



Programação para Dispositivos Móveis

Aula 06 - Procedures (procedimentos)

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Procedures

Um **procedimento** é uma sequência de blocos ou código que é armazenado sob um nome, o nome do seu bloco de procedimento.

Evita a repetição de blocos com a mesma funcionalidade.

Você pode criar um procedimento e apenas chamar o bloco de procedimento sempre que necessário.

Em ciência da computação, um procedimento também pode ser chamado de **função** ou **método**.

Procedures (procedimentos)

Porque utilizar ?

Permitir o reaproveitamento de blocos já construído

Evitar que um trecho de bloco seja repetido várias vezes dentro de um mesmo aplicativo

Permitir a alteração de um trecho de bloco de uma forma mais rápida.

Com o uso de uma procedure é preciso alterar apenas dentro da bloco que se deseja



Procedures

do (fazer)

initialize global salarioLiquido to 0

to calcularSalarioSemParametros
do set global valor1 to 1200 - 500

parâmetros

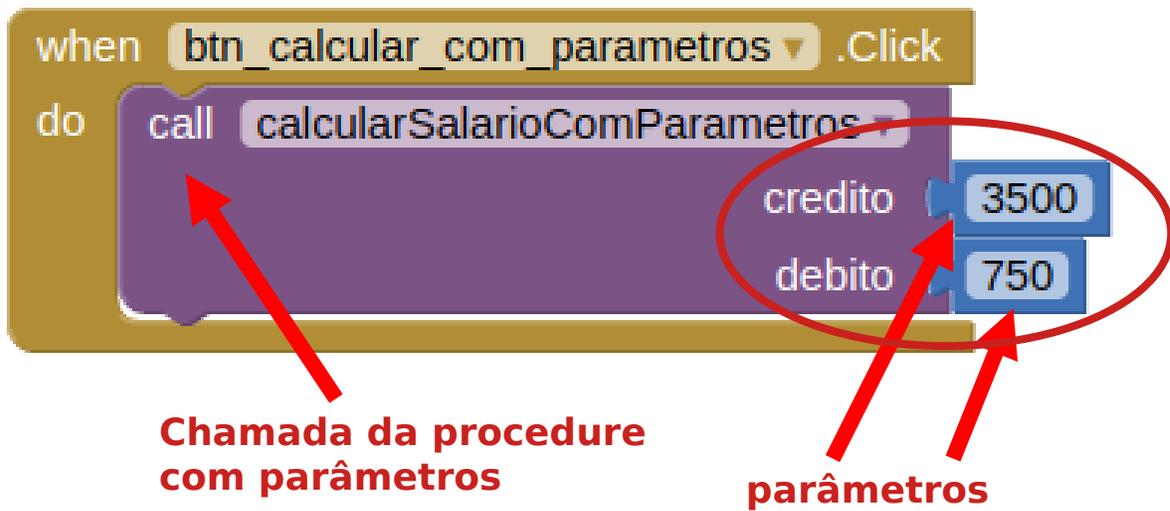
to calcularSalarioComParametros credito debito
do set global salarioLiquido to get credito - get debito

Armazena uma **sequência de blocos** em um grupo.

- Essa **sequência de blocos** pode ser utilizada em outros blocos repetidamente.
- Pode conter **parâmetros** (argumentos).
- Um **parâmetro** é um *valor* que é passado para a procedure quando esta é chamada.
- Os nomes de procedimento em um aplicativo devem ser **exclusivos**.
- O App Inventor não permite definir dois procedimentos na mesma tela com o **mesmo nome**.

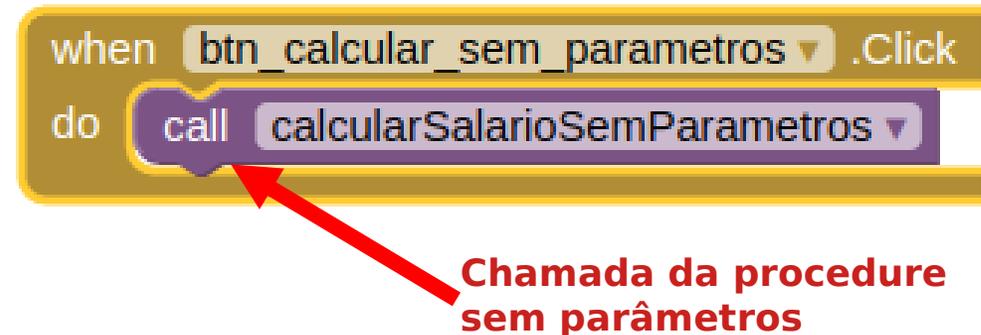
Procedures

call (chamar)



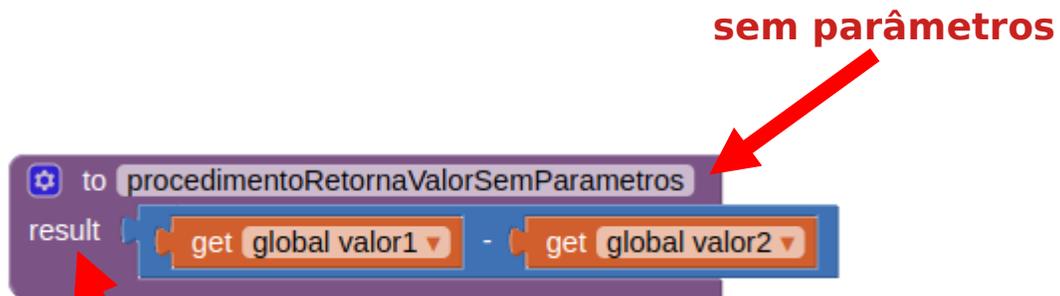
Chama (**executa**) um procedimento pré-definido.

Se o procedimento for definido **com parâmetros**, quando for chamado, é necessário informar, respectivamente, cada um deles.



Procedures

do (fazer) - retorno de valor



Retorno do procedimento
(Resultado)



O retorno da procedure é armazenado
na variável *valor1*

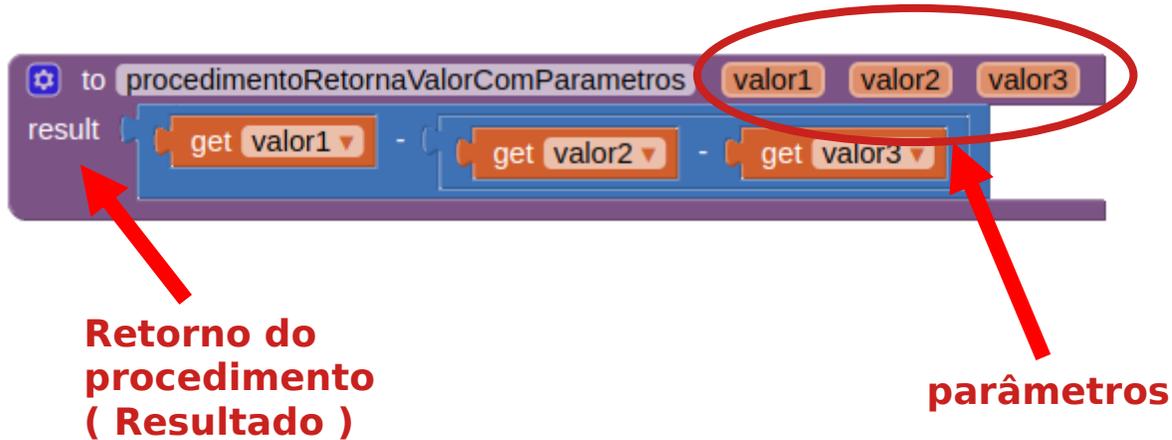
Chamada da procedure com parâmetros

Chama (**executa**) um procedimento pré-definido e **sem parâmetros**.

A diferença para o **do** anterior, é que esse procedimento deve, **obrigatoriamente**, retornar um **valor** ou uma **variável**. Para o bloco que o chamou (**executou**).

