Title Placeholder

Load in Specific Packages

```r
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
```

```r
library(here)
```

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

```r
library(lemon)
```

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

```r
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
```

```r
library(ggplot2)
```

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

```r
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
```

```r
library(hexbin)
```

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

```r
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
```

```r
library(GGally)
```

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

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

```r
library(formattable)
```

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

```r
library(viridis)
```

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

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

```r
library(TTR)
```

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

```r
library(zoo)
```

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

```
##
## Attaching package: 'zoo'
```

```
## The following objects are masked from 'package:data.table':
##
##     yearmon, yearqtr
```

```
## The following objects are masked from 'package:base':
##
##     as.Date, as.Date.numeric
```

Load in the data

```r
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, col
#     scale_fill_viridis(discrete = T)
# ggplot(cancerReg, aes(x = year, y = measure, col = area_name)) +
#     geom_point(size = 3, position = position_jitter(h = 0.50, w = 0.50), alpha = 0.5) +
#     geom_smooth(se=FALSE, size = 0.7 )

cancerReg <- cancerReg %>% arrange(year) %>% mutate(MA=rollmean(cancerReg$measure ,k=14, fill=NA, align=
print(cancerReg)
```

```
##      area_code                 area_name year measure       MA
## 1    S08000015       NHS Ayrshire & Arran 2003   649.7       NA
## 2    S08000016               NHS Borders 2003   614.6       NA
## 3    S08000017    NHS Dumfries & Galloway 2003   620.5       NA
## 4    S08000019           NHS Forth Valley 2003   651.8       NA
## 5    S08000020               NHS Grampian 2003   617.8       NA
## 6    S08000022               NHS Highland 2003   602.9       NA
## 7    S08000024                NHS Lothian 2003   655.1       NA
## 8    S08000025                 NHS Orkney 2003   589.0       NA
## 9    S08000026               NHS Shetland 2003   616.0       NA
## 10   S08000028          NHS Western Isles 2003   652.0       NA
## 11   S08000029                   NHS Fife 2003   611.4       NA
## 12   S08000030                NHS Tayside 2003   611.2       NA
## 13   S08000031 NHS Greater Glasgow & Clyde 2003   697.3       NA
## 14   S08000032            NHS Lanarkshire 2003   633.7 630.2143
## 15   S08000015       NHS Ayrshire & Arran 2004   642.8 629.7214
## 16   S08000016               NHS Borders 2004   616.8 629.8786
## 17   S08000017    NHS Dumfries & Galloway 2004   645.2 631.6429
## 18   S08000019           NHS Forth Valley 2004   648.2 631.3857
## 19   S08000020               NHS Grampian 2004   601.5 630.2214
## 20   S08000022               NHS Highland 2004   594.5 629.6214
## 21   S08000024                NHS Lothian 2004   660.8 630.0286
## 