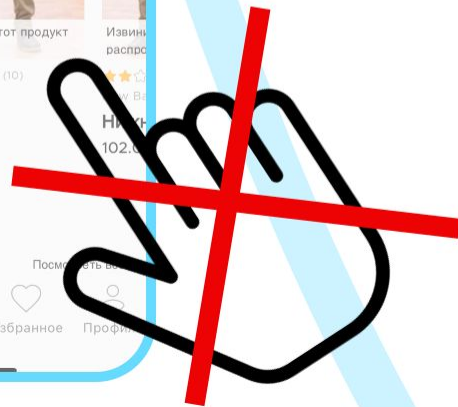
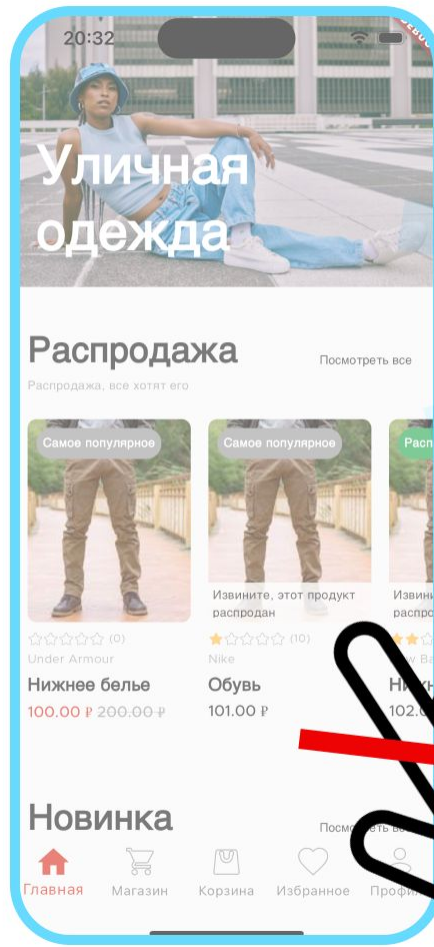


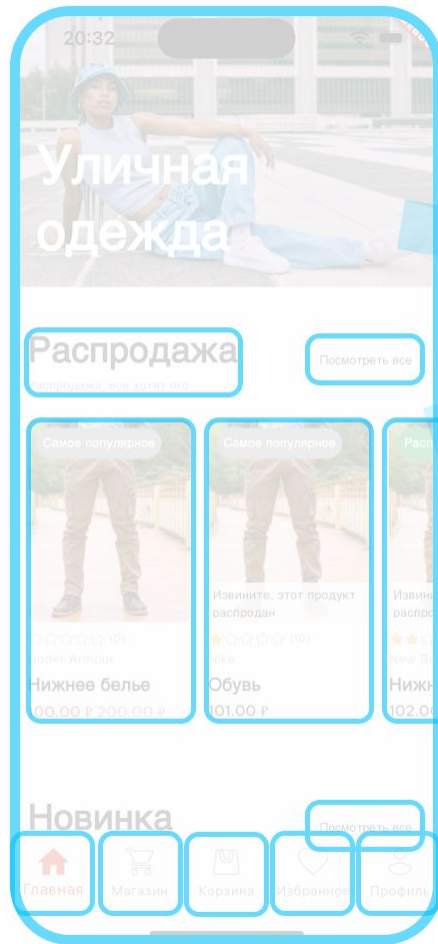
Profile





Моторика



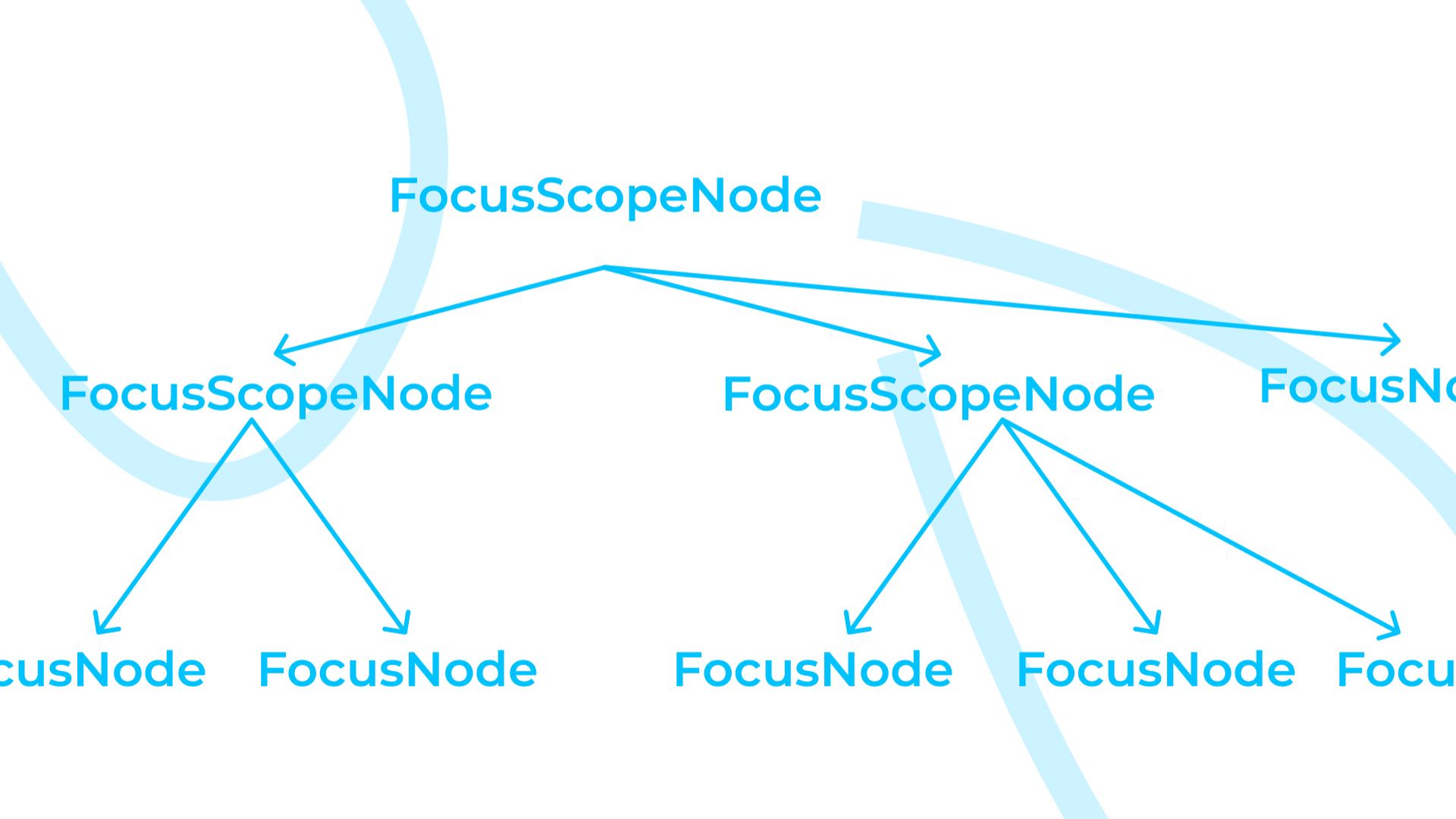




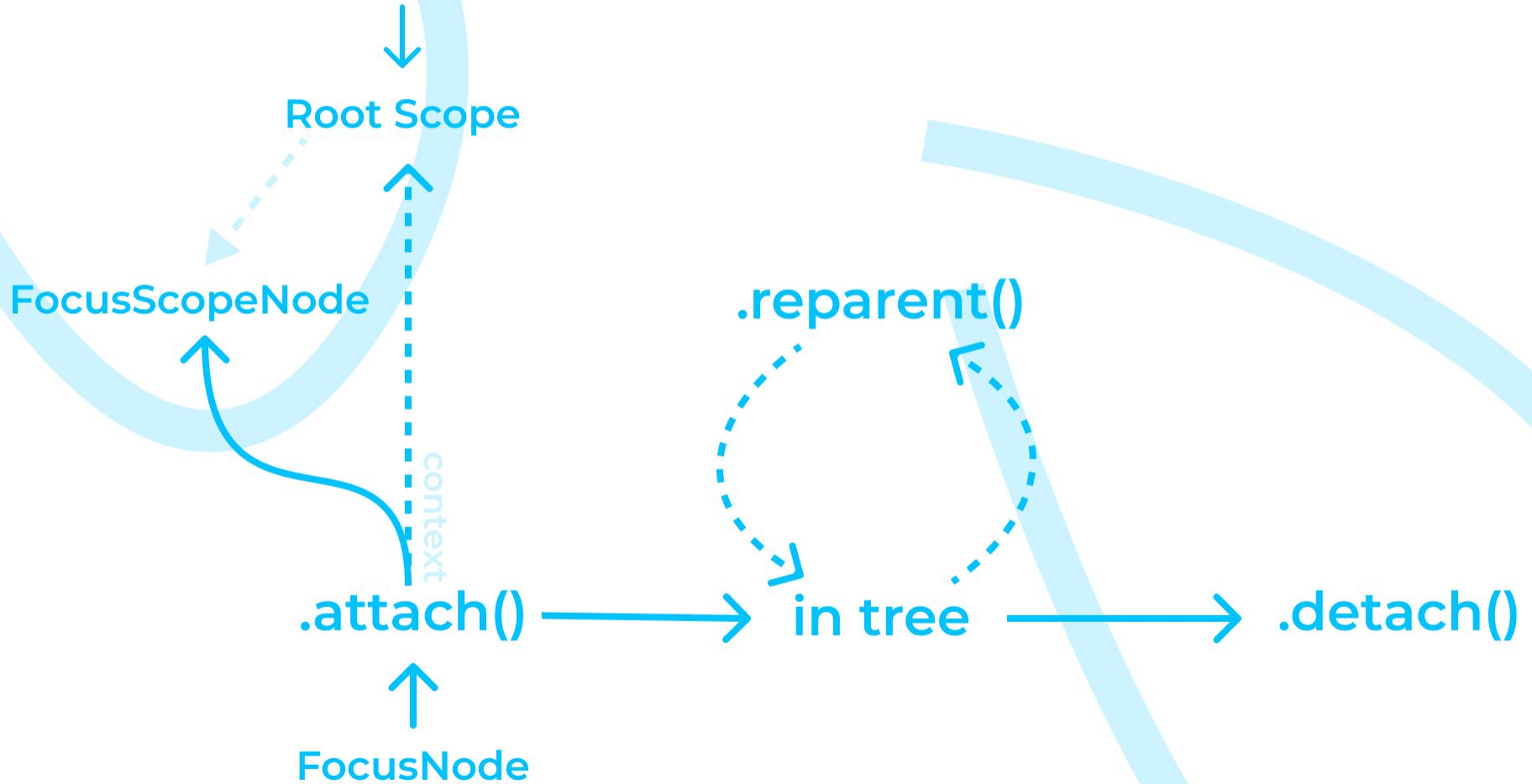
Focus? |

Focus Manager

1. Contains a focus tree.
2. Manages the primary focus
3. Transfers keyboard events to focus



Focus Manager



Focus Manager

1. ~~Contains a focus tree.~~
2. Manages the primary focus
3. Transfers keyboard events to focus