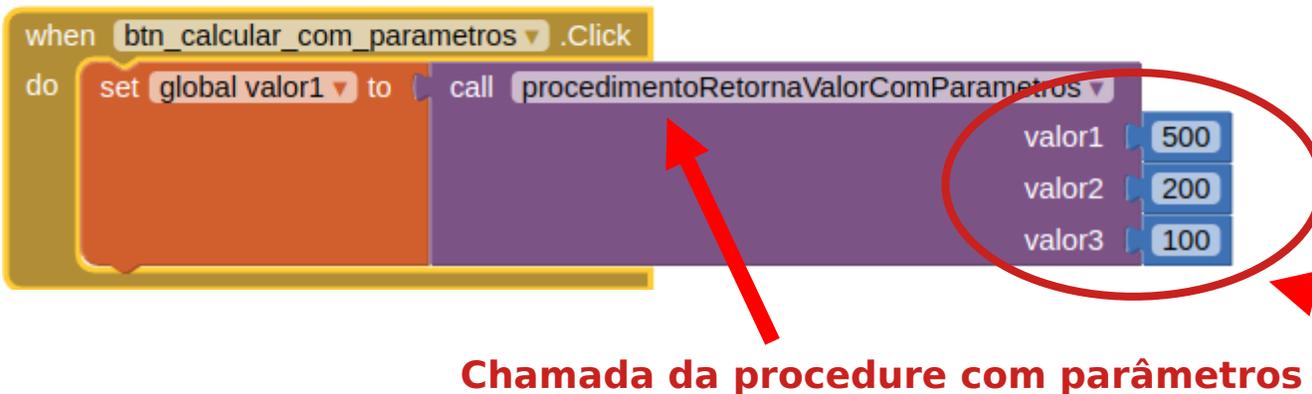
Procedures

do (fazer) - retorno de valor



Chama (**executa**) um procedimento pré-definido **com parâmetros**.

A diferença para o **do** anterior, é que esse procedimento deve, **obrigatoriamente**, retornar um **valor** ou uma **variável**. Para o bloco que o chamou (**executou**).

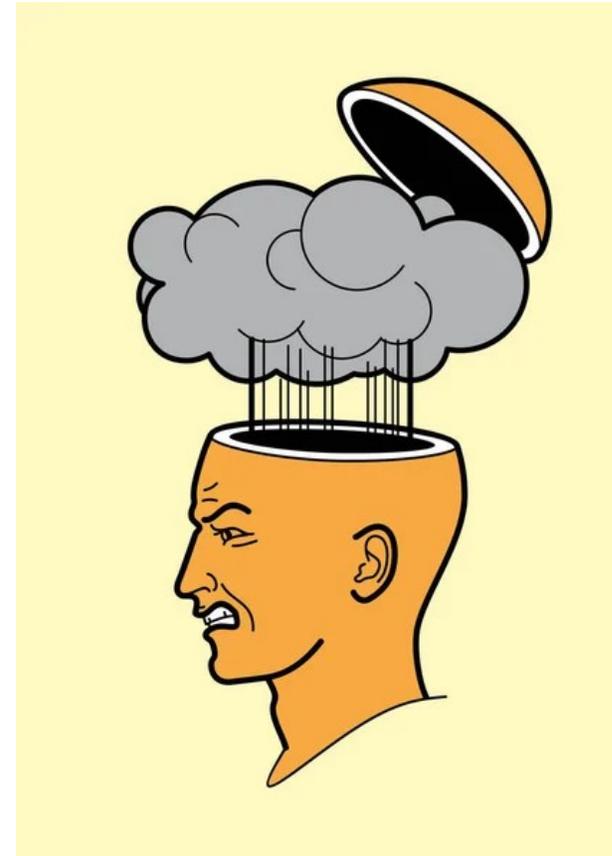


O retorno da procedure é armazenado na variável **valor1**

Passagem de valores por parâmetro

Procedures

O que você entendeu até agora?



Procedures

O que você entendeu até agora?

- ✓ Onde usar procedure?
- ✓ Como criar uma procedure?
- ✓ Como chamar(executar) uma procedure?
- ✓ O que são parâmetros?
- ✓ Como chamar(executar) uma procedure com parâmetros?
- ✓ Como criar uma procedure que retorna valor?
- ✓ Como criar uma procedure com parâmetros que retorna valor?

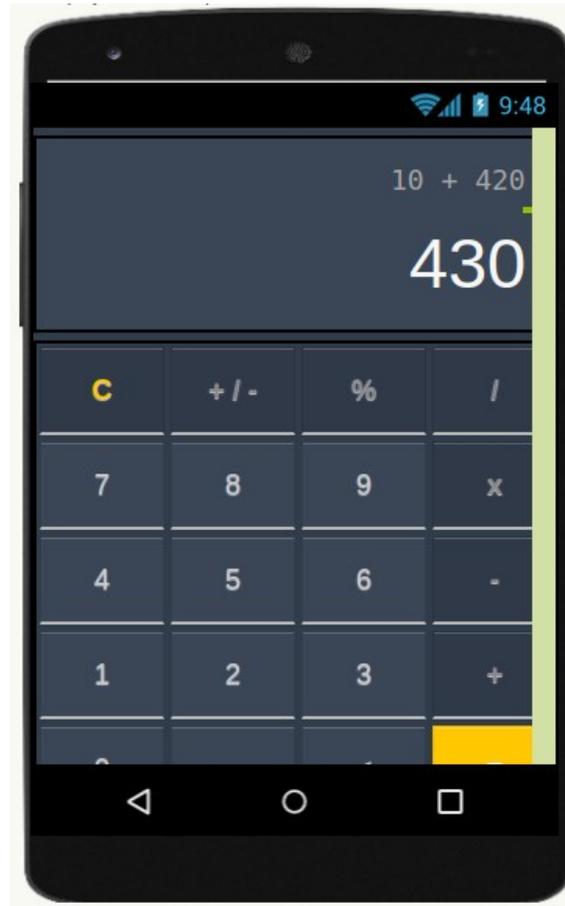
Procedures

Agora é hora de ...



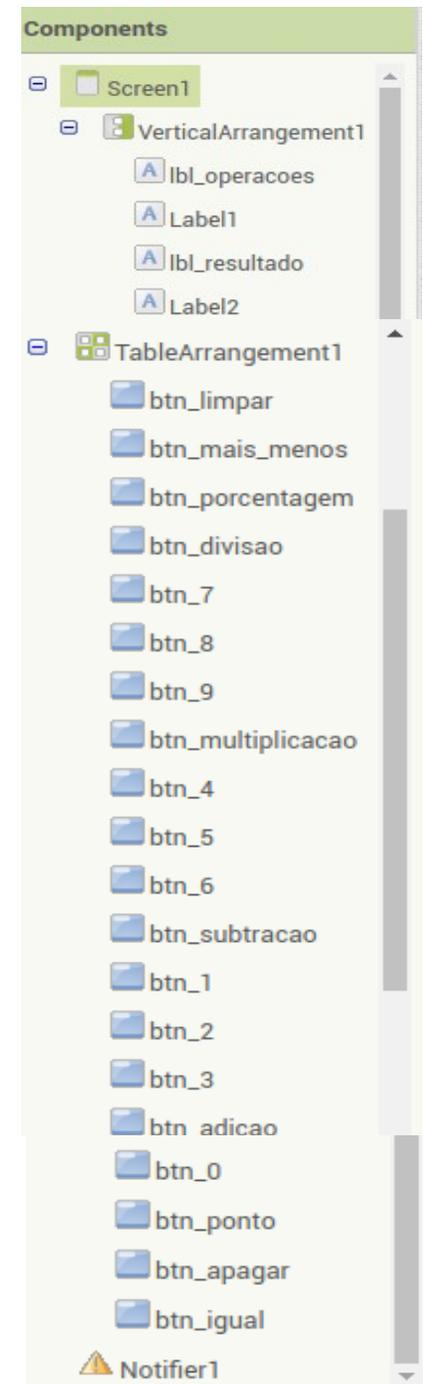
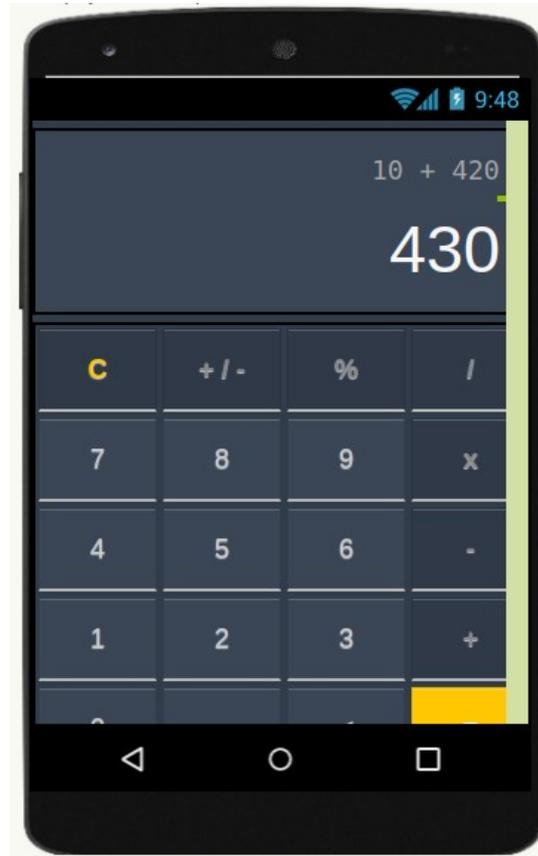
Procedures