22   S08000025                 NHS Orkney 2004   582.4 629.5571
## 23   S08000026               NHS Shetland 2004   636.7 631.0357
## 24   S08000028          NHS Western Isles 2004   628.1 629.3286
## 25   S08000029                   NHS Fife 2004   614.0 629.5143
## 26   S08000030                NHS Tayside 2004   607.3 629.2357
## 27   S08000031 NHS Greater Glasgow & Clyde 2004   693.9 628.9929
## 28   S08000032            NHS Lanarkshire 2004   632.7 628.9214
## 29   S08000015       NHS Ayrshire & Arran 2005   631.6 628.1214
## 30   S08000016               NHS Borders 2005   632.7 629.2571
## 31   S08000017    NHS Dumfries & Galloway 2005   639.4 628.8429
## 32   S08000019           NHS Forth Valley 2005   642.8 628.4571
## 33   S08000020               NHS Grampian 2005   589.7 627.6143
## 34   S08000022               NHS Highland 2005   598.9 627.9286
```

```
## 35   S08000024                 NHS Lothian 2005      659.4 627.8286
## 36   S08000025                  NHS Orkney 2005      587.1 628.1643
## 37   S08000026                 NHS Shetland 2005      571.8 623.5286
## 38   S08000028            NHS Western Isles 2005      610.3 622.2571
## 39   S08000029                    NHS Fife 2005      630.7 623.4500
## 40   S08000030                 NHS Tayside 2005      600.6 622.9714
## 41   S08000031 NHS Greater Glasgow & Clyde 2005      695.0 623.0500
## 42   S08000032             NHS Lanarkshire 2005      643.5 623.8214
## 43   S08000015         NHS Ayrshire & Arran 2006      626.1 623.4286
## 44   S08000016                 NHS Borders 2006      641.5 624.0571
## 45   S08000017      NHS Dumfries & Galloway 2006      642.1 624.2500
## 46   S08000019             NHS Forth Valley 2006      618.3 622.5000
## 47   S08000020                NHS Grampian 2006      586.6 622.2786
## 48   S08000022                NHS Highland 2006      613.3 623.3071
## 49   S08000024                 NHS Lothian 2006      666.1 623.7857
## 50   S08000025                  NHS Orkney 2006      598.1 624.5714
## 51   S08000026                 NHS Shetland 2006      574.3 624.7500
## 52   S08000028            NHS Western Isles 2006      664.4 628.6143
## 53   S08000029                    NHS Fife 2006      641.7 629.4000
## 54   S08000030                 NHS Tayside 2006      596.0 629.0714
## 55   S08000031 NHS Greater Glasgow & Clyde 2006      687.6 628.5429
## 56   S08000032             NHS Lanarkshire 2006      637.3 628.1000
## 57   S08000015         NHS Ayrshire & Arran 2007      636.4 628.8357
## 58   S08000016                 NHS Borders 2007      643.5 628.9786
## 59   S08000017      NHS Dumfries & Galloway 2007      613.4 626.9286
## 60   S08000019             NHS Forth Valley 2007      633.2 627.9929
## 61   S08000020                NHS Grampian 2007      595.9 628.6571
## 62   S08000022                NHS Highland 2007      627.4 629.6643
## 63   S08000024                 NHS Lothian 2007      668.7 629.8500
## 64   S08000025                  NHS Orkney 2007      587.4 629.0857
## 65   S08000026                 NHS Shetland 2007      562.6 628.2500
## 66   S08000028            NHS Western Isles 2007      707.2 631.3071
## 67   S08000029                    NHS Fife 2007      648.9 631.8214
## 68   S08000030                 NHS Tayside 2007      617.6 633.3643
## 