Focus Manager

Root Scope

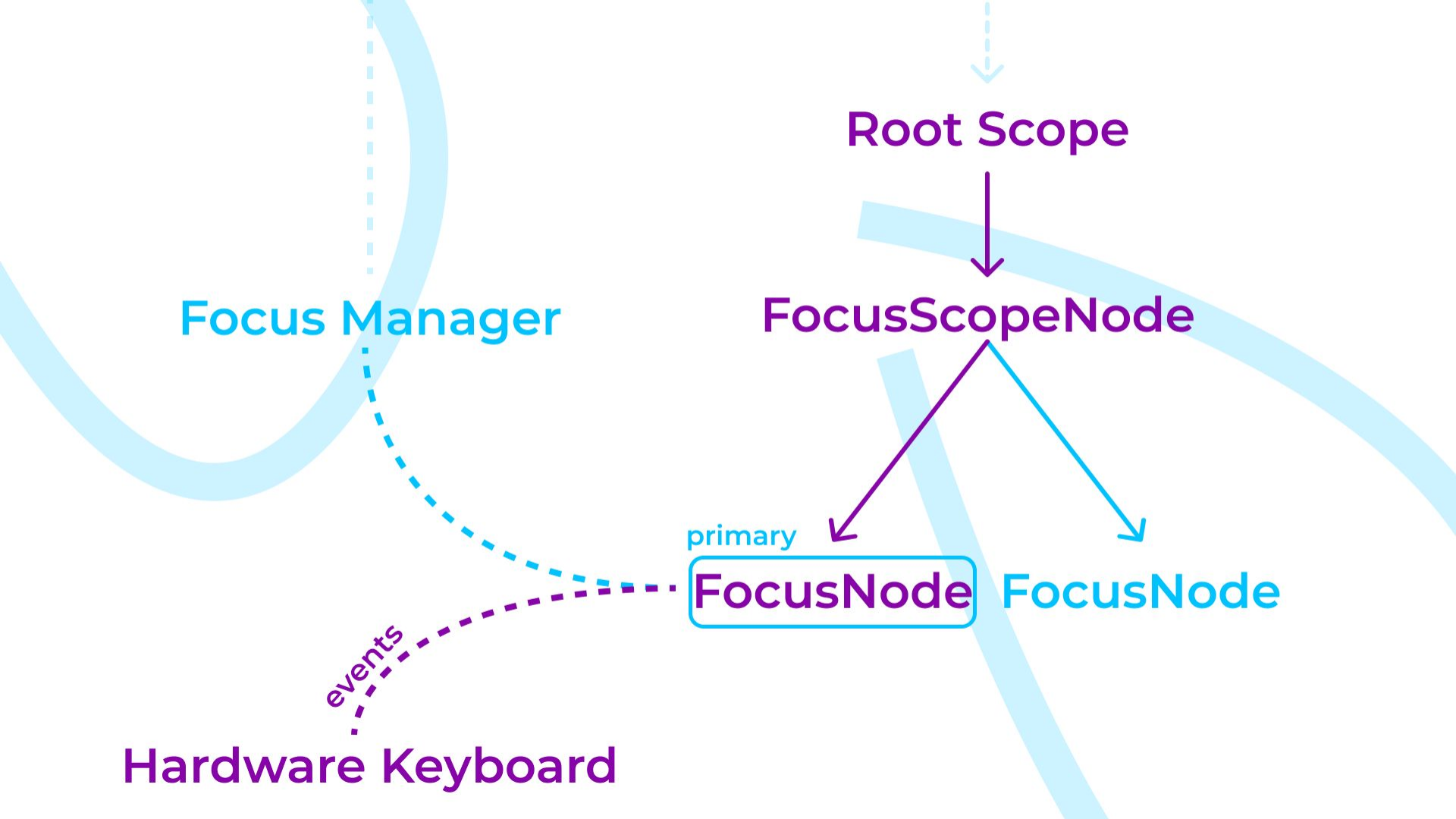
FocusScopeNode

primary

FocusNode

primary

FocusNode



```

1  /// {@template accessibility_node}
2  /// Виджет для настройки доступности функционала в приложении.
3  /// {@endtemplate}
4  class AccessibilityNode extends StatefulWidget {
5  /// Дочерний виджет, на который применяется функционал.
6  final Widget child;
7
8  /// Метка для отладки.
9  ///
10 /// Используется для идентификации виджета в дереве виджетов при отладке.
11 final String debugLabel;
12
13 /// Фокус-узел.
14 ///
15 /// Если не передан, создается новый фокус-узел.
16 final FocusNode? focusNode;
17
18 /// Создает экземпляр [AccessibilityNode].
19 ///
20 /// {@macro accessibility_node}
21 const AccessibilityNode({
22   required this.child,
23   required this.debugLabel,
24   this.focusNode,
25   super.key,
26 });
27
28 @override
29 State<AccessibilityNode> createState() => _AccessibilityNodeState();
30 }

```

```

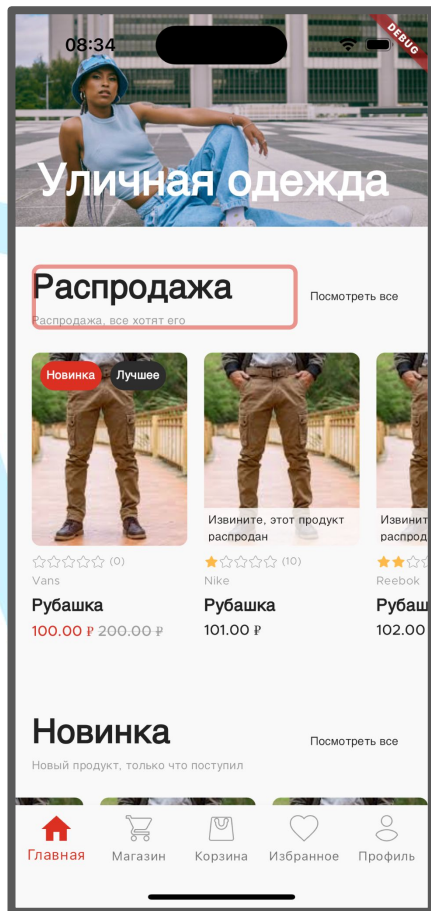
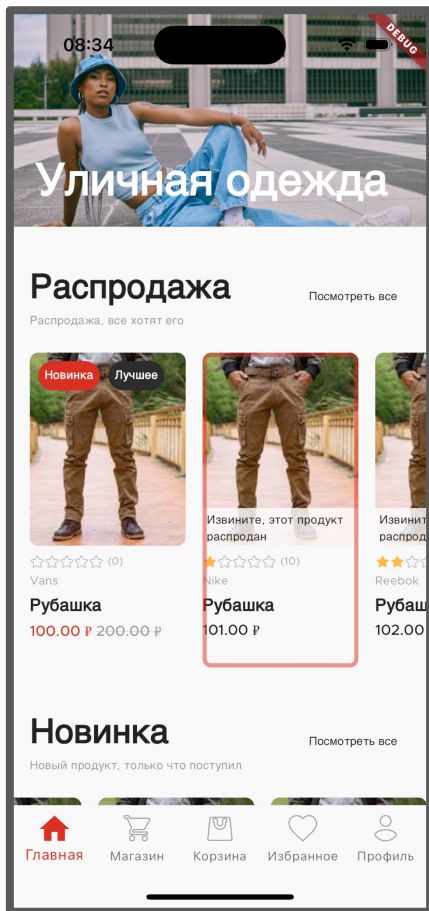
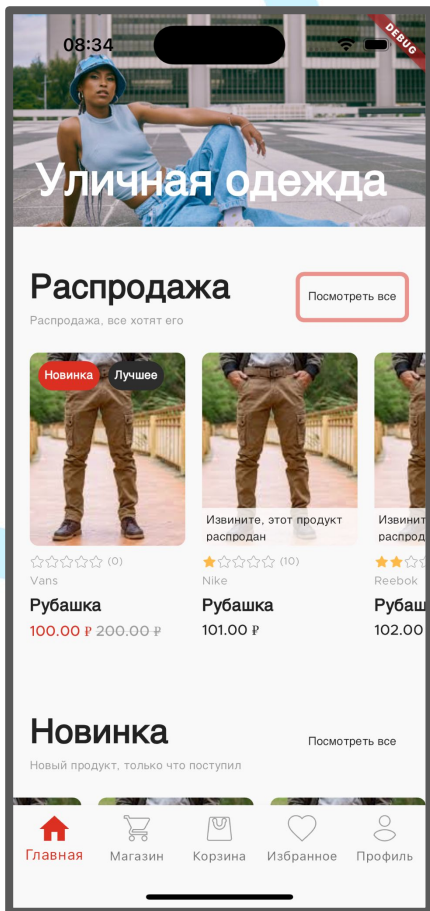
1  class _AccessibilityNodeState extends State<AccessibilityNode> {
2  late final FocusNode _focusNode;
3
4  @override
5  void initState() {
6  super.initState();
7
8  _focusNode = (widget.focusNode?.debugLabel == widget.debugLabel) ??
9  FocusNode(
10   debugLabel: widget.debugLabel,
11   );
12 }
13
14 @override
15 Widget build(BuildContext context) {
16 return ListenableBuilder(
17   listenable: _focusNode,
18   builder: (context, child) {
19     return Stack(
20       clipBehavior: Clip.none,
21       children: [
22         child!,
23         Positioned.fill(
24           child: Container(
25             padding: const EdgeInsets.all(4),
26             decoration: BoxDecoration(
27               border: Border.all(
28                 color: _focusNode.hasFocus ? context.colorScheme.primary.withOpacity(.5) : Colors.transparent,
29                 width: 4,
30               ),
31               borderRadius: BorderRadius.circular(8),
32             ),
33           ),
34         ],
35       );
36     },
37   ),
38   child: Focus(
39     debugLabel: widget.debugLabel,
40     focusNode: _focusNode,
41     child: ExcludeFocus(
42       child: widget.child,
43     ),
44   ),
45 );
46 }
47 }

```

rob, 24 minutes ago · Author · rob

```
class _ProductCardWidgetState extends State<ProductCardWidget> {  
  @override  
  Widget build(BuildContext context) {  
    final textStyles = context.textStyles;  
    final appColors = context.colorScheme;  
  
    return GestureDetector(  
      onTap: () {  
        AutoRouter.of(context).push(  
          ProductRoute(productId: widget.product.id),  
        );  
      },  
      child: AccessibilityNode(  
        debugLabel: 'ProductCardWidget',  
        child: Container( // Container --  
      ), // AccessibilityNode  
    ); // GestureDetector  
  }  
}
```

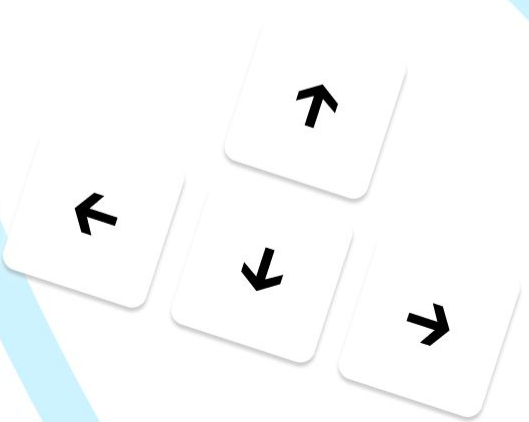
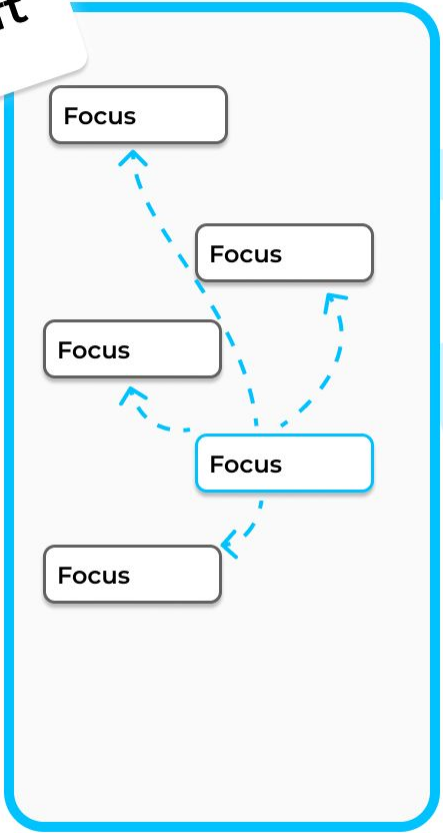
```
class ProductsCarouselWidget extends StatelessWidget {  
  Widget build(BuildContext context) {  
    return Column(  
      mainAxisAlignment: MainAxisAlignment.min,  
      children: [  
        Padding(  
          padding: const EdgeInsets.symmetric(horizontal: 16),  
          child: Row(  
            children: [  
              Expanded(  
                child: AccessibilityNode(  
                  debugLabel: 'ProductsCarouselWidgetTitle',  
                  child: Column( // Column --  
                ), // AccessibilityNode  
              ), // Expanded  
              if (onSeeAll != null)  
                AccessibilityNode(  
                  debugLabel: 'ProductsCarouselWidgetSeeAll',  
                  child: TextButton( // TextButton You, 7 minutes ago · Uncommitted change  
                ), // AccessibilityNode  
            ],  
          ), // Row  
        ), // Padding  
        const Gap(22),  
        SizedBox(  
          height: 300,  
          child: ListView.separated(  
            padding: const EdgeInsets.symmetric(horizontal: 16),  
            scrollDirection: Axis.horizontal,  
            itemBuilder: (context, index) {  
              final product = products[index];  
  
              final actions = actionsBuilder?.call(product);  
  
              return ProductCardWidget(  
                product: product,  
                actions: actions ?? [],  
              ); // ProductCardWidget  
            },  
            separatorBuilder: (context, index) => const Gap(16),  
            itemCount: products.length,  
          ), // ListView.separated  
        ), // SizedBox  
      ],  
    ); // Column  
  }  
}
```



