

Emisiones de CO2 en el mundo."

Taller CO2

Taller 1 datos CO2

Con los datos del CO2

Pregunta 1 Data wrangling

Reducir el código lo más posible y actualizar la función `gather` para obtener la tabla pivotada que contenga el código de país, el nombre del país el año el CO2 brutos el CO2 per cápita y los metadatos de los países en una `tibble` construid a partir de las dos hojas de raw data y de la hoja de metadatos.

```
PerCapita <- read_excel("World_Bank_CO2.xlsx",sheet = "CO2 Per Capita RAW DATA")
KT <- read_excel("World_Bank_CO2.xlsx",sheet = "CO2 (kt) RAW DATA")
Metadatos <- read_excel("World_Bank_CO2.xlsx",sheet = "Metadata - Countries")
PerCapita=as_tibble(PerCapita)
KT=as_tibble(KT)
Metadatos=as_tibble(Metadatos)
PerCapita=PerCapita %>% select(!c("Indicator Name","Indicator Code")) %>%
  pivot_longer(`1960`:`2015`, names_to="Year",values_to="CO2") %>%
  naniar::replace_with_na(replace =list(CO2 ="null")) %>%
  mutate(Year=as.integer(Year),CO2=as.numeric(CO2))
KT=KT %>% select(!c("Indicator Name","Indicator Code")) %>%
  pivot_longer(`1960`:`2015`, names_to="Year",values_to="CO2") %>%
  naniar::replace_with_na(replace =list(CO2 ="null")) %>%mutate(Year=as.integer(Year),
  CO2=as.numeric(CO2))
Tot=left_join(PerCapita,KT,by=c("Country Name","Country Code","Year"))%>%
  rename(CO2PC=CO2.x,CO2=CO2.y)
names(Tot)=gsub(" ","_",names(Tot))
names(Metadatos)=gsub(" ","_",names(Metadatos))
Metadatos=Metadatos%>% rename(Country_Name = TableName)
DataClean=inner_join(Tot,Metadatos,by=c("Country_Name","Country_Code"))
glimpse(DataClean)

## Rows: 13,328
## Columns: 8
## $ Country_Name <chr> "Aruba", "Aruba", "Aruba", "Aruba", "Aruba", ...
## $ Country_Code <chr> "ABW", "ABW", "ABW", "ABW", "ABW", "ABW", "ABW"...
## $ Year <int> 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, ...
## $ CO2PC <dbl> NA, NA...
## $ CO2 <dbl> NA, NA...
## $ Region <chr> "Latin America & Caribbean", "Latin America & Caribbea...
## $ IncomeGroup <chr> "High income: nonOECD", "High income: nonOECD", "High ...
## $ SpecialNotes <chr> "SNA data for 2000-2011 are updated from official gove...
```

Pregunta 2 Dibujos del mapa del mundo

Dibujad un mapa del mundo coloreando por país las distintas variables y por años o décadas.

