

world

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R Markdown

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When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
# IMPORT RAW DATA: Johns Hopkins Github data
confirmedraw <- read.csv("https://raw.githubusercontent.com/CSSEGISandData/COVID-19/master/csse_covid_19/
str(confirmedraw) # Check latest date at the end of data
```

```
## 'data.frame': 280 obs. of 682 variables:
## $ Province.State: chr "" "" "" "" ...
## $ Country.Region: chr "Afghanistan" "Albania" "Algeria" "Andorra" ...
## $ Lat : num 33.9 41.2 28 42.5 -11.2 ...
## $ Long : num 67.71 20.17 1.66 1.52 17.87 ...
## $ X1.22.20 : int 0 0 0 0 0 0 0 0 0 0 ...
## $ X1.23.20 : int 0 0 0 0 0 0 0 0 0 0 ...
## $ X1.24.20 : int 0 0 0 0 0 0 0 0 0 0 ...
## $ X1.25.20 : int 0 0 0 0 0 0 0 0 0 0 ...
## $ X1.26.20 : int 0 0 0 0 0 0 0 0 0 3 ...
## $ X1.27.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X1.28.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X1.29.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X1.30.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X1.31.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.1.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.2.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.3.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.4.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.5.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.6.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.7.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.8.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.9.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.10.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.11.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.12.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.13.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.14.20 : int 0 0 0 0 0 0 0 0 0 4 ...
```

```

## $ X2.15.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.16.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.17.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.18.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.19.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.20.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.21.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.22.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.23.20 : int 0 0 0 0 0 0 0 0 0 4 ...
## $ X2.24.20 : int 5 0 0 0 0 0 0 0 0 4 ...
## $ X2.25.20 : int 5 0 1 0 0 0 0 0 0 4 ...
## $ X2.26.20 : int 5 0 1 0 0 0 0 0 0 4 ...
## $ X2.27.20 : int 5 0 1 0 0 0 0 0 0 4 ...
## $ X2.28.20 : int 5 0 1 0 0 0 0 0 0 4 ...
## $ X2.29.20 : int 5 0 1 0 0 0 0 0 0 4 ...
## $ X3.1.20 : int 5 0 1 0 0 0 0 1 0 6 ...
## $ X3.2.20 : int 5 0 3 1 0 0 0 1 0 6 ...
## $ X3.3.20 : int 5 0 5 1 0 0 1 1 0 13 ...
## $ X3.4.20 : int 5 0 12 1 0 0 1 1 0 22 ...
## $ X3.5.20 : int 5 0 12 1 0 0 1 1 0 22 ...
## $ X3.6.20 : int 5 0 17 1 0 0 2 1 0 26 ...
## $ X3.7.20 : int 8 0 17 1 0 0 8 1 0 28 ...
## $ X3.8.20 : int 8 0 19 1 0 0 12 1 0 38 ...
## $ X3.9.20 : int 8 2 20 1 0 0 12 1 0 48 ...
## $ X3.10.20 : int 8 10 20 1 0 0 17 1 0 55 ...
## $ X3.11.20 : int 11 12 20 1 0 0 19 1 0 65 ...
## $ X3.12.20 : int 11 23 24 1 0 0 19 4 0 65 ...
## $ X3.13.20 : int 11 33 26 1 0 1 31 8 1 92 ...
## $ X3.14.20 : int 14 38 37 1 0 1 34 18 1 112 ...
## $ X3.15.20 : int 20 42 48 1 0 1 45 26 1 134 ...
## $ X3.16.20 : int 25 51 54 2 0 1 56 52 2 171 ...
## $ X3.17.20 : int 26 55 60 39 0 1 68 78 2 210 ...
## $ X3.18.20 : int 26 59 74 39 0 1 79 84 3 267 ...
## $ X3.19.20 : int 26 64 87 53 0 1 97 115 4 307 ...
## $ X3.20.20 : int 24 70 90 75 1 1 128 136 6 353 ...
## $ X3.21.20 : int 24 76 139 88 2 1 158 160 9 436 ...
## $ X3.22.20 : int 34 89 201 113 2 1 266 194 19 669 ...
## $ X3.23.20 : int 40 104 230 133 3 3 301 235 32 669 ...
## $ X3.24.20 : int 42 123 264 164 3 3 387 249 39 818 ...
## $ X3.25.20 : int 74 146 302 188 3 3 387 265 39 1029 ...
## $ X3.26.20 : int 80 174 367 224 4 7 502 290 53 1219 ...
## $ X3.27.20 : int 91 186 409 267 4 7 589 329 62 1405 ...
## $ X3.28.20 : int 106 197 454 308 5 7 690 407 71 1617 ...
## $ X3.29.20 : int 114 212 511 334 7 7 745 424 77 1791 ...
## $ X3.30.20 : int 114 223 584 370 7 7 820 482 78 2032 ...
## $ X3.31.20 : int 166 243 716 376 7 7 1054 532 80 2032 ...
## $ X4.1.20 : int 192 259 847 390 8 7 1054 571 84 2182 ...
## $ X4.2.20 : int 235 277 986 428 8 9 1133 663 87 2298 ...
## $ X4.3.20 : int 269 304 1171 439 8 15 1265 736 91 2389 ...
## $ X4.4.20 : int 270 333 1251 466 10 15 1451 770 93 2493 ...
## $ X4.5.20 : int 299 361 1320 501 14 15 1451 822 96 2580 ...
## $ X4.6.20 : int 337 377 1423 525 16 15 1554 833 96 2637 ...
## $ X4.7.20 : int 367 383 1468 545 17 19 1628 853 96 2686 ...
## $ X4.8.20 : int 423 400 1572 564 19 19 1715 881 99 2734 ...

```

```
## $ X4.9.20      : int  444 409 1666 583 19 19 1795 921 100 2773 ...
## $ X4.10.20     : int  521 416 1761 601 19 19 1975 937 103 2822 ...
## $ X4.11.20     : int  521 433 1825 601 19 21 1975 967 103 2857 ...
## $ X4.12.20     : int  555 446 1914 638 19 21 2142 1013 103 2857 ...
## $ X4.13.20     : int  607 467 1983 646 19 23 2208 1039 102 2863 ...
## $ X4.14.20     : int  665 475 2070 659 19 23 2277 1067 103 2870 ...
## $ X4.15.20     : int  770 494 2160 673 19 23 2443 1111 103 2886 ...
## $ X4.16.20     : int  794 518 2268 673 19 23 2571 1159 103 2897 ...
## $ X4.17.20     : int  845 539 2418 696 19 23 2669 1201 103 2926 ...
## $ X4.18.20     : int  908 548 2534 704 24 23 2758 1248 103 2936 ...
## $ X4.19.20     : int  933 562 2629 713 24 23 2839 1291 103 2957 ...
## $ X4.20.20     : int  996 584 2718 717 24 23 2941 1339 104 2963 ...
## $ X4.21.20     : int 1026 609 2811 717 24 23 3031 1401 104 2969 ...
## $ X4.22.20     : int 1092 634 2910 723 25 24 3144 1473 104 2971 ...
## $ X4.23.20     : int 1176 663 3007 723 25 24 3435 1523 104 2976 ...
## $ X4.24.20     : int 1226 678 3127 731 25 24 3607 1596 105 2982 ...
## $ X4.25.20     : int 1330 712 3256 738 25 24 3780 1677 106 2994 ...
## [list output truncated]
```

```
deathsraw <- read.csv("https://raw.githubusercontent.com/CSSEGISandData/COVID-19/master/csse_covid_19_data/csse_covid_19_data/recoveredraw <- read.csv("https://raw.githubusercontent.com/CSSEGISandData/COVID-19/master/csse_covid_19_data/csse_covid_19_data# Note differences in the number of rows/columns
```

```
# DATA CLEANING: To create country level and global combined data
# Convert each data set from wide to long AND aggregate at country level
library(tidyr)
library(dplyr)
```

```
## Warning: package 'dplyr' was built under R version 4.0.5
```

```
##
## 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
```

```
confirmed <- confirmedraw %>% gather(key="date", value="confirmed", -c(Country.Region, Province.State, Lat, Long))
```

```
## 'summarise()' has grouped output by 'Country.Region'. You can override using the '.groups' argument.
```

```
deaths <- deathsraw %>% gather(key="date", value="deaths", -c(Country.Region, Province.State, Lat, Long))
```

```
## 'summarise()' has grouped output by 'Country.Region'. You can override using the '.groups' argument.
```

```
recovered <- recovereddraw %>% gather(key="date", value="recovered", -c(Country.Region, Province.State, I
```

```
## 'summarise()' has grouped output by 'Country.Region'. You can override using the '.groups' argument.
```

```
summary(confirmed)
```

```
## Country.Region      date      confirmed
## Length:132888      Length:132888  Min.   :      0
## Class :character    Class :character  1st Qu.:    712
## Mode  :character    Mode  :character  Median :   14252
##                                     Mean  :  496585
##                                     3rd Qu.: 169321
##                                     Max.   :48438302
```

```
# Final data: combine all three
```

```
country <- full_join(confirmed, deaths) %>% full_join(recovered)
```

```
## Joining, by = c("Country.Region", "date")
```

```
## Joining, by = c("Country.Region", "date")
```

```
# Date variable
```

```
# Fix date variable and convert from character to date
```

```
str(country) # check date character
```

```
## grouped_df [132,888 x 5] (S3: grouped_df/tbl_df/tbl/data.frame)
## $ Country.Region: chr [1:132888] "Afghanistan" "Afghanistan" "Afghanistan" "Afghanistan" ...
## $ date          : chr [1:132888] "X1.1.21" "X1.10.21" "X1.11.21" "X1.12.21" ...
## $ confirmed     : int [1:132888] 52513 53489 53538 53584 53690 53775 53831 53938 53984 54062 ...
## $ deaths        : int [1:132888] 2201 2277 2288 2301 2308 2314 2324 2336 2339 2343 ...
## $ recovered     : int [1:132888] 41727 43948 44137 44608 44850 45298 45434 45465 45868 46359 ...
## - attr(*, "groups")= tibble [196 x 2] (S3: tbl_df/tbl/data.frame)
## ..$ Country.Region: chr [1:196] "Afghanistan" "Albania" "Algeria" "Andorra" ...
## ..$ .rows         : list<int> [1:196]
## .. ..$ : int [1:678] 1 2 3 4 5 6 7 8 9 10 ...
## .. ..$ : int [1:678] 679 680 681 682 683 684 685 686 687 688 ...
## .. ..$ : int [1:678] 1357 1358 1359 1360 1361 1362 1363 1364 1365 1366 ...
## .. ..$ : int [1:678] 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 ...
## .. ..$ : int [1:678] 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 ...
## .. ..$ : int [1:678] 3391 3392 3393 3394 3395 3396 3397 3398 3399 3400 ...
## .. ..$ : int [1:678] 4069 4070 4071 4072 4073 4074 4075 4076 4077 4078 ...
## .. ..$ : int [1:678] 4747 4748 4749 4750 4751 4752 4753 4754 4755 4756 ...
## .. ..$ : int [1:678] 5425 5426 5427 5428 5429 5430 5431 5432 5433 5434 ...
## .. ..$ : int [1:678] 6103 6104 6105 6106 6107 6108 6109 6110 6111 6112 ...
## .. ..$ : int [1:678] 6781 6782 6783 6784 6785 6786 6787 6788 6789 6790 ...
## .. ..$ : int [1:678] 7459 7460 7461 7462 7463 7464 7465 7466 7467 7468 ...
## .. ..$ : int [1:678] 8137 8138 8139 8140 8141 8142 8143 8144 8145 8146 ...
## .. ..$ : int [1:678] 8815 8816 8817 8818 8819 8820 8821 8822 8823 8824 ...
## .. ..$ : int [1:678] 9493 9494 9495 9496 9497 9498 9499 9500 9501 9502 ...
## .. ..$ : int [1:678] 10171 10172 10173 10174 10175 10176 10177 10178 10179 10180 ...
```

```

## .. ..$ : int [1:678] 10849 10850 10851 10852 10853 10854 10855 10856 10857 10858 ...
## .. ..$ : int [1:678] 11527 11528 11529 11530 11531 11532 11533 11534 11535 11536 ...
## .. ..$ : int [1:678] 12205 12206 12207 12208 12209 12210 12211 12212 12213 12214 ...
## .. ..$ : int [1:678] 12883 12884 12885 12886 12887 12888 12889 12890 12891 12892 ...
## .. ..$ : int [1:678] 13561 13562 13563 13564 13565 13566 13567 13568 13569 13570 ...
## .. ..$ : int [1:678] 14239 14240 14241 14242 14243 14244 14245 14246 14247 14248 ...
## .. ..$ : int [1:678] 14917 14918 14919 14920 14921 14922 14923 14924 14925 14926 ...
## .. ..$ : int [1:678] 15595 15596 15597 15598 15599 15600 15601 15602 15603 15604 ...
## .. ..$ : int [1:678] 16273 16274 16275 16276 16277 16278 16279 16280 16281 16282 ...
## .. ..$ : int [1:678] 16951 16952 16953 16954 16955 16956 16957 16958 16959 16960 ...
## .. ..$ : int [1:678] 17629 17630 17631 17632 17633 17634 17635 17636 17637 17638 ...
## .. ..$ : int [1:678] 18307 18308 18309 18310 18311 18312 18313 18314 18315 18316 ...
## .. ..$ : int [1:678] 18985 18986 18987 18988 18989 18990 18991 18992 18993 18994 ...
## .. ..$ : int [1:678] 19663 19664 19665 19666 19667 19668 19669 19670 19671 19672 ...
## .. ..$ : int [1:678] 20341 20342 20343 20344 20345 20346 20347 20348 20349 20350 ...
## .. ..$ : int [1:678] 21019 21020 21021 21022 21023 21024 21025 21026 21027 21028 ...
## .. ..$ : int [1:678] 21697 21698 21699 21700 21701 21702 21703 21704 21705 21706 ...
## .. ..$ : int [1:678] 22375 22376 22377 22378 22379 22380 22381 22382 22383 22384 ...
## .. ..$ : int [1:678] 23053 23054 23055 23056 23057 23058 23059 23060 23061 23062 ...
## .. ..$ : int [1:678] 23731 23732 23733 23734 23735 23736 23737 23738 23739 23740 ...
## .. ..$ : int [1:678] 24409 24410 24411 24412 24413 24414 24415 24416 24417 24418 ...
## .. ..$ : int [1:678] 25087 25088 25089 25090 25091 25092 25093 25094 25095 25096 ...
## .. ..$ : int [1:678] 25765 25766 25767 25768 25769 25770 25771 25772 25773 25774 ...
## .. ..$ : int [1:678] 26443 26444 26445 26446 26447 26448 26449 26450 26451 26452 ...
## .. ..$ : int [1:678] 27121 27122 27123 27124 27125 27126 27127 27128 27129 27130 ...
## .. ..$ : int [1:678] 27799 27800 27801 27802 27803 27804 27805 27806 27807 27808 ...
## .. ..$ : int [1:678] 28477 28478 28479 28480 28481 28482 28483 28484 28485 28486 ...
## .. ..$ : int [1:678] 29155 29156 29157 29158 29159 29160 29161 29162 29163 29164 ...
## .. ..$ : int [1:678] 29833 29834 29835 29836 29837 29838 29839 29840 29841 29842 ...
## .. ..$ : int [1:678] 30511 30512 30513 30514 30515 30516 30517 30518 30519 30520 ...
## .. ..$ : int [1:678] 31189 31190 31191 31192 31193 31194 31195 31196 31197 31198 ...
## .. ..$ : int [1:678] 31867 31868 31869 31870 31871 31872 31873 31874 31875 31876 ...
## .. ..$ : int [1:678] 32545 32546 32547 32548 32549 32550 32551 32552 32553 32554 ...
## .. ..$ : int [1:678] 33223 33224 33225 33226 33227 33228 33229 33230 33231 33232 ...
## .. ..$ : int [1:678] 33901 33902 33903 33904 33905 33906 33907 33908 33909 33910 ...
## .. ..$ : int [1:678] 34579 34580 34581 34582 34583 34584 34585 34586 34587 34588 ...
## .. ..$ : int [1:678] 35257 35258 35259 35260 35261 35262 35263 35264 35265 35266 ...
## .. ..$ : int [1:678] 35935 35936 35937 35938 35939 35940 35941 35942 35943 35944 ...
## .. ..$ : int [1:678] 36613 36614 36615 36616 36617 36618 36619 36620 36621 36622 ...
## .. ..$ : int [1:678] 37291 37292 37293 37294 37295 37296 37297 37298 37299 37300 ...
## .. ..$ : int [1:678] 37969 37970 37971 37972 37973 37974 37975 37976 37977 37978 ...
## .. ..$ : int [1:678] 38647 38648 38649 38650 38651 38652 38653 38654 38655 38656 ...
## .. ..$ : int [1:678] 39325 39326 39327 39328 39329 39330 39331 39332 39333 39334 ...
## .. ..$ : int [1:678] 40003 40004 40005 40006 40007 40008 40009 40010 40011 40012 ...
## .. ..$ : int [1:678] 40681 40682 40683 40684 40685 40686 40687 40688 40689 40690 ...
## .. ..$ : int [1:678] 41359 41360 41361 41362 41363 41364 41365 41366 41367 41368 ...
## .. ..$ : int [1:678] 42037 42038 42039 42040 42041 42042 42043 42044 42045 42046 ...
## .. ..$ : int [1:678] 42715 42716 42717 42718 42719 42720 42721 42722 42723 42724 ...
## .. ..$ : int [1:678] 43393 43394 43395 43396 43397 43398 43399 43400 43401 43402 ...
## .. ..$ : int [1:678] 44071 44072 44073 44074 44075 44076 44077 44078 44079 44080 ...
## .. ..$ : int [1:678] 44749 44750 44751 44752 44753 44754 44755 44756 44757 44758 ...
## .. ..$ : int [1:678] 45427 45428 45429 45430 45431 45432 45433 45434 45435 45436 ...
## .. ..$ : int [1:678] 46105 46106 46107 46108 46109 46110 46111 46112 46113 46114 ...
## .. ..$ : int [1:678] 46783 46784 46785 46786 46787 46788 46789 46790 46791 46792 ...

```