tab

+

shift



Focus Manager



Root Scope



FocusScopeNode



FocusNode

Focus Manager



Root Scope



FocusScopeNode

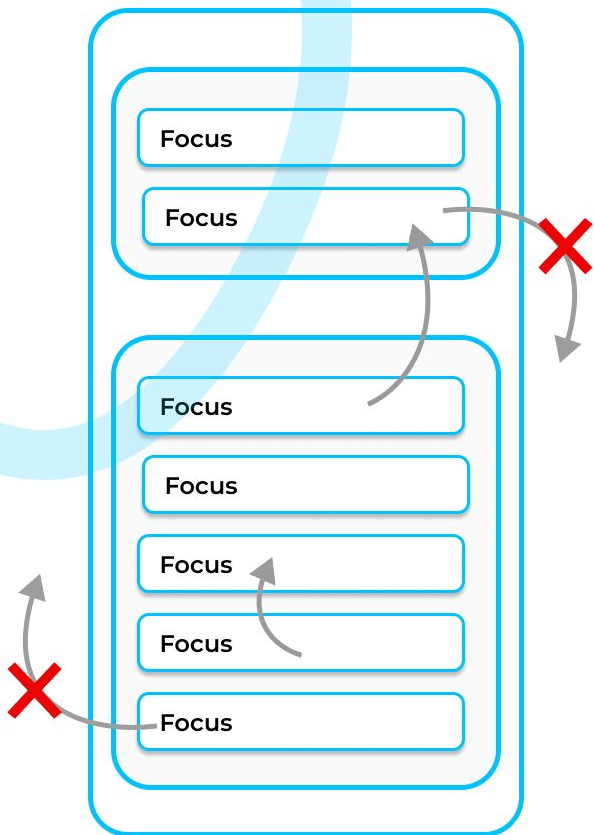


FocusNode

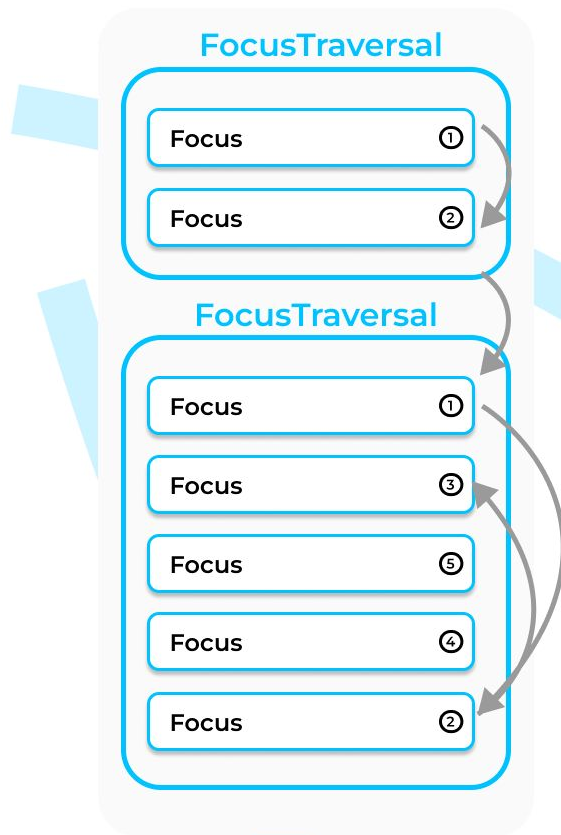
A magnifying glass with a black handle and a silver rim, positioned over the text below. The lens is centered on the text `_FocusTraversalGroupNode`.

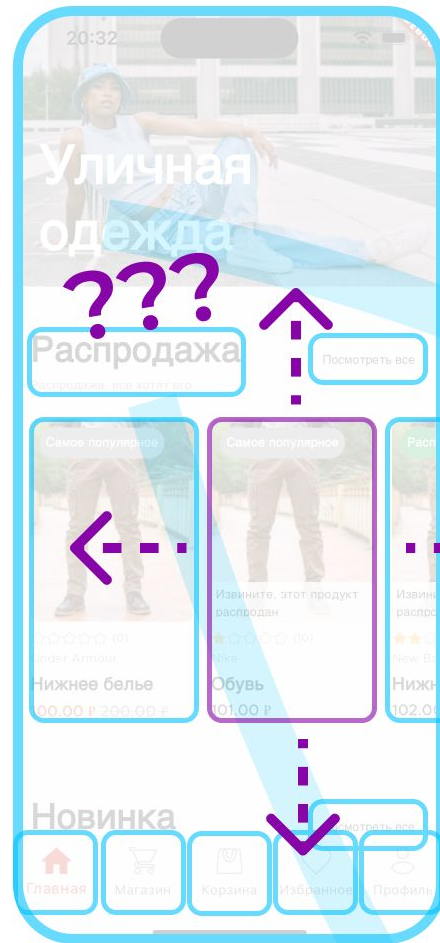
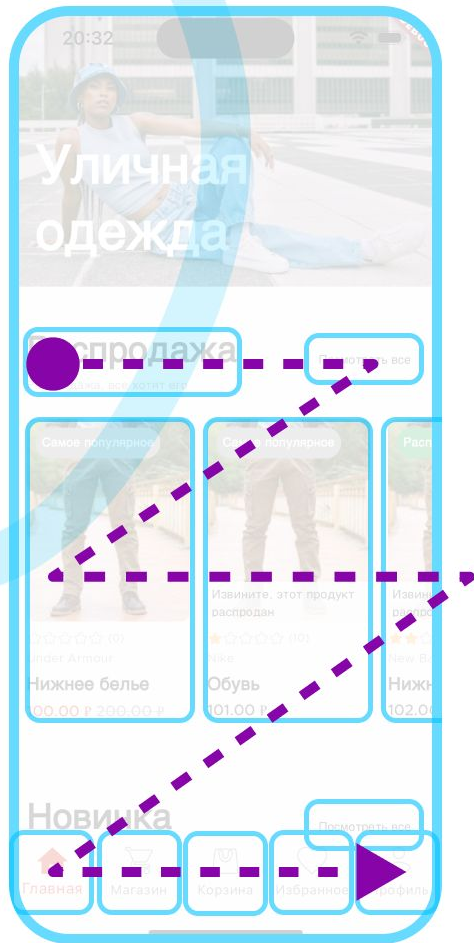
`_FocusTraversalGroupNode`

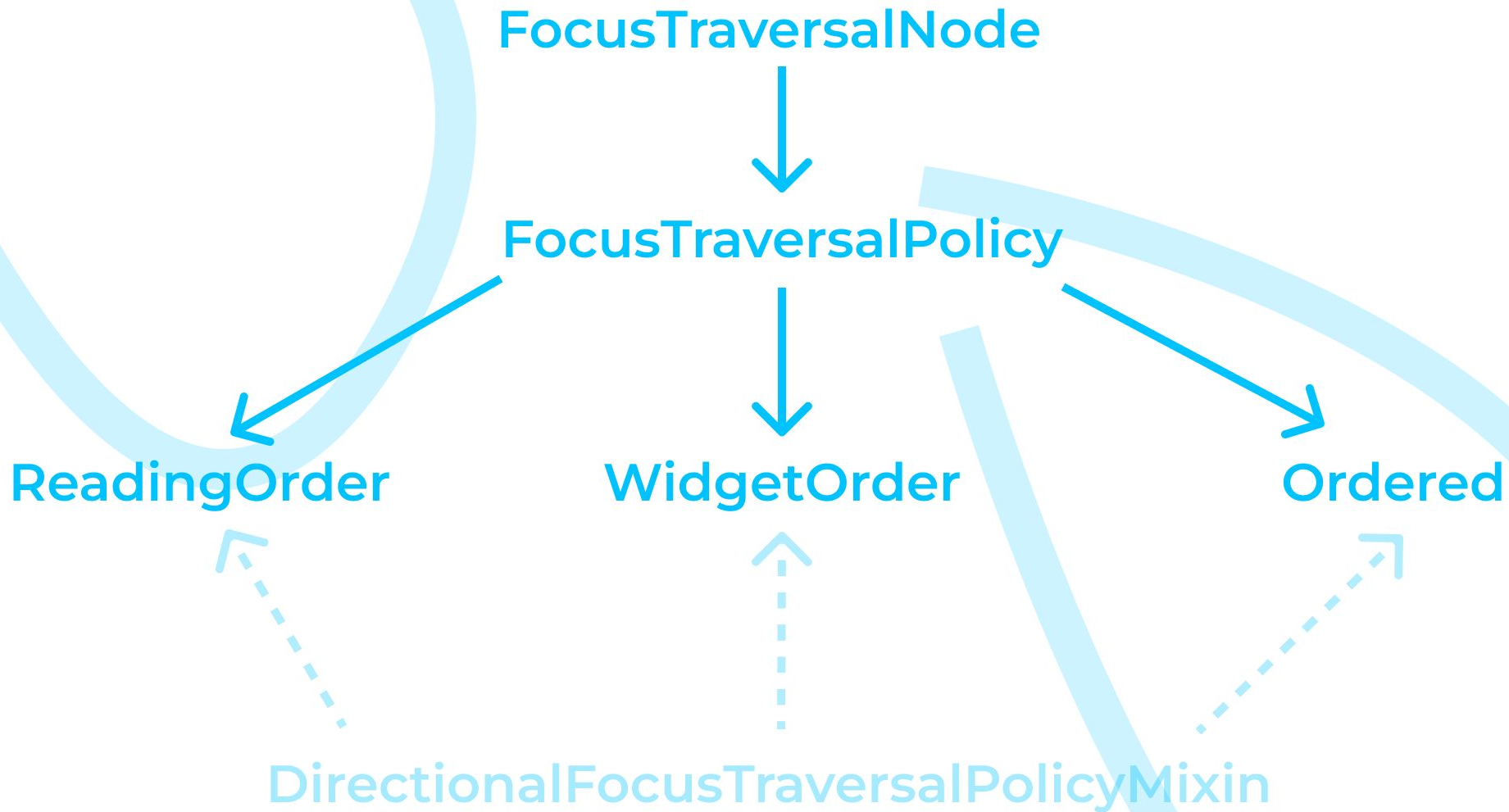
FocusScope

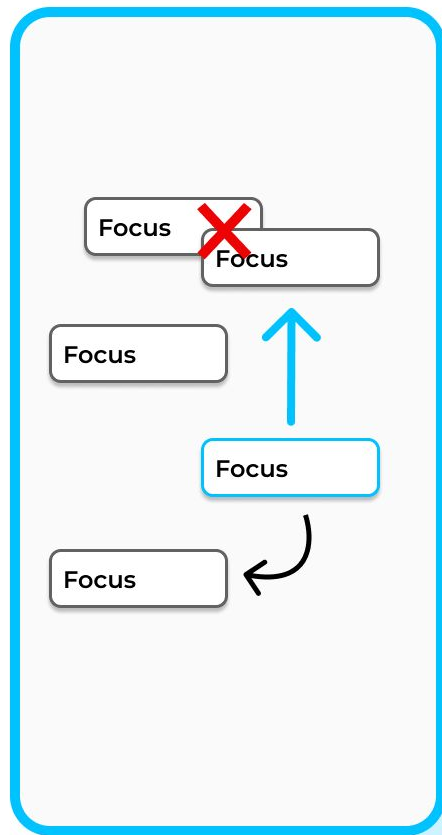
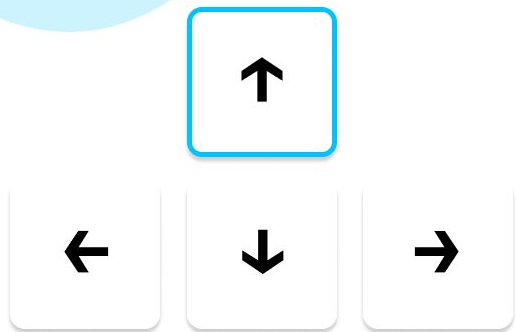