Vamos criar um app *calculadora*



Procedures

- 1) Insira os componentes da figura
- 2) Configure cada componente



Procedures

Componente:

Screen1

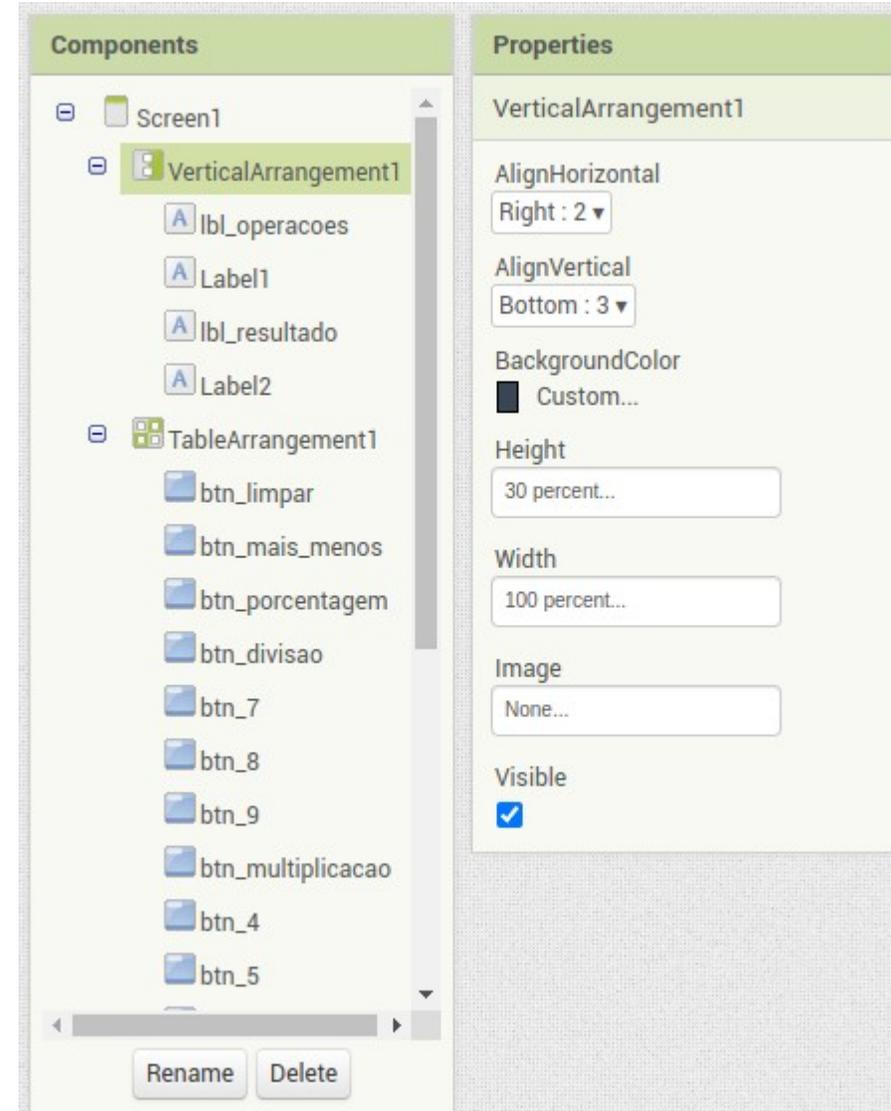
The screenshot shows the Visual Studio IDE interface. On the left, the Component Explorer displays a tree view for 'Screen1'. It contains a 'VerticalArrangement1' container with four labels: 'lbl_operacoes', 'Label1', 'lbl_resultado', and 'Label2'. Below this is a 'TableArrangement1' container with ten buttons: 'btn_limpar', 'btn_mais_menos', 'btn_porcentagem', 'btn_divisao', 'btn_7', 'btn_8', 'btn_9', 'btn_multiplicacao', 'btn_4', and 'btn_5'. At the bottom of the Component Explorer is a 'Media' section with an 'Upload File ...' button. On the right, the Properties window shows the 'Screen1' properties. The 'AboutScreen' property is an empty text box. 'AccentColor' is set to 'Default' with a red color swatch. 'AlignHorizontal' is 'Left : 1' and 'AlignVertical' is 'Top : 1'. 'AppName' is 'Calculator'. 'BackgroundColor' is 'Custom...' with a black swatch. 'BackgroundImage' is 'None...'. 'BigDefaultText' is unchecked. 'BlocksToolkit' is 'All'. 'CloseScreenAnimation' is 'Default'. 'DefaultFileScope' is 'App'. 'HighContrast' is unchecked.

The screenshot shows the Properties window for 'Screen1'. The 'Icon' property is 'None...'. 'OpenScreenAnimation' is 'Default'. 'PrimaryColor' is 'Default' with a blue swatch. 'PrimaryColorDark' is 'Default' with a blue swatch. 'ScreenOrientation' is 'Unspecified'. 'Scrollable' is unchecked. 'ShowListsAsJson' is unchecked. 'ShowStatusBar' is checked. 'Sizing' is 'Fixed'. 'Theme' is 'Classic'. 'Title' is 'Screen1'.

Procedures

Componente:

VerticalArrangement1



Procedures

Componente:

lbl_operacoes

The screenshot displays the IDE's component tree and properties panel. The component tree on the left shows a hierarchy starting with 'Screen1', followed by 'VerticalArrangement1', and then 'lbl_operacoes'. Below this are other components like 'Label1', 'Label2', and a 'TableArrangement1' containing several buttons. The properties panel on the right is for the selected 'lbl_operacoes' component, showing various attributes such as 'BackgroundColor', 'FontBold', 'FontSize' (set to 20), 'FontTypeface' (set to monospace), 'Text' (set to '10 + 420'), and 'Visible' (checked).

Components

- Screen1
 - VerticalArrangement1
 - lbl_operacoes
 - Label1
 - lbl_resultado
 - Label2
 - TableArrangement1
 - btn_limpar
 - btn_mais_menos
 - btn_porcentagem
 - btn_divisao
 - btn_7
 - btn_8
 - btn_9
 - btn_multiplicacao
 - btn_4
 - btn_5

Properties

lbl_operacoes

- BackgroundColor: None
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: monospace
- HTMLFormat:
- HasMargins:
- Height: Automatic...
- Width: Automatic...
- Text: 10 + 420
- TextAlignment: left : 0
- TextColor: Custom...
- Visible:

Media

Upload File ...

