# Use images in your app

- Show images from the internet in your app

- Learn how to size images

- Enable vertical scrolling with widget SingleChildScrollView

- Know how to use Padding

- Use images that are bundled inside your app

- Know that png images can have a transparent background

- Use the Transform widget to rotate images

Show Images from the network

```
Widget build(BuildContext context) {
  return MaterialApp(
    home: Scaffold(
      appBar: AppBar(
        title: Text("Using images"),
        backgroundColor: Colors.blue,
        foregroundColor: Colors.white,
      ), // AppBar
      body: Image.network(
        "https://fdg2324.github.io/web/fdg_leitbild.png",
      ), // Image.network
    ), // Scaffold
  ); // MaterialApp
}
```
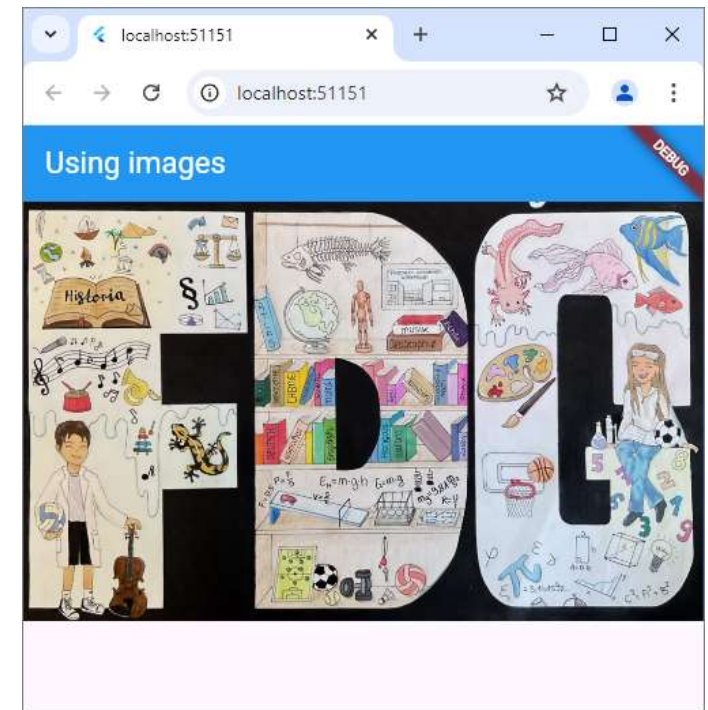

Link to the used FDG image for copy/paste: https://fdg2324.github.io/web/fdg_leitbild.png
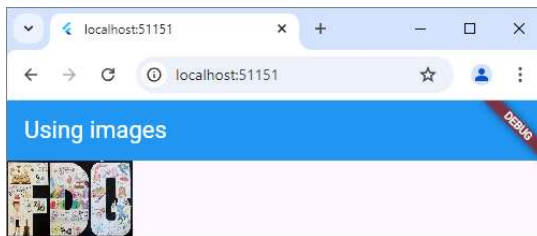
Changing the size of the browser window