FocusTraversal









Implement

```
@override
Widget build(BuildContext context) {
  final cartNotifier = context.read<CartNotifier>();

  return FocusTraversalGroup(
    policy: OrderedTraversalPolicy(),
    child: Scaffold(
      appBar: _ProductAppBar(
        productNotifier: productNotifier,
      ), // _ProductAppBar
      body: FocusTraversalOrder(
        order: const NumericFocusOrder(2),
        child: ListenableBuilder( // ListenableBuilder ...
      ), // FocusTraversalOrder
      bottomNavigationBar: FocusTraversalOrder(
        order: const NumericFocusOrder(1),
        child: ListenableBuilder( // ListenableBuilder ...
      ), // FocusTraversalOrder
    ), // Scaffold
  ); // FocusTraversalGroup
}
```

```
100, 20 seconds ago | 1 author (100)
class _ProductAppBar extends StatelessWidget implements PreferredSizeWidget {
  final ProductNotifier productNotifier;

  const _ProductAppBar({
    required this.productNotifier,
  });

  @override
  Widget build(BuildContext context) {
    return FocusTraversalOrder(
      order: const NumericFocusOrder(0),
      child: ListenableBuilder( // ListenableBuilder ...
    ); // FocusTraversalOrder
  }

  @override
  Size get preferredSize => const Size.fromHeight(kToolbarHeight);
} ✨ ✨
```

You: 2 weeks ago • feat: added product card screen

Implement

```
features / product / presentation / screens / product_screen.dart / _ProductImageWidget

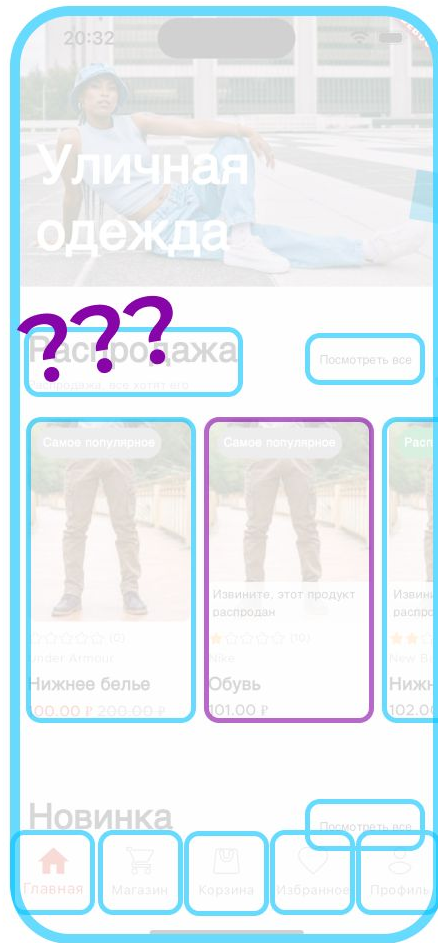
class _ProductImageWidget extends StatelessWidget {


  @override
  Widget build(BuildContext context) {
    final length = product.images.length;

    return SliverToBoxAdapter(
      child: FocusTraversalGroup(
        policy: OrderedTraversalPolicy(),
        child: SizedBox(
          height: 420,
          child: ListView.separated(
            scrollDirection: Axis.horizontal,
            itemBuilder: (context, index) {
              return FocusTraversalOrder(
                order: NumericFocusOrder((length - index).toDouble()),
                child: Focus(
                  child: Image.network( // Image.network ...
                ), // Focus
              ); // FocusTraversalOrder
            },
            separatorBuilder: (context, index) => const SizedBox(width: 8),
            itemCount: length,
          ), // ListView.separated
        ), // SizedBox
      ), // FocusTraversalGroup
    ); // SliverToBoxAdapter
  }
}
```

Implement







К Р Л К а F в D и B а F т N у E р H а F





+17.000.000 пользователей

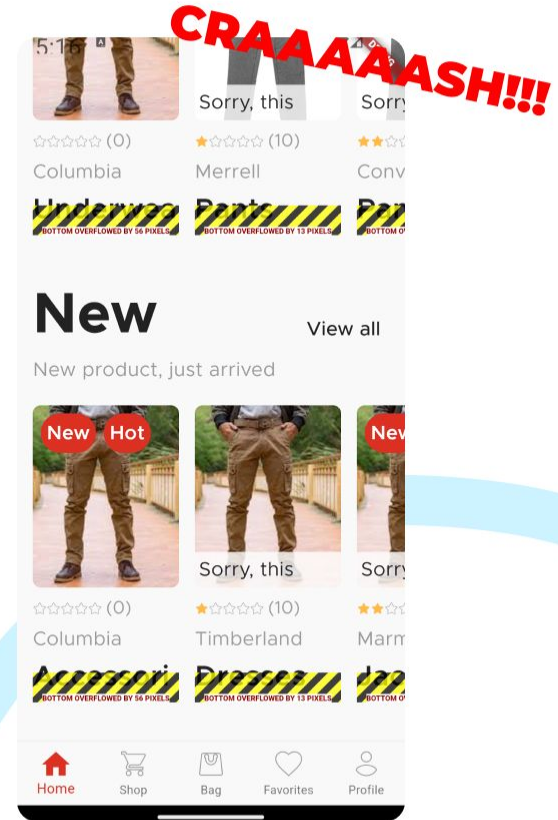




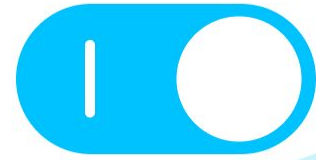
Bold Text

Reduce motion

Increase contrast



Settings



FFI “Hooks”

```
@pragma('vm:entry-point')  
void _updateSemanticsEnabled(bool enabled) {  
  PlatformDispatcher.instance._updateSemanticsEnabled(enabled);  
}  
  
@pragma('vm:entry-point')  
void _updateAccessibilityFeatures(int values) {  
  PlatformDispatcher.instance._updateAccessibilityFeatures(values);  
}
```

Raw Data

PlatformDispatcher

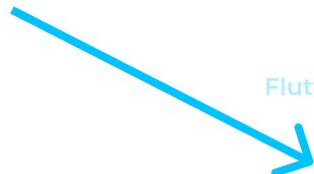
AccessibilityFeatures

SemanticsBinding

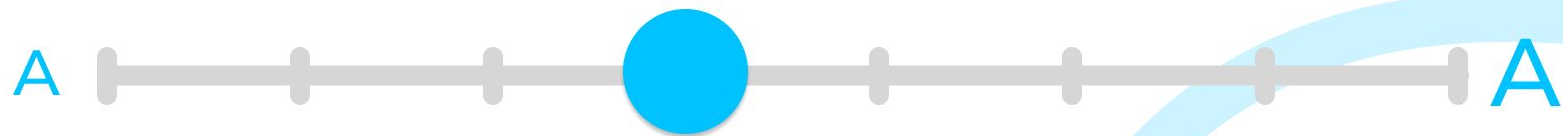
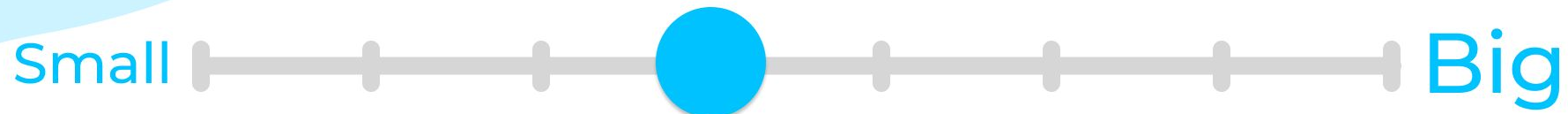
FlutterView

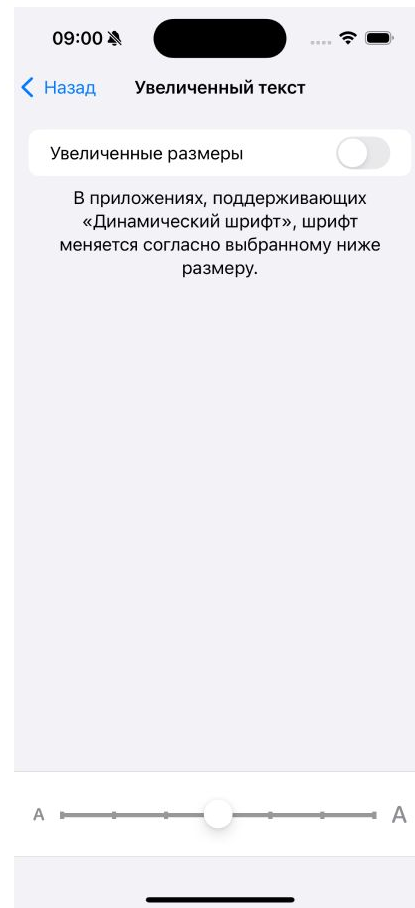
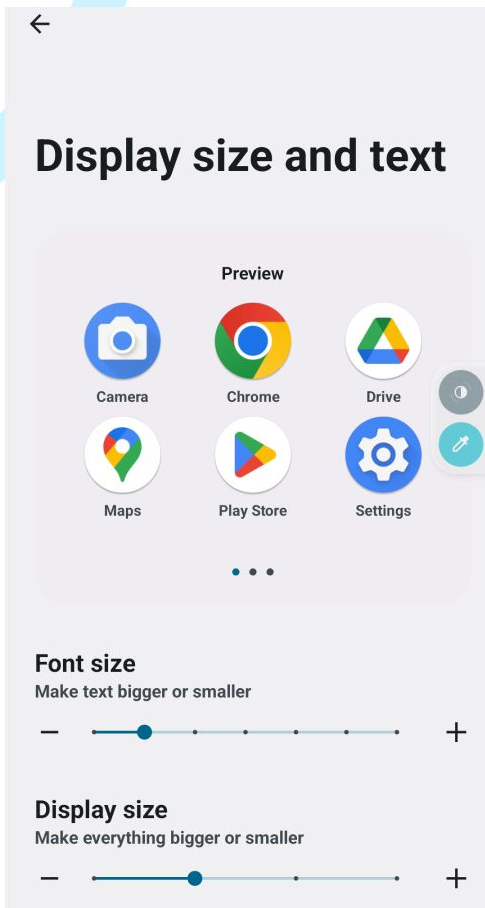
RenderingBinding

MediaQuery










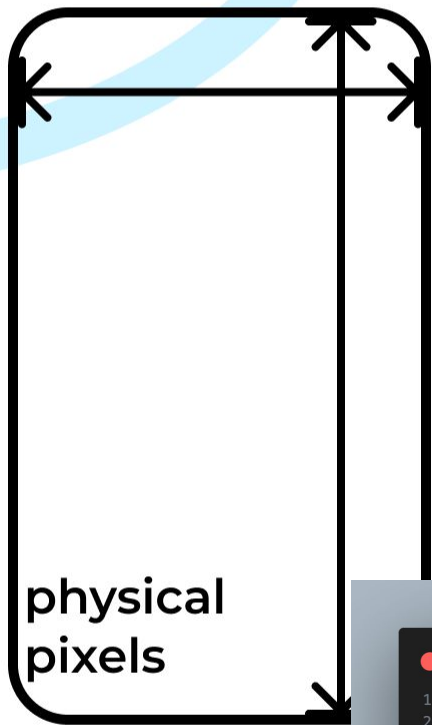


```
1 builder: (context, child) {  
2   return MediaQuery.withNoTextScaling(  
3     child: child!,  
4   );  
5 },
```

text  x1.5

```
/// The style information for text runs, encoded for use by 'dart:ui'.  
ui.TextStyle getTextStyle(  
  @Deprecated(  
    'Use textScaler instead, '-  
  double textScaleFactor = 1.0,  
  TextScaler textScaler = TextScaler.noScaling,  
  }) {  
  assert(--  
  final double? fontSize = switch (this.fontSize) {  
    null => null,  
    final double size when textScaler == TextScaler.noScaling => size * textScaleFactor,  
    final double size => textScaler.scale(size),  
  };  
  return ui.TextStyle(  
    color: color,  
    decoration: decoration,  
    decorationColor: decorationColor,  
    decorationStyle: decorationStyle,  
    decorationThickness: decorationThickness,  
    fontWeight: fontWeight,  
    fontStyle: fontStyle, Adam Barth, 9 years ago • Make NewTextPainter actually work ...  
    textBaseline: textBaseline,  
    leadingDistribution: leadingDistribution,  
    fontFamily: fontFamily,  
    fontFamilyFallback: fontFamilyFallback,  
    fontSize: fontSize,  
    letterSpacing: letterSpacing,  
    wordSpacing: wordSpacing,  
    height: height,  
    locale: locale,  
    foreground: foreground,
```