```
## .. ..$ : int [1:678] 47461 47462 47463 47464 47465 47466 47467 47468 47469 47470 ...
## .. ..$ : int [1:678] 48139 48140 48141 48142 48143 48144 48145 48146 48147 48148 ...
## .. ..$ : int [1:678] 48817 48818 48819 48820 48821 48822 48823 48824 48825 48826 ...
## .. ..$ : int [1:678] 49495 49496 49497 49498 49499 49500 49501 49502 49503 49504 ...
## .. ..$ : int [1:678] 50173 50174 50175 50176 50177 50178 50179 50180 50181 50182 ...
## .. ..$ : int [1:678] 50851 50852 50853 50854 50855 50856 50857 50858 50859 50860 ...
## .. ..$ : int [1:678] 51529 51530 51531 51532 51533 51534 51535 51536 51537 51538 ...
## .. ..$ : int [1:678] 52207 52208 52209 52210 52211 52212 52213 52214 52215 52216 ...
## .. ..$ : int [1:678] 52885 52886 52887 52888 52889 52890 52891 52892 52893 52894 ...
## .. ..$ : int [1:678] 53563 53564 53565 53566 53567 53568 53569 53570 53571 53572 ...
## .. ..$ : int [1:678] 54241 54242 54243 54244 54245 54246 54247 54248 54249 54250 ...
## .. ..$ : int [1:678] 54919 54920 54921 54922 54923 54924 54925 54926 54927 54928 ...
## .. ..$ : int [1:678] 55597 55598 55599 55600 55601 55602 55603 55604 55605 55606 ...
## .. ..$ : int [1:678] 56275 56276 56277 56278 56279 56280 56281 56282 56283 56284 ...
## .. ..$ : int [1:678] 56953 56954 56955 56956 56957 56958 56959 56960 56961 56962 ...
## .. ..$ : int [1:678] 57631 57632 57633 57634 57635 57636 57637 57638 57639 57640 ...
## .. ..$ : int [1:678] 58309 58310 58311 58312 58313 58314 58315 58316 58317 58318 ...
## .. ..$ : int [1:678] 58987 58988 58989 58990 58991 58992 58993 58994 58995 58996 ...
## .. ..$ : int [1:678] 59665 59666 59667 59668 59669 59670 59671 59672 59673 59674 ...
## .. ..$ : int [1:678] 60343 60344 60345 60346 60347 60348 60349 60350 60351 60352 ...
## .. ..$ : int [1:678] 61021 61022 61023 61024 61025 61026 61027 61028 61029 61030 ...
## .. ..$ : int [1:678] 61699 61700 61701 61702 61703 61704 61705 61706 61707 61708 ...
## .. ..$ : int [1:678] 62377 62378 62379 62380 62381 62382 62383 62384 62385 62386 ...
## .. ..$ : int [1:678] 63055 63056 63057 63058 63059 63060 63061 63062 63063 63064 ...
## .. ..$ : int [1:678] 63733 63734 63735 63736 63737 63738 63739 63740 63741 63742 ...
## .. ..$ : int [1:678] 64411 64412 64413 64414 64415 64416 64417 64418 64419 64420 ...
## .. ..$ : int [1:678] 65089 65090 65091 65092 65093 65094 65095 65096 65097 65098 ...
## .. ..$ : int [1:678] 65767 65768 65769 65770 65771 65772 65773 65774 65775 65776 ...
## .. ..$ : int [1:678] 66445 66446 66447 66448 66449 66450 66451 66452 66453 66454 ...
## .. .. [list output truncated]
## .. ..@ ptype: int(0)
## ..- attr(*, ".drop")= logi TRUE
```

```
country$date <- country$date %>% sub("X", "", .) %>% as.Date("%m.%d.%y")
str(country) # check date Date
```

```
## grouped_df [132,888 x 5] (S3: grouped_df/tbl_df/tbl/data.frame)
## $ Country.Region: chr [1:132888] "Afghanistan" "Afghanistan" "Afghanistan" "Afghanistan" ...
## $ date           : Date[1:132888], format: "2021-01-01" "2021-01-10" ...
## $ confirmed      : int [1:132888] 52513 53489 53538 53584 53690 53775 53831 53938 53984 54062 ...
## $ deaths         : int [1:132888] 2201 2277 2288 2301 2308 2314 2324 2336 2339 2343 ...
## $ recovered      : int [1:132888] 41727 43948 44137 44608 44850 45298 45434 45465 45868 46359 ...
## - attr(*, "groups")= tibble [196 x 2] (S3: tbl_df/tbl/data.frame)
## ..$ Country.Region: chr [1:196] "Afghanistan" "Albania" "Algeria" "Andorra" ...
## ..$ .rows          : list<int> [1:196]
## .. ..$ : int [1:678] 1 2 3 4 5 6 7 8 9 10 ...
## .. ..$ : int [1:678] 679 680 681 682 683 684 685 686 687 688 ...
## .. ..$ : int [1:678] 1357 1358 1359 1360 1361 1362 1363 1364 1365 1366 ...
## .. ..$ : int [1:678] 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 ...
## .. ..$ : int [1:678] 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 ...
## .. ..$ : int [1:678] 3391 3392 3393 3394 3395 3396 3397 3398 3399 3400 ...
## .. ..$ : int [1:678] 4069 4070 4071 4072 4073 4074 4075 4076 4077 4078 ...
## .. ..$ : int [1:678] 4747 4748 4749 4750 4751 4752 4753 4754 4755 4756 ...
## .. ..$ : int [1:678] 5425 5426 5427 5428 5429 5430 5431 5432 5433 5434 ...
```

```

## .. ..$ : int [1:678] 6103 6104 6105 6106 6107 6108 6109 6110 6111 6112 ...
## .. ..$ : int [1:678] 6781 6782 6783 6784 6785 6786 6787 6788 6789 6790 ...
## .. ..$ : int [1:678] 7459 7460 7461 7462 7463 7464 7465 7466 7467 7468 ...
## .. ..$ : int [1:678] 8137 8138 8139 8140 8141 8142 8143 8144 8145 8146 ...
## .. ..$ : int [1:678] 8815 8816 8817 8818 8819 8820 8821 8822 8823 8824 ...
## .. ..$ : int [1:678] 9493 9494 9495 9496 9497 9498 9499 9500 9501 9502 ...
## .. ..$ : int [1:678] 10171 10172 10173 10174 10175 10176 10177 10178 10179 10180 ...
## .. ..$ : int [1:678] 10849 10850 10851 10852 10853 10854 10855 10856 10857 10858 ...
## .. ..$ : int [1:678] 11527 11528 11529 11530 11531 11532 11533 11534 11535 11536 ...
## .. ..$ : int [1:678] 12205 12206 12207 12208 12209 12210 12211 12212 12213 12214 ...
## .. ..$ : int [1:678] 12883 12884 12885 12886 12887 12888 12889 12890 12891 12892 ...
## .. ..$ : int [1:678] 13561 13562 13563 13564 13565 13566 13567 13568 13569 13570 ...
## .. ..$ : int [1:678] 14239 14240 14241 14242 14243 14244 14245 14246 14247 14248 ...
## .. ..$ : int [1:678] 14917 14918 14919 14920 14921 14922 14923 14924 14925 14926 ...
## .. ..$ : int [1:678] 15595 15596 15597 15598 15599 15600 15601 15602 15603 15604 ...
## .. ..$ : int [1:678] 16273 16274 16275 16276 16277 16278 16279 16280 16281 16282 ...
## .. ..$ : int [1:678] 16951 16952 16953 16954 16955 16956 16957 16958 16959 16960 ...
## .. ..$ : int [1:678] 17629 17630 17631 17632 17633 17634 17635 17636 17637 17638 ...
## .. ..$ : int [1:678] 18307 18308 18309 18310 18311 18312 18313 18314 18315 18316 ...
## .. ..$ : int [1:678] 18985 18986 18987 18988 18989 18990 18991 18992 18993 18994 ...
## .. ..$ : int [1:678] 19663 19664 19665 19666 19667 19668 19669 19670 19671 19672 ...
## .. ..$ : int [1:678] 20341 20342 20343 20344 20345 20346 20347 20348 20349 20350 ...
## .. ..$ : int [1:678] 21019 21020 21021 21022 21023 21024 21025 21026 21027 21028 ...
## .. ..$ : int [1:678] 21697 21698 21699 21700 21701 21702 21703 21704 21705 21706 ...
## .. ..$ : int [1:678] 22375 22376 22377 22378 22379 22380 22381 22382 22383 22384 ...
## .. ..$ : int [1:678] 23053 23054 23055 23056 23057 23058 23059 23060 23061 23062 ...
## .. ..$ : int [1:678] 23731 23732 23733 23734 23735 23736 23737 23738 23739 23740 ...
## .. ..$ : int [1:678] 24409 24410 24411 24412 24413 24414 24415 24416 24417 24418 ...
## .. ..$ : int [1:678] 25087 25088 25089 25090 25091 25092 25093 25094 25095 25096 ...
## .. ..$ : int [1:678] 25765 25766 25767 25768 25769 25770 25771 25772 25773 25774 ...
## .. ..$ : int [1:678] 26443 26444 26445 26446 26447 26448 26449 26450 26451 26452 ...
## .. ..$ : int [1:678] 27121 27122 27123 27124 27125 27126 27127 27128 27129 27130 ...
## .. ..$ : int [1:678] 27799 27800 27801 27802 27803 27804 27805 27806 27807 27808 ...
## .. ..$ : int [1:678] 28477 28478 28479 28480 28481 28482 28483 28484 28485 28486 ...
## .. ..$ : int [1:678] 29155 29156 29157 29158 29159 29160 29161 29162 29163 29164 ...
## .. ..$ : int [1:678] 29833 29834 29835 29836 29837 29838 29839 29840 29841 29842 ...
## .. ..$ : int [1:678] 30511 30512 30513 30514 30515 30516 30517 30518 30519 30520 ...
## .. ..$ : int [1:678] 31189 31190 31191 31192 31193 31194 31195 31196 31197 31198 ...
## .. ..$ : int [1:678] 31867 31868 31869 31870 31871 31872 31873 31874 31875 31876 ...
## .. ..$ : int [1:678] 32545 32546 32547 32548 32549 32550 32551 32552 32553 32554 ...
## .. ..$ : int [1:678] 33223 33224 33225 33226 33227 33228 33229 33230 33231 33232 ...
## .. ..$ : int [1:678] 33901 33902 33903 33904 33905 33906 33907 33908 33909 33910 ...
## .. ..$ : int [1:678] 34579 34580 34581 34582 34583 34584 34585 34586 34587 34588 ...
## .. ..$ : int [1:678] 35257 35258 35259 35260 35261 35262 35263 35264 35265 35266 ...
## .. ..$ : int [1:678] 35935 35936 35937 35938 35939 35940 35941 35942 35943 35944 ...
## .. ..$ : int [1:678] 36613 36614 36615 36616 36617 36618 36619 36620 36621 36622 ...
## .. ..$ : int [1:678] 37291 37292 37293 37294 37295 37296 37297 37298 37299 37300 ...
## .. ..$ : int [1:678] 37969 37970 37971 37972 37973 37974 37975 37976 37977 37978 ...
## .. ..$ : int [1:678] 38647 38648 38649 38650 38651 38652 38653 38654 38655 38656 ...
## .. ..$ : int [1:678] 39325 39326 39327 39328 39329 39330 39331 39332 39333 39334 ...
## .. ..$ : int [1:678] 40003 40004 40005 40006 40007 40008 40009 40010 40011 40012 ...
## .. ..$ : int [1:678] 40681 40682 40683 40684 40685 40686 40687 40688 40689 40690 ...
## .. ..$ : int [1:678] 41359 41360 41361 41362 41363 41364 41365 41366 41367 41368 ...
## .. ..$ : int [1:678] 42037 42038 42039 42040 42041 42042 42043 42044 42045 42046 ...

```

```
## ..$ : int [1:678] 42715 42716 42717 42718 42719 42720 42721 42722 42723 42724 ...
## ..$ : int [1:678] 43393 43394 43395 43396 43397 43398 43399 43400 43401 43402 ...
## ..$ : int [1:678] 44071 44072 44073 44074 44075 44076 44077 44078 44079 44080 ...
## ..$ : int [1:678] 44749 44750 44751 44752 44753 44754 44755 44756 44757 44758 ...
## ..$ : int [1:678] 45427 45428 45429 45430 45431 45432 45433 45434 45435 45436 ...
## ..$ : int [1:678] 46105 46106 46107 46108 46109 46110 46111 46112 46113 46114 ...
## ..$ : int [1:678] 46783 46784 46785 46786 46787 46788 46789 46790 46791 46792 ...
## ..$ : int [1:678] 47461 47462 47463 47464 47465 47466 47467 47468 47469 47470 ...
## ..$ : int [1:678] 48139 48140 48141 48142 48143 48144 48145 48146 48147 48148 ...
## ..$ : int [1:678] 48817 48818 48819 48820 48821 48822 48823 48824 48825 48826 ...
## ..$ : int [1:678] 49495 49496 49497 49498 49499 49500 49501 49502 49503 49504 ...
## ..$ : int [1:678] 50173 50174 50175 50176 50177 50178 50179 50180 50181 50182 ...
## ..$ : int [1:678] 50851 50852 50853 50854 50855 50856 50857 50858 50859 50860 ...
## ..$ : int [1:678] 51529 51530 51531 51532 51533 51534 51535 51536 51537 51538 ...
## ..$ : int [1:678] 52207 52208 52209 52210 52211 52212 52213 52214 52215 52216 ...
## ..$ : int [1:678] 52885 52886 52887 52888 52889 52890 52891 52892 52893 52894 ...
## ..$ : int [1:678] 53563 53564 53565 53566 53567 53568 53569 53570 53571 53572 ...
## ..$ : int [1:678] 54241 54242 54243 54244 54245 54246 54247 54248 54249 54250 ...
## ..$ : int [1:678] 54919 54920 54921 54922 54923 54924 54925 54926 54927 54928 ...
## ..$ : int [1:678] 55597 55598 55599 55600 55601 55602 55603 55604 55605 55606 ...
## ..$ : int [1:678] 56275 56276 56277 56278 56279 56280 56281 56282 56283 56284 ...
## ..$ : int [1:678] 56953 56954 56955 56956 56957 56958 56959 56960 56961 56962 ...
## ..$ : int [1:678] 57631 57632 57633 57634 57635 57636 57637 57638 57639 57640 ...
## ..$ : int [1:678] 58309 58310 58311 58312 58313 58314 58315 58316 58317 58318 ...
## ..$ : int [1:678] 58987 58988 58989 58990 58991 58992 58993 58994 58995 58996 ...
## ..$ : int [1:678] 59665 59666 59667 59668 59669 59670 59671 59672 59673 59674 ...
## ..$ : int [1:678] 60343 60344 60345 60346 60347 60348 60349 60350 60351 60352 ...
## ..$ : int [1:678] 61021 61022 61023 61024 61025 61026 61027 61028 61029 61030 ...
## ..$ : int [1:678] 61699 61700 61701 61702 61703 61704 61705 61706 61707 61708 ...
## ..$ : int [1:678] 62377 62378 62379 62380 62381 62382 62383 62384 62385 62386 ...
## ..$ : int [1:678] 63055 63056 63057 63058 63059 63060 63061 63062 63063 63064 ...
## ..$ : int [1:678] 63733 63734 63735 63736 63737 63738 63739 63740 63741 63742 ...
## ..$ : int [1:678] 64411 64412 64413 64414 64415 64416 64417 64418 64419 64420 ...
## ..$ : int [1:678] 65089 65090 65091 65092 65093 65094 65095 65096 65097 65098 ...
## ..$ : int [1:678] 65767 65768 65769 65770 65771 65772 65773 65774 65775 65776 ...
## ..$ : int [1:678] 66445 66446 66447 66448 66449 66450 66451 66452 66453 66454 ...
## .. [list output truncated]
## ..@ ptype: int(0)
## ..- attr(*, ".drop")= logi TRUE
```