Image shrinks if needed
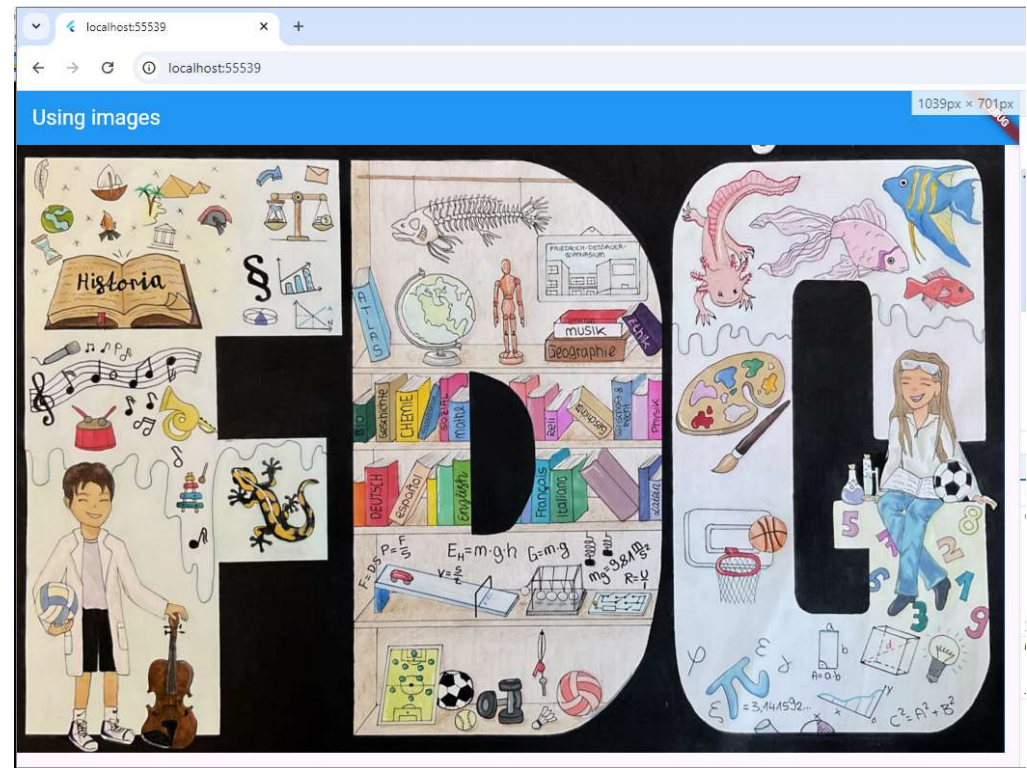and keeps its aspect ratio
(Seitenverhältnis).

Image does not grow beyond
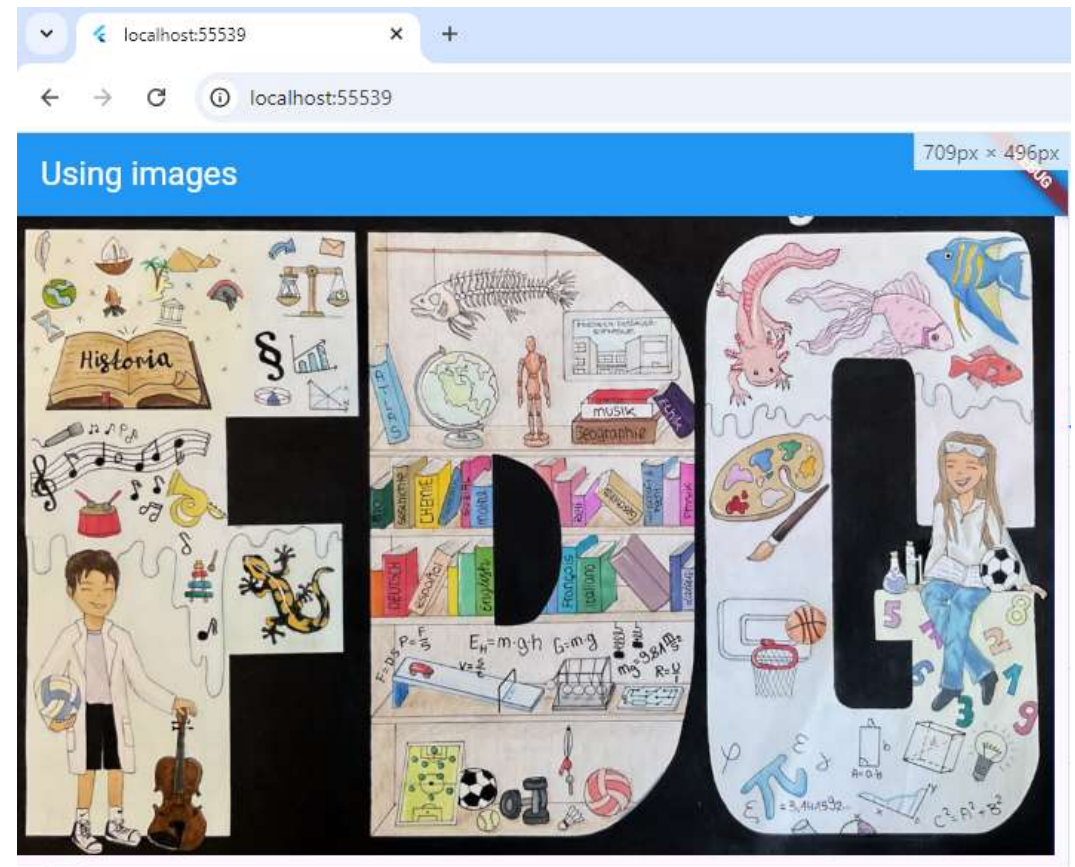its own size (here 1024 * 630 Pixel).