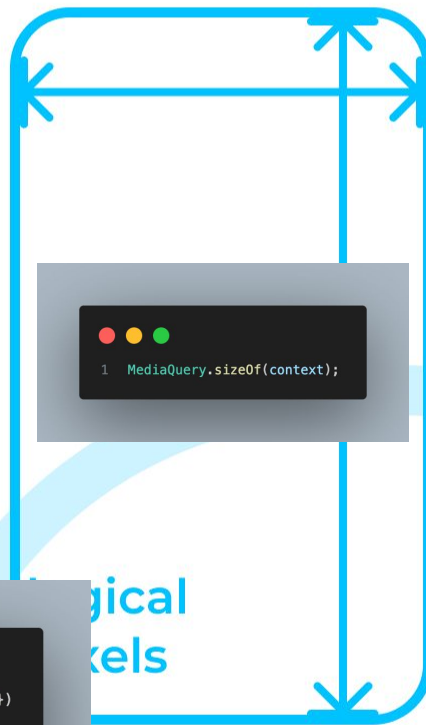
phone



physical
pixels

$$\div \text{ device pixel ratio } =$$

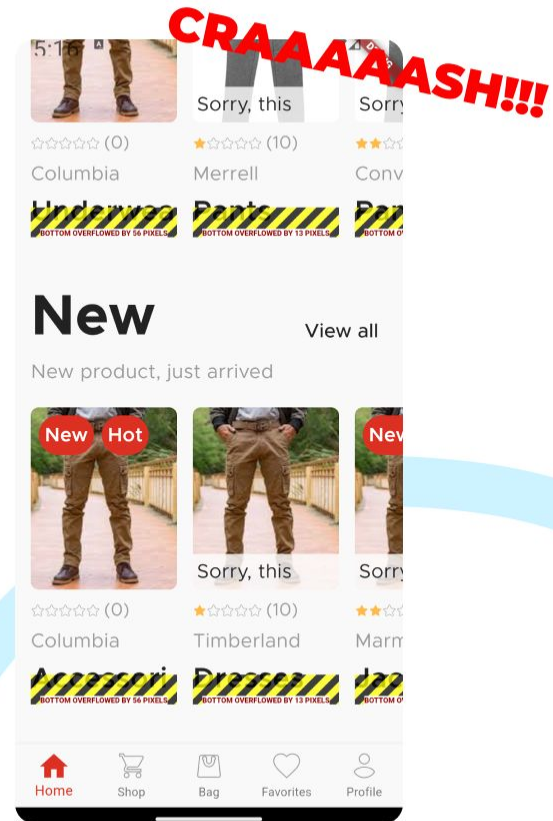
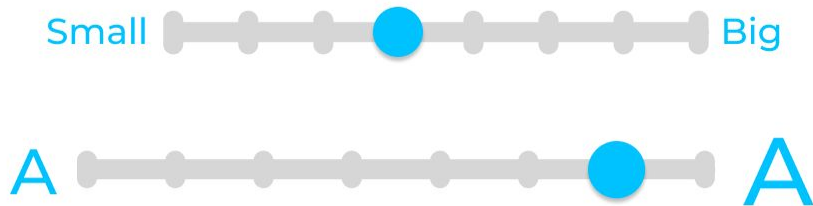
FlutterView



logical
pixels

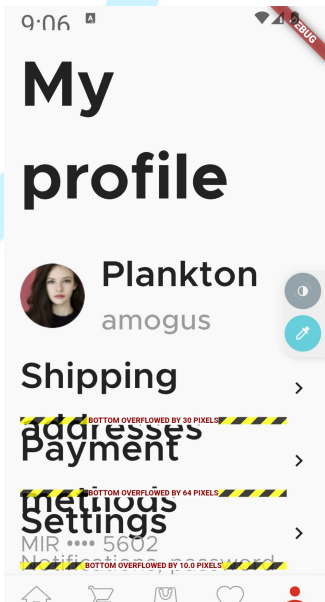
```
1 MediaQueryData.fromView(ui.FlutterView view, {MediaQueryData? platformData})  
2 : size = view.physicalSize / view.devicePixelRatio,  
3   devicePixelRatio = view.devicePixelRatio,
```

```
1 MediaQuery.sizeOf(context);
```

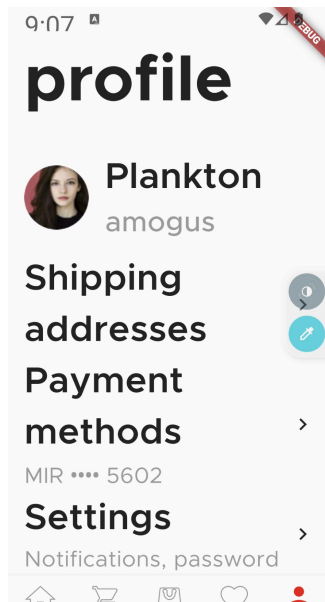


```
1  builder: (context, child) {
2    final data = MediaQuery.of(context);
3
4    return MediaQuery(
5      data: data.copyWith(
6        invertColors: context.invertColors,
7        textScaler: data.textScaler.clamp(
8          minScaleFactor: 0.8,
9          maxScaleFactor: 2,
10       ),
11     ),
12     child: FocusTraversalOverrideWidget(
13       child: child!,
14     ),
15   );
16 },
```



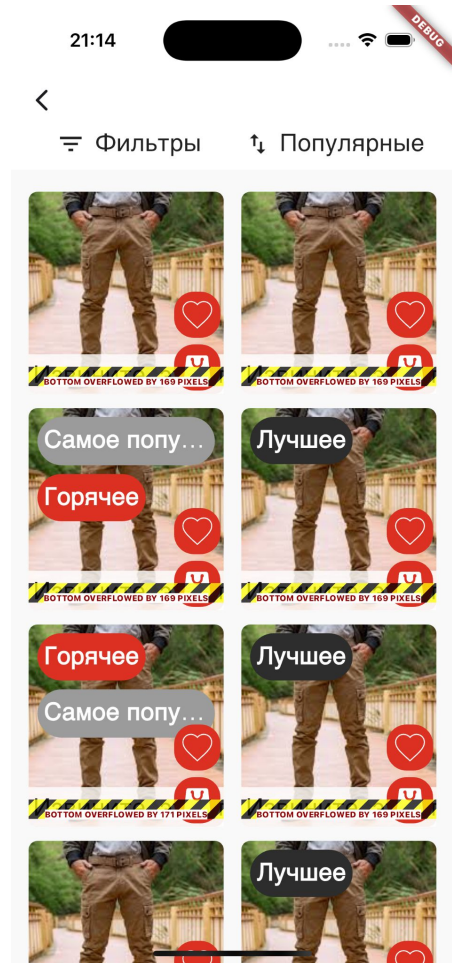
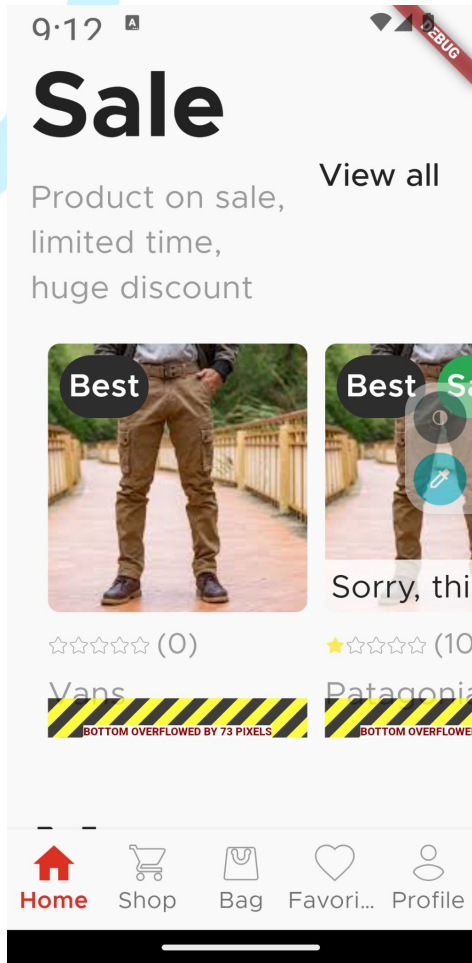
```
features > profile > presentation > screens > profile_screen.dart >
class _ProfileItem extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    final colorScheme = context.colorScheme;
    final textStyles = context.textStyles;

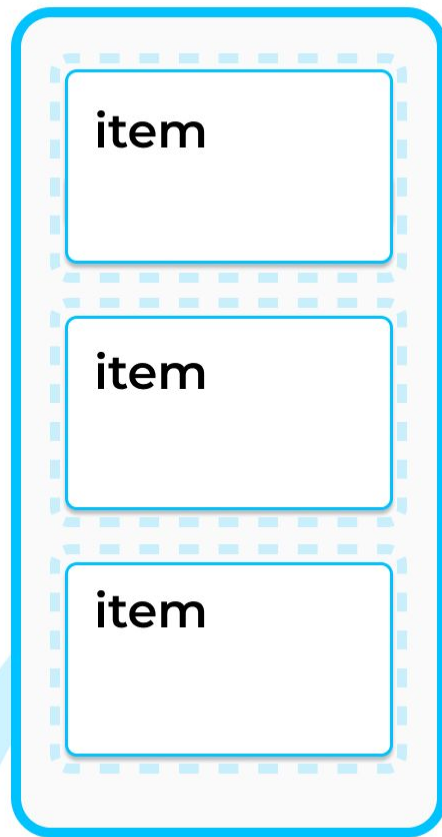
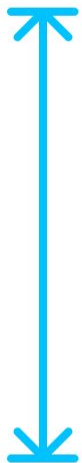
    return GestureDetector(
      behavior: HitTestBehavior.opaque,
      onTap: onTap,
      child: SizedBox(
        height: 72,
        child: Row( // Row --
        ), // SizedBox
      ); // GestureDetector
    }
  }
}
```



```
class _ProfileItem extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    final colorScheme = context.colorScheme;
    final textStyles = context.textStyles;

    return GestureDetector(
      behavior: HitTestBehavior.opaque,
      onTap: onTap,
      child: ConstrainedBox(
        constraints: const BoxConstraints(minHeight: 72),
        child: Row( // Row --
        ), // ConstrainedBox
      ); // GestureDetector
    }
  }
}
```







```
1 return ListView(  
2   prototypeItem: ProductCardWidget(product: product),  
3   children: [...],  
4 );
```



```
1 return ListView.builder(  
2   prototypeItem: ProductCardWidget(product: product),  
3   itemBuilder: (context, index) {...},  
4 );
```



```
1 class PrototypeHeight extends StatelessWidget {
2   final Widget prototype;
3   final Widget child;
4
5   const PrototypeHeight({
6     required this.prototype,
7     required this.child,
8     super.key,
9   });
10
11   @override
12   Widget build(BuildContext context) {
13     return Stack(
14       children: [
15         Visibility(
16           visible: false,
17           child: prototype,
18           maintainSize: true,
19           maintainAnimation: true,
20           maintainState: true,
21         ),
22         const SizedBox(width: double.infinity),
23         Positioned.fill(child: child),
24       ],
25     );
26   }
27 }
```

```
captures / main / presentation / widgets / product_carousel_widget.dart / ProductCarouselWidget

class ProductsCarouselWidget extends StatelessWidget {
  Widget build(BuildContext context) {
    const prototype = ProductCardWidget(
      product: Product( // Product ...
    ); // ProductCardWidget

    return Column(
      mainAxisAlignment: MainAxisAlignment.min,
      children: [
        Padding( // Padding ...
          const Gap(22),
          PrototypeHeight( // You, 3 hours ago * feat: added support for
            prototype: prototype,
            child: ListView.separated(
              padding: const EdgeInsets.symmetric(horizontal: 16),
              scrollDirection: Axis.horizontal,
              itemBuilder: (context, index) { //
                separatorBuilder: (context, index) => const Gap(12),
                itemCount: products.length,
              }, // ListView.separated
            ), // PrototypeHeight
          ],
        ); // Column
      }
    }
  }
}
```


9:30 ^A

Sale



[View all](#)

Product on sale,
limited time,
huge discount

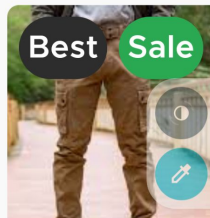


☆☆☆☆ (0)

Vans

Shirts

100.00 \$



★☆☆☆☆ (10)

Patagonia

Underwe

101.00 \$



Home



Shop



Bag



Favori...