```
# Create new variable: number of days
```

```
country <- country %>% group_by(Country.Region) %>% mutate(cumconfirmed=cumsum(confirmed), days = date
```

```
## Warning in mask$eval_all_mutate(quo): integer overflow in 'cumsum'; use
## 'cumsum(as.numeric())'
```

```
## Warning in mask$eval_all_mutate(quo): integer overflow in 'cumsum'; use
## 'cumsum(as.numeric())'
```

```
## Warning in mask$eval_all_mutate(quo): integer overflow in 'cumsum'; use
## 'cumsum(as.numeric())'
```

```
## Warning in mask$eval_all_mutate(quo): integer overflow in 'cumsum'; use
## 'cumsum(as.numeric())'
```



```

# Aggregate at world level
world <- country %>% group_by(date) %>% summarize(confirmed=sum(confirmed), cumconfirmed=sum(cumconfirmed))
# Extract specific country: Italy
italy <- country %>% filter(Country.Region=="Italy")

# SUMMARY STATISTICS
summary(country)

```

```

## Country.Region      date      confirmed      deaths
## Length:132888      Min.   :2020-01-22      Min.   :      0      Min.   :      0
## Class :character    1st Qu.:2020-07-09      1st Qu.:     712      1st Qu.:     10
## Mode  :character    Median :2020-12-25      Median :    14252      Median :     229
##                      Mean   :2020-12-25      Mean   :   496585      Mean   :   11065
##                      3rd Qu.:2021-06-13      3rd Qu.:  169321      3rd Qu.:   3074
##                      Max.   :2021-11-29      Max.   :48438302      Max.   :778601
##
## recovered      cumconfirmed      days
## Min.   :      0      Min.   :0.000e+00      Length:132888
## 1st Qu.:      0      1st Qu.:1.655e+06      Class :difftime
## Median :    1394      Median :1.360e+07      Mode  :numeric
## Mean   :   176776      Mean   :9.782e+07
## 3rd Qu.:   36329      3rd Qu.:7.299e+07
## Max.   :  30974748      Max.   :2.144e+09
##                      NA's   :1627

```

```

by(country$confirmed, country$Country.Region, summary)

```

```

## country$Country.Region: Afghanistan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0   33874   51680   63383   89581  157260
## -----
## country$Country.Region: Albania
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0    3210   55568   71212  132457  199750
## -----
## country$Country.Region: Algeria
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0   17917   97649   89837  133309  210344
## -----
## country$Country.Region: Andorra
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0     855   7781    7552   13813   16712
## -----
## country$Country.Region: Angola
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.0   411.5 17124.0 20593.6 36678.8 65155.0
## -----
## country$Country.Region: Antigua and Barbuda
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.00   73.25  155.00   852.91 1263.00 4141.00

```

```

## -----
## country$Country.Region: Argentina
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   91535 1576410 2087942 4120929 5328416
## -----
## country$Country.Region: Armenia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   30485 157056 132492 223672 338120
## -----
## country$Country.Region: Australia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    9419  28303  37058  30259 210238
## -----
## country$Country.Region: Austria
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   18639 349770 344940 648562 1151809
## -----
## country$Country.Region: Azerbaijan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   22596 212478 193200 335160 586640
## -----
## country$Country.Region: Bahamas
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0   107.2  7788.0  7938.4 12092.0 22763.0
## -----
## country$Country.Region: Bahrain
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   31656  91411 123418 258511 277628
## -----
## country$Country.Region: Bangladesh
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0  176231 507682 598407 826313 1576011
## -----
## country$Country.Region: Barbados
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    98.0   349.5 3110.9 4036.0 25152.0
## -----
## country$Country.Region: Belarus
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   64459 183964 232125 405432 653323
## -----
## country$Country.Region: Belgium
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   62247 637638 596273 1076195 1749469
## -----
## country$Country.Region: Belize
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   31.75 10490.00 8609.61 12938.00 30338.00
## -----
## country$Country.Region: Benin
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    1285   3205   6323   8109 24850
## -----
## country$Country.Region: Bhutan

```

```

##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0      80.0   586.5    948.0  1811.8   2640.0
## -----
## country$Country.Region: Bolivia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    44476  153970  220326  406552   536472
## -----
## country$Country.Region: Bosnia and Herzegovina
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0     6165  109111  107090  204597   274219
## -----
## country$Country.Region: Botswana
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0       314   14025   46204   59480  195068
## -----
## country$Country.Region: Brazil
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0  1767041  7457183  9418428 17403279 22084749
## -----
## country$Country.Region: Brunei
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0       141     152    1473     248   15058
## -----
## country$Country.Region: Bulgaria
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0     6745  197150  216756  420326   692376
## -----
## country$Country.Region: Burkina Faso
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0     1009   6194   7141   13459   15711
## -----
## country$Country.Region: Burma
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0    322.2 120913.0 137687.0 145509.8 521931.0
## -----
## country$Country.Region: Burundi
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0       191     786   4080   5008   20415
## -----
## country$Country.Region: Cabo Verde
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0     1562  11697   15399   31571   38367
## -----
## country$Country.Region: Cambodia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0    141.0   363.5  25109.6  38310.0 120112.0
## -----
## country$Country.Region: Cameroon
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    14916   26277   40768   80090  106794
## -----
## country$Country.Region: Canada
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0   108702  548584  706642 1409666 1798515

```

```

## -----
## country$Country.Region: Central African Republic
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    4215    4948    5266    7101   11708
## -----
## country$Country.Region: Chad
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    873.2  1978.5  2663.3  4942.0  5107.0
## -----
## country$Country.Region: Chile
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   306981  597113  784210 1474603 1761365
## -----
## country$Country.Region: China
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    548   84992   95501   93154  103374  111218
## -----
## country$Country.Region: Colombia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0  135674 1579805 2032727 3746094 5067348
## -----
## country$Country.Region: Comoros
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0     314     715    1967    3899    4498
## -----
## country$Country.Region: Congo (Brazzaville)
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    1873    6740    7264    12121   18905
## -----
## country$Country.Region: Congo (Kinshasa)
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    7861   16618   22844   35158   58234
## -----
## country$Country.Region: Costa Rica
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    6575  162990  195071  339900  566560
## -----
## country$Country.Region: Cote d'Ivoire
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   11826   22081   28558   47662   61712
## -----
## country$Country.Region: Croatia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    3445  204137  184740  358548  604347
## -----
## country$Country.Region: Cuba
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    2406   10969  178289  157341  962350
## -----
## country$Country.Region: Cyprus
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    1008   19341   40437   74268  133860
## -----
## country$Country.Region: Czechia

```

```

##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      12940  666216  817619 1665078 2132380
## -----
## country$Country.Region: Denmark
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      13124  150845  157142  290595  488262
## -----
## country$Country.Region: Diamond Princess
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0      712.0   712.0    685.8   712.0   712.0
## -----
## country$Country.Region: Djibouti
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0       4958   5804     6851   11572   13504
## -----
## country$Country.Region: Dominica
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0       18.0    88.0    639.4   189.0  5955.0
## -----
## country$Country.Region: Dominican Republic
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      41071  165488  179422  308449  407113
## -----
## country$Country.Region: Ecuador
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      64420  209051  243497  438728  526615
## -----
## country$Country.Region: Egypt
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      79499  130721  155262  273009  357629
## -----
## country$Country.Region: El Salvador
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0       8918   44892   47507   75351  119803
## -----
## country$Country.Region: Equatorial Guinea
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0       3071   5236    5703    8650  13579
## -----
## country$Country.Region: Eritrea
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0        232    992     2508    4848   7341
## -----
## country$Country.Region: Estonia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0       2012   24805   62389  130501  221860
## -----
## country$Country.Region: Eswatini
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0       1224   8268   14629   18735  46582
## -----
## country$Country.Region: Ethiopia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0       7010  122147  146666  274147  371346

```

```

## -----
## country$Country.Region: Fiji
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      26      46   9461   1092   52506
## -----
## country$Country.Region: Finland
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    7274   34735   53839   93809  185622
## -----
## country$Country.Region: France
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0  209599 2606130 3063048 5827851 7731351
## -----
## country$Country.Region: Gabon
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    5889   9497   14051   24736   37342
## -----
## country$Country.Region: Gambia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   63.25 3791.00 4166.96 6008.00 9989.00
## -----
## country$Country.Region: Georgia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0.0   969.2 219616.0 221931.7 353834.5 840593.0
## -----
## country$Country.Region: Germany
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0  199084 1639488 1900190 3723045 5854884
## -----
## country$Country.Region: Ghana
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   23556   54165   61712   94493  130920
## -----
## country$Country.Region: Greece
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    3687  134983  226028  414859  931183
## -----
## country$Country.Region: Grenada
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    23.0   112.0   715.8   161.0  5888.0
## -----
## country$Country.Region: Guatemala
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   26898  135126  189015  271560  617621
## -----
## country$Country.Region: Guinea
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    5903   13646   14713   23396   30770
## -----
## country$Country.Region: Guinea-Bissau
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    1803    2447    2855    3803   6440
## -----
## country$Country.Region: Guyana

```

```

##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0      287    6289    10393   18365   37825
## -----
## country$Country.Region: Haiti
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0    6446    9846    10853   16079   25175
## -----
## country$Country.Region: Holy See
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00   12.00   27.00    19.79   27.00   27.00
## -----
## country$Country.Region: Honduras
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0   26551  118878   148616   247565   377859
## -----
## country$Country.Region: Hungary
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0    4221  314763   373795   806790  1096718
## -----
## country$Country.Region: Iceland
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0    1833    5683    5363    6616   17770
## -----
## country$Country.Region: India
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0   800580 10178484 13552043 29492805 34587822
## -----
## country$Country.Region: Indonesia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0   71139   703467 1345255   1908891  4256112
## -----
## country$Country.Region: Iran
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0  251024 1192083 1857981 3026668 6113192
## -----
## country$Country.Region: Iraq
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0   70324  590361  752947 1253655 2080448
## -----
## country$Country.Region: Ireland
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0   25571   84746  160923  266725  564657
## -----
## country$Country.Region: Israel
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0   35875  396528  518531  839665 1342976
## -----
## country$Country.Region: Italy
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0  242432 2033556 2167435 4244524 5015790
## -----
## country$Country.Region: Jamaica
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0     753   12640   27143   49266   91222

```

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## -----
## country$Country.Region: Japan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      2   20712  216436  486502  774606 1726555
## -----
## country$Country.Region: Jordan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    1156  285831  351820  743206  948966
## -----
## country$Country.Region: Kazakhstan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   55174 196679   315800  457457 1054091
## -----
## country$Country.Region: Kenya
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    9093   95778  101346  175297  254979
## -----
## country$Country.Region: Kiribati
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## 0.0000 0.0000 0.0000 0.5737 2.0000 2.0000
## -----
## country$Country.Region: Korea, South
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      1   13347   56387  101572  148173  447230
## -----
## country$Country.Region: Kosovo
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    4152   50270   60138  107159  161083
## -----
## country$Country.Region: Kuwait
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   53025 149363  184984  327585  413327
## -----
## country$Country.Region: Kyrgyzstan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    9496   80104   77146  110231  183285
## -----
## country$Country.Region: Laos
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0     19     41    5498    1994   72447
## -----
## country$Country.Region: Latvia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    1157   35620   66984  136008  252728
## -----
## country$Country.Region: Lebanon
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    2029 168771  267638  542375  668605
## -----
## country$Country.Region: Lesotho
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0.0   146.5 2725.0  6786.3 10905.5 21768.0
## -----
## country$Country.Region: Liberia

```



```

##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   933.8  1799.0   2232.7  2484.0   5915.0
## -----
## country$Country.Region: Libya
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      1342   97653  121342  188985   372209
## -----
## country$Country.Region: Liechtenstein
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         85   2048    1695    3118    4562
## -----
## country$Country.Region: Lithuania
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      1853  128731  142383  277715  468494
## -----
## country$Country.Region: Luxembourg
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      4734   45209   38682   70406   89010
## -----
## country$Country.Region: Madagascar
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      3872   17633   21339   41923   44330
## -----
## country$Country.Region: Malawi
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      1974    6341   22142   34485   61901
## -----
## country$Country.Region: Malaysia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      8686  102733  524609  656182  2627903
## -----
## country$Country.Region: Maldives
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      2569   13600   29975   70245   91543
## -----
## country$Country.Region: Mali
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      2378    6531    7461   14350   17364
## -----
## country$Country.Region: Malta
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         674   12176   16232   30581   39329
## -----
## country$Country.Region: Marshall Islands
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.000   0.000    4.000    2.271    4.000    4.000
## -----
## country$Country.Region: Mauritania
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      5145   13390   14283   20065   39213
## -----
## country$Country.Region: Mauritius
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         342    527    3021    1646   21040

```

```

## -----
## country$Country.Region: Mexico
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0  284006 1374730 1551117 2453749 3884566
## -----
## country$Country.Region: Micronesia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.0000  0.0000  0.0000  0.4617  1.0000  1.0000
## -----
## country$Country.Region: Moldova
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   18731 140623  141091  255787  363110
## -----
## country$Country.Region: Monaco
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0     108    793    1370    2525    3738
## -----
## country$Country.Region: Mongolia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0     227   1102   65629   75537  381528
## -----
## country$Country.Region: Montenegro
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    1019  46136   54629   99949  157085
## -----
## country$Country.Region: Morocco
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   15141 429378  362992  523823  949785
## -----
## country$Country.Region: Mozambique
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    1097  18135   48872   71519  151528
## -----
## country$Country.Region: MS Zaandam
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.000   9.000   9.000   8.083   9.000   9.000
## -----
## country$Country.Region: Namibia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0   628.2 21330.0 42444.8 64868.0 129180.0
## -----
## country$Country.Region: Nepal
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   16561 257450  298081  608049  821121
## -----
## country$Country.Region: Netherlands
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   51024 759973  884369 1699998 2662247
## -----
## country$Country.Region: New Zealand
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    1542   2136    2432    2710   11577
## -----
## country$Country.Region: Nicaragua

```

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      2846    5991      6100   7662   17152
## -----
## country$Country.Region: Niger
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      1098    3031      3149   5446   6989
## -----
## country$Country.Region: Nigeria
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    30892   83162   100823  167064  214113
## -----
## country$Country.Region: North Macedonia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      7623   81161    83012  155534  215125
## -----
## country$Country.Region: Norway
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      8967  46463    71239  128031  263798
## -----
## country$Country.Region: Oman
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    52197  128290   141585  233530  304519
## -----
## country$Country.Region: Pakistan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0   244287  470409   550728  941934 1284840
## -----
## country$Country.Region: Palau
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
## 0.0000 0.0000 0.0000 0.8363 0.0000 8.0000
## -----
## country$Country.Region: Panama
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    42476  227692   228711  387663  477514
## -----
## country$Country.Region: Papua New Guinea
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         11     780     7071   16677   35090
## -----
## country$Country.Region: Paraguay
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0     2662  104025   177092  390990  463001
## -----
## country$Country.Region: Peru
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0   317248 1004764 1111046 2002233 2234970
## -----
## country$Country.Region: Philippines
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    52044  468303   799241 1313817 2832375
## -----
## country$Country.Region: Poland
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    37017 1251518 1362595 2877412 3520961