Setting width or height of an image

```
body: Image.network(
  width: 700,
  //height: 200,
  "https://fdg2324.github.io/web/fdg_leitbild.png",
), // Image.network
```

Setting the width of an image restricts its maximum width.

The image shrinks when the windows size gets smaller.
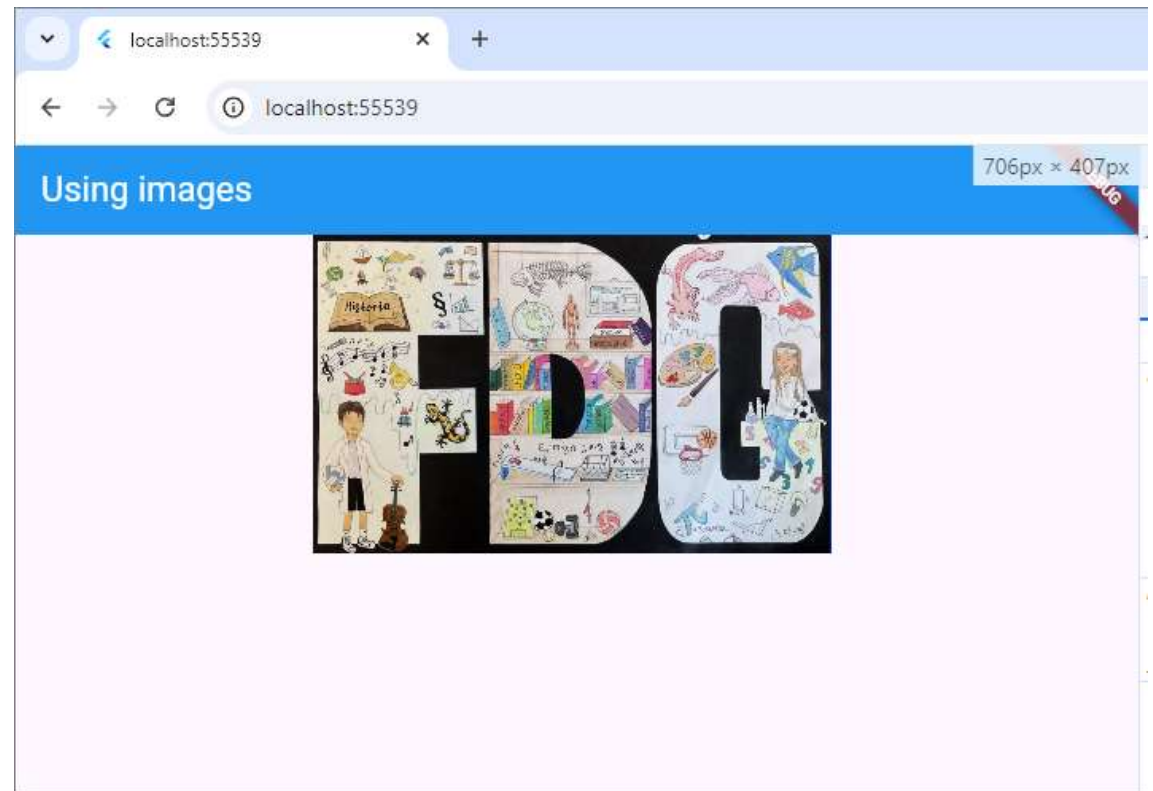
Same for the height.

