Title Placeholder

Load in Specific Packages

```
library(readr)
library(tidyr)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(here)
```

```
## here() starts at C:/Users/romin/ToyRepo
```

```
library(lemon)
```

```
## Warning: package 'lemon' was built under R version 4.4.2
```

```
library(kableExtra)
```

```
## Warning: package 'kableExtra' was built under R version 4.4.2
```

```
##
## Attaching package: 'kableExtra'
```

```
## The following object is masked from 'package:dplyr':
##
##     group_rows
```

```
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 4.4.2
```

```
library(reshape())
```

```
## Warning: package 'reshape' was built under R version 4.4.2
```

```
##
## Attaching package: 'reshape'
```

```
## The following object is masked from 'package:dplyr':
##
##     rename
```

```
## The following objects are masked from 'package:tidyr':
##
##     expand, smiths
```

```
library(hexbin)
```

```
## Warning: package 'hexbin' was built under R version 4.4.2
```

```
library(data.table)
```

```
##
## Attaching package: 'data.table'
```

```
## The following object is masked from 'package:reshape':
##
##     melt
```

```
## The following objects are masked from 'package:dplyr':
##
##     between, first, last
```

```
library(GGally)
```

```
## Warning: package 'GGally' was built under R version 4.4.2
```

```
## Registered S3 method overwritten by 'GGally':
##   method from
##   +.gg   ggplot2
```

```
library(formattable)
```

```
## Warning: package 'formattable' was built under R version 4.4.2
```

```
library(viridis)
```

```
## Warning: package 'viridis' was built under R version 4.4.2
```

```
## Loading required package: viridisLite
```

Load in the data

```
cancerReg <- read.csv("C:\\Users\\romin\\ToyRepo\\Models\\cancerReg.csv")
```

Remove Uncessary Data for Analysis

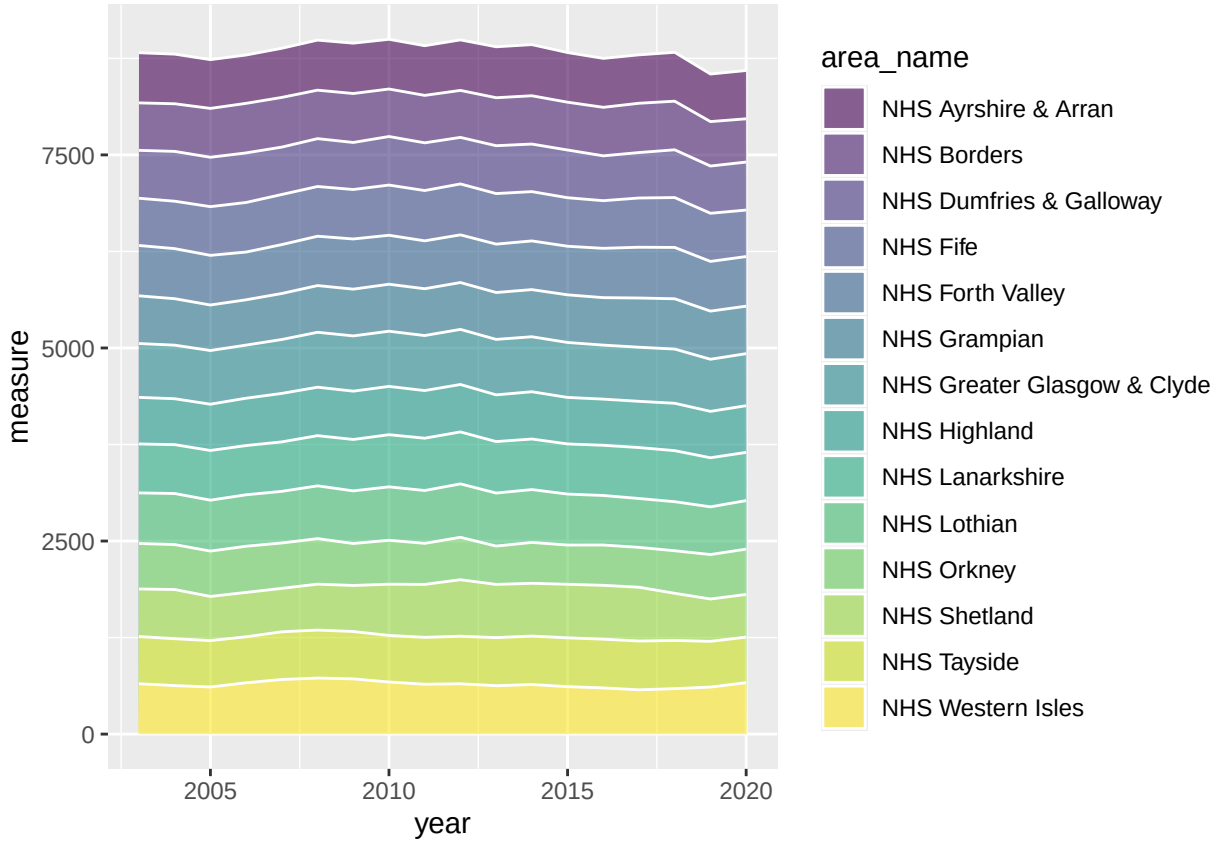
```
cancerReg <- cancerReg %>% select(-period,-area_type,-type_definition,-indicator, -upper_confidence_int
```