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## -----
## country$Country.Region: Portugal
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   45378  392389  481946  857270 1144342
## -----
## country$Country.Region: Qatar
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0  102240  142819  140577  219701  243290
## -----
## country$Country.Region: Romania
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   30937  613067  596463 1079709 1778045
## -----
## country$Country.Region: Russia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0  707896 2977706 3239040 5144859 9436650
## -----
## country$Country.Region: Rwanda
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    1220    7780   26092   28316  100344
## -----
## country$Country.Region: Saint Kitts and Nevis
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   16.25   30.00  383.33  155.00 2782.00
## -----
## country$Country.Region: Saint Lucia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      22    305   3089   5179  12989
## -----
## country$Country.Region: Saint Vincent and the Grenadines
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0    29.0   108.5  1195.4  2153.8  5525.0
## -----
## country$Country.Region: Samoa
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.000  0.000   2.000   1.524   3.000   3.000
## -----
## country$Country.Region: San Marino
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0   713.8  2247.5  2702.8  5090.0  5979.0
## -----
## country$Country.Region: Sao Tome and Principe
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0   726.2  1014.0  1488.7  2357.8  3731.0
## -----
## country$Country.Region: Saudi Arabia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0  224117  361985  324086  465543  549720
## -----
## country$Country.Region: Senegal
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   7808   18446   28928   41987   73987
## -----
## country$Country.Region: Serbia

```

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      17439  321767   378316  714857 1252573
## -----
## country$Country.Region: Seychelles
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0      95.5   211.0   6096.9 13360.5 23390.0
## -----
## country$Country.Region: Sierra Leone
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      1602    2549     3121    4378    6402
## -----
## country$Country.Region: Singapore
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    45471    58514    60784    62273   263486
## -----
## country$Country.Region: Slovakia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      1856   241747   372351   773685 1159767
## -----
## country$Country.Region: Slovenia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      1780  114000   131139   256420  418413
## -----
## country$Country.Region: Solomon Islands
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00      0.00   17.00    11.06    20.00    20.00
## -----
## country$Country.Region: Somalia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      3038    4690     8177    14808   23016
## -----
## country$Country.Region: South Africa
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0   241426   989135 1202228 1745168 2963679
## -----
## country$Country.Region: South Sudan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      2021    3455     5713    10688   12755
## -----
## country$Country.Region: Spain
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0   253269 1854951 2198548 3733600 5153923
## -----
## country$Country.Region: Sri Lanka
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      2229   40081   132981   223048   563267
## -----
## country$Country.Region: Sudan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    10114   24465    21617    36203   42826
## -----
## country$Country.Region: Summer Olympics 2020
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0      0.0      0.0    142.3      0.0    865.0

```

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## -----
## country$Country.Region: Suriname
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      702    5909   12178   18307   50823
## -----
## country$Country.Region: Sweden
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   72176  396048  516004 1083456 1198848
## -----
## country$Country.Region: Switzerland
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   32612  428197  385254  700051 1006239
## -----
## country$Country.Region: Syria
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0   377.5 10876.5 13829.0 24807.8 48068.0
## -----
## country$Country.Region: Taiwan*
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    1.0   449.0   781.5  4687.0 12877.2 16596.0
## -----
## country$Country.Region: Tajikistan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    6374   13496   10349   13714   17493
## -----
## country$Country.Region: Tanzania
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0     509     509    2781     509   26261
## -----
## country$Country.Region: Thailand
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      4    3202    6080   310823  195208 2111566
## -----
## country$Country.Region: Timor-Leste
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      24     41    4294    8271   19822
## -----
## country$Country.Region: Togo
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0   705.5  3550.5  8007.5 13619.5 26250.0
## -----
## country$Country.Region: Tonga
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## 0.0000 0.0000 0.0000 0.0472 0.0000 1.0000
## -----
## country$Country.Region: Trinidad and Tobago
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0     133    7100   15321   28648   70598
## -----
## country$Country.Region: Tunisia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0     1233  129404  229868  368443  717309
## -----
## country$Country.Region: Turkey

```

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0   210213 2125814 2704359 5329194 8772342
## -----
## country$Country.Region: Uganda
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0     1002   33462   40124   61545   127523
## -----
## country$Country.Region: Ukraine
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    52493 1045650 1158536 2283491 3595410
## -----
## country$Country.Region: United Arab Emirates
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    53695  200279  311784  597494  741976
## -----
## country$Country.Region: United Kingdom
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0   289285  2245345  3034244  4579946 10245244
## -----
## country$Country.Region: Uruguay
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      979   16033  127955  338002  399504
## -----
## country$Country.Region: US
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      1  3141600 19050126 19699487 33539513 48438302
## -----
## country$Country.Region: Uzbekistan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0   11680   76617   73418  103434  193065
## -----
## country$Country.Region: Vanuatu
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.000  0.000   1.000   1.785   4.000   6.000
## -----
## country$Country.Region: Venezuela
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    8480  111777  144219  251342  431296
## -----
## country$Country.Region: Vietnam
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0     369.2   1439.5  130423.4  10556.8 1224110.0
## -----
## country$Country.Region: West Bank and Gaza
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    5303  131251  162015  311405  460053
## -----
## country$Country.Region: Yemen
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    1362   2092   3634   6861   9995
## -----
## country$Country.Region: Zambia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    1895  19621  70796  111393  210150

```

```
## -----
## country$Country.Region: Zimbabwe
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0.0   899.2 12921.5 38031.9 39932.2 134226.0
```

```
by(country$cumconfirmed, country$Country.Region, summary)
```

```
## country$Country.Region: Afghanistan
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      52513 13995494 19208636 20120101 27194830 42973647
## -----
## country$Country.Region: Albania
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      58316 14981528 24139108 24317405 35374805 48281917
## -----
## country$Country.Region: Algeria
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      99897 20119733 30565546 30502246 42224214 60909439
## -----
## country$Country.Region: Andorra
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      8117 1557138 2554876 2589987 3763629 5120348
## -----
## country$Country.Region: Angola
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      17568 5161701 7094204 7141357 9847403 13962440
## -----
## country$Country.Region: Antigua and Barbuda
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      159 252445 315463 309442 423407 578272
## -----
## country$Country.Region: Argentina
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## 1.630e+06 4.542e+08 6.496e+08 6.809e+08 9.576e+08 1.416e+09
## -----
## country$Country.Region: Armenia
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      159738 30023631 46573586 46473863 66060823 89829738
## -----
## country$Country.Region: Australia
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      28460 12777742 15652765 14531559 18816673 25125227
## -----
## country$Country.Region: Austria
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      362911 75409508 118773408 119805304 173619122 233869304
## -----
## country$Country.Region: Azerbaijan
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      219041 44129529 66356064 66806944 94503772 130989453
## -----
## country$Country.Region: Bahamas
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      7887 2029300 2839741 2795229 3811747 5382211
```



```

## -----
## country$Country.Region: Bahrain
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      92913 25281611 36786326 39439581 56506485 83677450
## -----
## country$Country.Region: Bangladesh
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      514500 139468356 192860528 196855394 266220263 405720106
## -----
## country$Country.Region: Barbados
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      395 1089122 1317929 1234060 1660853 2109218
## -----
## country$Country.Region: Belarus
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      196223 50293966 75726750 77900253 111390902 157380503
## -----
## country$Country.Region: Belgium
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      648289 133212711 206546220 207811119 298616488 404273120
## -----
## country$Country.Region: Belize
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      10776 2236328 3342072 3196274 4430203 5837315
## -----
## country$Country.Region: Benin
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      3251 1773478 2284788 2228464 2994190 4287101
## -----
## country$Country.Region: Bhutan
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      689 207299 282564 300865 414280 642760
## -----
## country$Country.Region: Bolivia
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      160985 46525319 68495132 71311699 100245827 149380744
## -----
## country$Country.Region: Bosnia and Herzegovina
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      112143 22928533 35908882 36662508 53084373 72607262
## -----
## country$Country.Region: Botswana
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      14805 12333474 15018258 15156792 19727738 31326594
## -----
## country$Country.Region: Brazil
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      7.701e+06 3.780e+08 1.042e+09 1.060e+09 1.730e+09 2.144e+09
## -----
## country$Country.Region: Brunei
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      157 748520 769822 671180 801984 998846
## -----
## country$Country.Region: Bulgaria

```

NA's
480

```

##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##    202540  47987823  72774174  74408380 107716313 146960284
## -----
## country$Country.Region: Burkina Faso
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##    6828 1358322 2361682 2411176 3558472 4841287
## -----
## country$Country.Region: Burma
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##   125042 38093222 50938026 48800890 63535402 93351799
## -----
## country$Country.Region: Burundi
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##     822 1267330 1458743 1434926 1849643 2766406
## -----
## country$Country.Region: Cabo Verde
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##   11872 3308062 4749300 5032906 7178618 10440213
## -----
## country$Country.Region: Cambodia
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##     379 7098018 7239926 7786664 9688134 17024320
## -----
## country$Country.Region: Cameroon
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##   26848 8524144 12123762 13140000 19028370 27640397
## -----
## country$Country.Region: Canada
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##   591149 144128646 222582460 234109981 341447552 479103131
## -----
## country$Country.Region: Central African Republic
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##   4963 1184928 1670050 1721821 2357987 3570167
## -----
## country$Country.Region: Chad
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##   2141 496093 838631 875877 1297677 1805722
## -----
## country$Country.Region: Chile
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##   612564 158366812 236274468 251579724 360875284 531694456
## -----
## country$Country.Region: China
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##   96023 16014642 30822371 31132745 46656679 63158648
## -----
## country$Country.Region: Colombia
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
## 1.655e+06 4.358e+08 6.378e+08 6.629e+08 9.281e+08 1.378e+09
## -----
## country$Country.Region: Comoros
##      Min.    1st Qu.    Median      Mean   3rd Qu.      Max.
##     823 346854 618592 639114 955364 1333950

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## -----
## country$Country.Region: Congo (Brazzaville)
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   7107 1627357 2433432 2464627 3464006 4925002
## -----
## country$Country.Region: Congo (Kinshasa)
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   17849 4900977 7163646 7396963 10255884 15488537
## -----
## country$Country.Region: Costa Rica
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   169321 46964604 65689215 66416087 91548930 132258392
## -----
## country$Country.Region: Cote d'Ivoire
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   22563 5886334 9058562 9365953 13380354 19362213
## -----
## country$Country.Region: Croatia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   212007 40744633 63466256 64273225 92790757 125253565
## -----
## country$Country.Region: Cuba
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   12056 57599766 62075441 60764280 74203885 120880089
## -----
## country$Country.Region: Cyprus
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   23108 8796526 12087872 12917749 18149675 27416144
## -----
## country$Country.Region: Czechia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   732022 159653959 269575624 276157757 409469734 554345633
## -----
## country$Country.Region: Denmark
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   166567 33841228 52719964 53566346 76756599 106542231
## -----
## country$Country.Region: Diamond Princess
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   712 114098 223928 227658 344434 464940
## -----
## country$Country.Region: Djibouti
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   5840 1372422 2016146 2198270 3199404 4644769
## -----
## country$Country.Region: Dominica
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   88 293448 306324 270818 323198 433536
## -----
## country$Country.Region: Dominican Republic
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   172218 37930548 59146352 60115847 85231865 121648237
## -----
## country$Country.Region: Ecuador

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##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      213378  49929800  76386974  79902882 114699474 165090917
## -----
## country$Country.Region: Egypt
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      139471  32243361  48852895  50979739  72725615 105267933
## -----
## country$Country.Region: El Salvador
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      46515 10768447 16206914 16217863 22624641 32209972
## -----
## country$Country.Region: Equatorial Guinea
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      5277 1310342 1891196 1922982 2675344 3866522
## -----
## country$Country.Region: Eritrea
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      1320  504038  736525  786603 1117045 1700379
## -----
## country$Country.Region: Estonia
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      28406 13123889 19379928 20505493 30216193 42299540
## -----
## country$Country.Region: Eswatini
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      9482 3595582 5008554 4931588 6616580 9918625
## -----
## country$Country.Region: Ethiopia
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      124652 32584775 48155308 49496759 70677183 99439563
## -----
## country$Country.Region: Fiji
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      49 3125760 3131605 3025837 3268486 6414595
## -----
## country$Country.Region: Finland
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      36403 12100763 17530590 18034966 25720938 36503108
## -----
## country$Country.Region: France
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      2.697e+06 6.385e+08 9.967e+08 1.028e+09 1.493e+09 2.077e+09
## -----
## country$Country.Region: Gabon
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      9571 3030030 4417735 4628743 6639011 9526865
## -----
## country$Country.Region: Gambia
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      3800  974230 1416981 1406816 1923435 2825196
## -----
## country$Country.Region: Georgia
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##      228410 55452238 79828357 78403940 108295314 150469685

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## -----
## country$Country.Region: Germany
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 1.763e+06 3.959e+08 6.198e+08 6.413e+08 9.357e+08 1.288e+09
## -----
## country$Country.Region: Ghana
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##    54930 13002993 20313604 20528148 28978383 41840598
## -----
## country$Country.Region: Greece
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##   139447 54574170 73443700 75788509 106038007 153246935
## -----
## country$Country.Region: Grenada
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##      127   352682   365805   320214   381122   485323
## -----
## country$Country.Region: Guatemala
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##   138236 48053620 64245656 64230075 86320615 128152223
## -----
## country$Country.Region: Guinea
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##   13738 3116230 4694417 4859249 6903066 9975622
## -----
## country$Country.Region: Guinea-Bissau
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##     2452   617380   913270   938791 1318919 1935799
## -----
## country$Country.Region: Guyana
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##    6348 2644616 3454950 3529919 4839668 7046688
## -----
## country$Country.Region: Haiti
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##   10015 2383422 3506594 3581674 4959589 7358575
## -----
## country$Country.Region: Holy See
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##       27    4136    6876    6946   10114   13420
## -----
## country$Country.Region: Honduras
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##   122974 33333272 48696896 49561491 69062806 100761865
## -----
## country$Country.Region: Hungary
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##   325278 72815540 116691643 123428095 183682784 253432741
## -----
## country$Country.Region: Iceland
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##    5754 1349097 1954133 1915621 2657822 3636071
## -----
## country$Country.Region: India

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	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	NA's
	1.031e+07	2.511e+08	8.043e+08	8.955e+08	1.463e+09	2.138e+09	550

country\$Country.Region: Indonesia							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	751270	312465867	427194854	435615149	586706680	912082677	

country\$Country.Region: Iran							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	1.231e+06	4.437e+08	5.971e+08	6.152e+08	8.468e+08	1.260e+09	

country\$Country.Region: Iraq							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	596193	175189970	243262683	249665198	344219798	510497850	

country\$Country.Region: Ireland							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	93532	36585272	54785354	55216197	78597966	109105492	

country\$Country.Region: Israel							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	428510	118059893	183670975	180905281	256235394	351563935	

country\$Country.Region: Italy							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	2.129e+06	4.242e+08	6.998e+08	7.248e+08	1.068e+09	1.470e+09	

country\$Country.Region: Jamaica							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	12915	6392508	8768482	9057448	12831186	18402984	

country\$Country.Region: Japan							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	239005	121110687	158285326	161121598	218593601	329848341	

country\$Country.Region: Jordan							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	295765	69599198	110068077	116007792	171419576	238534129	

country\$Country.Region: Kazakhstan							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	202060	78518890	102947744	104534950	140007831	214112029	

country\$Country.Region: Kenya							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	96614	22484947	33104939	33882942	47576385	68712336	

country\$Country.Region: Kiribati							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	0	120	120	156	219	389	

country\$Country.Region: Korea, South							
	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	
	62593	26529783	34919426	34960046	47557043	68865805	

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## -----
## country$Country.Region: Kosovo
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      51502 13147568 19772268 20181246 28789455 40773478
## -----
## country$Country.Region: Kuwait
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      150869 38494874 56823750 59781884 84715634 125418847
## -----
## country$Country.Region: Kyrgyzstan
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      81156 17670661 25775279 25837238 34979696 52305107
## -----
## country$Country.Region: Laos
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      41 2605772 2610472 2322272 2743470 3727340
## -----
## country$Country.Region: Latvia
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      41615 15003709 22247222 22851381 33153122 45415179
## -----
## country$Country.Region: Lebanon
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      183888 52413444 85351836 88576971 130507197 181458769
## -----
## country$Country.Region: Lesotho
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      3206 1626933 2435032 2397403 3361583 4601080
## -----
## country$Country.Region: Liberia
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      1800 508285 694922 713963 943397 1513756
## -----
## country$Country.Region: Libya
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      100744 29212092 41726912 41582949 57338006 82270094
## -----
## country$Country.Region: Liechtenstein
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      2245 354501 592275 591970 857945 1149146
## -----
## country$Country.Region: Lithuania
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      145430 31482836 48743370 49364881 71182194 96535964
## -----
## country$Country.Region: Luxembourg
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      46415 7935035 13115239 13275269 19272962 26226180
## -----
## country$Country.Region: Madagascar
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      17714 4364052 6382069 6848602 9783614 14467857
## -----
## country$Country.Region: Malawi

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##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      6684  4532298  6959836  7087176  9940749 15012482
## -----
## country$Country.Region: Malaysia
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      115078 155313239 179881556 178014150 227522397 355685135
## -----
## country$Country.Region: Maldives
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      13804  6552656  8387534  9272686 13017984 20323361
## -----
## country$Country.Region: Mali
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      7203 1480187 2297026 2445800 3575942 5058477
## -----
## country$Country.Region: Malta
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      12909  3220236  5273186  5403861  7893606 11005319
## -----
## country$Country.Region: Marshall Islands
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      4.0   481.0   862.0   830.1 1200.0 1540.0
## -----
## country$Country.Region: Mauritania
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      14581 3301132 4832318 4821258 6587813 9683664
## -----
## country$Country.Region: Mauritius
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      527 1116861 1190001 1111908 1342130 2048552
## -----
## country$Country.Region: Mexico
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      1.437e+06 3.449e+08 5.283e+08 5.280e+08 7.408e+08 1.052e+09
## -----
## country$Country.Region: Micronesia
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      0.0   71.0   143.5   148.1   228.0   313.0
## -----
## country$Country.Region: Moldova
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      145258 30527570 48051880 48611332 70161393 95659399
## -----
## country$Country.Region: Monaco
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      885  272752  438552  451643  657991  928835
## -----
## country$Country.Region: Mongolia
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      1242 21313100 21799409 22114160 27237732 44496727
## -----
## country$Country.Region: Montenegro
##      Min.  1st Qu.  Median    Mean  3rd Qu.    Max.
##      48589 11998755 18801910 18862197 27170302 37038471

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## -----
## country$Country.Region: Morocco
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##  440970  88116400 132807644 128781967 177319408 246108584
## -----
## country$Country.Region: Mozambique
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##  18794 10809654 15539438 15771616 21691634 33134994
## -----
## country$Country.Region: MS Zaandam
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##      9     1442     2434     2633     3957     5480
## -----
## country$Country.Region: Namibia
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##  24545  9563661 12911991 13452171 18104689 28777567
## -----
## country$Country.Region: Nepal
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##  261019  69084188  94779902  98671418 136896149 202099149
## -----
## country$Country.Region: Netherlands
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##  816616 188038935 288949642 297887622 429614067 599602375
## -----
## country$Country.Region: New Zealand
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##   2162   629953   875695   870869 1225689 1648695
## -----
## country$Country.Region: Nicaragua
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##   6046 1552042 2160146 2125079 2863451 4136123
## -----
## country$Country.Region: Niger
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##   3403  606123 1021895 1055388 1548198 2135250
## -----
## country$Country.Region: Nigeria
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##  88587 20493707 33535973 33835608 48542070 68358088
## -----
## country$Country.Region: North Macedonia
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##  83743 17653378 27617806 28223748 40811203 56281905
## -----
## country$Country.Region: Norway
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##  49803 16368171 23355590 24047090 34295588 48300207
## -----
## country$Country.Region: Oman
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##  128867 30318202 44027534 45956049 63922526 95994834
## -----
## country$Country.Region: Pakistan

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##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##  484362 116799834 172080497 180059027 254898842 373393625
## -----
## country$Country.Region: Palau
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##       0.0    441.0    441.0    380.7    441.0    567.0
## -----
## country$Country.Region: Panama
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##  249733  47200750  76926082  77472097 110377690 155066218
## -----
## country$Country.Region: Papua New Guinea
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##    780 1790182 2040658 2283102 3238071 4793957
## -----
## country$Country.Region: Paraguay
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##  108349 35994399 51289437 55814327 80213500 120068228
## -----
## country$Country.Region: Peru
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##  1015137 227796715 351733733 365844000 525460658 753289139
## -----
## country$Country.Region: Philippines
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##  475820 207548163 265317594 270770904 367723820 541885107
## -----
## country$Country.Region: Poland
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##  1305774 265538460 433239942 453941694 673334040 923839462
## -----
## country$Country.Region: Portugal
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##  420629  95329670 162136620 163030552 236818357 326759573
## -----
## country$Country.Region: Qatar
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##  144042 28178305 43784301 45971469 66074948 95311410
## -----
## country$Country.Region: Romania
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##  636201 137299730 212546050 211768867 304081000 404401593
## -----
## country$Country.Region: Russia
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
## 3.154e+06 7.246e+08 1.090e+09 1.090e+09 1.529e+09 2.141e+09
## -----
## country$Country.Region: Rwanda
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##   8460  6691230  8290528  8392354 10791430 17690492
## -----
## country$Country.Region: Saint Kitts and Nevis
##      Min.    1st Qu.    Median      Mean    3rd Qu.      Max.
##    32  157887  161782  149289  176206  259895

