Quest 4 Material

STMicroelectronics Korea

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Gauge screen

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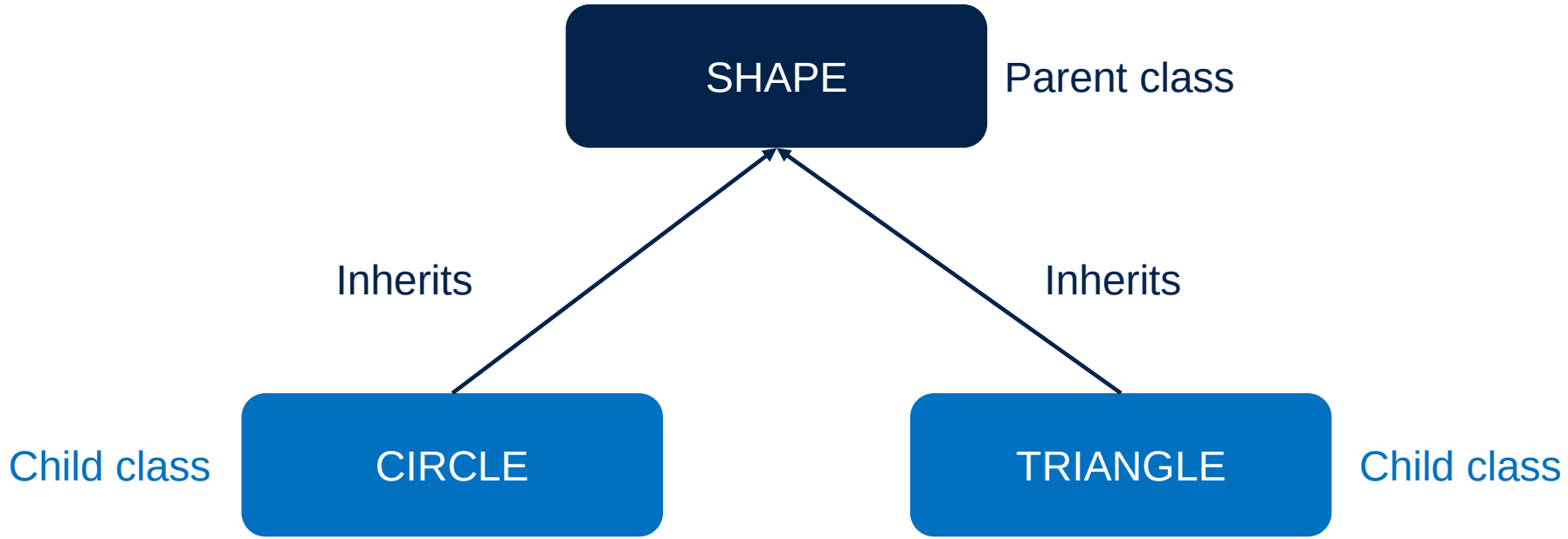
UI composition

- Components
  - Gauge widget consisting of an Image, Circle and a TextureMapper
  - A customButton inheriting the Button class
  - A back button to go back to the Menu Launcher

Class Inheritance

- Inheritance is one of the main features of object-oriented programming language like C++.
- This feature makes C++ a lot more useful than C for graphic programming.
- Example of inheritance :



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Class inheritance : benefits

- Reuse code already written. Only write new features.
  - In C, you would have to do unwanted copy/paste actions
- Structure your program in a very comprehensive manner
  - If we take the previous example, it is easy to understand that a circle and a triangle are both shapes and therefore share common characteristics
- Goes hand in hand with GUI creation mindset

How is it done in code ?

```
#include <touchgfx/widgets/Button.hpp>

namespace touchgfx
{
/**
 * @class CustomButton CustomButton.hpp
 */
class CustomButton : public Button
{
public:

    /**
     * @fn CustomButton::CustomButton()
     *
     * @brief Default constructor.
     */
    CustomButton() : Button()
    {
    }
```

- First, you need to include the header file of the class you want to inherit from
- Then you declare your class and specify the inheritance from Button
- Inheritance is done by adding “:”
- Usually, when creating our constructor, we call the parent constructor since we want a widget that is based on the parent.

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How is it done in code ? (2)

```
#include <gui_generated/gaugescreen_screen/GaugeScreenViewBase.hpp>
#include <gui/gaugescreen_screen/GaugeScreenPresenter.hpp>
#include <gui/common/CustomButton.hpp>

class GaugeScreenView : public GaugeScreenViewBase
{
```

```
CustomButton gasButton;
```

```
void GaugeScreenView::setupScreen()
{
    GaugeScreenViewBase::setupScreen();

    gasButton.setPosition(347, 106, 60, 60);
    gasButton.setBitmaps(Bitmap(BITMAP_DARK_BUTTONS_ROUND_EDG
    gasButton.setAction(gasButtonCallback);

    add(gasButton);
}
```

- Then in your screen view, you simply need to include the header file of your new class.
- Create an instance of your class
- Initialize your instance/object in setupScreen() or in the constructor function.
- Call add(myInstance). Now your new widget is added to your View.

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Thank you

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