

# World\_Trend\_Analysis.R

*Setia Comp*

*Wed Mar 21 21:49:19 2018*

*#Generating Three New Vectors*

```

Country_Code <- c("ABW", "AFG", "AGO", "ALB", "ARE", "ARG", "ARM", "ATG", "AUS", "AUT", "AZE", "BDI", "BEL",
"BEN", "BFA", "BGD", "BGR", "BHR", "BHS", "BIH", "BLR", "BLZ", "BOL", "BRA", "BRB", "BRN", "BTN", "BWA", "CAF",
"CAN", "CHE", "CHL", "CHN", "CIV", "CMR", "COG", "COL", "COM", "CPV", "CRI", "CUB", "CYP", "CZE", "DEU", "DJI",
"DNK", "DOM", "DZA", "ECU", "EGY", "ERI", "ESP", "EST", "ETH", "FIN", "FJI", "FRA", "FSM", "GAB", "GBR", "GEO",
"GHA", "GIN", "GMB", "GNB", "GNQ", "GRC", "GRD", "GTM", "GUM", "GUY", "HKG", "HND", "HRV", "HTI", "HUN", "IDN",
"IND", "IRL", "IRN", "IRQ", "ISL", "ITA", "JAM", "JOR", "JPN", "KAZ", "KEN", "KGZ", "KHM", "KIR", "KOR", "KWT",
"LAO", "LBN", "LBR", "LBY", "LCA", "LKA", "LSO", "LTU", "LUX", "LVA", "MAC", "MAR", "MDA", "MDG", "MDV", "MEX",
"MKD", "MLI", "MLT", "MMR", "MNE", "MNG", "MOZ", "MRT", "MUS", "MWI", "MYS", "NAM", "NCL", "NER", "NGA", "NIC",
"NLD", "NOR", "NPL", "NZL", "OMN", "PAK", "PAN", "PER", "PHL", "PNG", "POL", "PRI", "PRT", "PRY", "PYF", "QAT",
"ROU", "RUS", "RWA", "SAU", "SDN", "SEN", "SGP", "SLB", "SLE", "SLV", "SOM", "SSD", "STP", "SUR", "SVK", "SVN",
"SWE", "SWZ", "SYR", "TCD", "TGO", "THA", "TJK", "TKM", "TLS", "TON", "TTO", "TUN", "TUR", "TZA", "UGA", "UKR",
"URY", "USA", "UZB", "VCT", "VEN", "VIR", "VNM", "VUT", "WSM", "YEM", "ZAF", "COD", "ZMB", "ZWE")

Life_Expectancy_At_Birth_1960 <- c(65.5693658536586, 32.328512195122, 32.9848292682927, 62.25436585
36585, 52.2432195121951, 65.2155365853659, 65.8634634146342, 61.7827317073171, 70.8170731707317, 68.58
56097560976, 60.836243902439, 41.2360487804878, 69.7019512195122, 37.2782682926829, 34.4779024390244,
45.8293170731707, 69.2475609756098, 52.0893658536585, 62.7290487804878, 60.2762195121951, 67.70809756
09756, 59.9613658536585, 42.1183170731707, 54.2054634146342, 60.7380487804878, 62.5003658536585, 32.35
93658536585, 50.5477317073171, 36.4826341463415, 71.1331707317073, 71.3134146341463, 57.4582926829268
, 43.4658048780488, 36.8724146341463, 41.523756097561, 48.5816341463415, 56.716756097561, 41.442439024
3903, 48.8564146341463, 60.5761951219512, 63.9046585365854, 69.5939268292683, 70.3487804878049, 69.312
9512195122, 44.0212682926829, 72.1765853658537, 51.8452682926829, 46.1351219512195, 53.215, 48.0137073
170732, 37.3629024390244, 69.1092682926829, 67.9059756097561, 38.4057073170732, 68.819756097561, 55.95
84878048781, 69.8682926829268, 57.5865853658537, 39.5701219512195, 71.1268292682927, 63.4318536585366
, 45.8314634146342, 34.8863902439024, 32.0422195121951, 37.8404390243902, 36.7330487804878, 68.1639024