Display Summary of All Data

```
# ggplot(cancerReg,aes(x=year, y= measure, col=area_name)) + geom_line() + geom_point()
# ggplot(cancerReg, aes(x=area_name, y=measure, fill=area_name)) + geom_violin()
# ggparcoord(data= cancerReg, columns = c(), groupColumn = "area_name")
# ggplot(cancerReg, aes(fill=year, y=measure, x=area_name)) + geom_bar(position = "stack", stat = "iden
ggplot(cancerReg, aes(x = year, y = measure, fill = area_name)) +  geom_area(alpha=0.6 , size=.5, colou
    scale_fill_viridis(discrete = T)
```

```
## Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.
## i Please use `linewidth` instead.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
## generated.
```

```
## Warning: Removed 14 rows containing non-finite outside the scale range
## (`stat_align()`).
```




```
colorRampPalette(c(rgb(1,0,0,0), rgb(0,0,1,0)), alpha = TRUE)(8)
```

```
## [1] "#FF000000" "#DA002400" "#B6004800" "#91006D00" "#6D009100" "#4800B600"
## [7] "#2400DA00" "#0000FF00"
```

```
diffOverYears <- function(year1, year2){
    result = year1 - year2
    if (result >=0 & result<=50){
        result = "white"
        intensity <- max(0, min(255, -value * 51))
        rgb(colorRampPalette(intensity) / 255, maxColorValue = 255)

    }else if (result<0){

    }

    }
```

Summary Table of Data Within Graph

```
customGreen0 = "#DeF7E9"

customGreen = "#71CA97"
```

```
customRed = "#ff7f7f"
# colnames(healthBoardData)
# healthBoardData <- healthBoardData %>%
#     mutate(
#         Average = round(rowMeans(select(., starts_with("measure.")), na.rm = TRUE), 2),

#     )
### This one works for creating some weird random diff
# healthBoardData <- reshape(cancerReg, idvar = "area_name", timevar = "year", v.names = "measure", dir

# healthBoardData <- cancerReg %>%
#     arrange(area_name, year) %>%
#     group_by(area_name) %>%
#     mutate(measure_diff = c(NA, diff(measure)))
# healthBoardData
# Difference = across(`2003`:`2020`, ~ . - lag(.))
healthBoardData <- cancerReg %>%
    group_by(year) %>%
    mutate(Percent = measure / sum(measure) * 100)
healthBoardData <- cancerReg %>% pivot_wider(names_from = year, values_from = measure)
healthBoardData <- healthBoardData %>%
    mutate(
        Average = rowMeans(select(., `2003`:`2020`), na.rm = TRUE)
    )
#formattable(healthBoardData)
healthBoardData
```

```
## # A tibble: 14 x 22
##    area_code area_name   `2003` `2004` `2005` `2006` `2007` `2008` `2009` `2010`
##    <chr>     <chr>        <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>
##  1 S08000015 NHS Ayrshi~   650.   643.   632.   626.   636.   648.   652.   644.
##  2 S08000016 NHS Borders   615.   617.   633.   642.   644.   628.   634.   615.
##  3 S08000017 NHS Dumfri~   620.   645.   639.   642.   613.   620.   609.   629.
##  4 S08000019 NHS Forth ~   652.   648.   643.   618.   633.   639.   650.   634.
##  5 S08000020 NHS Grampi~   618.   602.   590.   587.   596.   605    605.   608.
##  6 S08000022 NHS Highla~   603.   594.   599.   613.   627.   628.   626.   625.
##  7 S08000024 NHS Lothian   655.   661.   659.   666.   669.   683.   682.   692.
##  8 S08000025 NHS Orkney    589    582.   587.   598.   587.   589.   543    569.
##  9 S08000026 NHS Shetla~   616    637.   572.   574.   563.   595.   596    663.
## 10 S08000028 NHS Wester~   652    628.   610.   664.   707.   726    715    674.
## 11 S08000029 NHS Fife      611.   614    631.   642.   649.   644.   640.   650
## 12 S08000030 NHS Tayside   611.   607.   601.   596    618.   621.   614.   603.
## 13 S08000031 NHS Greate~   697.   694.   695    688.   698.   711.   715.   714.
## 14 S08000032 NHS Lanark~   634.   633.   644.   637.   640.   650.   666.   675
## # i 12 more variables: `2011` <dbl>, `2012` <dbl>, `2013` <dbl>, `2014` <dbl>,
## #   `2015` <dbl>, `2016` <dbl>, `2017` <dbl>, `2018` <dbl>, `2019` <dbl>,
## #   `2020` <dbl>, `2021` <dbl>, Average <dbl>
```

#Note for next time: what I want to do at this point is to show the changing colours as a difference change if its only within a small amount of chaning values then ignore the calues and do not #colour the cell, otherwise red fir a rise and green for a fall