69   S08000031 NHS Greater Glasgow & Clyde 2007      698.1 634.1143
## 70   S08000032             NHS Lanarkshire 2007      640.5 634.3429
## 71   S08000015         NHS Ayrshire & Arran 2008      648.2 635.1857
## 72   S08000016                 NHS Borders 2008      627.5 634.0429
## 73   S08000017      NHS Dumfries & Galloway 2008      619.8 634.5000
## 74   S08000019             NHS Forth Valley 2008      638.9 634.9071
## 75   S08000020                NHS Grampian 2008      605.0 635.5571
## 76   S08000022                NHS Highland 2008      627.6 635.5714
## 77   S08000024                 NHS Lothian 2008      683.4 636.6214
## 78   S08000025                  NHS Orkney 2008      589.3 636.7571
## 79   S08000026                 NHS Shetland 2008      594.9 639.0643
## 80   S08000028            NHS Western Isles 2008      726.0 640.4071
## 81   S08000029                    NHS Fife 2008      643.9 640.0500
## 82   S08000030                 NHS Tayside 2008      621.1 640.3000
## 83   S08000031 NHS Greater Glasgow & Clyde 2008      710.9 641.2143
## 84   S08000032             NHS Lanarkshire 2008      649.8 641.8786
## 85   S08000015         NHS Ayrshire & Arran 2009      652.2 642.1643
## 86   S08000016                 NHS Borders 2009      633.8 642.6143
## 87   S08000017      NHS Dumfries & Galloway 2009      609.1 641.8500
## 88   S08000019             NHS Forth Valley 2009      649.8 642.6286
```

```
## 89  S08000020                 NHS Grampian 2009    605.4 642.6571
## 90  S08000022                 NHS Highland 2009    625.8 642.5286
## 91  S08000024                  NHS Lothian 2009    681.6 642.4000
## 92  S08000025                  NHS Orkney 2009    543.0 639.0929
## 93  S08000026                 NHS Shetland 2009    596.0 639.1714
## 94  S08000028            NHS Western Isles 2009    715.0 638.3857
## 95  S08000029                     NHS Fife 2009    640.4 638.1357
## 96  S08000030                  NHS Tayside 2009    613.7 637.6071
## 97  S08000031 NHS Greater Glasgow & Clyde 2009    715.4 637.9286
## 98  S08000032               NHS Lanarkshire 2009    665.6 639.0571
## 99  S08000015         NHS Ayrshire & Arran 2010    643.8 638.4571
## 100 S08000016                  NHS Borders 2010    614.8 637.1000
## 101 S08000017    NHS Dumfries & Galloway 2010    628.9 638.5143
## 102 S08000019              NHS Forth Valley 2010    634.1 637.3929
## 103 S08000020                 NHS Grampian 2010    608.5 637.6143
## 104 S08000022                 NHS Highland 2010    625.4 637.5857
## 105 S08000024                  NHS Lothian 2010    691.8 638.3143
## 106 S08000025                  NHS Orkney 2010    569.2 640.1857
## 107 S08000026                 NHS Shetland 2010    663.4 645.0000
## 108 S08000028            NHS Western Isles 2010    674.4 642.1000
## 109 S08000029                     NHS Fife 2010    650.0 642.7857
## 110 S08000030                  NHS Tayside 2010    603.1 642.0286
## 111 S08000031 NHS Greater Glasgow & Clyde 2010    714.4 641.9571
## 112 S08000032               NHS Lanarkshire 2010    675.0 642.6286
## 113 S08000015         NHS Ayrshire & Arran 2011    643.2 642.5857
## 114 S08000016                  NHS Borders 2011    614.5 642.5643
## 115 S08000017    NHS Dumfries & Galloway 2011    617.6 641.7571
## 116 