Procedures

Componente:

Label1

The image shows a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel:

- Screen1
 - VerticalArrangement1
 - lbl_operacoes
 - Label1** (highlighted)
 - lbl_resultado
 - Label2
 - TableArrangement1
 - btn_limpar
 - btn_mais_menos
 - btn_porcentagem
 - btn_divisao
 - btn_7
 - btn_8
 - btn_9
 - btn_multiplicacao
 - btn_4
 - btn_5

Buttons: Rename, Delete

Media Panel:

Upload File ...

Properties Panel:

Label1

- BackgroundColor: None
- FontBold:
- FontItalic:
- FontSize: 14.0
- FontTypeface: default ▾
- HTMLFormat:
- HasMargins:
- Height: Automatic...
- Width: Automatic...
- Text:
- TextAlignment: left : 0 ▾
- TextColor: Default
- Visible:

Procedures

Componente:

lbl_resultado

The screenshot displays a software development environment with two main panels: 'Components' and 'Properties'.

Components Panel:

- Screen1
 - VerticalArrangement1
 - lbl_operacoes
 - Label1
 - lbl_resultado** (highlighted)
 - Label2
 - TableArrangement1
 - btn_limpar
 - btn_mais_menos
 - btn_porcentagem
 - btn_divisao
 - btn_7
 - btn_8
 - btn_9
 - btn_multiplicacao
 - btn_4
 - btn_5

Properties Panel:

- lbl_resultado
 - BackgroundColor: None
 - FontBold:
 - FontItalic:
 - FontSize: 50
 - FontTypeface: sans serif
 - HTMLFormat:
 - HasMargins:
 - Height: Automatic...
 - Width: Automatic...
 - Text: 430
 - TextAlignment: left : 0
 - TextColor: Custom...
 - Visible:

Media Panel:

- Upload File ...

Procedures

Componente:

Label2

The image shows a software development environment interface with two main panels: 'Components' and 'Properties'.

Components Panel: This panel displays a hierarchical tree structure of components. The root is 'Screen1', which contains 'VerticalArrangement1' and 'TableArrangement1'. 'VerticalArrangement1' contains 'lbl_operacoes', 'Label1', 'lbl_resultado', and 'Label2' (which is highlighted with a green background). 'TableArrangement1' contains several buttons: 'btn_limpar', 'btn_mais_menos', 'btn_porcentagem', 'btn_divisao', 'btn_7', 'btn_8', 'btn_9', 'btn_multiplicacao', 'btn_4', and 'btn_5'. At the bottom of this panel are 'Rename' and 'Delete' buttons.

Properties Panel: This panel shows the properties for the selected 'Label2' component. The properties listed are: 'Label2' (the component name), 'BackgroundColor' (set to 'None'), 'FontBold' (checkbox, unchecked), 'FontItalic' (checkbox, unchecked), 'FontSize' (set to '14.0'), 'FontTypeface' (set to 'default'), 'HTMLFormat' (checkbox, unchecked), 'HasMargins' (checkbox, checked), 'Height' (set to 'Automatic...'), 'Width' (set to 'Automatic...'), 'Text' (empty text input field), 'TextAlignment' (set to 'left : 0'), 'TextColor' (set to 'Default'), and 'Visible' (checkbox, checked).

Media Panel: Located at the bottom, it contains an 'Upload File ...' button.

Procedures

Componente:

TableArrangement1

The screenshot displays a software development environment with two main panels: 'Components' and 'Properties'.

Components Panel:

- Screen1
 - VerticalArrangement1
 - lbl_operacoes
 - Label1
 - lbl_resultado
 - Label2
 - TableArrangement1** (selected)
 - btn_limpar
 - btn_mais_menos
 - btn_porcentagem
 - btn_divisao
 - btn_7
 - btn_8
 - btn_9
 - btn_multiplicacao
 - btn_4
 - btn_5

Properties Panel:

TableArrangement1

- Columns: 4
- Height: 70 percent...
- Width: 100 percent...
- Rows: 5
- Visible:

At the bottom of the Components panel, there are 'Rename' and 'Delete' buttons. Below the Components panel is a 'Media' section with an 'Upload File ...' button.

Procedures

Componente:

btn_limpar

The screenshot displays a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel:

- Screen1
 - VerticalArrangement1
 - lbl_operacoes
 - Label1
 - lbl_resultado
 - Label2
 - TableArrangement1
 - btn_limpar** (highlighted)
 - btn_mais_menos
 - btn_porcentagem
 - btn_divisao
 - btn_7
 - btn_8
 - btn_9
 - btn_multiplicacao
 - btn_4
 - btn_5

Buttons: Rename, Delete

Media Panel:

- Upload File ...

Properties Panel:

btn_limpar

- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: 25 percent...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: C
- TextAlignment: center : 1
- TextColor: Orange
- Visible:

Procedures

Componente:

btn_mais_menos

The screenshot displays a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel:

- Screen1
 - VerticalArrangement1
 - lbl_operacoes
 - Label1
 - lbl_resultado
 - Label2
 - TableArrangement1
 - btn_limpar
 - btn_mais_menos** (highlighted)
 - btn_porcentagem
 - btn_divisao
 - btn_7
 - btn_8
 - btn_9
 - btn_multiplicacao
 - btn_4
 - btn_5

Buttons: Rename, Delete

Media Panel:

- Upload File ...

Properties Panel:

btn_mais_menos

- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: 25 percent...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: + / -
- TextAlignment: center : 1
- TextColor: Gray
- Visible:

Procedures

Componente:

btn_porcentagem

The image shows a screenshot of the Qt Designer interface. On the left, the 'Components' pane displays a tree view of the UI hierarchy: Screen1 contains VerticalArrangement1 (with sub-components lbl_operacoes, Label1, lbl_resultado, and Label2) and TableArrangement1 (with sub-components btn_limpar, btn_mais_menos, **btn_porcentagem**, btn_divisao, btn_7, btn_8, btn_9, btn_multiplicacao, btn_4, and btn_5). The 'btn_porcentagem' component is highlighted. Below the tree are 'Rename' and 'Delete' buttons. At the bottom of the Components pane is a 'Media' section with an 'Upload File ...' button.

On the right, the 'Properties' pane shows the configuration for the selected 'btn_porcentagem' widget:

- btn_porcentagem
- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: 25 percent...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: %
- TextAlignment: center : 1
- TextColor: Gray
- Visible:

Procedures

Componente:

btn_divisao

The screenshot displays the Qt Designer interface. The 'Components' panel on the left shows a hierarchical tree of components. Under 'TableArrangement1', the button 'btn_divisao' is selected and highlighted in green. Below the tree are 'Rename' and 'Delete' buttons. The 'Media' panel below that contains an 'Upload File ...' button. The 'Properties' panel on the right shows the configuration for the selected 'btn_divisao' component. The 'Text' property is set to '/', and the 'TextAlignment' is set to 'center : 1'. Other visible properties include 'BackgroundColor' (Custom...), 'Enabled' (checked), 'FontBold' (checked), 'FontSize' (20), 'FontTypeface' (default), 'Height' (14 percent...), 'Width' (25 percent...), 'Image' (None...), 'Shape' (rectangular), 'ShowFeedback' (checked), 'TextColor' (Gray), and 'Visible' (checked).

Components

- Screen1
 - VerticalArrangement1
 - lbl_operacoes
 - Label1
 - lbl_resultado
 - Label2
 - TableArrangement1
 - btn_limpar
 - btn_mais_menos
 - btn_porcentagem
 - btn_divisao**
 - btn_7
 - btn_8
 - btn_9
 - btn_multiplicacao
 - btn_4
 - btn_5

Media

Upload File ...

Properties

btn_divisao

BackgroundColor
Custom...

Enabled

FontBold

FontItalic

FontSize
20

FontTypeface
default

Height
14 percent...

Width
25 percent...

Image
None...