```

NA's
13

```

## -----
## country$Country.Region: Saint Lucia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   353  776926 1035824 1040948 1452679 2094204
## -----
## country$Country.Region: Saint Vincent and the Grenadines
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   121  308329  425570  422739  597782  810461
## -----
## country$Country.Region: Samoa
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   2.0   275.5   524.5   522.6   778.0  1033.0
## -----
## country$Country.Region: San Marino
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  2384  498347  843534  887055 1324649 1832524
## -----
## country$Country.Region: Sao Tome and Principe
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  1022  322345  482195  496374  711598 1009337
## -----
## country$Country.Region: Saudi Arabia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  362878 68366516 104401080 107136975 149790396 219730470
## -----
## country$Country.Region: Senegal
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  19364 6229246 9180970 9380738 12992819 19613337
## -----
## country$Country.Region: Serbia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  339997 85138110 128590484 130779089 188686043 256498158
## -----
## country$Country.Region: Seychelles
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   267 1370402 1594699 1813099 2490775 4133692
## -----
## country$Country.Region: Sierra Leone
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  2635  640184  980167 1012140 1418870 2116116
## -----
## country$Country.Region: Singapore
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  58629 17264598 23022219 22492608 30766944 41211242
## -----
## country$Country.Region: Slovakia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  285079 71923650 121089262 124676153 185720306 252453859
## -----
## country$Country.Region: Slovenia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  123950 28086837 44811536 45301306 65942590 88911927
## -----
## country$Country.Region: Solomon Islands

```

```

##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      17      2412      4115      4011      5798      7498
## -----
## country$Country.Region: Somalia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      4714 1751266 2475478 2649504 3833278 5543827
## -----
## country$Country.Region: South Africa
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      1073887 267024598 398138368 400039004 548135922 815110419
## -----
## country$Country.Region: South Sudan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      3558 1061754 1727652 1825722 2705896 3873440
## -----
## country$Country.Region: Spain
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      1.928e+06 4.604e+08 7.348e+08 7.424e+08 1.062e+09 1.491e+09
## -----
## country$Country.Region: Sri Lanka
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      43856 35056530 41999249 43217638 57004474 90161147
## -----
## country$Country.Region: Sudan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      25730 4341097 7089534 7255770 10428708 14656642
## -----
## country$Country.Region: Summer Olympics 2020
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      51900      51900      47975      52002      96463
## -----
## country$Country.Region: Suriname
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      6277 3466875 4248016 4218975 5526886 8256596
## -----
## country$Country.Region: Sweden
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      437379 97760014 157638248 167786940 247975778 349850636
## -----
## country$Country.Region: Switzerland
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      452296 82170098 133218722 133749908 193244694 261201957
## -----
## country$Country.Region: Syria
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      11526 3375096 4818899 4848424 6843919 9376027
## -----
## country$Country.Region: Taiwan*
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      802 1051651 1149990 1340434 1793278 3177766
## -----
## country$Country.Region: Tajikistan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      13665 2248859 3540127 3538792 4951829 7016609

```

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## -----
## country$Country.Region: Tanzania
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   509 1617775 1667813 1454876 1748797 1885657
## -----
## country$Country.Region: Thailand
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   7379 114161187 116355978 110440734 129233149 210737682
## -----
## country$Country.Region: Timor-Leste
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    44 1188937 1215643 1323953 1699632 2911604
## -----
## country$Country.Region: Togo
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  3662 1862908 2531936 2628042 3685567 5429102
## -----
## country$Country.Region: Tonga
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00  32.00   32.00   25.96   32.00   32.00
## -----
## country$Country.Region: Trinidad and Tobago
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   7158 4136311 4869785 5049231 6667516 10387765
## -----
## country$Country.Region: Tunisia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  140557 52689994 72906074 75038585 102629165 155850687
## -----
## country$Country.Region: Turkey
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## 2.221e+06 5.920e+08 8.483e+08 8.963e+08 1.287e+09 1.834e+09
## -----
## country$Country.Region: Uganda
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   35511 9765842 13365350 13410268 17976122 27204385
## -----
## country$Country.Region: Ukraine
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  1096855 253711463 386462646 396638786 574120498 785487109
## -----
## country$Country.Region: United Arab Emirates
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   209678 61749312 95858372 100809303 146129667 211389682
## -----
## country$Country.Region: United Kingdom
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## 2.550e+06 7.229e+08 1.076e+09 1.062e+09 1.481e+09 2.057e+09
## -----
## country$Country.Region: Uruguay
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   19753 24869581 30947150 37182512 54059168 86753189
## -----
## country$Country.Region: US

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##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.      NA's
## 2.033e+07 4.521e+08 8.923e+08 9.827e+08 1.513e+09 2.125e+09    584
## -----
## country$Country.Region: Uzbekistan
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##      77182 18173072 25795622 25464407 34545194 49777536
## -----
## country$Country.Region: Vanuatu
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##       1.0   368.2   539.0   582.7   870.0  1210.0
## -----
## country$Country.Region: Venezuela
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##     113884 34424846 47624724 48593368 67148798 97780250
## -----
## country$Country.Region: Vietnam
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##     1474 57272434 57488714 51302128 58279947 88427050
## -----
## country$Country.Region: West Bank and Gaza
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##     139223 35916970 53632109 55116912 79256872 109845964
## -----
## country$Country.Region: Yemen
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##     2101 790199 1068956 1161506 1658291 2463842
## -----
## country$Country.Region: Zambia
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##     20997 14846845 21046152 22032500 30333685 47999355
## -----
## country$Country.Region: Zimbabwe
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##     14084 9367340 12263376 12291497 15841466 25785653
```

```
by(country$deaths, country$Country.Region, summary)
```

```
## country$Country.Region: Afghanistan
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##       0.0   949.5   2141.5   2715.0   3507.5   7308.0
## -----
## country$Country.Region: Albania
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##       0.0    83.5   1138.5   1266.6   2453.0   3092.0
## -----
## country$Country.Region: Algeria
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##       0     990    2719    2573    3570    6064
## -----
## country$Country.Region: Andorra
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
##     0.00   52.00   83.00   82.31  127.00   131.00
## -----
## country$Country.Region: Angola
```

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00   22.25  397.50   515.88  829.50 1733.00
## -----
## country$Country.Region: Antigua and Barbuda
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00    3.00    5.00   23.22   42.00 117.00
## -----
## country$Country.Region: Argentina
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      1734   42462   46821   85276 116554
## -----
## country$Country.Region: Armenia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   537.8  2742.5  2560.7  4483.5  7535.0
## -----
## country$Country.Region: Australia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   106.2   908.0   726.6   910.0 2006.0
## -----
## country$Country.Region: Austria
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0       706   5813   5458   10659 12425
## -----
## country$Country.Region: Azerbaijan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0       286   2435   2643   4953  7833
## -----
## country$Country.Region: Bahamas
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0    11.0   169.0   182.6   236.0  671.0
## -----
## country$Country.Region: Bahrain
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   103.2   351.0   551.5  1217.2 1394.0
## -----
## country$Country.Region: Bangladesh
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    2247   7413   9681   13106 27980
## -----
## country$Country.Region: Barbados
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0     7.0     7.0    32.4    47.0  228.0
## -----
## country$Country.Region: Belarus
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   450.2 1371.5 1762.5 2975.8 5067.0
## -----
## country$Country.Region: Belgium
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    9779 19124 16211 25086 26966
## -----
## country$Country.Region: Belize
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0     2.0   228.0   192.2   325.0  574.0

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## -----
## country$Country.Region: Benin
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   23.00   44.00   63.73  102.00  161.00
## -----
## country$Country.Region: Bhutan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.0000  0.0000  0.0000  0.8466  1.0000  3.0000
## -----
## country$Country.Region: Bolivia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0    1654    9088    9271   15528   19161
## -----
## country$Country.Region: Bosnia and Herzegovina
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0   214.5  3912.0  4565.8  9479.0 12555.0
## -----
## country$Country.Region: Botswana
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0     1.0   40.0   610.2   896.0  2418.0
## -----
## country$Country.Region: Brazil
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0   69488 190642  260727  487119  614376
## -----
## country$Country.Region: Brunei
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00     3.00     3.00   10.46     3.00   97.00
## -----
## country$Country.Region: Bulgaria
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0   263.2  7098.0  8774.2 17899.5  28325.0
## -----
## country$Country.Region: Burkina Faso
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0    53.0    77.0   104.3   167.0   281.0
## -----
## country$Country.Region: Burma
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0         6   2566   4292   3243  19097
## -----
## country$Country.Region: Burundi
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.000   1.000   2.000   8.792   8.000  38.000
## -----
## country$Country.Region: Cabo Verde
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   18.25  112.00  141.02  273.00  350.00
## -----
## country$Country.Region: Cambodia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0     0.0     0.0   484.4   331.2  2935.0
## -----
## country$Country.Region: Cameroon

```



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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   359.0   448.0   682.6  1310.0  1791.0
## -----
## country$Country.Region: Canada
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0     8868   15008   15832   25928   29722
## -----
## country$Country.Region: Central African Republic
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00   52.25   63.00   60.10   98.00  101.00
## -----
## country$Country.Region: Chad
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0     74.0   102.5   108.4   174.0   175.0
## -----
## country$Country.Region: Chile
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0     6707   16381   18110   30675   38343
## -----
## country$Country.Region: China
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      17     4641   4770    4465    4846    4851
## -----
## country$Country.Region: Colombia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0     4767   41817   52916   95632  128473
## -----
## country$Country.Region: Comoros
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00     7.00     7.00   68.68  146.00  150.00
## -----
## country$Country.Region: Congo (Brazzaville)
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0     47.0   107.0   108.9   160.0   354.0
## -----
## country$Country.Region: Congo (Kinshasa)
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      189    573     521     834    1107
## -----
## country$Country.Region: Costa Rica
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00   25.25 2086.00 2449.34 4322.00 7287.00
## -----
## country$Country.Region: Cote d'Ivoire
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0     79.5   133.0   214.0   306.0   704.0
## -----
## country$Country.Region: Croatia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0    115.5 3580.5 3882.3 8132.0 10826.0
## -----
## country$Country.Region: Cuba
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0     86.0   140.5  1462.3 1084.0 8300.0

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## -----
## country$Country.Region: Cyprus
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    19.0   109.0   197.3   373.8   594.0
## -----
## country$Country.Region: Czechia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0     352   10904   14185   30225   32929
## -----
## country$Country.Region: Denmark
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0     609   1144    1471   2526    2896
## -----
## country$Country.Region: Diamond Princess
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   13.00   13.00   12.01   13.00   13.00
## -----
## country$Country.Region: Djibouti
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   56.00   61.00   82.68   154.00   186.00
## -----
## country$Country.Region: Dominica
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00    0.00    0.00    3.15    0.00   38.00
## -----
## country$Country.Region: Dominican Republic
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0   847.5  2404.0  2325.7  3706.5  4204.0
## -----
## country$Country.Region: Ecuador
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0    4910   13987   14667   21041   33219
## -----
## country$Country.Region: Egypt
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0    3638   7330    8828   15613   20412
## -----
## country$Country.Region: El Salvador
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0   244.5  1293.0  1442.5  2294.2  3774.0
## -----
## country$Country.Region: Equatorial Guinea
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   51.00   85.00   81.41  120.00   173.00
## -----
## country$Country.Region: Eritrea
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00    0.00    1.00   11.72   16.00   60.00
## -----
## country$Country.Region: Estonia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0    64.0   203.0   570.8  1266.0  1798.0
## -----
## country$Country.Region: Eswatini

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00   17.25  158.50   427.50  676.00 1248.00
## -----
## country$Country.Region: Ethiopia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##       0      121   1899    2307   4241   6750
## -----
## country$Country.Region: Fiji
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0      0.0     2.0   107.6     4.0   696.0
## -----
## country$Country.Region: Finland
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   328.0   524.0   590.4   964.0 1335.0
## -----
## country$Country.Region: France
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##       0   29990   62620   64670 110562 119997
## -----
## country$Country.Region: Gabon
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0    46.0    64.0    90.3   156.0   279.0
## -----
## country$Country.Region: Gambia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0      3.0   123.0   131.9   180.0   342.0
## -----
## country$Country.Region: Georgia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##       0      15   2332    2995   5044 11974
## -----
## country$Country.Region: Germany
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##       0    9058   29763   44979   89847 101350
## -----
## country$Country.Region: Ghana
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   130.5   333.0   484.9   789.0 1209.0
## -----
## country$Country.Region: Greece
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##       0     193   4530    5873   12418 18067
## -----
## country$Country.Region: Grenada
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00    0.00    0.00   19.67     1.00 200.00
## -----
## country$Country.Region: Guatemala
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##       0    1104   4760    5568   8451 15933
## -----
## country$Country.Region: Guinea
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00   36.25   80.00   123.42  167.00 387.00