S08000019              NHS Forth Valley 2011    620.3 640.7714
## 117 S08000020                 NHS Grampian 2011    606.2 640.6071
## 118 S08000022                 NHS Highland 2011    616.8 639.9929
## 119 S08000024                  NHS Lothian 2011    684.3 639.4571
## 120 S08000025                  NHS Orkney 2011    531.3 636.7500
## 121 S08000026                 NHS Shetland 2011    685.6 638.3357
## 122 S08000028            NHS Western Isles 2011    646.0 636.3071
## 123 S08000029                     NHS Fife 2011    651.3 636.4000
## 124 S08000030                  NHS Tayside 2011    606.9 636.6714
## 125 S08000031 NHS Greater Glasgow & Clyde 2011    712.3 636.5214
## 126 S08000032               NHS Lanarkshire 2011    677.5 636.7000
## 127 S08000015         NHS Ayrshire & Arran 2012    654.3 637.4929
## 128 S08000016                  NHS Borders 2012    608.5 637.0643
## 129 S08000017    NHS Dumfries & Galloway 2012    602.7 636.0000
## 130 S08000019              NHS Forth Valley 2012    617.3 635.7857
## 131 S08000020                 NHS Grampian 2012    606.8 635.8286
## 132 S08000022                 NHS Highland 2012    614.3 635.6500
## 133 S08000024                  NHS Lothian 2012    691.6 636.1714
## 134 S08000025                  NHS Orkney 2012    549.1 637.4429
## 135 S08000026                 NHS Shetland 2012    731.7 640.7357
## 136 S08000028            NHS Western Isles 2012    651.6 641.1357
## 137 S08000029                     NHS Fife 2012    659.4 641.7143
## 138 S08000030                  NHS Tayside 2012    616.1 642.3714
## 139 S08000031 NHS Greater Glasgow & Clyde 2012    713.3 642.4429
## 140 S08000032               NHS Lanarkshire 2012    672.7 642.1000
## 141 S08000015         NHS Ayrshire & Arran 2013    659.6 642.4786
## 142 S08000016                  NHS Borders 2013    621.2 643.3857
```
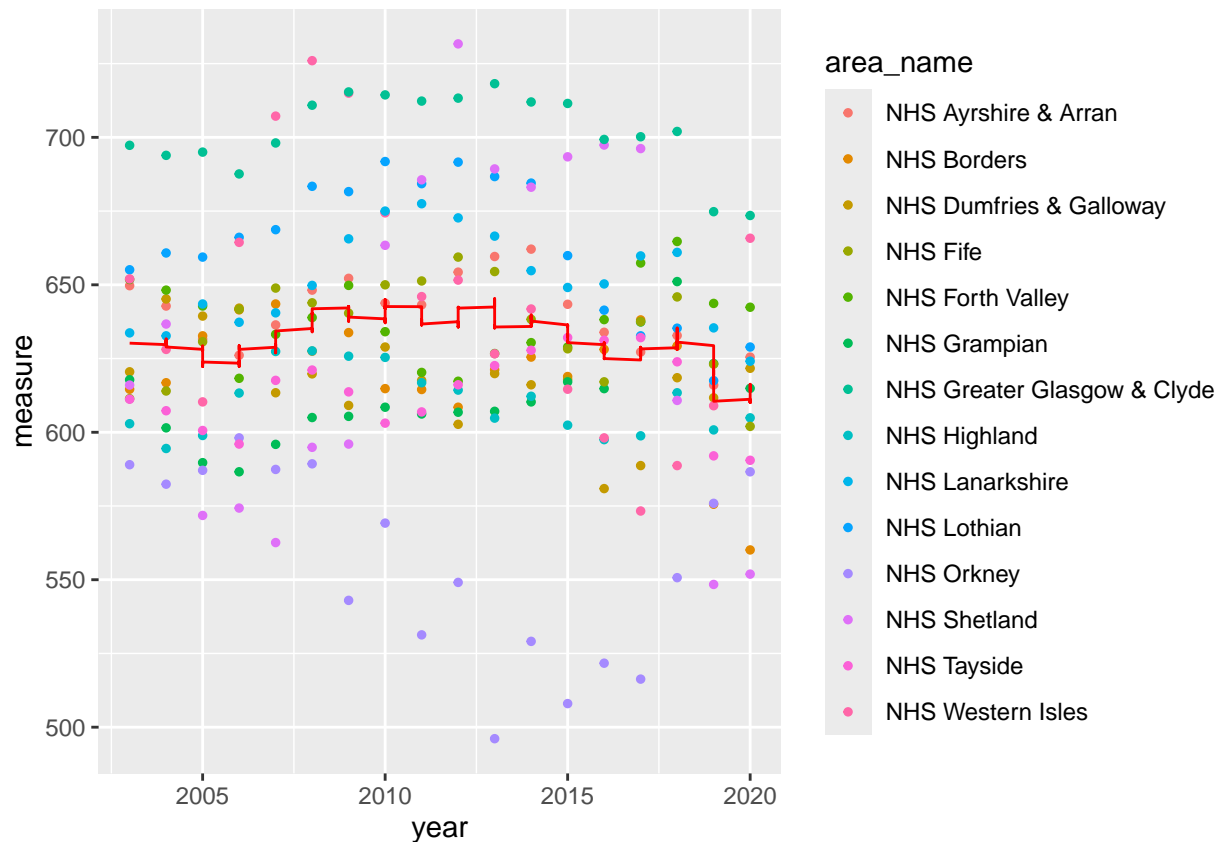
```
## 143 S08000017      NHS Dumfries & Galloway 2013     619.9 644.6143
## 144 S08000019            NHS Forth Valley 2013     626.7 645.2857
## 145 S08000020               NHS Grampian 2013     607.1 645.3071
## 146 S08000022               NHS Highland 2013     604.8 644.6286
## 147 S08000024                NHS Lothian 2013     686.7 644.2786
## 148 S08000025                 NHS Orkney 2013     496.1 640.4929
## 149 S08000026                NHS Shetland 2013     689.3 637.4643
## 150 S08000028           NHS Western Isles 2013     626.6 635.6786
## 151 S08000029                   NHS Fife 2013     654.5 635.3286
## 152 S08000030                NHS Tayside 2013     622.6 635.7929
## 153 S08000031 NHS Greater Glasgow & Clyde 2013     718.2 636.1429
## 154 S08000032             NHS Lanarkshire 2013     666.5 635.7000
## 155 S08000015         NHS Ayrshire & Arran 2014     662.1 635.8786
## 156 S08000016                NHS Borders 2014     625.5 636.1857
## 157 S08000017      NHS Dumfries & Galloway 2014     616.1 635.9143
## 158 S08000019            NHS Forth Valley 2014     630.4 636.1786
## 159 S08000020               NHS Grampian 2014     610.3 636.4071
## 160 S08000022               NHS Highland 2014     612.2 636.9357
## 161 S08000024                NHS Lothian 2014     684.5 636.7786
## 162 S08000025                 NHS Orkney 2014     529.1 639.1357
## 163 S08000026                NHS