Shape
rectangular

ShowFeedback

Text
/

TextAlignment
center : 1

TextColor
Gray

Visible

Procedures

Componente:

btn_7

The image shows a software development environment interface. On the left, a 'Components' tree displays a hierarchy: 'Screen1' contains 'VerticalArrangement1' (with sub-components 'lbl_operacoes', 'Label1', 'lbl_resultado', 'Label2') and 'TableArrangement1' (with sub-components 'btn_limpar', 'btn_mais_menos', 'btn_porcentagem', 'btn_divisao', 'btn_7', 'btn_8', 'btn_9', 'btn_multiplicacao', 'btn_4', 'btn_5'). The 'btn_7' component is highlighted. Below the tree are 'Rename' and 'Delete' buttons. A 'Media' section at the bottom has an 'Upload File ...' button. On the right, the 'Properties' panel for 'btn_7' lists various attributes: 'BackgroundColor' (Custom...), 'Enabled' (checked), 'FontBold' (unchecked), 'FontItalic' (unchecked), 'FontSize' (20), 'FontTypeface' (default), 'Height' (14 percent...), 'Width' (Automatic...), 'Image' (None...), 'Shape' (rectangular), 'ShowFeedback' (checked), 'Text' (7), 'TextAlignment' (center : 1), 'TextColor' (Light Gray), and 'Visible' (checked).

Procedures

Componente:

btn_8

The image shows a software development environment interface with two main panels: Components and Properties.

Components Panel: A tree view showing a hierarchy of components. The selected component is **btn_8**, which is highlighted in green. Other components visible include **lbl_operacoes**, **Label1**, **lbl_resultado**, **Label2**, **TableArrangement1**, **btn_limpar**, **btn_mais_menos**, **btn_porcentagem**, **btn_divisao**, **btn_7**, **btn_9**, **btn_multiplicacao**, **btn_4**, **btn_5**, **btn_6**, and **btn_subtracao**. At the bottom of this panel are **Rename** and **Delete** buttons.

Properties Panel: A list of properties for the selected **btn_8** component. The properties and their values are:

- btn_8** (Component Name)
- BackgroundColor**: Custom...
- Enabled**:
- FontBold**:
- FontItalic**:
- FontSize**: 20
- FontTypeface**: default
- Height**: 14 percent...
- Width**: Automatic...
- Image**: None...
- Shape**: rectangular
- ShowFeedback**:
- Text**: 8
- TextAlignment**: center : 1
- TextColor**: Light Gray
- Visible**:

At the bottom of the Properties panel is an **Upload File ...** button.

Procedures

Componente:

btn_9

The image shows a software development environment interface. On the left, a 'Components' tree lists various UI elements. The 'TableArrangement1' container is expanded, showing a list of buttons: btn_limpar, btn_mais_menos, btn_porcentagem, btn_divisao, btn_7, btn_8, btn_9 (highlighted), btn_multiplicacao, btn_4, btn_5, btn_6, and btn_subtracao. Below the tree are 'Rename' and 'Delete' buttons. At the bottom of the left panel is a 'Media' section with an 'Upload File ...' button. On the right, the 'Properties' panel for the selected 'btn_9' component is visible. It lists various properties with their current values or states:

- btn_9
- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: Automatic...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: 9
- TextAlignment: center : 1
- TextColor: Light Gray
- Visible:

Procedures

Componente:

btn_multiplicacao

The screenshot displays a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel: A tree view showing a hierarchy of components. The root is 'TableArrangement1', which contains several buttons: 'btn_limpar', 'btn_mais_menos', 'btn_porcentagem', 'btn_divisao', 'btn_7', 'btn_8', 'btn_9', 'btn_multiplicacao' (highlighted in green), 'btn_4', 'btn_5', 'btn_6', and 'btn_subtracao'. Below the tree are 'Rename' and 'Delete' buttons.

Properties Panel: A list of properties for the selected 'btn_multiplicacao' component. The properties and their values are:

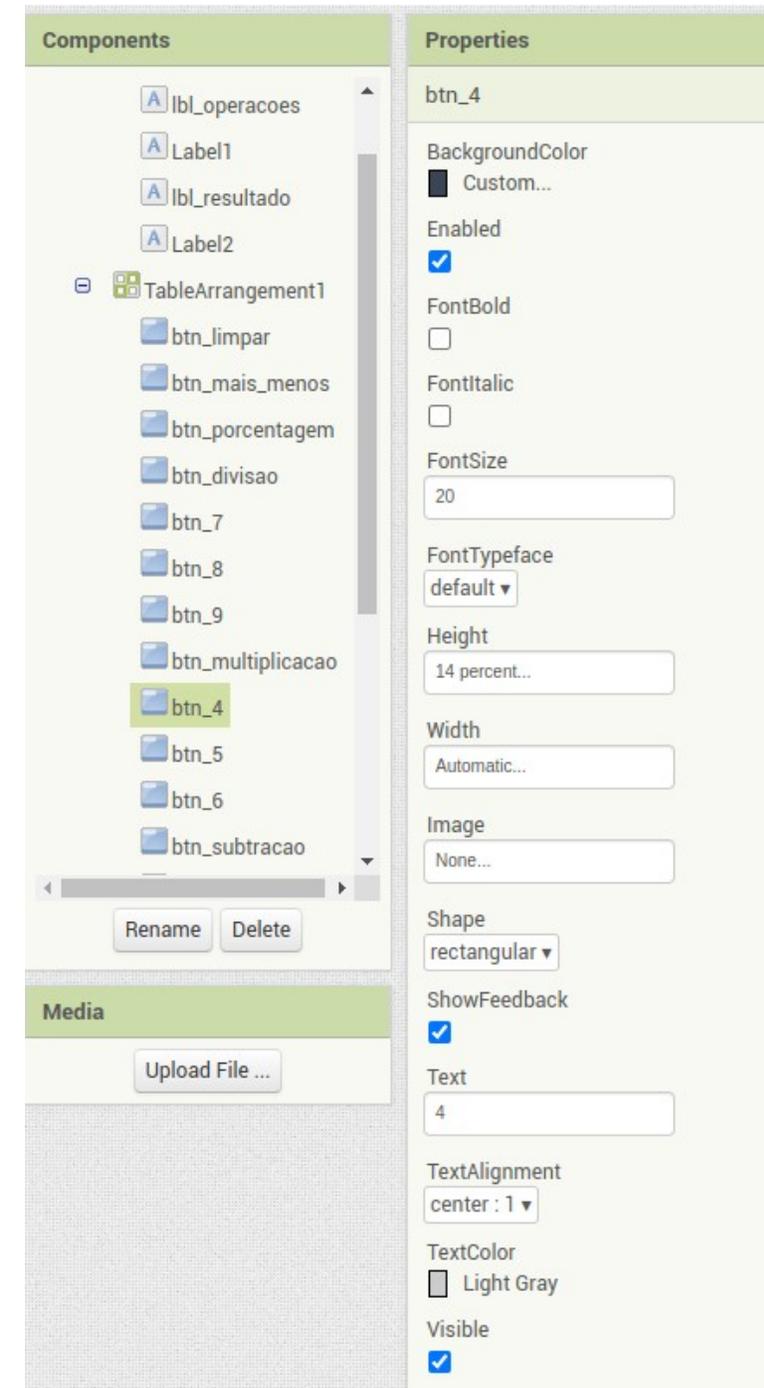
- btn_multiplicacao
- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: Automatic...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: x
- TextAlignment: center : 1
- TextColor: Gray
- Visible:

Below the 'Components' panel is a 'Media' section with an 'Upload File ...' button.

Procedures

Componente:

btn_4



The image shows a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel:

- lbl_operacoes
- Label1
- lbl_resultado
- Label2
- TableArrangement1
 - btn_limpar
 - btn_mais_menos
 - btn_porcentagem
 - btn_divisao
 - btn_7
 - btn_8
 - btn_9
 - btn_multiplicacao
 - btn_4**
 - btn_5
 - btn_6
 - btn_subtracao

Buttons: Rename, Delete

Media Panel:

Upload File ...

Properties Panel:

btn_4

- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: Automatic...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: 4
- TextAlignment: center : 1
- TextColor: Light Gray
- Visible:

Procedures

Componente:

btn_5

The image shows a software development interface with two main panels: Components and Properties.