Setting width and height of an image

```
body: Image.network(
  width: 700,
  height: 200,
  "https://fdg2324.github.io/web/fdg_leitbild.png",
), // Image.network
```

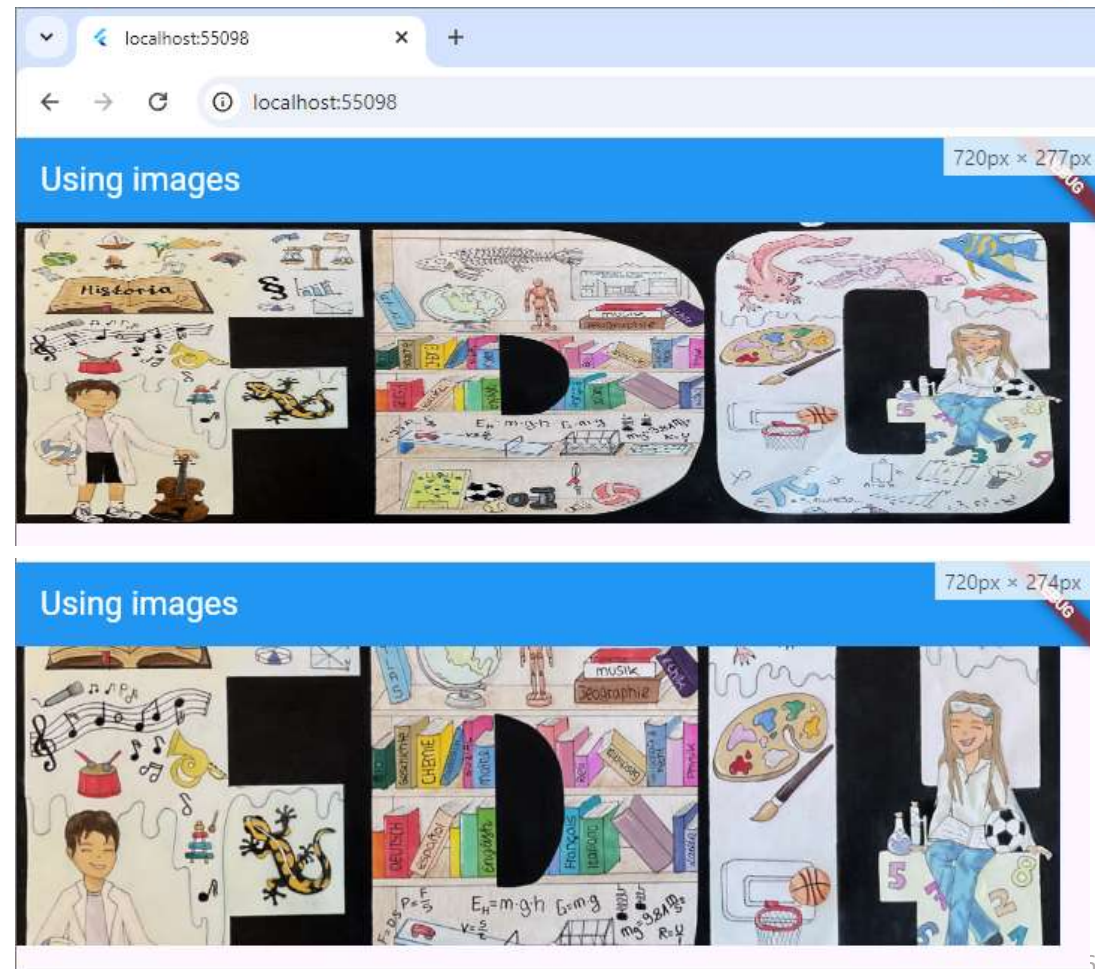When both width and height are set, the "most restrictive wins".