Shetland 2014     683.1 638.6929
## 164 S08000028           NHS Western Isles 2014     641.8 639.7786
## 165 S08000029                   NHS Fife 2014     638.3 638.6214
## 166 S08000030                NHS Tayside 2014     627.8 638.9929
## 167 S08000031 NHS Greater Glasgow & Clyde 2014     712.0 638.5500
## 168 S08000032             NHS Lanarkshire 2014     654.8 637.7143
## 169 S08000015         NHS Ayrshire & Arran 2015     643.4 636.3786
## 170 S08000016                NHS Borders 2015     618.9 635.9071
## 171 S08000017      NHS Dumfries & Galloway 2015     617.9 636.0357
## 172 S08000019            NHS Forth Valley 2015     628.9 635.9286
## 173 S08000020               NHS Grampian 2015     617.1 636.4143
## 174 S08000022               NHS Highland 2015     602.4 635.7143
## 175 S08000024                NHS Lothian 2015     659.9 633.9571
## 176 S08000025                 NHS Orkney 2015     508.0 632.4500
## 177 S08000026                NHS Shetland 2015     693.4 633.1857
## 178 S08000028           NHS Western Isles 2015     614.6 631.2429
## 179 S08000029                   NHS Fife 2015     628.3 630.5286
## 180 S08000030                NHS Tayside 2015     632.1 630.8357
## 181 S08000031 NHS Greater Glasgow & Clyde 2015     711.5 630.8000
## 182 S08000032             NHS Lanarkshire 2015     649.1 630.3929
## 183 S08000015         NHS Ayrshire & Arran 2016     633.9 629.7143
## 184 S08000016                NHS Borders 2016     628.1 630.3714
## 185 S08000017      NHS Dumfries & Galloway 2016     580.9 627.7286
## 186 S08000019            NHS Forth Valley 2016     638.2 628.3929
## 187 S08000020               NHS Grampian 2016     614.8 628.2286
## 188 S08000022               NHS Highland 2016     597.5 627.8786
## 189 S08000024                NHS Lothian 2016     641.4 626.5571
## 190 S08000025                 NHS Orkney 2016     521.7 627.5357
## 191 S08000026                NHS Shetland 2016     697.4 627.8214
## 192 S08000028           NHS Western Isles 2016     598.1 626.6429
## 193 S08000029                   NHS Fife 2016     617.1 625.8429
## 194 S08000030                NHS Tayside 2016     631.2 625.7786
## 195 S08000031 NHS Greater Glasgow & Clyde 2016     699.3 624.9071
## 196 S08000032             NHS Lanarkshire 2016     650.3 624.9929
```

```
## 197 S08000015        NHS Ayrshire & Arran 2017   627.2 624.5143
## 198 S08000016                NHS Borders 2017   638.1 625.2286
## 199 S08000017     NHS Dumfries & Galloway 2017   588.7 625.7857
## 200 S08000019            NHS Forth Valley 2017   657.4 627.1571
## 201 S08000020                NHS Grampian 2017   637.4 628.7714
## 202 S08000022                NHS Highland 2017   598.8 628.8643
## 203 S08000024                 NHS Lothian 2017   632.7 628.2429
## 204 S08000025                  NHS Orkney 2017   516.3 627.8571
## 205 S08000026                NHS Shetland 2017   696.2 627.7714
## 206 S08000028           NHS Western Isles 2017   573.3 626.0000
## 207 S08000029                    NHS Fife 2017   637.5 627.4571
## 208 S08000030                 NHS Tayside 2017   632.1 627.5214
## 209 S08000031 NHS Greater Glasgow & Clyde 2017   700.2 627.5857
## 210 S08000032             NHS Lanarkshire 2017   659.8 628.2643
## 211 S08000015        NHS Ayrshire & Arran 2018   632.8 628.6643
