Generate a Mandelbrot set with Julia

Notebook from HelloJulia.jl

Instantiate package environment:

```
begin
  using Pkg
  Pkg.activate(@__DIR__)
  Pkg.instantiate()
end
```

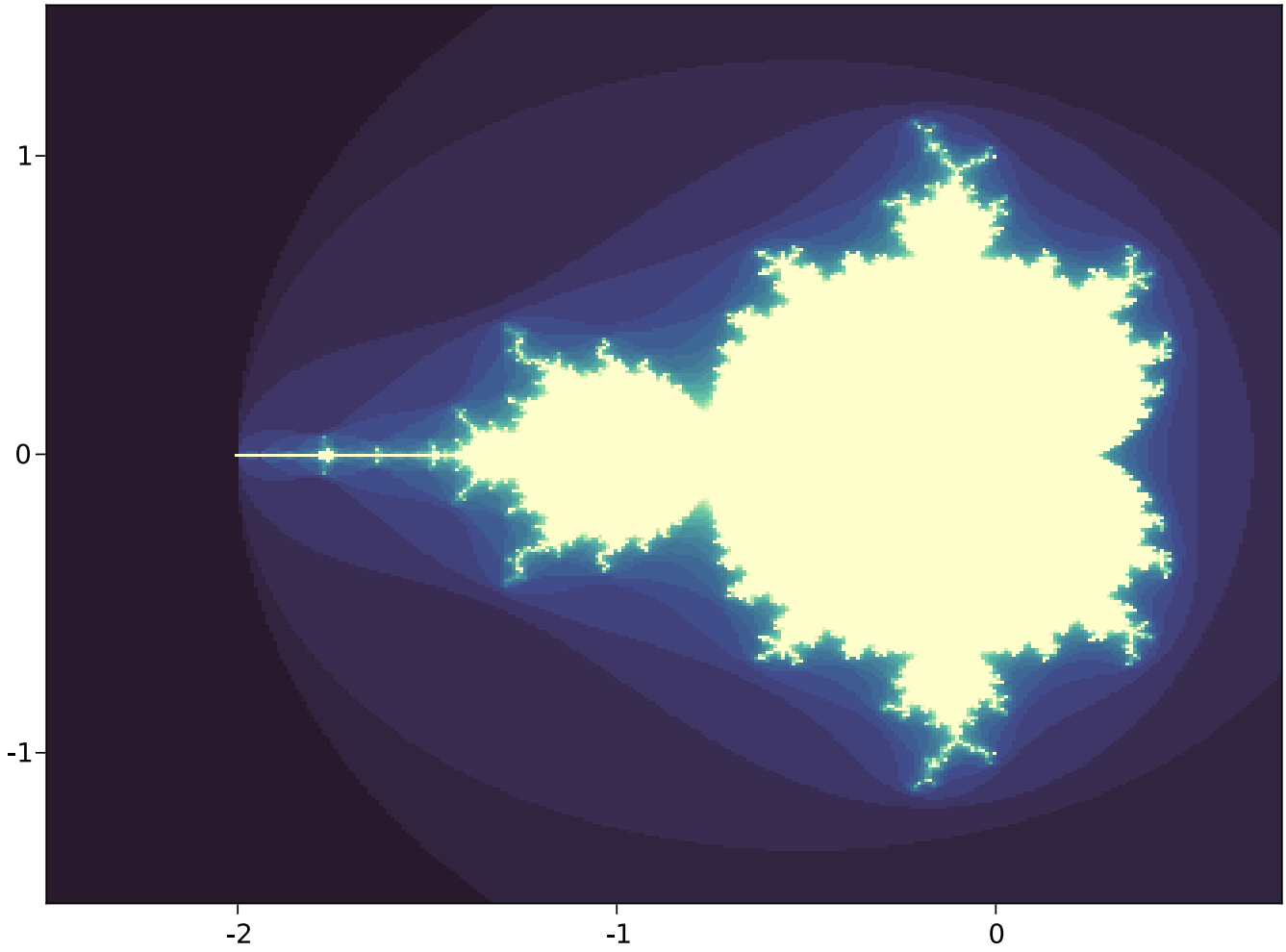
```
  Activating project at `~/GoogleDrive/Julia/HelloJulia/notebooks/mandelbrot`
```

Load plotting package and set in-line display type:

```
begin
  using CairoMakie
  CairoMakie.activate!(type = "svg")
end
```

```
mandelbrot (generic function with 1 method)
```

```
function mandelbrot(z)
    c = z     # starting value and constant shift
    max_iterations = 20
    for n = 1:max_iterations
        if abs(z) > 2
            return n-1
        end
        z = z^2 + c
    end
    return max_iterations
end
```




```
begin
  xs = -2.5:0.01:0.75
  ys = -1.5:0.01:1.5

  fig = heatmap(xs, ys, (x, y) -> mandelbrot(x + im*y),
          colormap = Reverse(:deep))
end
```

```
save("mandelbrot.svg", fig);
```

This notebook was generated using Literate.jl.