Boxfit for images

```
body: Image.network(
  width: 700,
  height: 200,
  "https://fdg2324.github.io/web/fdg_leitbild.png",
  fit: BoxFit.fill
), // Image.network
```

Aspect ratio distorted !

```
body: Image.network(
  width: 700,
  height: 200,
  "https://fdg2324.github.io/web/fdg_leitbild.png",
  fit: BoxFit.cover
), // Image.network
```

Boxfit for images (continued)

```
body: Image.network(
  width: 700,
  height: 200,
  "https://fdg2324.github.io/web/fdg_leitbild.png",
  fit: BoxFit.fitWidth
), // Image.network
```



```
body: Image.network(
  width: 700,
  height: 200,
  "https://fdg2324.github.io/web/fdg_leitbild.png",
  fit: BoxFit.fitHeight
), // Image.network
```

Boxfit for images (continued)


```
body: Image.network(
  width: 700,
  height: 200,
  "https://fdg2324.github.io/web/fdg_leitbild.png",
  fit: BoxFit.contain
), // Image.network
```



```
body: Image.network(
  width: 700,
  height: 200,
  "https://fdg2324.github.io/web/fdg_leitbild.png",
  fit: BoxFit.none,
), // Image.network
```
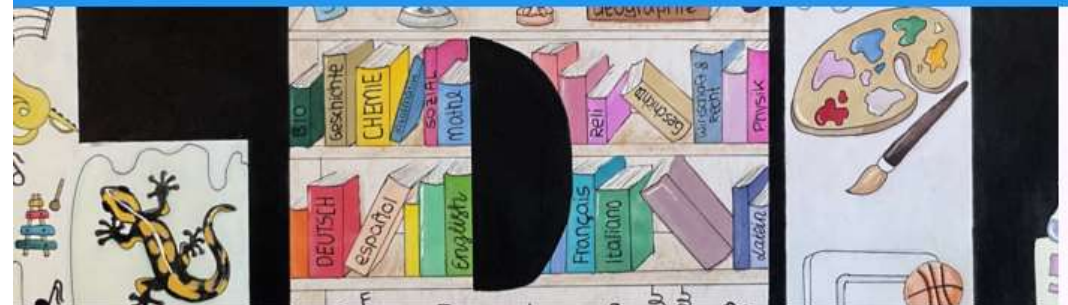
For more info see https://api.flutter.dev/flutter/painting/BoxFit.html
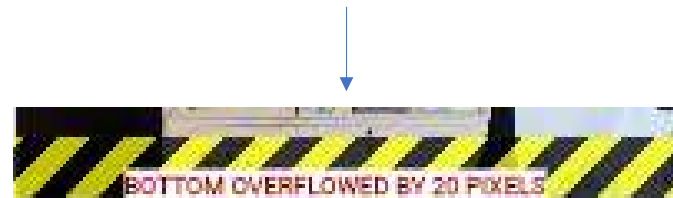
Image inside a Column

```
body: Column(
  children: [
    Image.network(
      width: 700,
      height: 200,
      "https://fdg2324.github.io/web/fdg_leitbild.png",
    ), // Image.network
  ],
), // Column
```