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## -----
## country$Country.Region: Guinea-Bissau
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00  25.25   45.00   52.19  69.00  148.00
## -----
## country$Country.Region: Guyana
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    16.0   162.0   256.8  425.5  992.0
## -----
## country$Country.Region: Haiti
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0   118.5   235.0   267.0  346.0  738.0
## -----
## country$Country.Region: Holy See
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0         0         0         0         0         0
## -----
## country$Country.Region: Honduras
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0   715.5  3063.0  3948.7  6624.8 10402.0
## -----
## country$Country.Region: Hungary
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0   591.5  8892.0 13129.6 29904.0 34326.0
## -----
## country$Country.Region: Iceland
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   10.00   28.00   20.41   30.00   35.00
## -----
## country$Country.Region: India
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0    21734 147483 181878 373325 468980
## -----
## country$Country.Region: Indonesia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0     3430  20921  41537  52842 143819
## -----
## country$Country.Region: Iran
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0    12340  54507  51841  82051 129711
## -----
## country$Country.Region: Iraq
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0     2902  12761  11017  16701  23807
## -----
## country$Country.Region: Ireland
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0     1743   2197   3000   4941   5652
## -----
## country$Country.Region: Israel
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0        365   3198   3679   6427   8195
## -----
## country$Country.Region: Italy

```

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0   34929   71490    73519  126996  133739
## -----
## country$Country.Region: Jamaica
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.0    10.0   294.0    587.2   996.8  2391.0
## -----
## country$Country.Region: Japan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0     982   3210    6766   14067  18355
## -----
## country$Country.Region: Jordan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0      10   3720    4452   9590  11584
## -----
## country$Country.Region: Kazakhstan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.0   317.8  2669.0   4960.5  7555.8 17818.0
## -----
## country$Country.Region: Kenya
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0     175   1654    1929   3406   5334
## -----
## country$Country.Region: Kiribati
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0         0         0         0         0
## -----
## country$Country.Region: Korea, South
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.0   288.0   800.5   1161.8  1987.2  3624.0
## -----
## country$Country.Region: Kosovo
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0      88   1302    1270   2254   2983
## -----
## country$Country.Region: Kuwait
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.0   382.2   927.5   1091.2  1819.2  2465.0
## -----
## country$Country.Region: Kyrgyzstan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.0   122.8  1380.0   1283.5  1887.8  2743.0
## -----
## country$Country.Region: Laos
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.000   0.000   0.000    8.013    3.000 166.000
## -----
## country$Country.Region: Latvia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.0    30.0   508.5   1163.3  2454.8  4155.0
## -----
## country$Country.Region: Lebanon
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0      36   1373    3480   7790   8716

```

```

## -----
## country$Country.Region: Lesotho
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0      1.0    51.0   190.4   326.0   662.0
## -----
## country$Country.Region: Liberia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00   41.25   83.00   100.82   93.00   287.00
## -----
## country$Country.Region: Libya
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0       38   1415   1821   3160   5448
## -----
## country$Country.Region: Liechtenstein
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00     1.00   36.00    29.81   58.00   61.00
## -----
## country$Country.Region: Lithuania
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0        62   1540   2159   4338   6719
## -----
## country$Country.Region: Luxembourg
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0    110.0   458.0   440.7   818.0   874.0
## -----
## country$Country.Region: Madagascar
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00   33.25  260.00   404.32   885.75   967.00
## -----
## country$Country.Region: Malawi
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0     26.5   187.5   755.8  1159.0  2305.0
## -----
## country$Country.Region: Malaysia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0    121.2   450.0  4938.3  3892.0 30370.0
## -----
## country$Country.Region: Maldives
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00   13.00   48.00    85.09  196.50  250.00
## -----
## country$Country.Region: Mali
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0    120.2   247.0   279.5   523.0   606.0
## -----
## country$Country.Region: Malta
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.0      9.0   204.5   211.7   419.0   468.0
## -----
## country$Country.Region: Marshall Islands
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0         0      0         0         0         0
## -----
## country$Country.Region: Mauritania

```

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   144.5   317.5   326.7   475.0   831.0
## -----
## country$Country.Region: Mauritius
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00   10.00   10.00   27.27   18.00   240.00
## -----
## country$Country.Region: Mexico
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0    33692  121932  133860  230137  293950
## -----
## country$Country.Region: Micronesia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         0         0         0         0         0
## -----
## country$Country.Region: Moldova
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   626.8  2877.0  3285.4  6153.5  9090.0
## -----
## country$Country.Region: Monaco
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00    3.00    4.00   15.52   33.00   36.00
## -----
## country$Country.Region: Mongolia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0     0.0     0.0   301.5   361.5  2003.0
## -----
## country$Country.Region: Montenegro
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0    19.0   655.0   812.2  1600.2  2300.0
## -----
## country$Country.Region: Morocco
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   242.2  7187.0  5967.0  9210.0 14775.0
## -----
## country$Country.Region: Mozambique
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0     9.0   157.5   578.3   840.8  1941.0
## -----
## country$Country.Region: MS Zaandam
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.000    2.000    2.000    1.794    2.000    2.000
## -----
## country$Country.Region: Namibia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00    0.25  187.00  905.95  994.50 3573.00
## -----
## country$Country.Region: Nepal
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         35   1818   3650   8400  11524
## -----
## country$Country.Region: Netherlands
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0        6154  11038  11153  17989  19798

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## -----
## country$Country.Region: New Zealand
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00  22.00   25.00   22.06  26.00   44.00
## -----
## country$Country.Region: Nicaragua
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0   91.0   164.0   134.3  188.0   212.0
## -----
## country$Country.Region: Niger
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0   68.0   92.5   118.8  192.0   258.0
## -----
## country$Country.Region: Nigeria
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0    694   1246   1393   2117   2976
## -----
## country$Country.Region: North Macedonia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0   363.5 2414.0 2779.9 5471.0 7569.0
## -----
## country$Country.Region: Norway
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0   252.0 421.0   478.1  789.0 1050.0
## -----
## country$Country.Region: Oman
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0    238   1491   1648   2502   4113
## -----
## country$Country.Region: Pakistan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0    5074   9845  12119  21715  28728
## -----
## country$Country.Region: Palau
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0         0         0         0         0         0
## -----
## country$Country.Region: Panama
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0    845   3778   3821   6443   7362
## -----
## country$Country.Region: Papua New Guinea
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   0.00    9.00   79.86  164.75  545.00
## -----
## country$Country.Region: Paraguay
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0    20   2164   5229  10800  16469
## -----
## country$Country.Region: Peru
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0  42988  92291 105499 188556 201144
## -----
## country$Country.Region: Philippines

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0    1326    9064    13642   22754   48501
## -----
## country$Country.Region: Poland
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0    1554   27027   33827   74570   83055
## -----
## country$Country.Region: Portugal
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0    1644    6517    8978   17047   18430
## -----
## country$Country.Region: Qatar
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   143.0   244.0   296.3   576.8   611.0
## -----
## country$Country.Region: Romania
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0    1837   15066   17211   31827   56382
## -----
## country$Country.Region: Russia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0   10870   53262   76573  124226  268705
## -----
## country$Country.Region: Rwanda
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0      3.0    70.5   326.3   370.0  1342.0
## -----
## country$Country.Region: Saint Kitts and Nevis
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##     0.000   0.000   0.000    2.701   0.000   28.000
## -----
## country$Country.Region: Saint Lucia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00    0.00    5.00   50.93   80.00  280.00
## -----
## country$Country.Region: Saint Vincent and the Grenadines
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##     0.000   0.000   0.000    9.119  12.000   74.000
## -----
## country$Country.Region: Samoa
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0         0         0         0         0
## -----
## country$Country.Region: San Marino
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00   42.00   56.50   59.44   90.00   93.00
## -----
## country$Country.Region: Sao Tome and Principe
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00   14.00   17.00   23.17   37.00   56.00
## -----
## country$Country.Region: Saudi Arabia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0    2113    6172    5014    7567    8834

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## -----
## country$Country.Region: Senegal
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0   143.5   386.5   707.5  1153.0  1885.0
## -----
## country$Country.Region: Serbia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0   356.5  2957.0  3614.9  6961.0 11637.0
## -----
## country$Country.Region: Seychelles
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00    0.00    0.00   28.67   42.75  125.00
## -----
## country$Country.Region: Sierra Leone
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    63.0    76.0    70.9    82.0   121.0
## -----
## country$Country.Region: Singapore
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    26.0    29.0    60.4    34.0   710.0
## -----
## country$Country.Region: Slovakia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0         28   1732   5350   12438   14341
## -----
## country$Country.Region: Slovenia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0         111  2520   2256   4403   5208
## -----
## country$Country.Region: Solomon Islands
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0          0      0        0        0        0
## -----
## country$Country.Region: Somalia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    92.0   127.0   394.1   774.0  1327.0
## -----
## country$Country.Region: South Africa
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0    3755   26399   36093   57750   89822
## -----
## country$Country.Region: South Sudan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   38.00   62.00   69.64  115.00  133.00
## -----
## country$Country.Region: Spain
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0   28404   49824   50927   80501   88008
## -----
## country$Country.Region: Sri Lanka
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    11.0   186.5  2431.0  2120.2 14328.0
## -----
## country$Country.Region: Sudan

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0      643    1468     1501    2729     3141
## -----
## country$Country.Region: Summer Olympics 2020
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          0          0          0          0          0
## -----
## country$Country.Region: Suriname
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00    17.25   119.00    269.94   401.25   1166.00
## -----
## country$Country.Region: Sweden
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0     5506     8279     8930    14574    15145
## -----
## country$Country.Region: Switzerland
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0     1813     7392     6192    10749    11500
## -----
## country$Country.Region: Syria
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.0     14.5    664.5    908.9   1809.5   2744.0
## -----
## country$Country.Region: Taiwan*
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.0       7.0       7.0    209.0    430.5    848.0
## -----
## country$Country.Region: Tajikistan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00    54.00    89.50    75.17    91.00   125.00
## -----
## country$Country.Region: Tanzania
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00    21.00    21.00    82.62    21.00   730.00
## -----
## country$Country.Region: Thailand
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         58         60    2984    1444    20734
## -----
## country$Country.Region: Timor-Leste
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00     0.00     0.00    19.27    18.00   122.00
## -----
## country$Country.Region: Togo
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00    15.00    68.00    85.05   126.00   243.00
## -----
## country$Country.Region: Tonga
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          0          0          0          0          0
## -----
## country$Country.Region: Trinidad and Tobago
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0       8.0    125.0    402.2    666.5   2134.0

```

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## -----
## country$Country.Region: Tunisia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      50   4406    7952   13495   25365
## -----
## country$Country.Region: Turkey
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   5306   19498   26075   48708   76635
## -----
## country$Country.Region: Uganda
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0      0.0   245.0   776.4   426.8   3256.0
## -----
## country$Country.Region: Ukraine
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0    1348   18322   25874   53786   90673
## -----
## country$Country.Region: United Arab Emirates
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    328.5   654.0   965.0   1725.5   2146.0
## -----
## country$Country.Region: United Kingdom
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0   40879   70408   79090   128166   145253
## -----
## country$Country.Region: Uruguay
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      29    145    1897    4985    6130
## -----
## country$Country.Region: US
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0  133692  336607  362183  599260  778601
## -----
## country$Country.Region: Uzbekistan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   51.75  612.00   534.05   707.25  1399.00
## -----
## country$Country.Region: Vanuatu
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.0000  0.0000  0.0000   0.3289   1.0000   1.0000
## -----
## country$Country.Region: Venezuela
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   80.75 1011.50  1592.14  2825.25  5144.00
## -----
## country$Country.Region: Vietnam
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00    0.00   35.00  2982.19   58.75 25055.00
## -----
## country$Country.Region: West Bank and Gaza
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00   24.75 1270.50  1726.74  3530.75  4796.00
## -----
## country$Country.Region: Yemen

```

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   361.8   606.0   777.0  1348.5  1949.0
## -----
## country$Country.Region: Zambia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0    42.0   381.5  1158.0  1383.0  3667.0
## -----
## country$Country.Region: Zimbabwe
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0       10    341    1346    1632    4706
```

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by(country$recovered, country$Country.Region, summary)
```

```
## country$Country.Region: Afghanistan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         0   29089   26976   48494   82586
## -----
## country$Country.Region: Albania
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         0    5176   33411   58530  130314
## -----
## country$Country.Region: Algeria
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         12   31111   37862   76290  118409
## -----
## country$Country.Region: Andorra
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         1    905    4551   10008   14380
## -----
## country$Country.Region: Angola
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         0   1078    8696   18918   39582
## -----
## country$Country.Region: Antigua and Barbuda
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0        0.0   91.0    282.9   205.0  1239.0
## -----
## country$Country.Region: Argentina
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         1  297601 1049573 1837079 4615834
## -----
## country$Country.Region: Armenia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         0   37686   76157  161287  220438
## -----
## country$Country.Region: Australia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         23  18239   13010   22869   24203
## -----
## country$Country.Region: Austria
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0         6   23148  194313  413545  644388
## -----
## country$Country.Region: Azerbaijan
```

```

##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0      3.8 33775.0 101422.9 226903.2 333694.0
## -----
## country$Country.Region: Bahamas
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0      0.0  791.5  3663.9  7036.0 12702.0
## -----
## country$Country.Region: Bahrain
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      48 48851  71699 106255 267220
## -----
## country$Country.Region: Bangladesh
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      0 203397 281499 488433 1141157
## -----
## country$Country.Region: Barbados
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0      0.0  145.5 1021.1 1654.8 4251.0
## -----
## country$Country.Region: Belarus
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      3  70460 130076 259800 443417
## -----
## country$Country.Region: Belgium
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      0      0  5601 15314 31130
## -----
## country$Country.Region: Belize
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      0   145  4347 11678 13543
## -----
## country$Country.Region: Benin
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      0  1738  2543  3960  8136
## -----
## country$Country.Region: Bhutan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      0   141   435   856  2418
## -----
## country$Country.Region: Bolivia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      0 59453 103092 179881 411830
## -----
## country$Country.Region: Bosnia and Herzegovina
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      0 13028  52999 106408 189710
## -----
## country$Country.Region: Botswana
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      0   224 14308 21893 96964
## -----
## country$Country.Region: Brazil
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0      0 3253103 5032965 8840920 17771228

```

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## -----
## country$Country.Region: Brunei
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0.0     0.0   139.0   122.1   177.0   280.0
## -----
## country$Country.Region: Bulgaria
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0         0   11398  100997  198137  398721
## -----
## country$Country.Region: Burkina Faso
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0         0   1058   4313   10979   13385
## -----
## country$Country.Region: Burma
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0         0    353   50525  130761  225849
## -----
## country$Country.Region: Burundi
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0.0     0.0   357.0   367.4   773.0   773.0
## -----
## country$Country.Region: Cabo Verde
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0         0   2892   8387   14272   33173
## -----
## country$Country.Region: Cambodia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0.0     1.0   265.5  5399.4   469.8  72803.0
## -----
## country$Country.Region: Cameroon
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0         0  17651  16071   29609   35261
## -----
## country$Country.Region: Canada
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0         8 115740  389747  780288 1405971
## -----
## country$Country.Region: Central African Republic
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0         0   1787   2256   4885   6859
## -----
## country$Country.Region: Chad
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0         0    879   1609   3202   4796
## -----
## country$Country.Region: Chile
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0         0 383232  466638  739630 1575377
## -----
## country$Country.Region: China
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0   65999   84570   67768   94855   99228
## -----
## country$Country.Region: Colombia

```

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          0 455034 1084114 2093946 4615354
## -----
## country$Country.Region: Comoros
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          0   399    1143    2929    3873
## -----
## country$Country.Region: Congo (Brazzaville)
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          0  1742    3598    7019   12421
## -----
## country$Country.Region: Congo (Kinshasa)
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          0  9118   10135   15511   30043
## -----
## country$Country.Region: Costa Rica
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          0 15896   81853  164913  334759
## -----
## country$Country.Region: Cote d'Ivoire
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          0 16626   17340   29564   49642
## -----
## country$Country.Region: Croatia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          1   7323  103997  230608  354830
## -----
## country$Country.Region: Cuba
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          0   3352   35289   34481  373354
## -----
## country$Country.Region: Cyprus
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          0   1037    7543    2057   39061
## -----
## country$Country.Region: Czechia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          0 17677  468091  976350 1641321
## -----
## country$Country.Region: Denmark
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          1 15542   85299  197819  307374
## -----
## country$Country.Region: Diamond Princess
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.0   325.0   651.0   501.9   699.0   699.0
## -----
## country$Country.Region: Djibouti
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0          0   5321    4406    5864   11491
## -----
## country$Country.Region: Dominica
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00    0.00   18.00   60.51  121.00  209.00