## 212 S08000016                NHS Borders 2018   629.3 628.0357
## 213 S08000017     NHS Dumfries & Galloway 2018   618.5 630.1643
## 214 S08000019            NHS Forth Valley 2018   664.7 630.6857
## 215 S08000020                NHS Grampian 2018   651.1 631.6643
## 216 S08000022                NHS Highland 2018   613.4 632.7071
## 217 S08000024                 NHS Lothian 2018   635.3 632.8929
## 218 S08000025                  NHS Orkney 2018   550.7 635.3500
## 219 S08000026                NHS Shetland 2018   610.8 629.2500
## 220 S08000028           NHS Western Isles 2018   588.7 630.3500
## 221 S08000029                    NHS Fife 2018   645.9 630.9500
## 222 S08000030                 NHS Tayside 2018   623.9 630.3643
## 223 S08000031 NHS Greater Glasgow & Clyde 2018   702.0 630.4929
## 224 S08000032             NHS Lanarkshire 2018   661.0 630.5786
## 225 S08000015        NHS Ayrshire & Arran 2019   616.0 629.3786
## 226 S08000016                NHS Borders 2019   575.6 625.5429
## 227 S08000017     NHS Dumfries & Galloway 2019   611.7 625.0571
## 228 S08000019            NHS Forth Valley 2019   643.7 623.5571
## 229 S08000020                NHS Grampian 2019   623.3 621.5714
## 230 S08000022                NHS Highland 2019   600.8 620.6714
## 231 S08000024                 NHS Lothian 2019   617.5 619.4000
## 232 S08000025                  NHS Orkney 2019   575.9 621.2000
## 233 S08000026                NHS Shetland 2019   548.4 616.7429
## 234 S08000028           NHS Western Isles 2019   609.0 618.1929
## 235 S08000029                    NHS Fife 2019   623.1 616.5643
## 236 S08000030                 NHS Tayside 2019   592.0 614.2857
## 237 S08000031 NHS Greater Glasgow & Clyde 2019   674.8 612.3429
## 238 S08000032             NHS Lanarkshire 2019   635.4 610.5143
## 239 S08000015        NHS Ayrshire & Arran 2020   625.5 611.1929
## 240 S08000016                NHS Borders 2020   560.1 610.0857
## 241 S08000017     NHS Dumfries & Galloway 2020   621.7 610.8000
## 242 S08000019            NHS Forth Valley 2020   642.4 610.7071
## 243 S08000020                NHS Grampian 2020   614.9 610.1071
## 244 S08000022                NHS Highland 2020   604.9 610.4000
## 245 S08000024                 NHS Lothian 2020   628.9 611.2143
## 246 S08000025                  NHS Orkney 2020   586.6 611.9786
## 247 S08000026                NHS Shetland 2020   551.9 612.2286
## 248 S08000028           NHS Western Isles 2020   665.8 616.2857
## 249 S08000029                    NHS Fife 2020   602.0 614.7786
## 250 S08000030                 NHS Tayside 2020   590.5 614.6714
```

```
## 251 S08000031 NHS Greater Glasgow & Clyde 2020   673.5 614.5786
## 252 S08000032              NHS Lanarkshire 2020   624.1 613.7714
```

```
ggplot(cancerReg, aes(x = year, y = measure, col = area_name, position_jitter(width = 0.5, height = 0.5)
    geom_point(size = 1.0) +
    # geom_line(color = "blue", linewidth = 1) +
    geom_line(aes(y=MA),colour="red")
```

```
## Warning: Removed 13 rows containing missing values or values outside the scale range
## (`geom_line()`).
```



```
colourCells <- function(values, average){
    diffVal <- values - average
    if (diffVal>=0 & diffVal<=20){
        return(paste0("\\cellcolor{green!," ,round(diffVal/100), "}"))
    }
}
```