Hemos comprobado y sustituido los países que tienen nombres distintos en las tablas *WorldData* y *DataClean*, de forma que si aparezcan en los mapas.

```
DataClean$Country_Name=plyr::mapvalues(DataClean$Country_Name,from=c("Congo, Rep.", "Bahamas, The", "United Kingdom", "Egypt, Arab Rep.", "Russian Federation", "United States", "Virgin Islands (U.S.)", "Yemen, Rep.", "Syrian Arab Republic", "Slovak Republic", "Macedonia, FYR", "Korea, Rep.", "Venezuela, RB"), to=c("Democratic Republic of the Congo", "Bahamas", "UK", "Egypt", "Russia", "USA", "Virgin Islands", "Yemen", "Syria", "Slovakia", "Macedonia", "South Korea", "Venezuela"))

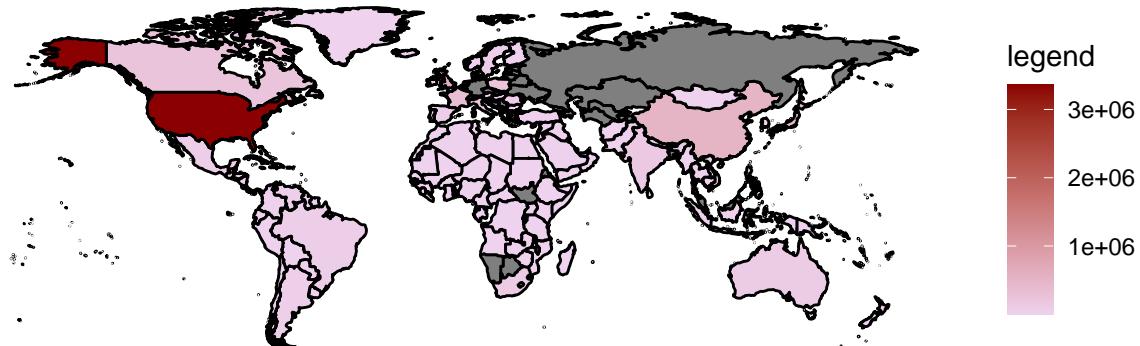
WorldData <- map_data('world')

DataClean=DataClean%>% mutate(Decada=floor((Year-1960)/10))

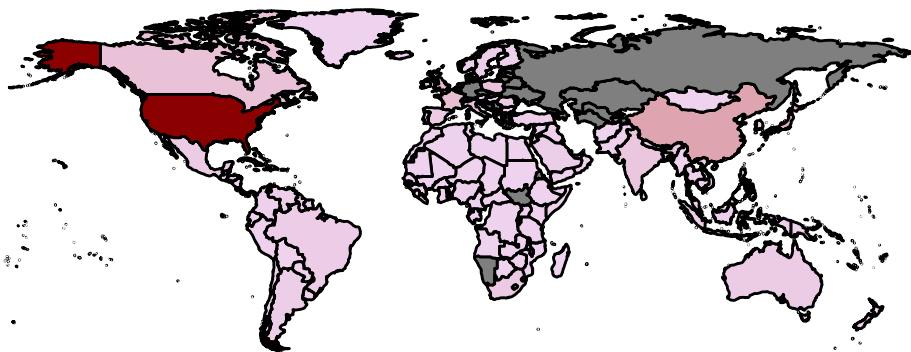
DataClean ->auxCO2
color = auxCO2 %>% group_by(Country_Name,Decada) %>% summarise(media=mean(CO2,na.rm=TRUE))

## `summarise()` regrouping output by 'Country_Name' (override with `groups` argument)
Mydata_plot <- inner_join(WorldData , color,by=c("region"="Country_Name"))
for (i in (0:5)) {
  print(Mydata_plot %>% filter(Decada==i) %>% ggplot() +
    geom_polygon(aes(x=long, y=lat, group = group,fill=media),colour="black") +
    scale_fill_continuous(low = "thistle2", high = "darkred", guide="colorbar") +
    theme_bw() +
    labs(fill = "legend" ,title = paste(i*10+1960,"s",sep = ""), x="", y="") +
    scale_y_continuous(breaks=c()) +
    scale_x_continuous(breaks=c()) +
    theme(panel.border = element_blank())+coord_fixed(1))
}
```