Components Panel:

- lbl_operacoes
- Label1
- lbl_resultado
- Label2
- TableArrangement1
 - btn_limpar
 - btn_mais_menos
 - btn_porcentagem
 - btn_divisao
 - btn_7
 - btn_8
 - btn_9
 - btn_multiplicacao
 - btn_4
 - btn_5**
 - btn_6
 - btn_subtracao

Buttons: Rename, Delete

Media Panel:

Upload File ...

Properties Panel:

btn_5

- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: Automatic...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: 5
- TextAlignment: center : 1
- TextColor: Light Gray
- Visible:

Procedures

Componente:

btn_6

The screenshot displays a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel: A list of components is shown, including btn_7, btn_8, btn_9, btn_multiplicacao, btn_4, btn_5, **btn_6** (highlighted), btn_subtracao, btn_1, btn_2, btn_3, btn_adicao, btn_0, btn_ponto, btn_apagar, and btn_igual. A 'Notifier1' component is also visible at the bottom of the list. Below the list are 'Rename' and 'Delete' buttons.

Properties Panel: The properties for the selected 'btn_6' component are listed:

- btn_6
- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: Automatic...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: 6
- TextAlignment: center : 1
- TextColor: Light Gray
- Visible:

Media Panel: An 'Upload File ...' button is located below the components list.

Procedures

Componente:

btn_subtracao

The screenshot displays the IDE's component and properties panels. The 'Components' panel on the left lists various UI elements, with 'btn_subtracao' selected and highlighted in green. Below this list are 'Rename' and 'Delete' buttons. The 'Media' panel below it contains an 'Upload File ...' button. The 'Properties' panel on the right shows the configuration for the selected 'btn_subtracao' component. The properties are as follows:

Property	Value
btn_subtracao	
BackgroundColor	Custom...
Enabled	<input checked="" type="checkbox"/>
FontBold	<input checked="" type="checkbox"/>
FontItalic	<input type="checkbox"/>
FontSize	20
FontTypeface	default
Height	14 percent...
Width	Automatic...
Image	None...
Shape	rectangular
ShowFeedback	<input checked="" type="checkbox"/>
Text	-
TextAlignment	center : 1
TextColor	Gray
Visible	<input checked="" type="checkbox"/>

Procedures

Componente:

btn_1

The image shows a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel:

- btn_7
- btn_8
- btn_9
- btn_multiplicacao
- btn_4
- btn_5
- btn_6
- btn_subtracao
- btn_1** (highlighted)
- btn_2
- btn_3
- btn_adicao
- btn_0
- btn_ponto
- btn_apagar
- btn_igual
- Notifier1

Buttons: Rename, Delete

Media Panel:

- Upload File ...

Properties Panel:

btn_1

- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: Automatic...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: 1
- TextAlignment: center : 1
- TextColor: Light Gray
- Visible:

Procedures

Componente:

btn_2

The image shows a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel:

- btn_7
- btn_8
- btn_9
- btn_multiplicacao
- btn_4
- btn_5
- btn_6
- btn_subtracao
- btn_1
- btn_2** (highlighted)
- btn_3
- btn_adicao
- btn_0
- btn_ponto
- btn_apagar
- btn_igual
- Notifier1

Buttons: Rename, Delete

Media Panel:

- Upload File ...

Properties Panel:

btn_2

- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: Automatic...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: 2
- TextAlignment: center : 1
- TextColor: Light Gray
- Visible:

Procedures

Componente:

btn_3

The image shows a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel: A list of components is displayed, including btn_7, btn_8, btn_9, btn_multiplicacao, btn_4, btn_5, btn_6, btn_subtracao, btn_1, btn_2, **btn_3** (highlighted), btn_adicao, btn_0, btn_ponto, btn_apagar, btn_igual, and Notifier1. Below the list are 'Rename' and 'Delete' buttons.

Properties Panel: The selected component 'btn_3' has the following properties:

- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: Automatic...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: 3
- TextAlignment: center : 1
- TextColor: Light Gray
- Visible:

Media Panel: Located below the components list, it contains an 'Upload File ...' button.

Procedures

Componente:

btn_adicao

The screenshot displays a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel: A list of components is shown, including btn_7, btn_8, btn_9, btn_multiplicacao, btn_4, btn_5, btn_6, btn_subtracao, btn_1, btn_2, btn_3, **btn_adicao** (highlighted), btn_0, btn_ponto, btn_apagar, and btn_igual. A 'Notifier1' component is also visible at the bottom of the list. Below the list are 'Rename' and 'Delete' buttons.

Properties Panel: The selected component 'btn_adicao' has the following properties:

- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: Automatic...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: +
- TextAlignment: center : 1
- TextColor: Gray
- Visible:

Below the components list is a 'Media' section with an 'Upload File ...' button.

Procedures

Componente:

btn_0

The screenshot displays a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel: A list of components is shown, including btn_7, btn_8, btn_9, btn_multiplicacao, btn_4, btn_5, btn_6, btn_subtracao, btn_1, btn_2, btn_3, btn_adicao, **btn_0** (highlighted), btn_ponto, btn_apagar, btn_igual, and Notifier1. Below the list are 'Rename' and 'Delete' buttons.

Media Panel: Contains an 'Upload File ...' button.

Properties Panel: Shows the configuration for the selected 'btn_0' component. The properties are:

- btn_0
- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: Automatic...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: 0
- TextAlignment: center : 1
- TextColor: Light Gray
- Visible:

Procedures

Componente:

btn_ponto

The screenshot displays a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel: A list of components is shown, including btn_7, btn_8, btn_9, btn_multiplicacao, btn_4, btn_5, btn_6, btn_subtracao, btn_1, btn_2, btn_3, btn_adicao, btn_0, **btn_ponto** (highlighted), btn_apagar, and btn_igual. Below the list are 'Rename' and 'Delete' buttons. A 'Media' section at the bottom contains an 'Upload File ...' button.

Properties Panel: The selected component, 'btn_ponto', has the following properties:

- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: Automatic...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: .
- TextAlignment: center : 1
- TextColor: Light Gray
- Visible:

Procedures

Componente:

btn_apagar

The screenshot displays a software development interface with two main panels: 'Components' and 'Properties'.

Components Panel: A list of components is shown, including btn_7, btn_8, btn_9, btn_multiplicacao, btn_4, btn_5, btn_6, btn_subtracao, btn_1, btn_2, btn_3, btn_adicao, btn_0, btn_ponto, **btn_apagar** (highlighted), btn_igual, and Notifier1. Below the list are 'Rename' and 'Delete' buttons.

Properties Panel: The selected component 'btn_apagar' has the following properties:

- BackgroundColor: Custom...
- Enabled:
- FontBold:
- FontItalic:
- FontSize: 20
- FontTypeface: default
- Height: 14 percent...
- Width: Automatic...
- Image: None...
- Shape: rectangular
- ShowFeedback:
- Text: <
- TextAlignment: center : 1
- TextColor: Light Gray
- Visible:

Media Panel: Contains an 'Upload File ...' button.