The height of the image no longer shrinks when it is inside a Column.
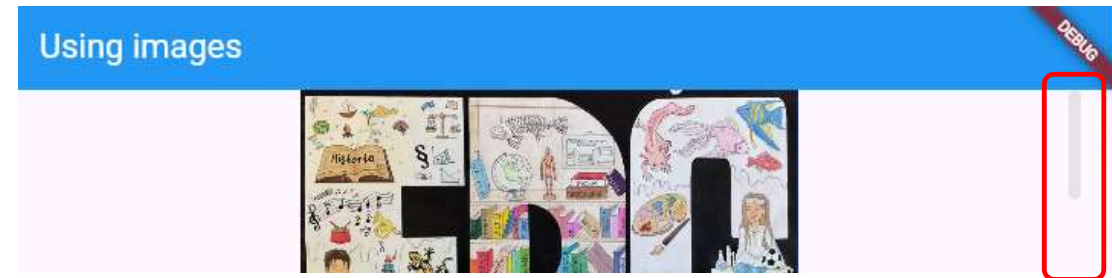
SingleChildScrollView

```
body: SingleChildScrollView(
  child: Column(
    children: [
      Image.network(
        width: 700,
        height: 200,
        "https://fdg2324.github.io/web/fdg_leitbild.png",
      ), // Image.network
    ],
  ), // Column
), // SingleChildScrollView
```

Wrapping the Column inside a
SingleChildScrollView widget
let's the user scroll up and down.

Compared to Chrome, Android phones have a fixed screen size

```
body: SingleChildScrollView(
  child: Column(
    children: [
      Image.network(
        width: 700,
        //height: 200,
        "https://fdg2324.github.io/web/fdg_leitbild.png",
      ), // Image.network
      Image.network(
        width: 390,
        //height: 200,
        "https://fdg2324.github.io/web/fdg_leitbild.png",
      ), // Image.network
    ],
  ), // Column
), // SingleChildScrollView
```

"Virtual Device Manager" in Android Studio:

Android Emulator - Medium_Phone_API_35...

8:57 🛇 🜲 🛢 ⬚

Using images

Medium Phone API 35

Device Info   Paired Devices

Summary   412 dp
API level   35
Resolution (px)   1080 × 2400
Resolution (dp)   412 × 915
Density   420 dpi   915 dp
ABI list   x86_64
Available storage   2,192 MB
Size on disk   9,7 GB

Different Android phones can have different screen sizes

Padding widget

```dart
body: SingleChildScrollView(
  child: Column(
    children: [
      Image.network(
        width: 700,
        //height: 200,
        "https://fdg2324.github.io/web/fdg_leitbild.png",
      ), // Image.network
      Padding(
        padding: const EdgeInsets.all(20.0),
        child: Image.network(
          width: 700,
          //height: 200,
          "https://fdg2324.github.io/web/fdg_leitbild.png",
        ), // Image.network
      ), // Padding
    ],
  ), // Column
), // SingleChildScrollView
```


13

Using EdgeInsets.fromLTRB


```
EdgeInsets EdgeInsets.fromLTRB(
   double left,
   double top,
   double right,
   double bottom,
)
```
package:flutter/src/painting/edge_insets.dart

Creates insets from offsets from the left, top, right, and bottom.

EdgeInsets has several constructors:

```
Padding(
  padding: const EdgeInsets.all(20.0),
  child: Image.network(
    width: 700,
    //height: 200,
    "https://fdg2324.github.io/web/fdg_leitbild.png",
  ), // Image.network
), // Padding
```

```
Padding(
  padding: const EdgeInsets.fromLTRB(10.0, 20, 30, 0),
  child: Image.network(
    width: 700,
    //height: 200,
    "https://fdg2324.github.io/web/fdg_leitbild.png",
  ), // Image.network
), // Padding
```

Exercise

Look for an image of the FDG logo in the internet:

Use the link to this image to display it in your Android app.

Define a padding for this image and use constructor "EdgeInsets.symmetric" inside the Padding.