390244, 59.8159268292683, 45.5316341463415, 61.2263414634146, 60.2787317073171, 66.9997073170732, 46.2
883170731707, 64.6086585365854, 42.1000975609756, 68.0031707317073, 48.6403170731707, 41.171951219512
2, 69.691756097561, 44.945512195122, 48.0306829268293, 73.4286585365854, 69.1239024390244, 64.19182926
82927, 52.6852682926829, 67.6660975609756, 58.3675853658537, 46.3624146341463, 56.1280731707317, 41.23
20243902439, 49.2159756097561, 53.0013170731707, 60.3479512195122, 43.2044634146342, 63.2801219512195
, 34.7831707317073, 42.6411951219512, 57.303756097561, 59.7471463414634, 46.5107073170732, 69.84731707
31707, 68.4463902439024, 69.7868292682927, 64.6609268292683, 48.4466341463415, 61.8127804878049, 39.97
46829268293, 37.2686341463415, 57.0656341463415, 60.6228048780488, 28.2116097560976, 67.6017804878049
, 42.7363902439024, 63.7056097560976, 48.3688048780488, 35.0037073170732, 43.4830975609756, 58.7452195
121951, 37.7736341463415, 59.4753414634146, 46.8803902439024, 58.6390243902439, 35.5150487804878, 37.1
829512195122, 46.9988292682927, 73.3926829268293, 73.549756097561, 35.1708292682927, 71.2365853658537
, 42.6670731707317, 45.2904634146342, 60.8817073170732, 47.6915853658537, 57.8119268292683, 38.4622439
02439, 67.6804878048781, 68.7196097560976, 62.8089268292683, 63.7937073170732, 56.3570487804878, 61.20
60731707317, 65.6424390243903, 66.0552926829268, 42.2492926829268, 45.6662682926829, 48.1876341463415
, 38.206, 65.6598292682927, 49.3817073170732, 30.3315365853659, 49.9479268292683, 36.9658780487805, 31.
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76, 44.2337804878049, 52.768243902439, 38.0161219512195, 40.2728292682927, 54.6993170731707, 56.153536
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844146341463, 43.6538780487805, 43.9835609756098, 68.2995365853659, 67.8963902439025, 69.770731707317
1, 58.8855365853659, 57.7238780487805, 59.2851219512195, 63.7302195121951, 59.0670243902439, 46.487487
8048781, 49.969512195122, 34.3638048780488, 49.0362926829268, 41.0180487804878, 45.1098048780488, 51.5
424634146342)

Life_Expectancy_At_Birth_2013 <- c(75.3286585365854, 60.0282682926829, 51.8661707317073, 77.5372439
02439, 77.1956341463415, 75.9860975609756, 74.5613658536585, 75.7786585365854, 82.1975609756098, 80.89
0243902439, 70.6931463414634, 56.2516097560976, 80.3853658536585, 59.3120243902439, 58.2406341463415,
71.245243902439, 74.4658536585366, 76.5459512195122, 75.0735365853659, 76.2769268292683, 72.470731707
3171, 69.9820487804878, 67.9134390243903, 74.1224390243903, 75.3339512195122, 78.5466585365854, 69.102
9268292683, 64.3608048780488, 49.8798780487805, 81.4011219512195, 82.7487804878049, 81.1979268292683,