Procedures

Componente:

btn_igual

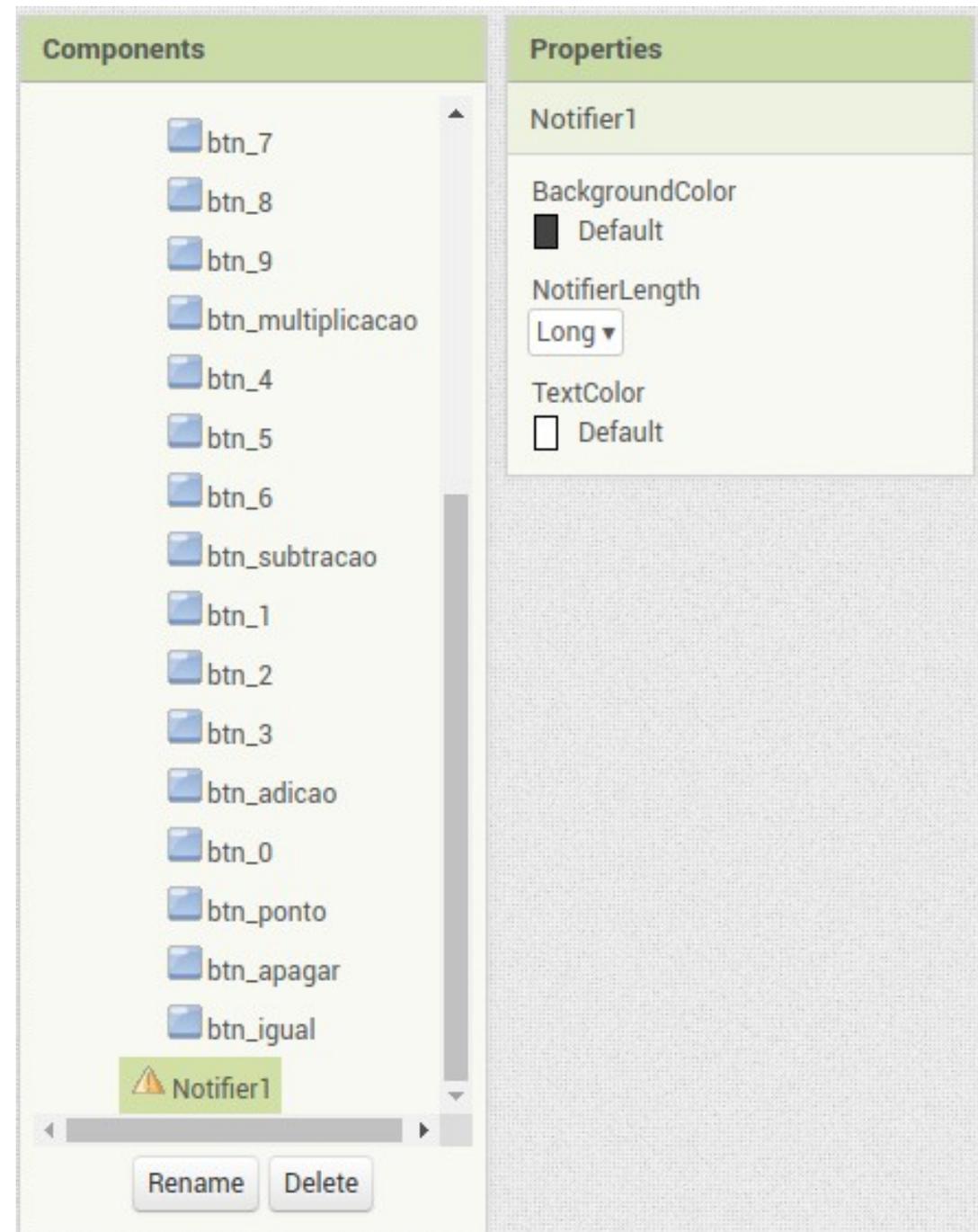
The screenshot displays the 'Components' and 'Properties' panels of a software development IDE. The 'Components' panel on the left shows a tree view of components, with 'btn_igual' selected and highlighted in green. Below the tree are 'Rename' and 'Delete' buttons. The 'Media' panel below it contains an 'Upload File ...' button. The 'Properties' panel on the right shows the configuration for the selected 'btn_igual' component. The properties are as follows:

Property	Value
btn_igual	
BackgroundColor	Orange
Enabled	<input checked="" type="checkbox"/>
FontBold	<input checked="" type="checkbox"/>
FontItalic	<input type="checkbox"/>
FontSize	20
FontTypeface	default
Height	14 percent...
Width	Automatic...
Image	None...
Shape	rectangular
ShowFeedback	<input checked="" type="checkbox"/>
Text	=
TextAlignment	center : 1
TextColor	<input type="checkbox"/> White
Visible	<input checked="" type="checkbox"/>

Procedures

Componente:

Notifier1



The image shows a screenshot of a software development environment, likely a Visual Studio IDE, displaying a component tree and a properties panel.

Components Panel:

- btn_7
- btn_8
- btn_9
- btn_multiplicacao
- btn_4
- btn_5
- btn_6
- btn_subtracao
- btn_1
- btn_2
- btn_3
- btn_adicao
- btn_0
- btn_ponto
- btn_apagar
- btn_igual
- Notifier1** (highlighted with a warning icon)

Properties Panel:

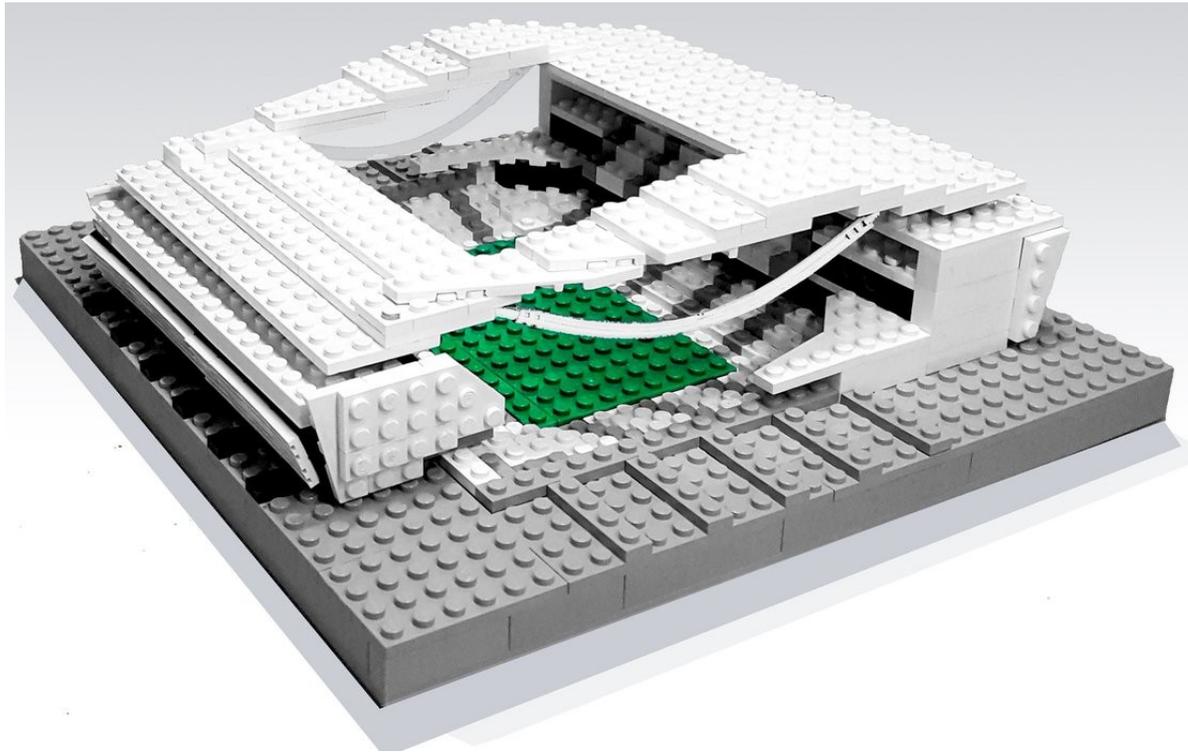
Notifier1

- BackgroundColor:  Default
- NotifierLength: Long ▾
- TextColor:  Default

Buttons: Rename, Delete

Procedures

Vamos agora programar!