Change the background color of your app's body e.g. to "lightBlue.shade200" (hint: look for corresponding property in Scaffold)

Solution

The link to the image is:

https://fdg-ab.de/wp-content/uploads/2021/03/logo_fdg_neu_freigestellt.png

Image with padding:

```
Padding(
    padding: const EdgeInsets.symmetric(vertical: 20, horizontal: 50),
    child: Image.network("https://fdg-ab.de/wp-content/uploads/2021/03/logo_fdg_neu_freigestellt.png"),
), // Padding
```

Background of the app:

```
Widget build(BuildContext context) {
    return MaterialApp(
        home: Scaffold(
            backgroundColor: Colors.lightBlue.shade200,
            appBar: AppBar(
```

Remark:
Transparent backgrounds can only be defined in **png** images, not in **jpg** images !

Some image URL's do not work in Chrome

The original link to the image used in the first slides is
https://fdg-ab.de/wp-content/uploads/2022/08/Bildschirmfoto-2022-08-10-um-13.07.47-1024x630.png

This works in Android, but not when debugging in Chrome:

```
body: SingleChildScrollView(
  child: Column(
    children: [
      Image.network(
        "https://fdg2324.github.io/web/fdg_leitbild.png",
      ), // Image.network
      Image.network(
        "https://fdg-ab.de/wp-content/uploads/2022/08/Bildschirmfoto-2022-08-10-um-13.07.47-1024x630.png",
      ), // Image.network
    ],
  ), // Column
), // SingleChildScrollView
```
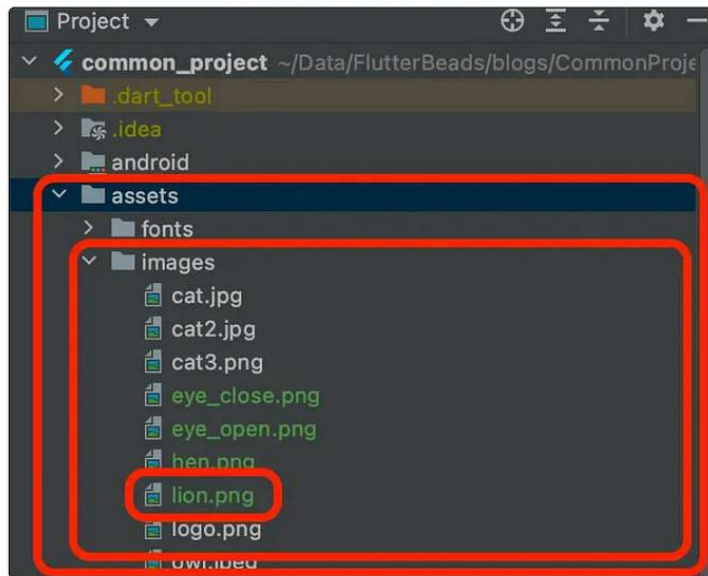
Bundle images inside your app

This is good for Android too in case the phone has no internet connection.

Copied from https://medium.com/@blup-tool/learn-flutter-how-to-add-images-in-your-flutter-app-359c27600064 :


```
Column(
    children: [
        Image.asset('assets/images/lion.png'),
    ],
)
```

Take care:
use forward slashes "/" as separators,
no "backward slashes" \ as in Windows!

Having a subdirectory **assets** is recommended, but not needed.
You can have an "images" or "pictures" directory directly inside your project.

Change needed in pubspec.yaml file

Images from asset work both in Chrome and Android

```
body: SingleChildScrollView(
    child: Column(
        children: [
            Image.network(
                "https://fdg-ab.de/wp-content/uploads/2022/08/Bildschirmfoto-2022-08-10-um-13.07.47-1024x630.png"),
            Image.asset(
                "assets/images/Bildschirmfoto-2022-08-10-um-13.07.47-1024x630.png")  // Image.asset
        ],
    ), // Column
), // SingleChildScrollView
```
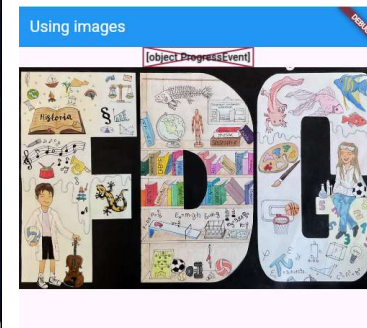
Exercise

Download the FDG logo image to your PC.