Summary Table of Data Within Graph

```
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)
```

```
  )
kable(healthBoardData, format = "latex", booktabs = TRUE)
```

area_code	area_name	MA	2003	2004	2005	2006	2007	2008	2009	2010
S08000015	NHS Ayrshire & Arran	NA	649.7	NA	NA	NA	NA	NA	NA	NA
S08000016	NHS Borders	NA	614.6	NA	NA	NA	NA	NA	NA	NA
S08000017	NHS Dumfries & Galloway	NA	620.5	NA	NA	NA	NA	NA	NA	NA
S08000019	NHS Forth Valley	NA	651.8	NA	NA	NA	NA	NA	NA	NA
S08000020	NHS Grampian	NA	617.8	NA	NA	NA	NA	NA	NA	NA
S08000022	NHS Highland	NA	602.9	NA	NA	NA	NA	NA	NA	NA
S08000024	NHS Lothian	NA	655.1	NA	NA	NA	NA	NA	NA	NA
S08000025	NHS Orkney	NA	589.0	NA	NA	NA	NA	NA	NA	NA
S08000026	NHS Shetland	NA	616.0	NA	NA	NA	NA	NA	NA	NA
S08000028	NHS Western Isles	NA	652.0	NA	NA	NA	NA	NA	NA	NA
S08000029	NHS Fife	NA	611.4	NA	NA	NA	NA	NA	NA	NA
S08000030	NHS Tayside	NA	611.2	NA	NA	NA	NA	NA	NA	NA
S08000031	NHS Greater Glasgow & Clyde	NA	697.3	NA	NA	NA	NA	NA	NA	NA
S08000032	NHS Lanarkshire	630.2143	633.7	NA	NA	NA	NA	NA	NA	NA
S08000015	NHS Ayrshire & Arran	629.7214	NA	642.8	NA	NA	NA	NA	NA	NA
S08000016	NHS Borders	629.8786	NA	616.8	NA	NA	NA	NA	NA	NA
S08000017	NHS Dumfries & Galloway	631.6429	NA	645.2	NA	NA	NA	NA	NA	NA
S08000019	NHS Forth Valley	631.3857	NA	648.2	NA	NA	NA	NA	NA	NA
S08000020	NHS Grampian	630.2214	NA	601.5	NA	NA	NA	NA	NA	NA
S08000022	NHS Highland	629.6214	NA	594.5	NA	NA	NA	NA	NA	NA
S08000024	NHS Lothian	630.0286	NA	660.8	NA	NA	NA	NA	NA	NA
S08000025	NHS Orkney	629.5571	NA	582.4	NA	NA	NA	NA	NA	NA
S08000026	NHS Shetland	631.0357	NA	636.7	NA	NA	NA	NA	NA	NA
S08000028	NHS Western Isles	629.3286	NA	628.1	NA	NA	NA	NA	NA	NA
S08000029	NHS Fife	629.5143	NA	614.0	NA	NA	NA	NA	NA	NA
S08000030	NHS Tayside	629.2357	NA	607.3	NA	NA	NA	NA	NA	NA
S08000031	NHS Greater Glasgow & Clyde	628.9929	NA	693.9	NA	NA	NA	NA	NA	NA
S08000032	NHS Lanarkshire	628.9214	NA	632.7	NA	NA	NA	NA	NA	NA
S08000015	NHS Ayrshire & Arran	628.1214	NA	NA	631.6	NA	NA	NA	NA	NA
S08000016	NHS Borders	629.2571	NA	NA	632.7	NA	NA	NA	NA	NA
S08000017	NHS Dumfries & Galloway	628.8429	NA	NA	639.4	NA	NA	NA	NA	NA
S08000019	NHS Forth Valley	628.4571	NA	NA	642.8	NA	NA	NA	NA	NA
S08000020	NHS Grampian	627.6143	NA	NA	589.7	NA	NA	NA	NA	NA
S08000022	NHS Highland	627.9286	NA	NA	598.9	NA	NA	NA	NA	NA
S08000024	NHS Lothian	627.8286	NA	NA	659.4	NA	NA	NA	NA	NA
S08000025	NHS Orkney	628.1643	NA	NA	587.1	NA	NA	NA	NA	NA
S08000026	NHS Shetland	623.5286	NA	NA	571.8	NA	NA	NA	NA	NA