Procedures

Definição das variáveis

initialize global valor1 to " "

initialize global valor2 to " "

initialize global operador to " "

Procedure **setCalcular**

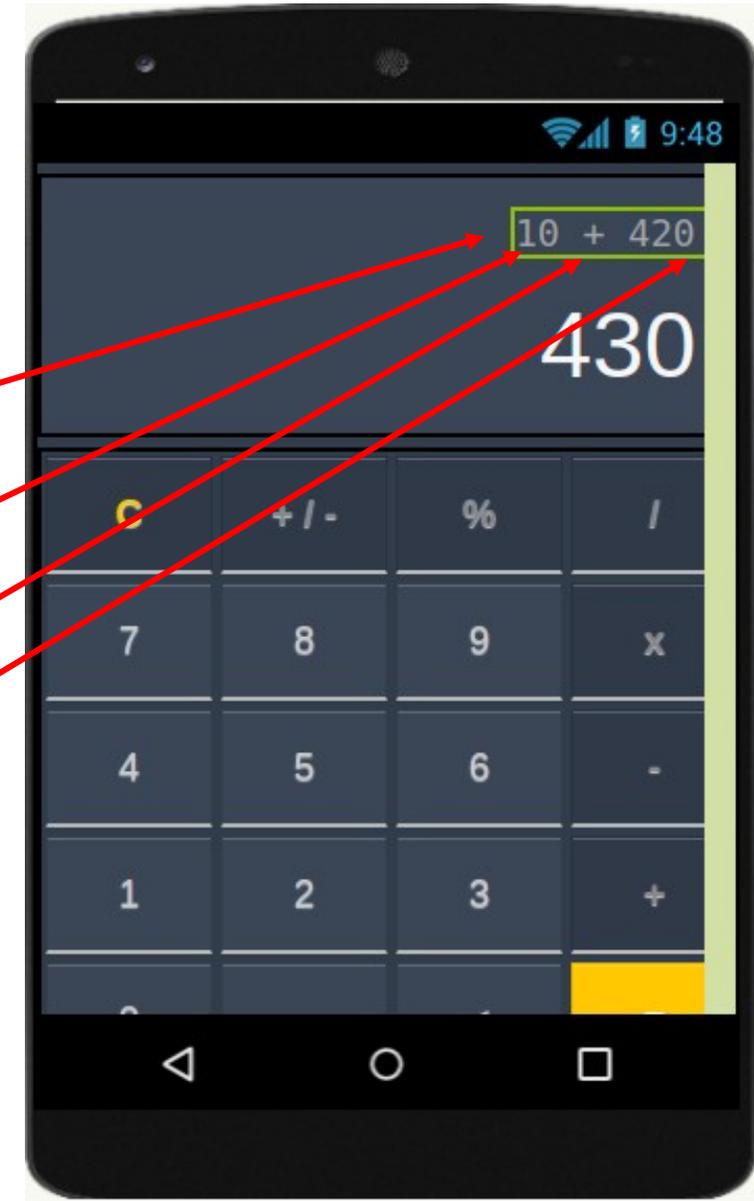
Irá atribuir ao label *lbl_operacoes* a concatenação (junção) das variáveis:

global_valor1

global_operador e

global_valor2

```
to setCalcular
do
  set lbl_operacoes . Text to
  join
    get global valor1
    " "
    get global operador
    " "
    get global valor2
```



Procedures

```
when btn_0 .Click
do
  if
    compare texts
      get global operador
      =
      " 0 "
  then
    set global valor1 to
      join
        get global valor1
        " 0 "
  else
    set global valor2 to
      join
        get global valor2
        " 0 "
  call setCalculador
```

```
when btn_2 .Click
do
  if
    compare texts
      get global operador
      =
      " 2 "
  then
    set global valor1 to
      join
        get global valor1
        " 2 "
  else
    set global valor2 to
      join
        get global valor2
        " 2 "
  call setCalculador
```

```
when btn_1 .Click
do
  if
    compare texts
      get global operador
      =
      " 1 "
  then
    set global valor1 to
      join
        get global valor1
        " 1 "
  else
    set global valor2 to
      join
        get global valor2
        " 1 "
  call setCalculador
```

```
when btn_3 .Click
do
  if
    compare texts
      get global operador
      =
      " 3 "
  then
    set global valor1 to
      join
        get global valor1
        " 3 "
  else
    set global valor2 to
      join
        get global valor2
        " 3 "
  call setCalculador
```

Procedures

```
when btn_4 .Click
do
  if
    compare texts (get global operador) = " + "
  then
    set global valor1 to (join (get global valor1) "4")
  else
    set global valor2 to (join (get global valor2) "4")
  call setCalculador
```

```
when btn_6 .Click
do
  if
    compare texts (get global operador) = " + "
  then
    set global valor1 to (join (get global valor1) "6")
  else
    set global valor2 to (join (get global valor2) "6")
  call setCalculador
```

```
when btn_5 .Click
do
  if
    compare texts (get global operador) = " * "
  then
    set global valor1 to (join (get global valor1) "5")
  else
    set global valor2 to (join (get global valor2) "5")
  call setCalculador
```

```
when btn_7 .Click
do
  if
    compare texts (get global operador) = " + "
  then
    set global valor1 to (join (get global valor1) "7")
  else
    set global valor2 to (join (get global valor2) "7")
  call setCalculador
```

Procedures

```
when btn_8 .Click
do
  if
    compare texts get global operador = " 8 "
  then
    set global valor1 to join get global valor1 " 8 "
  else
    set global valor2 to join get global valor2 " 8 "
  call setCalculador
```

```
when btn_9 .Click
do
  if
    compare texts get global operador = " 9 "
  then
    set global valor1 to join get global valor1 " 9 "
  else
    set global valor2 to join get global valor2 " 9 "
  call setCalculador
```

```
when btn_ponto .Click
do
  if
    compare texts get global operador = "."
  then
    set global valor1 to join get global valor1 "."
  else
    set global valor2 to join get global valor2 "."
  call setCalculador
```

```
when btn_mais_menos .Click
do
  if
    compare texts get global operador = "+"
  then
    set global valor1 to neg get global valor1
  else
    set global valor2 to neg get global valor2
  call setCalculador
```

Procedures

```
when btn_adicao ▾ .Click  
do  
  set global operador ▾ to "+"  
  call setCalculador ▾
```

```
when btn_multiplicacao ▾ .Click  
do  
  set global operador ▾ to "x"  
  call setCalculador ▾
```

```
when btn_subtracao ▾ .Click  
do  
  set global operador ▾ to "-"  
  call setCalculador ▾
```

```
when btn_divisao ▾ .Click  
do  
  set global operador ▾ to "÷"  
  call setCalculador ▾
```

```
when btn_porcentagem ▾ .Click  
do  
  set global operador ▾ to "%"  
  call setCalculador ▾
```

Procedures

The image displays two Scratch code blocks for a calculator application. The left block is triggered by the 'btn_apagar' button click and contains a series of nested 'if' statements to manage global variables for the calculator's state. The right block is triggered by the 'btn_limpar' button click and resets the calculator's state.

Left Code Block (btn_apagar .Click):

- do
if (is empty) (get global valor2)
then
if (is empty) (get global operador)
then
if (is empty) (get global valor1)
then
else
set global valor1 to (segment text) (get global valor1)
start: 1
length: (length) (get global valor1) - 1
else
set global operador to (" ")
else
set global valor2 to (segment text) (get global valor2)
start: 1
length: (length) (get global valor2) - 1
call setCalcular

Right Code Block (btn_limpar .Click):

- do
set global valor1 to (" ")
set global valor2 to (" ")
set global operador to (" ")
set lbl_resultado . Text to (" ")
call setCalcular

Procedures

```
when btn_igual .Click
do
  if not is empty get global valor2
  then
    if compare texts get global operador = "+"
    then set lbl_resultado . Text to get global valor1 + get global valor2
    if compare texts get global operador = "-"
    then set lbl_resultado . Text to get global valor1 - get global valor2
    if compare texts get global operador = "x"
    then set lbl_resultado . Text to get global valor1 × get global valor2
    if compare texts get global operador = "%"
    then set lbl_resultado . Text to get global valor1 / 100 × get global valor2
    if compare texts get global operador = "÷"
    then
      if get global valor2 ≠ 0
      then set lbl_resultado . Text to get global valor1 / get global valor2
      else call Notifier1 .ShowAlert
            notice " can not divide by 0 "
    set global valor1 to lbl_resultado . Text
    set global operador to " "
    set global valor2 to " "
```

Procedures (procedimentos)

- Salve o projeto
- Execute o projeto
- Clique no menu Connect e em AI Companion