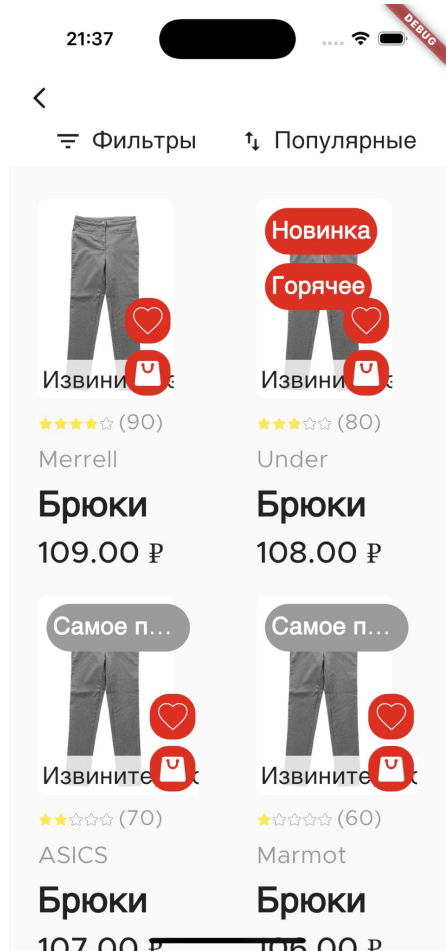
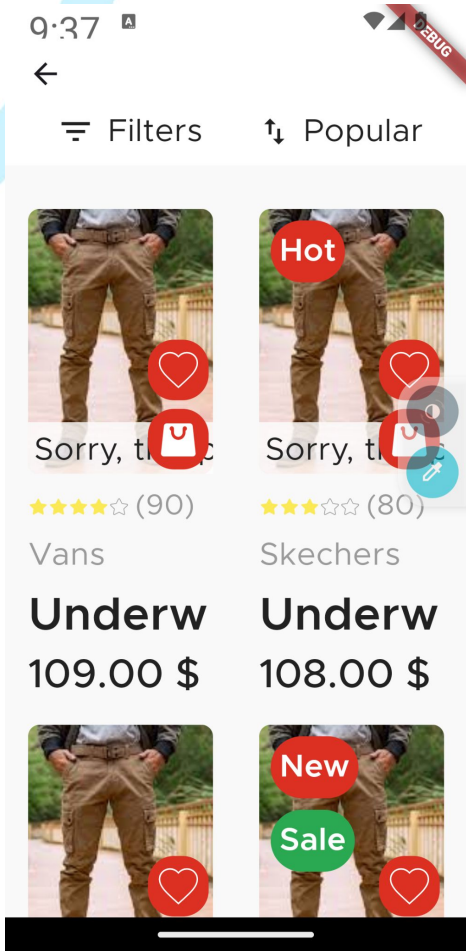


Profile

```
captures / core / presentation / widgets / accessible_grid_view.dart | AccessibleGridView | Build
class AccessibleGridView extends StatelessWidget {
  const AccessibleGridView({
    required this.crossAxisCount,
    required this.itemBuilder,
    required this.itemCount,
    required this.prototypeItem,
    required this.crossAxisGap,
    required this.mainAxisGap,
    super.key,
  });

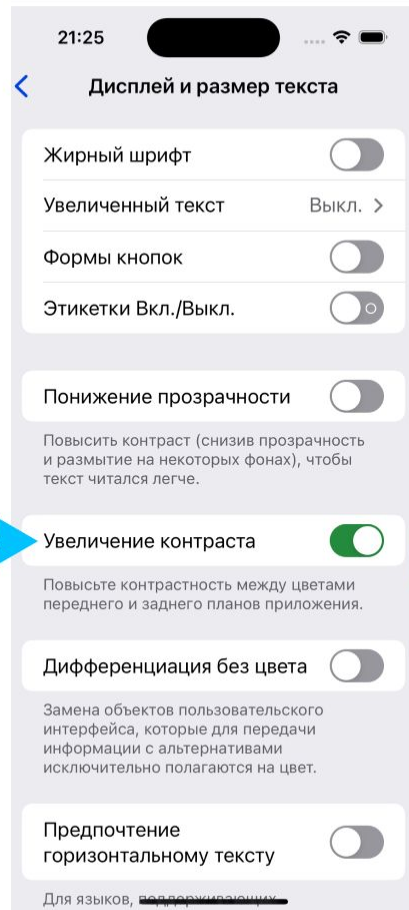
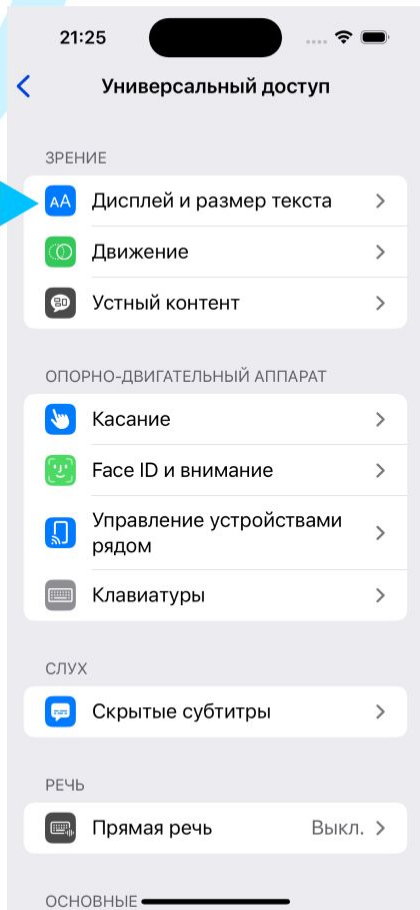
  @override
  Widget build(BuildContext context) {
    return ListView.builder(
      padding: EdgeInsets.symmetric(
        horizontal: crossAxisGap,
        vertical: mainAxisGap,
      ), // EdgeInsets.symmetric
      prototypeItem: prototypeItem,
      itemBuilder: (context, index) {
        final base = index * crossAxisCount;

        return Row(
          crossAxisAlignment: CrossAxisAlignment.start,
          children: [
            for (var i = 0; i < crossAxisCount; i++) ...[
              if (i > 0) SizedBox(width: crossAxisGap),
              Expanded(
                child: base + i < itemCount
                  ? Center(
                      child: itemBuilder(context, base + i),
                    ) // Center
                  : const SizedBox.shrink(),
              ), // Expanded
              if (i < crossAxisCount - 1) SizedBox(width: crossAxisGap),
            ],
          ],
        ); // Row You, 3 hours ago • feat: added support for ui scaling
      },
      itemCount: itemCount ~/ crossAxisCount + (itemCount % crossAxisCount == 0 ? 0 : 1),
    ); // ListView.builder
  }
}
```



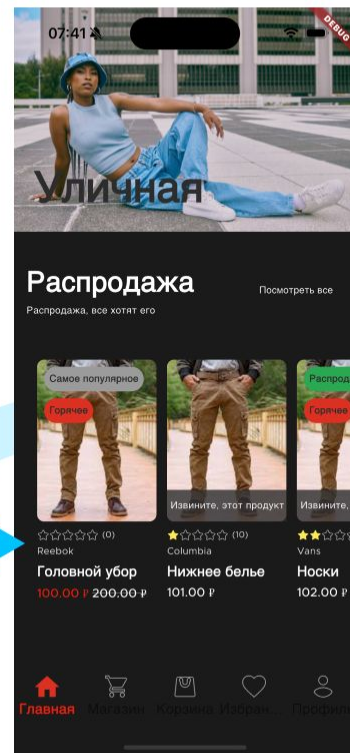
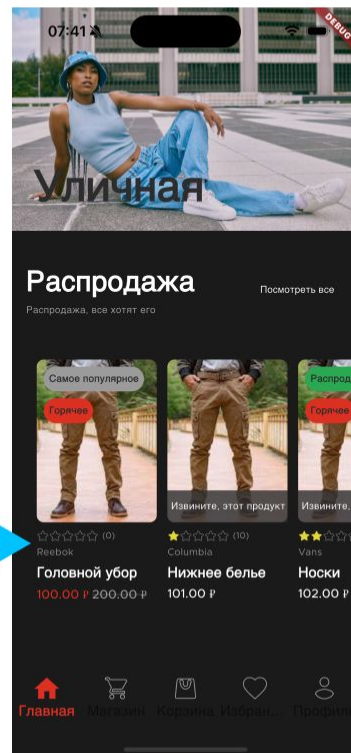
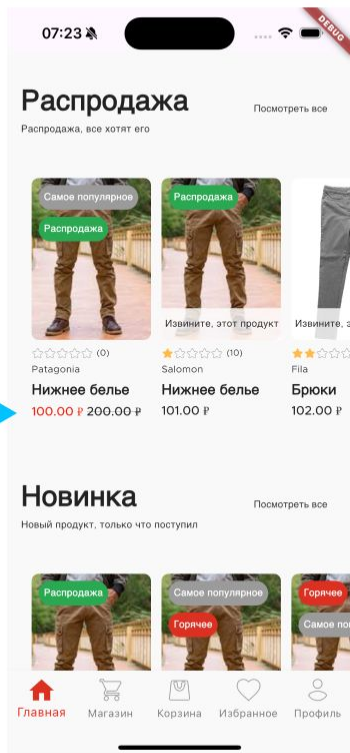
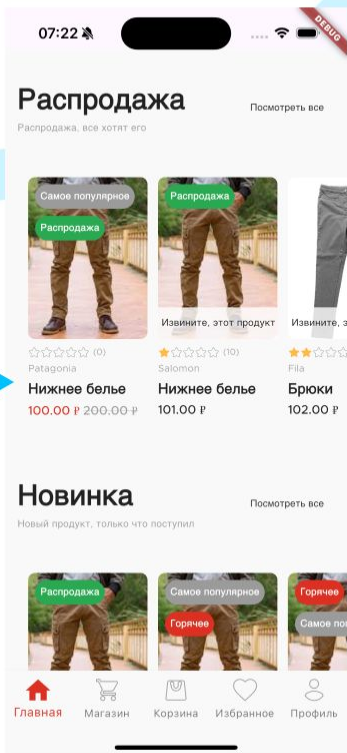
Increase contrast?



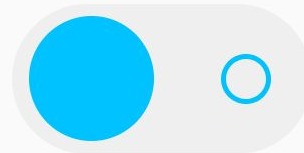


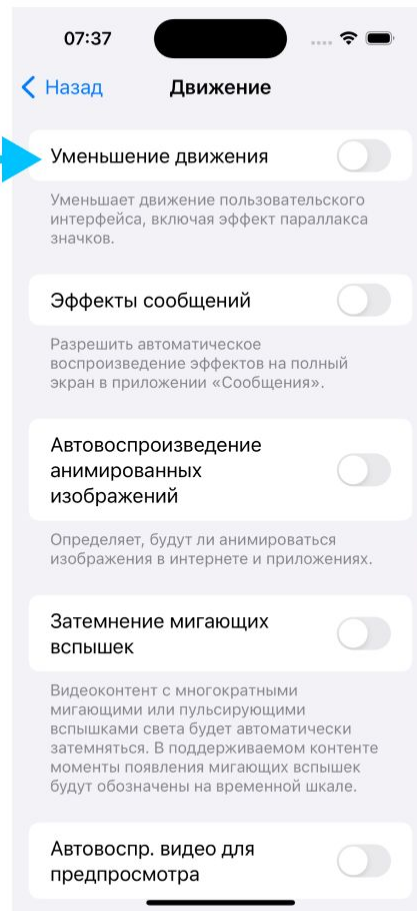
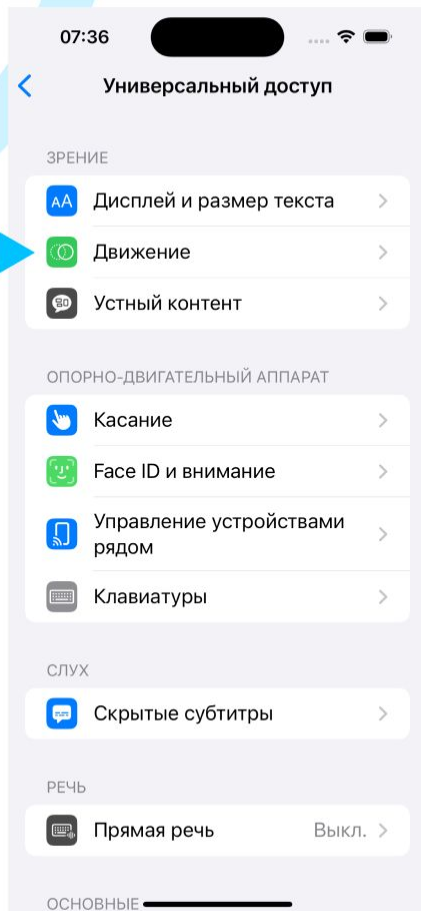


```
1  child: MaterialApp.router(  
2    title: AppConstants.title,  
3    theme: AppTheme.lightTheme,  
4    highContrastTheme: AppTheme.highContrastLightTheme,  
5    highContrastDarkTheme: AppTheme.highContrastDarkTheme,  
6    darkTheme: AppTheme.darkTheme,  
7    ...  
8  ),
```



Reduce motion?



