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{ggplot2} and raster GIS

The `{ggplot2}` package on its own doesn't know how to visualise raster GIS datasets.

- The `{ggspatial}` package can visualise both `{raster}` and `{terra}` layers
- The `{stars}` package contains `geom_star()` that can be slotted into a "normal" `{ggplot2}` chart.



{ggspatial}

We use the `layer_spatial()` function to add `{raster}` and `{terra}` layers to a `{ggplot2}` chart.

The "variable" used to fill the raster layer is called "band1" and is used in `aes()` as follows:

```
ggplot() +  
  layer_spatial(raster_data,  
                 aes(fill = stat(as.character(band1))))
```



{stars}

We use `geom_stars()` like a normal geom.

The "variable" used inside `aes()` depends on the actual stars object itself.

```
# stars object with 3 dimensions and 1 attribute
# attribute(s):
#           Min. 1st Qu. Median      Mean 3rd Qu. Max.
# L7_ETMS.tif     1       54      69 68.91242      86   255
# dimension(s):
#       from to offset delta                  refsys point values x/y
# x       1 349 288776 28.5 UTM Zone 25, Southern Hem... FALSE    NULL [x]
# y       1 352 9120761 -28.5 UTM Zone 25, Southern Hem... FALSE    NULL [y]
# band    1    6      NA      NA                      NA      NA  NUL
```