```

```
75.3530243902439,51.2084634146342,55.0418048780488,61.6663902439024,73.8097317073171,62.93217073
17073,72.9723658536585,79.2252195121951,79.2563902439025,79.9497804878049,78.2780487804878,81.04
39024390244,61.6864634146342,80.3024390243903,73.3199024390244,74.5689512195122,75.648512195122,
70.9257804878049,63.1778780487805,82.4268292682927,76.4243902439025,63.4421951219512,80.83170731
70732,69.9179268292683,81.9682926829268,68.9733902439024,63.8435853658537,80.9560975609756,74.07
9512195122,61.1420731707317,58.216487804878,59.9992682926829,54.8384146341464,57.2908292682927,8
0.6341463414634,73.1935609756098,71.4863902439024,78.872512195122,66.3100243902439,83.8317073170
732,72.9428536585366,77.1268292682927,62.4011463414634,75.2682926829268,68.7046097560976,67.6604
146341463,81.0439024390244,75.1259756097561,69.4716829268293,83.1170731707317,82.290243902439,7
3.4689268292683,73.9014146341463,83.3319512195122,70.45,60.9537804878049,70.2024390243902,67.772
0487804878,65.7665853658537,81.459756097561,74.462756097561,65.687243902439,80.1288780487805,60.
5203902439024,71.6576829268293,74.9127073170732,74.2402926829268,49.3314634146342,74.16341463414
64,81.7975609756098,73.9804878048781,80.3391463414634,73.7090487804878,68.811512195122,64.673902
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6540975609756,74.7583658536585,69.0618048780488,54.641512195122,62.8027073170732,74.46,61.466,7
4.567512195122,64.3438780487805,77.1219512195122,60.8281463414634,52.4421463414634,74.5147560975
61,81.1048780487805,81.4512195121951,69.222,81.4073170731707,76.8410487804878,65.9636829268293,7
7.4192195121951,74.2838536585366,68.1315609756097,62.4491707317073,76.8487804878049,78.711195121
9512,80.3731707317073,72.7991707317073,76.3340731707317,78.4184878048781,74.4634146341463,71.073
1707317073,63.3948292682927,74.1776341463415,63.1670487804878,65.878756097561,82.3463414634146,6
7.7189268292683,50.3631219512195,72.4981463414634,55.0230243902439,55.2209024390244,66.259512195
122,70.99,76.2609756097561,80.2780487804878,81.7048780487805,48.9379268292683,74.7157804878049,5
1.1914878048781,59.1323658536585,74.2469268292683,69.4001707317073,65.4565609756098,67.522365853
6585,72.6403414634147,70.3052926829268,73.6463414634147,75.1759512195122,64.2918292682927,57.767
6829268293,71.159512195122,76.8361951219512,78.8414634146341,68.2275853658537,72.8108780487805,7
4.0744146341464,79.6243902439024,75.756487804878,71.669243902439,73.2503902439024,63.58351219512
2,56.7365853658537,58.2719268292683,59.2373658536585,55.633)
```

```
#Loading more data
getwd()
```

```
## [1] "C:/Users/Setia Comp/Documents/R UDEMY"
```

```
data <- read.csv(file.choose())
head(data)
```

```
##      Country.Name Country.Code      Region Year Fertility.Rate
## 1      Aruba      ABW The Americas 1960      4.820
## 2  Afghanistan      AFG      Asia 1960      7.450
## 3      Angola      AGO      Africa 1960      7.379
## 4      Albania      ALB      Europe 1960      6.186
## 5 United Arab Emirates      ARE Middle East 1960      6.928
## 6      Argentina      ARG The Americas 1960      3.109
```

```
tail(data)
```

```
##      Country.Name Country.Code      Region Year Fertility.Rate
## 369      Samoa      WSM      Oceania 2013      4.147
## 370  Yemen, Rep.      YEM Middle East 2013      4.284
## 371  South Africa      ZAF      Africa 2013      2.387
## 372 Congo, Dem. Rep.      COD      Africa 2013      6.103
## 373      Zambia      ZMB      Africa 2013      5.429
## 374      Zimbabwe      ZWE      Africa 2013      3.977
```

```
str(data)
```

```
## 'data.frame':  374 obs. of  5 variables:
## $ Country.Name : Factor w/ 187 levels "Afghanistan",...: 8 1 4 2 176 6 7 5 9 10 ...
## $ Country.Code : Factor w/ 187 levels "ABW","AFG","AGO",...: 1 2 3 4 5 6 7 8 9 10 ...
## $ Region       : Factor w/ 6 levels "Africa","Asia",...: 6 2 1 3 4 6 2 6 5 3 ...
## $ Year         : int  1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 ...
## $ Fertility.Rate: num  4.82 7.45 7.38 6.19 6.93 ...
```

```
summary(data)
```

```
##      Country.Name Country.Code      Region      Year
## Afghanistan      : 2  ABW      : 2  Africa      :106  Min.      :1960
## Albania           : 2  AFG      : 2  Asia         : 66  1st Qu.:1960
## Algeria           : 2  AGO      : 2  Europe        : 80  Median :1986
## Angola            : 2  ALB      : 2  Middle East   : 24  Mean    :1986
## Antigua and Barbuda: 2  ARE      : 2  Oceania       : 26  3rd Qu.:2013
## Argentina         : 2  ARG      : 2  The Americas  : 72  Max.    :2013
## (Other)           :362  (Other):362
## Fertility.Rate
## Min.      :1.124
## 1st Qu.:2.243
## Median :3.994
## Mean      :4.191
## 3rd Qu.:6.252
## Max.      :8.187
##
```

```
#Converting the variables into factor
```

```
data$Year
```

```
## [1] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [15] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [29] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [43] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [57] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [71] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [85] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [99] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [113] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [127] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [141] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [155] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [169] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [183] 1960 1960 1960 1960 1960 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [197] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [211] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [225] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [239] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [253] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [267] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [281] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [295] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [309] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [323] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [337] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [351] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [365] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
```

```
temp <- factor(data$Year)
temp
```

```
## [1] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [15] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [29] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [43] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [57] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [71] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [85] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [99] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [113] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [127] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [141] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [155] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [169] 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 1960
## [183] 1960 1960 1960 1960 1960 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [197] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [211] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [225] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [239] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [253] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [267] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [281] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [295] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [309] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [323] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [337] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [351] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## [365] 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013
## Levels: 1960 2013
```

```
levels(temp)
```

```
## [1] "1960" "2013"
```

```
#Filtering the Data Frame
data$Year==1960
```

```
## [1] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [12] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [23] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [34] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [45] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [56] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [67] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [78] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [89] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [100] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [111] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [122] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [133] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [144] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [155] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [166] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [177] TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE
## [188] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [199] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [210] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [221] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [232] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [243] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [254] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [265] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [276] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [287] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [298] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [309] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [320] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [331] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [342] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [353] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [364] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
```

```
data1960 <- data[data$Year==1960,]
data2013 <- data[data$Year==2013,]
```

```
#Checking row counts
nrow(data1960)
```

```
## [1] 187
```

```
nrow(data2013)
```

```
## [1] 187
```