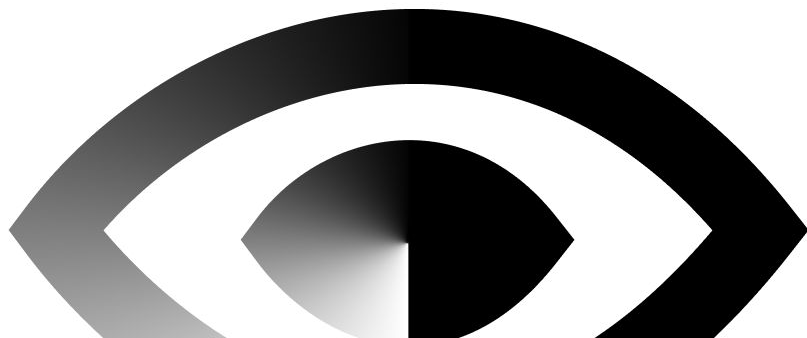




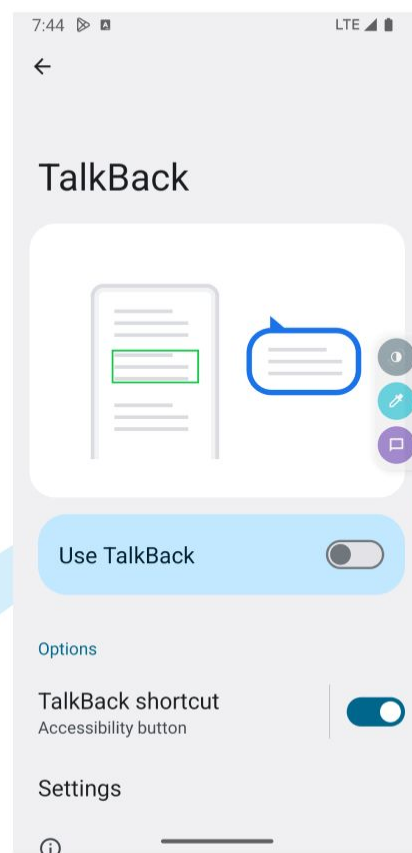
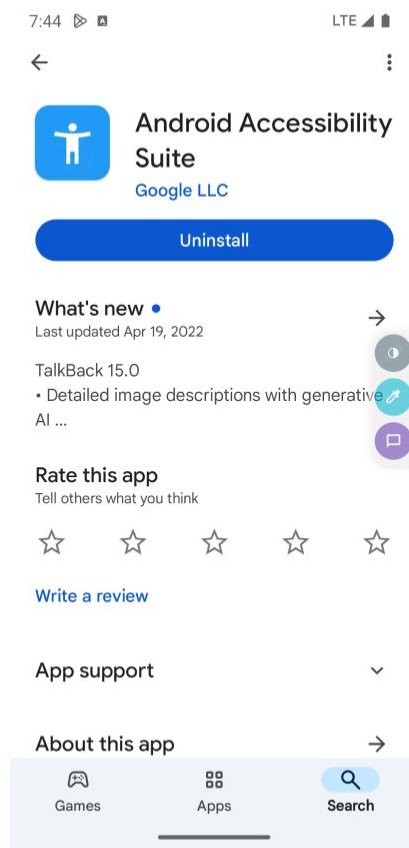
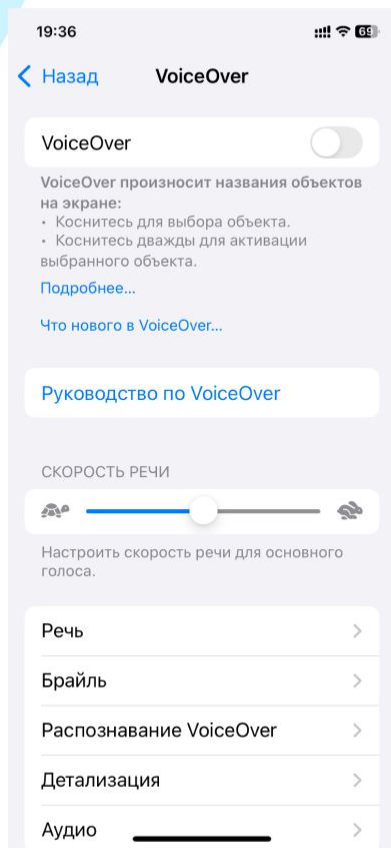
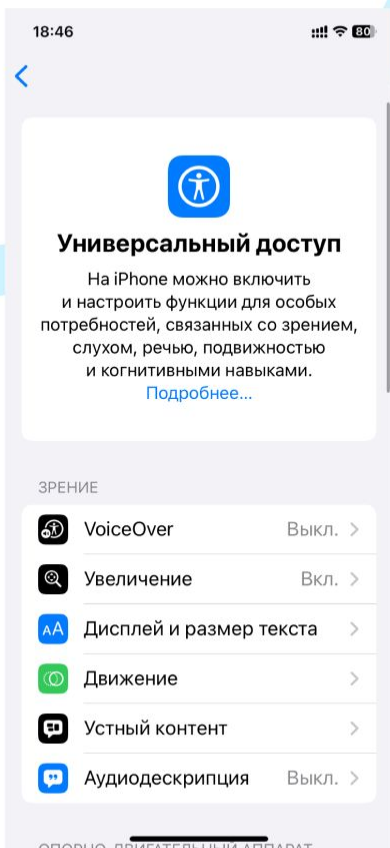


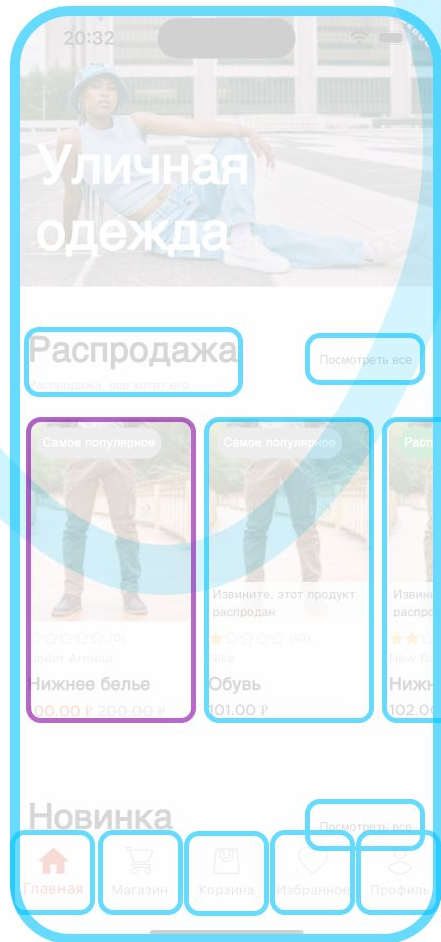
```
1 bool get reduceMotion => View.of(context).platformDispatcher.accessibilityFeatures.reduceMotion;
```

+2.500.000.000 пользователей





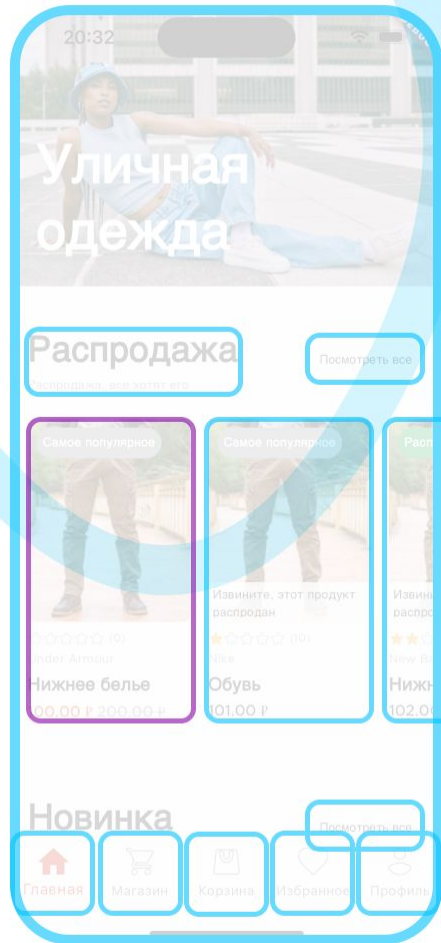




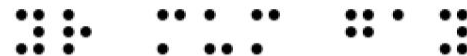
Штаны, рейтинг - 4.2/5,
производитель - Wranglers, старая
цена - 200000 рублей, цена по
скидке - 350000 рублей. Нажмите,
чтобы открыть экран товара.
Свайпните влево, чтобы добавить
в корзину.

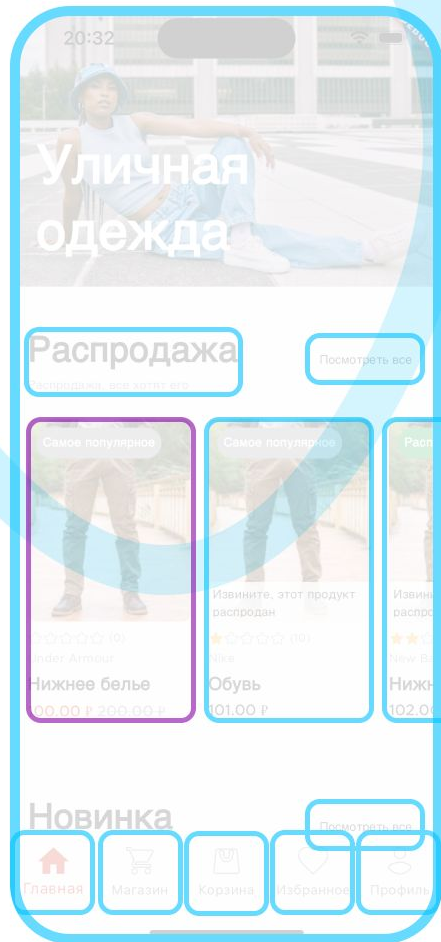






Штаны, рейтинг - 4.2/5, производитель - Wranglers, старая цена - 200000 рублей, цена по скидке - 350000 рублей. Нажмите, чтобы открыть экран товара. Свайпните влево, чтобы добавить в корзину.



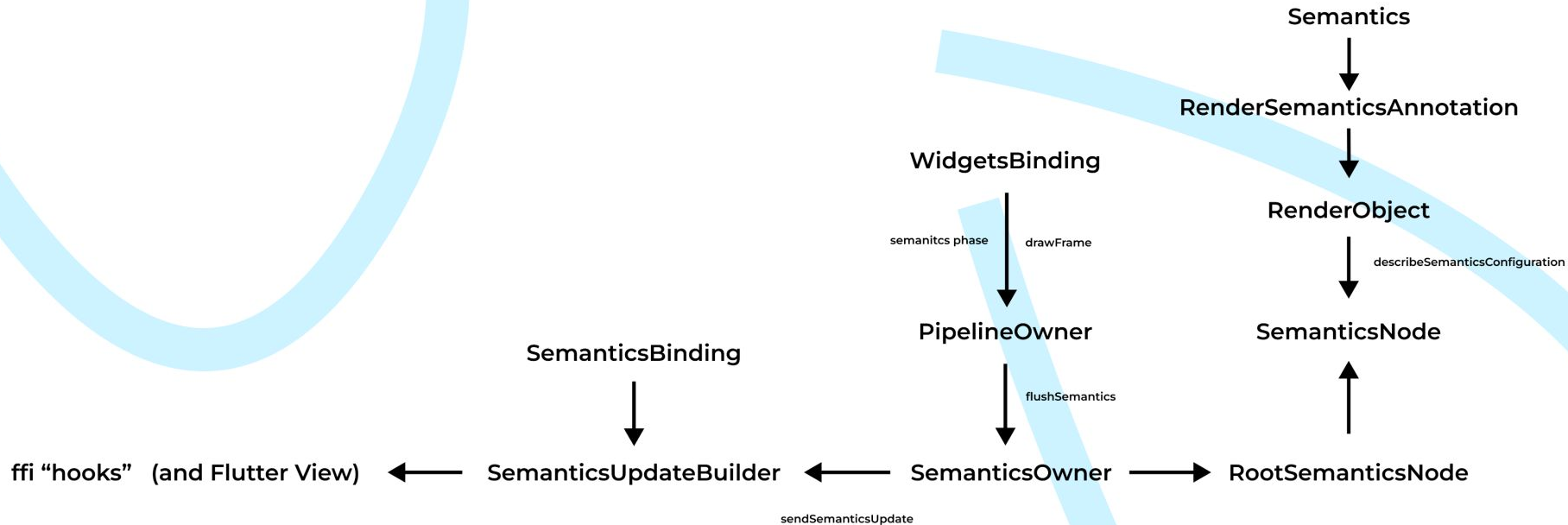


Штаны, рейтинг - 4.2/5, производитель - Wranglers, старая цена - 200000 рублей, цена по скидке - 350000 рублей. Нажмите, чтобы открыть экран товара. Свайпните влево, чтобы добавить в корзину.