S08000028	NHS Western Isles	622.2571	NA	NA	610.3	NA	NA	NA	NA	NA
S08000029	NHS Fife	623.4500	NA	NA	630.7	NA	NA	NA	NA	NA
S08000030	NHS Tayside	622.9714	NA	NA	600.6	NA	NA	NA	NA	NA
S08000031	NHS Greater Glasgow & Clyde	623.0500	NA	NA	695.0	NA	NA	NA	NA	NA
S08000032	NHS Lanarkshire	623.8214	NA	NA	643.5	NA	NA	NA	NA	NA
S08000015	NHS Ayrshire & Arran	623.4286	NA	NA	NA	626.1	NA	NA	NA	NA
S08000016	NHS Borders	624.0571	NA	NA	NA	641.5	NA	NA	NA	NA
S08000017	NHS Dumfries & Galloway	624.2500	NA	NA	NA	642.1	NA	NA	NA	NA
S08000019	NHS Forth Valley	622.5000	NA	NA	NA	618.3	NA	NA	NA	NA
S08000020	NHS Grampian	622.2786	NA	NA	NA	586.6	NA	NA	NA	NA
S08000022	NHS Highland	623.3071	NA	NA	NA	613.3	NA	NA	NA	NA
S08000024	NHS Lothian	623.7857	NA	NA	NA	666.1	NA	NA	NA	NA
S08000025	NHS Orkney	624.5714	NA	NA	NA	598.1	NA	NA	NA	NA
S08000026	NHS Shetland	624.7500	NA	NA	NA	574.3	NA	NA	NA	NA
S08000028	NHS Western Isles	628.6143	NA	NA	NA	664.4	NA	NA	NA	NA
S08000029	NHS Fife	629.4000	NA	NA	NA	641.7	NA	NA	NA	NA
S08000030	NHS Tayside	629.0714	NA	NA	NA	596.0	NA	NA	NA	NA
S08000031	NHS Greater Glasgow & Clyde	628.5429	NA	NA	NA	687.6	NA	NA	NA	NA

```
healthBoardData
```

```
## # A tibble: 252 x 22
##    area_code area_name      MA `2003` `2004` `2005` `2006` `2007` `2008` `2009`
##    <chr>     <chr>       <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>
##  1 S08000015 NHS Ayrshir~   NA   650.     NA     NA     NA     NA     NA     NA
##  2 S08000016 NHS Borders    NA   615.     NA     NA     NA     NA     NA     NA
##  3 S08000017 NHS Dumfrie~   NA   620.     NA     NA     NA     NA     NA     NA
##  4 S08000019 NHS Forth V~   NA   652.     NA     NA     NA     NA     NA     NA
##  5 S08000020 NHS Grampian   NA   618.     NA     NA     NA     NA     NA     NA
##  6 S08000022 NHS Highland   NA   603.     NA     NA     NA     NA     NA     NA
##  7 S08000024 NHS Lothian    NA   655.     NA     NA     NA     NA     NA     NA
##  8 S08000025 NHS Orkney     NA   589      NA     NA     NA     NA     NA     NA
##  9 S08000026 NHS Shetland   NA   616      NA     NA     NA     NA     NA     NA
## 10 S08000028 NHS Western~   NA   652      NA     NA     NA     NA     NA     NA
## # i 242 more rows
## # i 12 more variables: `2010` <dbl>, `2011` <dbl>, `2012` <dbl>, `2013` <dbl>,
## #   `2014` <dbl>, `2015` <dbl>, `2016` <dbl>, `2017` <dbl>, `2018` <dbl>,
## #   `2019` <dbl>, `2020` <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