*#Creating the additional DataFrame*

```
add1960 <- data.frame(Code= Country_Code, Life.Exp = Life_Expectancy_At_Birth_1960)
add2013 <- data.frame(Code= Country_Code, Life.Exp = Life_Expectancy_At_Birth_2013)
```

*#Checking Summaries*

```
summary(add1960)
```

```
##           Code           Life.Exp
## ABW      : 1   Min.      :28.21
## AFG      : 1   1st Qu.:43.47
## AGO      : 1   Median :54.70
## ALB      : 1   Mean     :53.73
## ARE      : 1   3rd Qu.:64.05
## ARG      : 1   Max.      :73.55
## (Other):181
```

```
summary(add2013)
```

```
##           Code           Life.Exp
## ABW      : 1   Min.      :48.94
## AFG      : 1   1st Qu.:64.52
## AGO      : 1   Median :73.25
## ALB      : 1   Mean     :70.76
## ARE      : 1   3rd Qu.:76.84
## ARG      : 1   Max.      :83.83
## (Other):181
```

*# Merging the pairs of dataframes*

```
merged1960 <- merge(data1960, add1960, by.x = "Country.Code", by.y = "Code")
merged2013 <- merge(data2013, add2013, by.x = "Country.Code", by.y = "Code")
```

*#Checking the new Structures*

```
str(merged1960)
```

```
## 'data.frame':   187 obs. of  6 variables:
## $ Country.Code : Factor w/ 187 levels "ABW","AFG","AGO",...: 1 2 3 4 5 6 7 8 9 10 ...
## $ Country.Name : Factor w/ 187 levels "Afghanistan",...: 8 1 4 2 176 6 7 5 9 10 ...
## $ Region       : Factor w/ 6 levels "Africa","Asia",...: 6 2 1 3 4 6 2 6 5 3 ...
## $ Year         : int  1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 ...
## $ Fertility.Rate: num  4.82 7.45 7.38 6.19 6.93 ...
## $ Life.Exp      : num  65.6 32.3 33 62.3 52.2 ...
```

```
str(merged2013)
```



```
## 'data.frame': 187 obs. of 6 variables:
## $ Country.Code : Factor w/ 187 levels "ABW","AFG","AGO",...: 1 2 3 4 5 6 7 8 9 10 ...
## $ Country.Name : Factor w/ 187 levels "Afghanistan",...: 8 1 4 2 176 6 7 5 9 10 ...
## $ Region : Factor w/ 6 levels "Africa","Asia",...: 6 2 1 3 4 6 2 6 5 3 ...
## $ Year : int 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 ...
## $ Fertility.Rate: num 1.67 5.05 6.16 1.77 1.8 ...
## $ Life.Exp : num 75.3 60 51.9 77.5 77.2 ...
```

```
#Deleting Columns
```

```
merged1960$Year <- NULL
```

```
merged2013$Year <- NULL
```

```
#Visulaising the data
```

```
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 3.4.4
```

```
#Visulaising the 1960 dataset
```

```
qplot(data = merged1960, x = Fertility.Rate, y = Life.Exp,
      colour = Region, size = I(5), alpha = I(0.6),
      main = "Life Expentancy vs Fertility(1960)")
```

Life Expentancy vs Fertility(1960)



*# From this graph we can see that African countries have high Fertility Rate but Less Life Expan*

*tancy*

*# Whereas The European Countries have Less Fertility rate and high Life Expan*

```
qplot(data = merged2013, x = Fertility.Rate, y = Life.Exp,
      colour = Region, size = I(5), alpha = I(0.6),
      main = "Life Expentancy vs Fertility(2013)")
```

Life Expentancy vs Fertility(2013)



*# After 53 years we can see a change that the Fertility rate has decreased fro AFrican Countries*

*and Life Expentancy increased*