```



```

## -----
## country$Country.Region: Dominican Republic
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0   67429   92384 178859 324861
## -----
## country$Country.Region: Ecuador
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0   94952 132059 230377 443880
## -----
## country$Country.Region: Egypt
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       27   72525   76186 135590 232179
## -----
## country$Country.Region: El Salvador
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0   14152   25964   52688   76670
## -----
## country$Country.Region: Equatorial Guinea
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0    3884    3265    5426    8709
## -----
## country$Country.Region: Eritrea
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0     284    1179    1914    6475
## -----
## country$Country.Region: Estonia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00     0.25 2088.00 29117.32 42167.50 129183.00
## -----
## country$Country.Region: Eswatini
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0    3504    6141   12364   22127
## -----
## country$Country.Region: Ethiopia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0   18688   70865 129095 264008
## -----
## country$Country.Region: Fiji
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0     23     260     54   10848
## -----
## country$Country.Region: Finland
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.00     3.25 7200.00 17152.91 40000.00 46000.00
## -----
## country$Country.Region: France
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       12   86643 142340 250020 415111
## -----
## country$Country.Region: Gabon
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0    7226    7768   11750   25228
## -----
## country$Country.Region: Gambia

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0    1032     2142   3909     7310
## -----
## country$Country.Region: Georgia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0    1230   105360  259104  390827
## -----
## country$Country.Region: Germany
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         46  216039 1025440 2157892 3659260
## -----
## country$Country.Region: Ghana
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   42870   38191   68560   98633
## -----
## country$Country.Region: Greece
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         8   3804   36370   93764   93764
## -----
## country$Country.Region: Grenada
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00    0.00   24.00   57.58  146.00  161.00
## -----
## country$Country.Region: Guatemala
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   61875   85395  155020  331374
## -----
## country$Country.Region: Guinea
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   8417   8626   14510  24463
## -----
## country$Country.Region: Guinea-Bissau
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   1127   1414   2467   4027
## -----
## country$Country.Region: Guyana
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.0       0.0   702.5  4372.1  7464.2 22327.0
## -----
## country$Country.Region: Haiti
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   5828   5297   9361  12961
## -----
## country$Country.Region: Holy See
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##      0.00    0.00   12.00   10.39   15.00   27.00
## -----
## country$Country.Region: Honduras
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   10319   31961   63440  102384
## -----
## country$Country.Region: Hungary
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         1   3760  164345  298582  749773

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## -----
## country$Country.Region: Iceland
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       1   1994    3036   5986   6993
## -----
## country$Country.Region: India
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       6 2807342 7167239 10641900 30974748
## -----
## country$Country.Region: Indonesia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       8 125072  536788 1037772 2907920
## -----
## country$Country.Region: Iran
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0    3367 322327  770392 1309198 3444798
## -----
## country$Country.Region: Iraq
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0      26 174741  369402  609395 1494760
## -----
## country$Country.Region: Ireland
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0 23364  15800  23364  23364
## -----
## country$Country.Region: Israel
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       1  93646 292162  672824  854888
## -----
## country$Country.Region: Italy
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0    2058 208072 1119820 2248123 4144608
## -----
## country$Country.Region: Jamaica
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0   890   8007  12672  47101
## -----
## country$Country.Region: Japan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0    118  56019 191273  386923  852451
## -----
## country$Country.Region: Jordan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       1   1488 189850  329191  752624
## -----
## country$Country.Region: Kazakhstan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0 101553 134506  226937  555079
## -----
## country$Country.Region: Kenya
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0  19791  44027  85315 191188
## -----
## country$Country.Region: Kiribati

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0         0         0         0         0
## -----
## country$Country.Region: Korea, South
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0        510    15086    41621    75158    180719
## -----
## country$Country.Region: Kosovo
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0     9534    29912    56267    105688
## -----
## country$Country.Region: Kuwait
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         5    76937   106401   167399   388880
## -----
## country$Country.Region: Kyrgyzstan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0    38329    41955    82370   150852
## -----
## country$Country.Region: Laos
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##         0.0        0.0     21.0     247.7     41.0    3804.0
## -----
## country$Country.Region: Latvia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         1    1163    32007    65450   135690
## -----
## country$Country.Region: Lebanon
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         1    4752   133570   247813   537653
## -----
## country$Country.Region: Lesotho
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0     528    1752    2994    6664
## -----
## country$Country.Region: Liberia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##         0.0        0.0    872.0    946.7   1788.0   2715.0
## -----
## country$Country.Region: Libya
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0    1434    53068   111639   195639
## -----
## country$Country.Region: Liechtenstein
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##         0.0        1.0     97.0    978.6   2470.0   3011.0
## -----
## country$Country.Region: Lithuania
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0    1955    71776   175217   269840
## -----
## country$Country.Region: Luxembourg
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0    6418    22870    49799    72306

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## -----
## country$Country.Region: Madagascar
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0   13817   12875   18915   41177
## -----
## country$Country.Region: Malawi
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0   3154    9272   14651   39841
## -----
## country$Country.Region: Malaysia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    38.2   9050.0 138989.5 222622.5 962731.0
## -----
## country$Country.Region: Maldives
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0   5096   13149   15615   75095
## -----
## country$Country.Region: Mali
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0   2169   3382    6204   13962
## -----
## country$Country.Region: Malta
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       1   1356   8976   17403   32438
## -----
## country$Country.Region: Marshall Islands
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.000  0.000  0.000   1.475   4.000   4.000
## -----
## country$Country.Region: Mauritania
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0   6447   7425   16288   22859
## -----
## country$Country.Region: Mauritius
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    0.0   335.0   445.8   555.5   1854.0
## -----
## country$Country.Region: Mexico
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       4 492973  734814 1561975 2270427
## -----
## country$Country.Region: Micronesia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.0000  0.0000  0.0000  0.2773  1.0000  1.0000
## -----
## country$Country.Region: Moldova
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0       0  25506   80620  158466  252421
## -----
## country$Country.Region: Monaco
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.0    0.0   116.0   733.6  1557.8  2759.0
## -----
## country$Country.Region: Mongolia

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0      295   11949    1773   164829
## -----
## country$Country.Region: Montenegro
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0    3992   28917    60175   99152
## -----
## country$Country.Region: Morocco
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         1   46975  195201   460358   582692
## -----
## country$Country.Region: Mozambique
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0    2135   19382    32183  100912
## -----
## country$Country.Region: MS Zaandam
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##    0.000  0.000  0.000    2.529    7.000    7.000
## -----
## country$Country.Region: Namibia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0    3128   17580    34338   96568
## -----
## country$Country.Region: Nepal
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         1   21116  145860   269278   661651
## -----
## country$Country.Region: Netherlands
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0     998    7572   13798   28771
## -----
## country$Country.Region: New Zealand
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   1592    1423    2265   2824
## -----
## country$Country.Region: Nicaragua
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   2913    2313    4225   4225
## -----
## country$Country.Region: Niger
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   1086    1832    4162   5351
## -----
## country$Country.Region: Nigeria
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0  41576   58248  124115  165208
## -----
## country$Country.Region: North Macedonia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         1  11110   43395   88216  150440
## -----
## country$Country.Region: Norway
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         1   9348    9469   17998   17998

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## -----
## country$Country.Region: Oman
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       9   80635   80275 129480 281724
## -----
## country$Country.Region: Pakistan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       2  280615  304583  527908  952616
## -----
## country$Country.Region: Palau
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0       0       0       0       0
## -----
## country$Country.Region: Panama
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0   65960  133955  314544  420113
## -----
## country$Country.Region: Papua New Guinea
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0    232   2482    846   17384
## -----
## country$Country.Region: Paraguay
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0   9284   80892 122255  423964
## -----
## country$Country.Region: Peru
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0  451066  676103 1149367 2086086
## -----
## country$Country.Region: Philippines
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       2  157483  343311  511786 1528422
## -----
## country$Country.Region: Poland
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0   46415  718897 1351250 2653981
## -----
## country$Country.Region: Portugal
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       2   41923  261156  675503  912620
## -----
## country$Country.Region: Qatar
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       4  115549   94067  148667  224285
## -----
## country$Country.Region: Romania
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       9   37767  327049  711363 1048072
## -----
## country$Country.Region: Russia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       8  806140 1663812 3580155 5609682
## -----
## country$Country.Region: Rwanda

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##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0    1966     7980   15388   44911
## -----
## country$Country.Region: Saint Kitts and Nevis
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.0      0.0    17.0     41.1    39.0   549.0
## -----
## country$Country.Region: Saint Lucia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0      25     1171    1831   5398
## -----
## country$Country.Region: Saint Vincent and the Grenadines
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.0      0.0    57.0    459.1    608.8  2233.0
## -----
## country$Country.Region: Samoa
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
## 0.0000  0.0000  0.0000  0.8274  2.0000  3.0000
## -----
## country$Country.Region: San Marino
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         4     659     1587    3005   5009
## -----
## country$Country.Region: Sao Tome and Principe
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0.0      0.0   851.0    829.2   1120.2  2365.0
## -----
## country$Country.Region: Saudi Arabia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         1  290232  215534  364204  507374
## -----
## country$Country.Region: Senegal
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         1   9414   14388   25673   48812
## -----
## country$Country.Region: Serbia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0         0    1085         0   15564
## -----
## country$Country.Region: Seychelles
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0    127    2167    1565   17874
## -----
## country$Country.Region: Sierra Leone
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   1594    1428    2582   4287
## -----
## country$Country.Region: Singapore
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0        105  55622   35849   59656  63357
## -----
## country$Country.Region: Slovakia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   2328   83887  255300  255300

```



```

## -----
## country$Country.Region: Slovenia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      0    2290   70993  164298  253972
## -----
## country$Country.Region: Solomon Islands
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.000  0.000   0.000   5.771  14.000  20.000
## -----
## country$Country.Region: Somalia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      0    2481    2507   3750   7661
## -----
## country$Country.Region: South Africa
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      0  539764  638963 1395502 2258603
## -----
## country$Country.Region: South Sudan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      0    1290    3002   3849   10514
## -----
## country$Country.Region: Spain
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0     517  150376  104991  150376  150376
## -----
## country$Country.Region: Sri Lanka
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      1    2864   42431   70175  284524
## -----
## country$Country.Region: Sudan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      0    6612   10289   22514   30647
## -----
## country$Country.Region: Summer Olympics 2020
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      0      0      0      0      0
## -----
## country$Country.Region: Suriname
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      0    3106    4582   8258   21978
## -----
## country$Country.Region: Sweden
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      0      0      0      0      0
## -----
## country$Country.Region: Switzerland
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      4   35950  131664  317600  317600
## -----
## country$Country.Region: Syria
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0.0     0.0   621.5  5292.8  8808.0 22019.0
## -----
## country$Country.Region: Taiwan*

```

```

##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0       20     462     1184     859    12957
## -----
## country$Country.Region: Tajikistan
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0    7342     6807    13218    14867
## -----
## country$Country.Region: Tanzania
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##       0.0       0.0   183.0    125.4    183.0    183.0
## -----
## country$Country.Region: Thailand
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##       0.0      35.5  3252.0   8716.1  23393.0  26873.0
## -----
## country$Country.Region: Timor-Leste
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##       0.0       0.0    25.0    937.5     62.0  10025.0
## -----
## country$Country.Region: Togo
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   1000     3404     5072    14654
## -----
## country$Country.Region: Tonga
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0         0         0         0         0
## -----
## country$Country.Region: Trinidad and Tobago
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##       0.0       0.0   680.5   4942.2   7359.2  32454.0
## -----
## country$Country.Region: Tunisia
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   1568    90154   184257   530545
## -----
## country$Country.Region: Turkey
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0  244382  1355839  2487827  5478185
## -----
## country$Country.Region: Uganda
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   1288    12926    14539    86826
## -----
## country$Country.Region: Ukraine
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0         0   58969   564393  1161522  2258433
## -----
## country$Country.Region: United Arab Emirates
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##       0.0      18.5  60765.5  175286.2  339456.5  664130.0
## -----
## country$Country.Region: United Kingdom
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##          0        19   1653     5085    11010    24693

```

```

## -----
## country$Country.Region: Uruguay
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0    1394   54261   43917   374203
## -----
## country$Country.Region: US
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0       0   732997   677183   6298082
## -----
## country$Country.Region: Uzbekistan
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0   38965   41723   77959   126377
## -----
## country$Country.Region: Vanuatu
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## 0.0000 0.0000 0.0000 0.6681 1.0000 3.0000
## -----
## country$Country.Region: Venezuela
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0   37602   73557  125834   294607
## -----
## country$Country.Region: Vietnam
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0      16     701    1861    1565   54332
## -----
## country$Country.Region: West Bank and Gaza
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0   14922   84969  157788   312320
## -----
## country$Country.Region: Yemen
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0    1127    1139    1431    4251
## -----
## country$Country.Region: Zambia
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0   11462   32231   63522   189658
## -----
## country$Country.Region: Zimbabwe
##   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      0       0    5141   12948   30924   82994

```

```
summary(world)
```

```

##      date      confirmed      cumconfirmed      deaths
## Min.   :2020-01-22 Min.   :      557 Min.   :8.430e+07 Min.   :      17
## 1st Qu.:2020-07-09 1st Qu.: 12338769 1st Qu.:1.798e+09 1st Qu.: 584128
## Median :2020-12-25 Median : 80364482 Median :3.763e+09 Median :1815544
## Mean   :2020-12-25 Mean   : 97330738 Mean   :4.434e+09 Mean   :2168705
## 3rd Qu.:2021-06-12 3rd Qu.:176351577 3rd Qu.:7.044e+09 3rd Qu.:3805517
## Max.   :2021-11-29 Max.   :262181707 Max.   :1.029e+10 Max.   :5207587
##
##      recovered      days
## Min.   :      0 Length:678
## 1st Qu.: 73474 Class :difftime

```

```
## Median : 16723022   Mode :numeric
## Mean   : 34648165
## 3rd Qu.: 61523424
## Max.   :130899061
##
```

```
summary(italy)
```

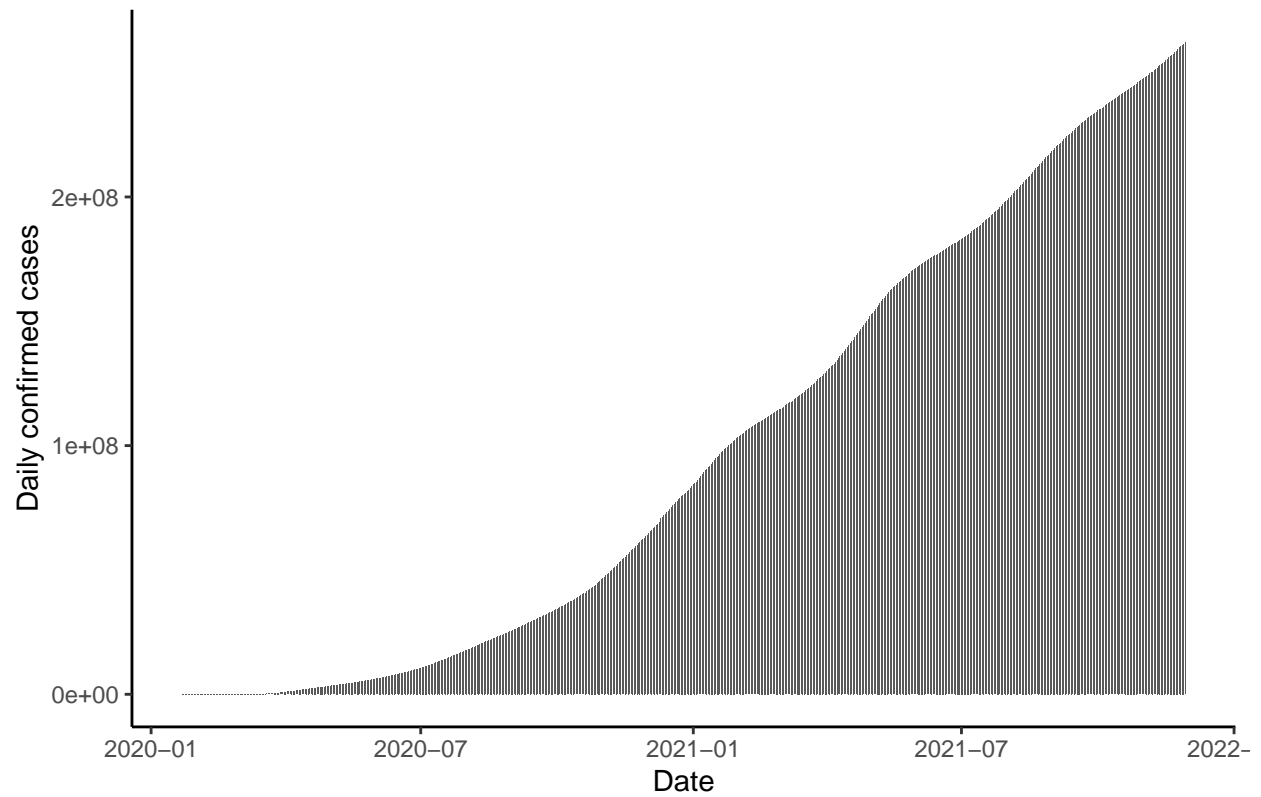
```
## Country.Region      date      confirmed      deaths
## Length:678          Min.    :2020-01-22   Min.    :      0   Min.    :      0
## Class :character     1st Qu.:2020-07-09   1st Qu.: 242432   1st Qu.: 34929
## Mode  :character     Median :2020-12-25   Median :2033556   Median : 71490
##                               Mean   :2020-12-25   Mean   :2167435   Mean   : 73519
##                               3rd Qu.:2021-06-12   3rd Qu.:4244524   3rd Qu.:126996
##                               Max.    :2021-11-29   Max.    :5015790   Max.    :133739
## recovered            cumconfirmed      days
## Min.    :      0   Min.    :2.129e+06   Length:678
## 1st Qu.:  2058   1st Qu.:4.242e+08   Class :difftime
## Median : 208072   Median :6.998e+08   Mode  :numeric
## Mean   :1119820   Mean   :7.248e+08
## 3rd Qu.:2248123   3rd Qu.:1.068e+09
## Max.   :4144608   Max.   :1.470e+09
```

```
# GRAPHS
# Barchart of cases over time
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 4.0.5
```