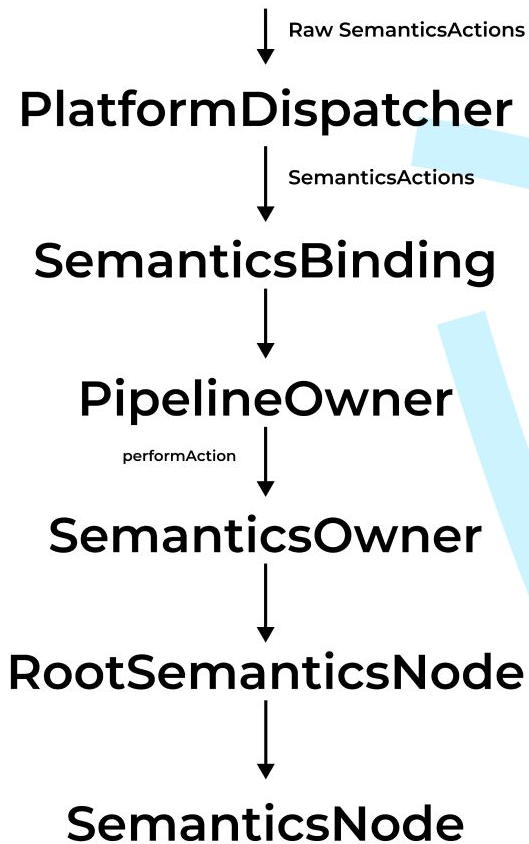


Semantics

Семантикс, текст. Коснитесь дважды, чтобы перейти...



ffi “hooks” (and Flutter View)



A word cloud of various Android widget attributes and methods. The word "Semantics" is the largest and most prominent, centered in the image. Other words are scattered around it in various sizes and orientations. The background features light blue curved lines.

button image liveRegion
checked decreasedValue
hint
Semantics label
hidden onDismiss
multiline expanded
enabled focusable
mixed header



hint?

label?

value?



attributed?



value → **label** → **hint**

```

1  /// {@template accessibility_node}
2  /// Виджет для настройки доступности функционала в приложении.
3  /// {@endtemplate}
4  class AccessibilityNode extends StatefulWidget {
5    /// Дочерний виджет, на который применяется функционал.
6    final Widget child;
7
8    /// Метка для отладки.
9    ///
10   /// Используется для идентификации виджета в дереве виджетов при отладке.
11   final String debugLabel;
12
13   /// Фокус-узел.
14   ///
15   /// Если не передан, создается новый фокус-узел.
16   final FocusNode? focusNode;
17
18   /// Семантические свойства.
19   final SemanticsProperties? semanticsProperties;
20
21   /// Создает экземпляр [AccessibilityNode].
22   ///
23   /// {@macro accessibility_node}
24   AccessibilityNode({
25     required this.child,
26     required this.debugLabel,
27     String? value,
28     String? label,
29     String? hint,
30     AttributedString? attributedValue,
31     AttributedString? attributedHint,
32     AttributedString? attributedLabel,
33     this.focusNode,
34     super.key,
35   }) : semanticsProperties = SemanticsProperties(
36     value: value,
37     label: label,
38     hint: hint,
39     attributedValue: attributedValue,
40     attributedHint: attributedHint,
41     attributedLabel: attributedLabel,
42   ),
43     assert(
44       value != null || attributedValue != null,
45       'At least one of the properties must be set',
46     );

```

```

atures > core > presentation > widgets > uikit > utils > accessibility_node_widget.dart >
class _AccessibilityNodeState extends State<AccessibilityNode> {
  @override
  Widget build(BuildContext context) {
    return ListenableBuilder(
      listenable: _focusNode,
      builder: (context, child) {
        return Stack( // Stack -
      ),
      child: Semantics.fromProperties(
        properties: widget.semanticsProperties ?? const SemanticsProperties(),
        excludeSemantics: true,
        child: Focus(
          debugLabel: widget.debugLabel,
          focusNode: _focusNode,
          child: ExcludeFocus( // ExcludeFocus
            child: widget.child,
          ), // ExcludeFocus
        ), // Focus
      ), // Semantics.fromProperties
    ); // ListenableBuilder
  }
}

```

Счётчик: 0

**Значение счётчика - 0
Кнопка для подсчёта нажатий
При нажатии увеличивает счётчик на 1**

89923431234134

~~89 триллионов 234 миллиарда 431
миллионов 234 тысячи 134~~

```
child: AccessibilityNode(  
  debugLabel: 'ProductCardWidget',  
  value: widget.product.formatSemantics(context),  
  attributedValue: AttributedString(  
    widget.product.name,  
    attributes: [  
      SpellOutStringAttribute(  
        range: TextRange(start: 0, end: widget.product.name.length),  
      ), // SpellOutStringAttribute  
      LocaleStringAttribute(  
        range: TextRange(start: 0, end: widget.product.name.length),  
        locale: const Locale('sp'),  
      ), // LocaleStringAttribute  
    ],  
  ), // AttributedString
```

89923431234134

восемь девять девять два три четыре
три один два три четыре...



```
1 AccessibilityNode.header({
2   required this.child,
3   required this.debugLabel,
4   required int headingLevel,
5   String? value,
6   AttributedString? attributedValue,
7   this.focusNode,
8   super.key,
9 }) : semanticsProperties = SemanticsProperties(
10   value: value,
11   attributedValue: attributedValue,
12   header: true,
13   headingLevel: headingLevel,
14 ),
15   assert(
16     value != null || attributedValue != null,
17     'At least one of the properties must be set',
18   );
```

Header

Focus

Focus

Header

Focus

Focus

Focus

Focus

Header, заголовок



```
1 child: AccessibilityNode.header(
2   debugLabel: 'ProductsCarouselWidgetTitle',
3   headingLevel: 2,
4   value: '$title. ${description ?? ''}',
5   child: Column(
6     mainAxisAlignment: MainAxisAlignment.min,
7     crossAxisAlignment: CrossAxisAlignment.start,
8     children: [
9       AccessibleText(
10        title,
11        style: textStyles.titleBold.copyWith(
12          color: appColors.textPrimary,
13        ),
14      ),
15      if (description != null)
16        AccessibleText(
17          description,
18          style: textStyles.captionRegular.copyWith(
19            color: appColors.highlight,
20          ),
21      ),
22    ],
23  ),
24 ),
```



Кнопка

..., кнопка. Коснитесь дважды, чтобы
удалить приложение

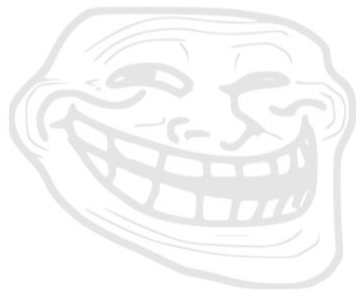


```
1  AccessibilityNode.button({
2    required this.child,
3    required this.debugLabel,
4    required this.identifier,
5    String? onTapHint,
6    String? onLongPressHint,
7    String? value,
8    AttributedString? attributedValue,
9    VoidCallback? onTap,
10   VoidCallback? onLongPress,
11   this.focusNode,
12   super.key,
13 }) : semanticsProperties = SemanticsProperties(
14     value: value,
15     button: true,
16     identifier: identifier,
17     onTap: onTap,
18     onLongPress: onLongPress,
19     hintOverrides: SemanticsHintOverrides(
20       onTapHint: onTapHint,
21       onLongPressHint: onLongPressHint,
22     ),
23   ),
24   assert(
25     value != null || attributedValue != null,
26     'At least one of the properties must be set',
27   );
```



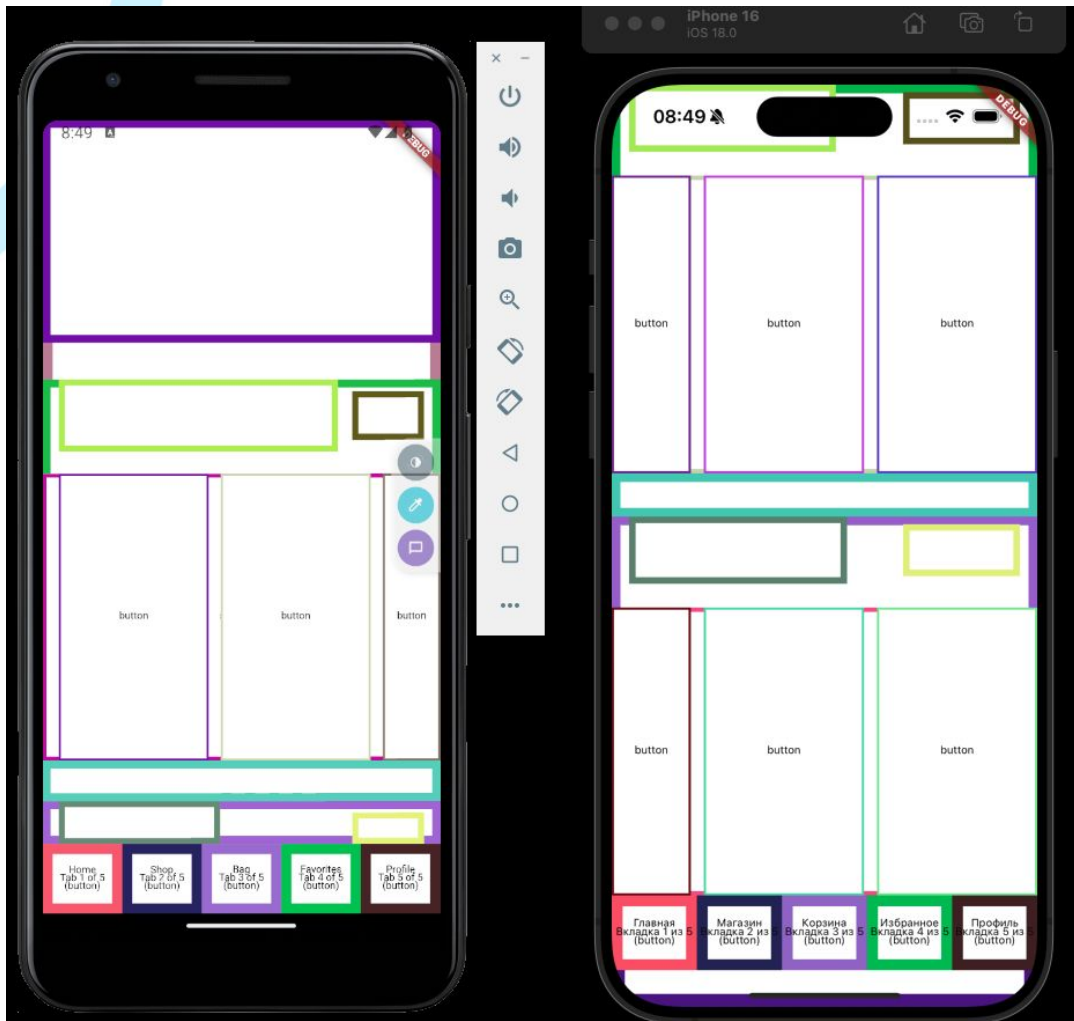
```
1  return AccessibilityNode.button(
2    debugLabel: text,
3    identifier: text,
4    value: text,
5    onTap: onPressed,
6    child: ElevatedButton(
7      style: style,
8      onPressed: onPressed,
9      child: Text(
10       text,
11       style: style.textStyle?.resolve({}) ??
12         context.textStyles.bodyMedium.copyWith(
13           color: context.colorScheme.light,
14         ),
15     ),
16   ),
17 );
```

И так далее





```
1  child: MaterialApp.router(  
2    showSemanticsDebugger: true,  
3    title: AppConstants.title,  
4    theme: AppTheme.lightTheme,  
5    highContrastTheme: AppTheme.highContrastLightTheme,  
6    highContrastDarkTheme: AppTheme.highContrastDarkTheme,  
7    darkTheme: AppTheme.darkTheme,
```



+39.000.000 пользователей



WCAG

AA





Заключение





surf_flutter



surfstudio



ССЫЛКИ)