Bundle it into your app.

Display it in the leading part of the AppBar
(this was our goal in "04 Scaffold and AppBar.pptx"):

Hint: use a property of image.asset to show the logo in white.

Solution:

```
appBar: AppBar(
  title: Text("Flutter at FDG"),
  centerTitle: true,
  backgroundColor: Colors.blue,
  foregroundColor: Colors.white,
  leading: Padding(
      padding: const EdgeInsets.all(10),
      child: Image.asset("assets/images/fdg_logo.png", color: Colors.white),
  ) , // Padding
), // AppBar
```
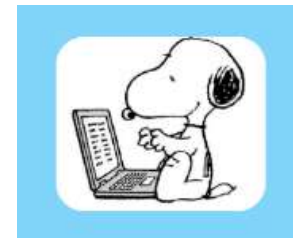
Images with rounded corners

```
Image.asset("assets/images/snoopy_laptop.jpg", width: 150)
```
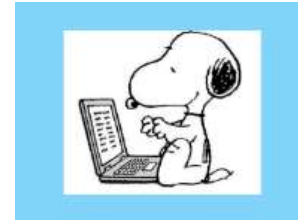

Surround your image with a ClipRRect widget (stands for "Clip on Rounded Rectangle") :

```
ClipRRect(
    borderRadius: BorderRadius.circular(20),
    child: Image.asset("assets/images/snoopy_laptop.jpg",
        width: 150)) // Image.asset // ClipRRect
```



```
ClipRRect(
    borderRadius: BorderRadius.only(
        topLeft: Radius.circular(30),
        bottomRight: Radius.circular(30)), // BorderRadius.only
    child: Image.asset("assets/images/snoopy_laptop.jpg",
        width: 150)) // Image.asset // ClipRRect
```

More "rounded" images

```
ClipOval(
  child:
      Image.asset("assets/images/snoopy_laptop.jpg", width: 150),
), // ClipOval
```



```
CircleAvatar(
    radius: 40,
    foregroundImage: AssetImage(
      "assets/images/snoopy_laptop.jpg",
    )), // AssetImage // CircleAvatar
```



```
const Row(
  children: [
    SizedBox(width: 20),
    CircleAvatar(
        foregroundImage: AssetImage("assets/images/GS.jpg")), // CircleAvatar
    SizedBox(width: 20),
    CircleAvatar(
        foregroundColor: Colors.blue,
        backgroundColor: Colors.yellow,
        child: Text("GS")), // CircleAvatar
  ],
), // Row
```
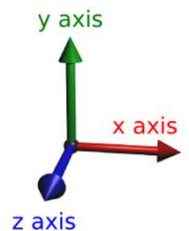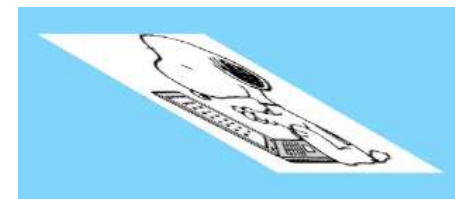
Transform widget

```
import 'dart:math';
import 'package:flutter/material.dart';
```

```
Transform(
  transform: Matrix4.rotationZ(pi/4),
  alignment: Alignment.center,
  child: Image.asset("assets/images/snoopy_laptop.jpg",
    width: 150), // Image.asset
), // Transform
```

```
Transform(
  transform: Matrix4.rotationX(pi/4),
  alignment: Alignment.center,
  child: Image.asset("assets/images/snoopy_laptop.jpg",
    width: 150), // Image.asset
), // Transform
```

```
Transform(
  transform: Matrix4.skewX(pi/3),
  alignment: Alignment.center,
  child: Image.asset("assets/images/snoopy_laptop.jpg",
    width: 150), // Image.asset
), // Transform
```

y axis

x axis

z axis

to skew: verzerren

24