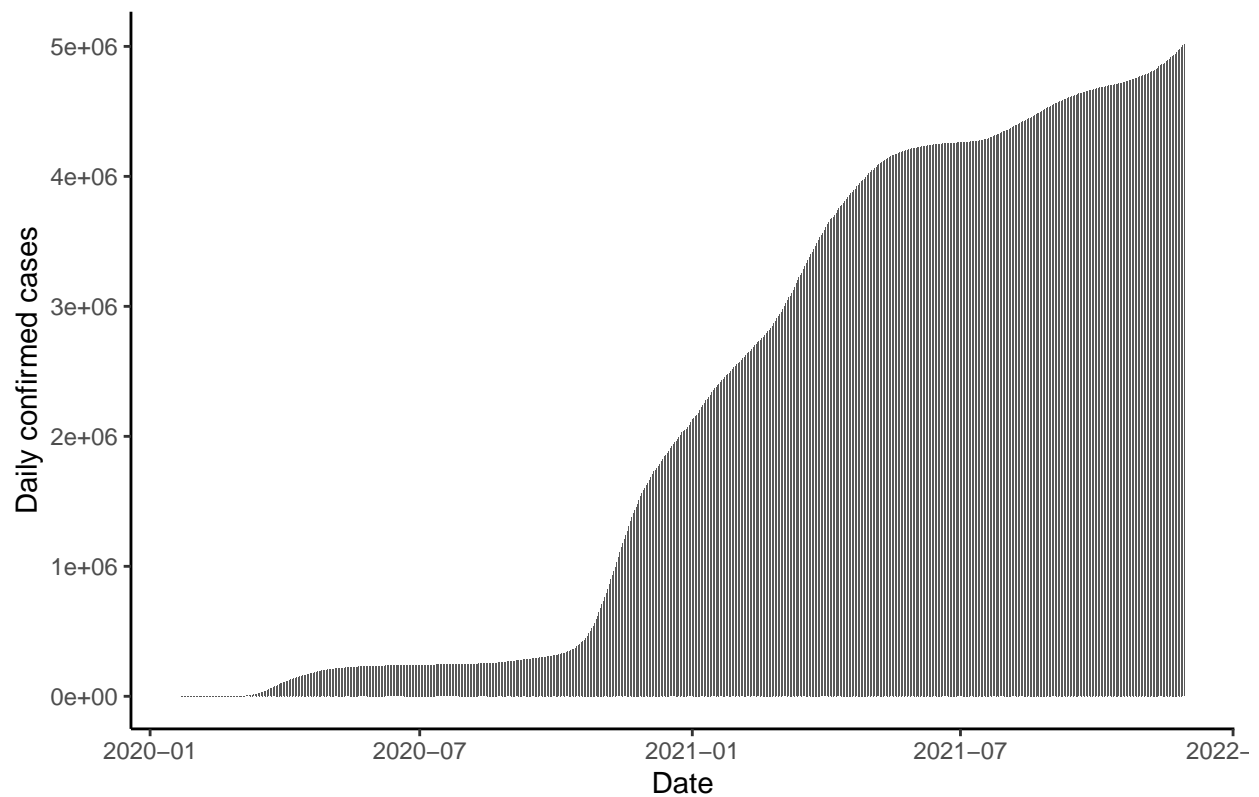
```
# World confirmed
ggplot(world, aes(x=date, y=confirmed)) + geom_bar(stat="identity", width=0.1) +
  theme_classic() +
  labs(title = "Covid-19 Global Confirmed Cases", x= "Date", y= "Daily confirmed cases") +
  theme(plot.title = element_text(hjust = 0.5))
```

Covid-19 Global Confirmed Cases



```
# Italy confirmed
ggplot(italy, aes(x=date, y=confirmed)) + geom_bar(stat="identity", width=0.1) +
  theme_classic() +
  labs(title = "Covid-19 Confirmed Cases in Italy", x= "Date", y= "Daily confirmed cases") +
  theme(plot.title = element_text(hjust = 0.5))
```

Covid-19 Confirmed Cases in Italy

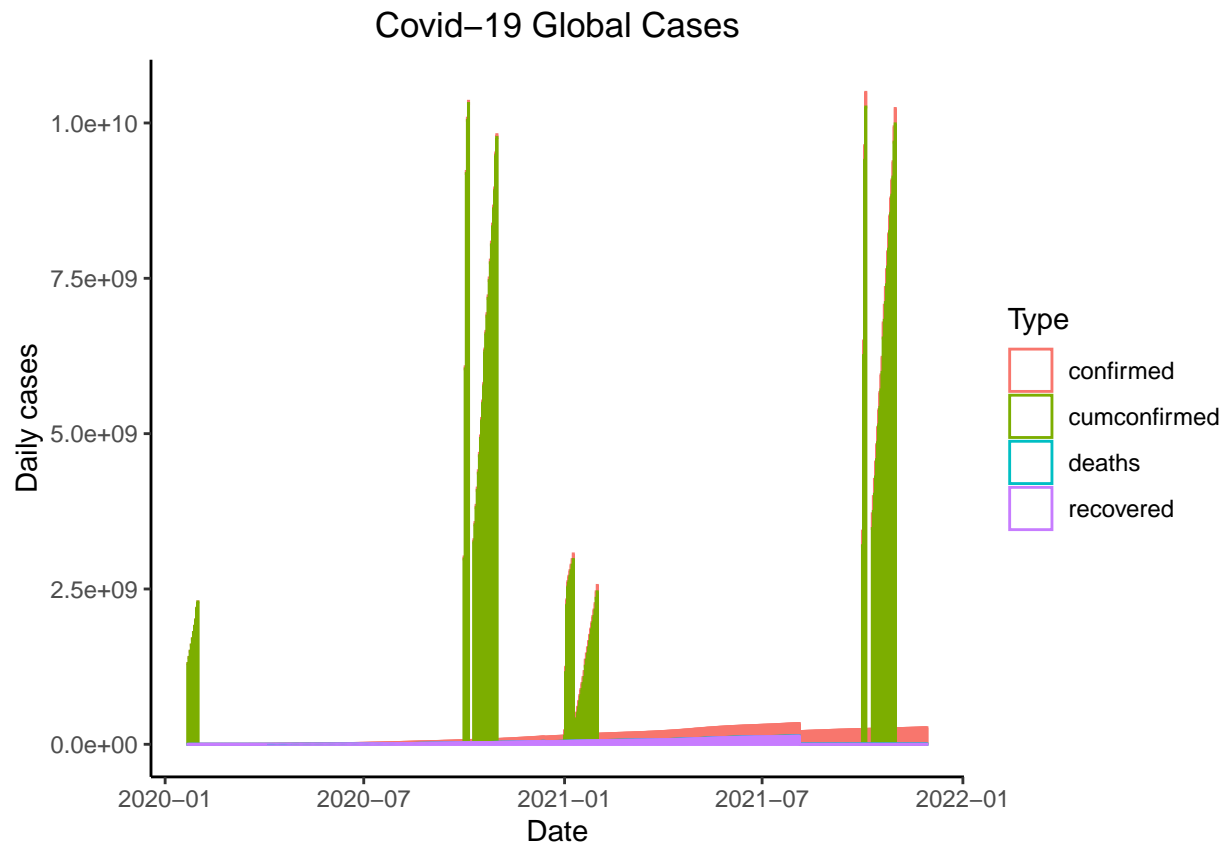


```
# World confirmed, deaths and recovered
str(world)
```

```
## tibble [678 x 6] (S3: tbl_df/tbl/data.frame)
##  $ date          : Date [1:678], format: "2020-01-22" "2020-01-23" ...
##  $ confirmed     : int  [1:678] 557 655 941 1434 2118 2927 5578 6167 8235 9927 ...
##  $ cumconfirmed: num  [1:678] 1.3e+09 1.4e+09 1.5e+09 1.6e+09 1.7e+09 ...
##  $ deaths        : int  [1:678] 17 18 26 42 56 82 131 133 171 213 ...
##  $ recovered     : int  [1:678] 30 32 39 42 56 65 108 127 145 225 ...
##  $ days          : 'difftime' num [1:678] 1 2 3 4 ...
##  ..- attr(*, "units")= chr "days"
```

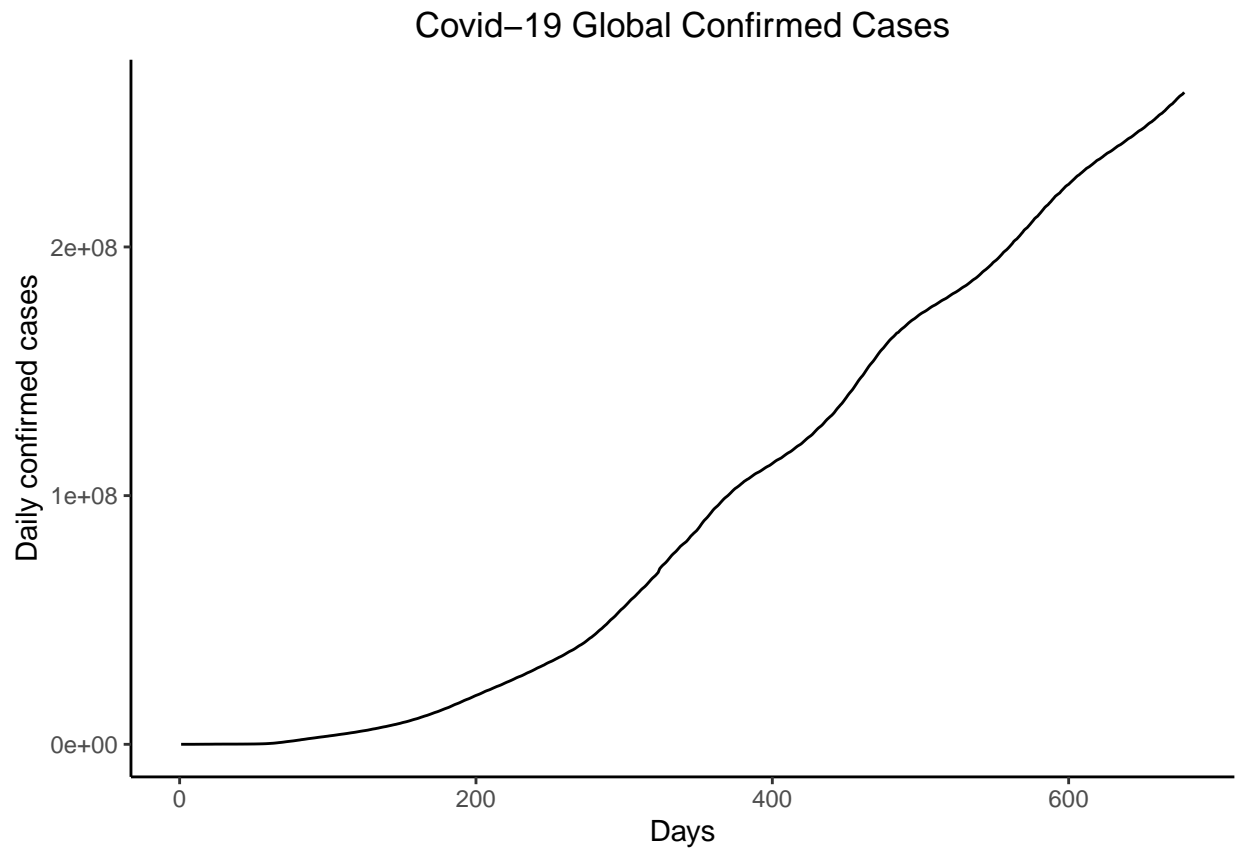
```
world %>% gather("Type", "Cases", -c(date, days)) %>%
ggplot(aes(x=date, y=Cases, colour=Type)) + geom_bar(stat="identity", width=0.2, fill="white") +
  theme_classic() +
  labs(title = "Covid-19 Global Cases", x= "Date", y= "Daily cases") +
  theme(plot.title = element_text(hjust = 0.5))
```

```
## Warning: Removed 584 rows containing missing values (position_stack).
```



```
# Line graph of cases over time
# World confirmed
ggplot(world, aes(x=days, y=confirmed)) + geom_line() +
  theme_classic() +
  labs(title = "Covid-19 Global Confirmed Cases", x= "Days", y= "Daily confirmed cases") +
  theme(plot.title = element_text(hjust = 0.5))
```

Don't know how to automatically pick scale for object of type difftime. Defaulting to continuous.

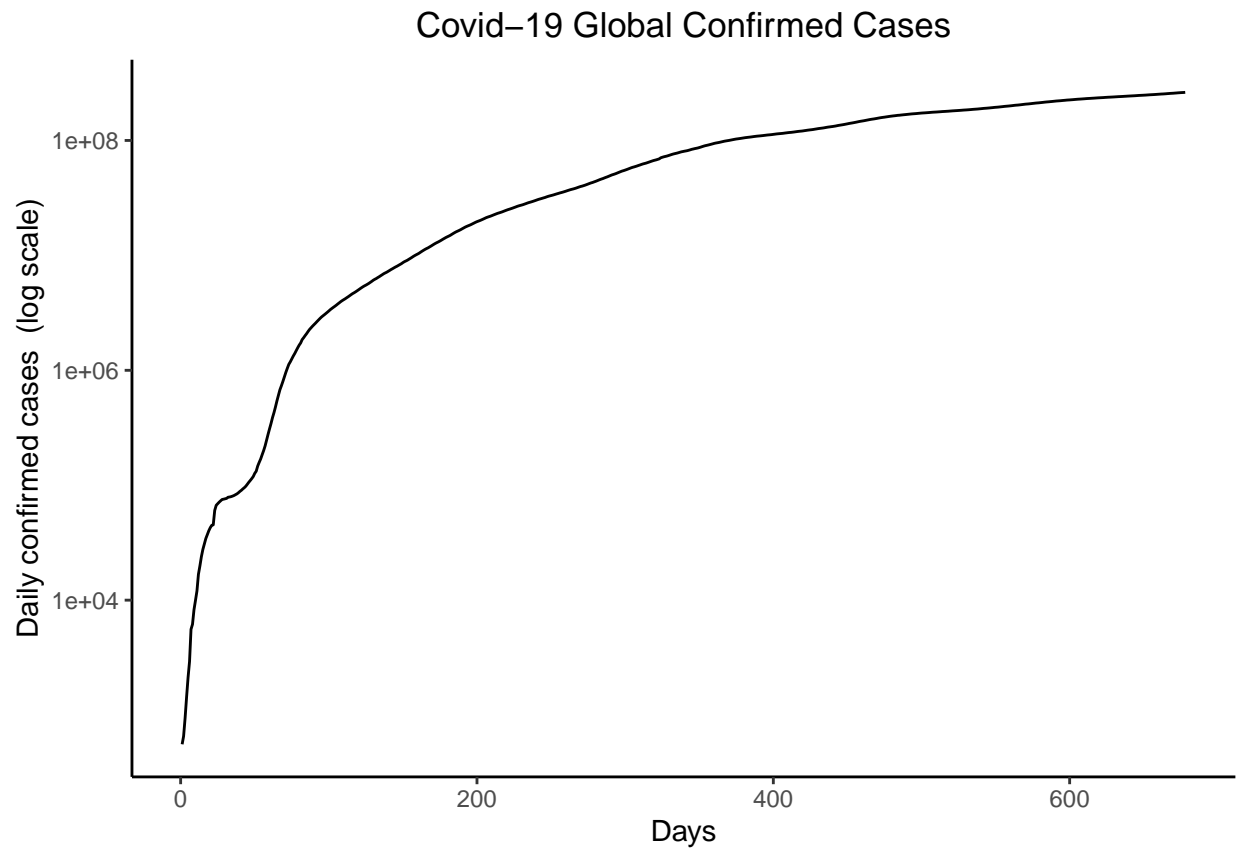


```
# Ignore warning
```

```
# World confirmed with counts in log10 scale
```

```
ggplot(world, aes(x=days, y=confirmed)) + geom_line() +  
  theme_classic() +  
  labs(title = "Covid-19 Global Confirmed Cases", x= "Days", y= "Daily confirmed cases (log scale)") +  
  theme(plot.title = element_text(hjust = 0.5)) +  
  scale_y_continuous(trans="log10")
```

```
## Don't know how to automatically pick scale for object of type difftime. Defaulting to continuous.
```

Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.