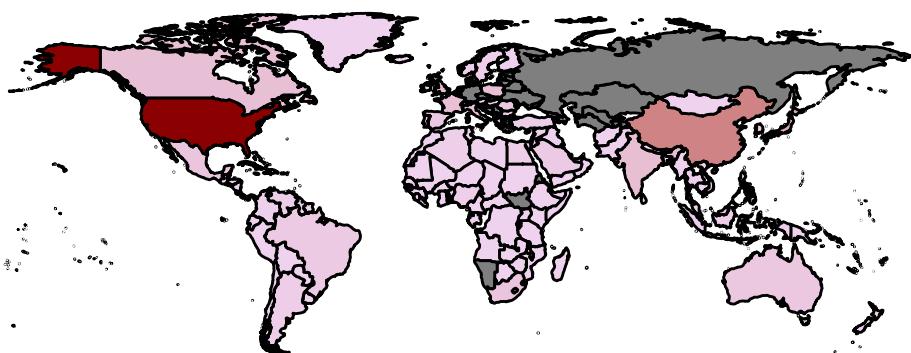
1960s



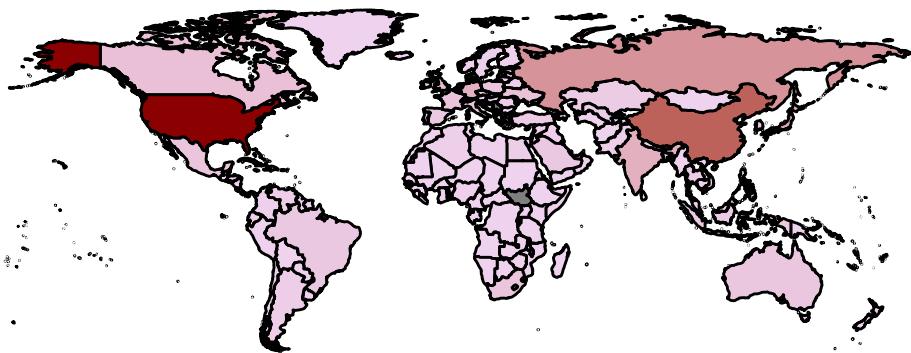
1970s



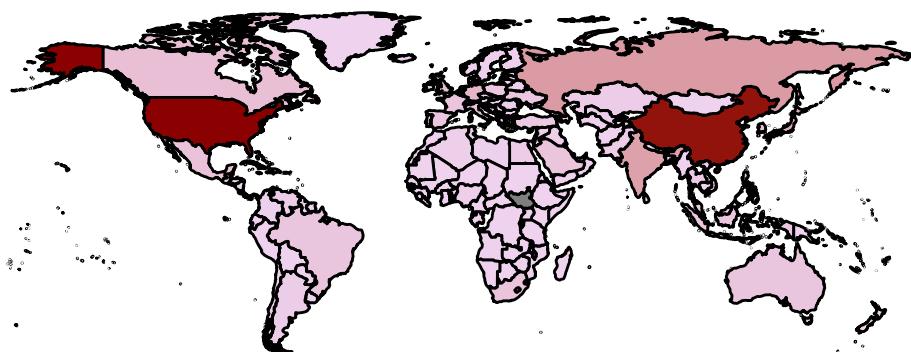
1980s



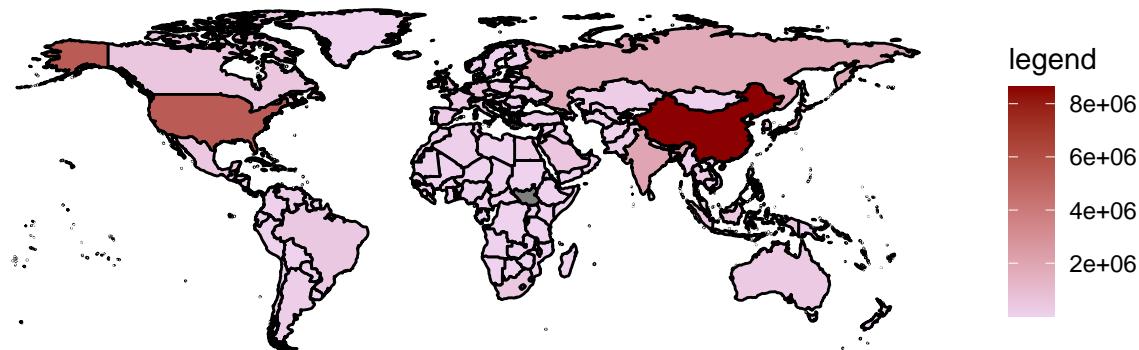
1990s



2000s



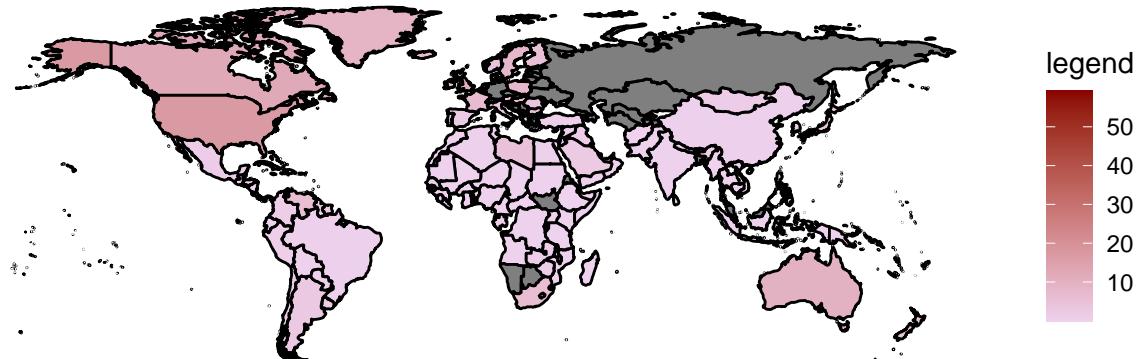
2010s



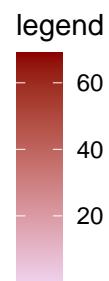
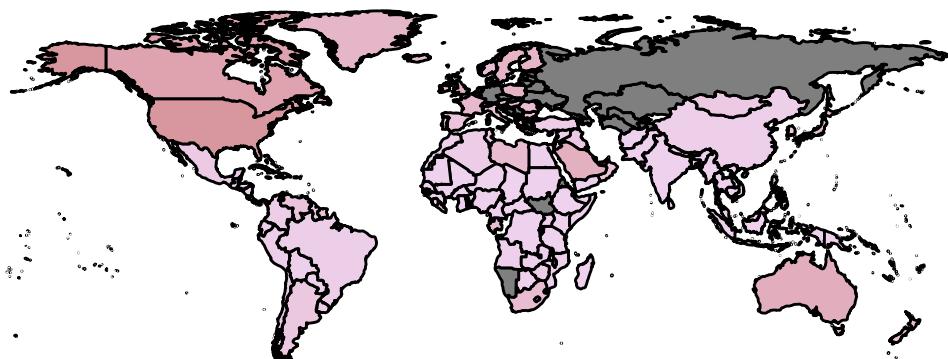
```
DataClean ->auxCO2PC
  color = auxCO2PC %>% group_by(Country_Name,Decada) %>% summarise(media=mean(CO2PC,na.rm=TRUE))

## `summarise()` regrouping output by 'Country_Name' (override with `.`groups` argument)
Mydata_plot <- inner_join(WorldData , color,by=c("region"="Country_Name"))
for (i in 0:5) {
  print(Mydata_plot %>% filter(Decada==i) %>% ggplot() +
  geom_polygon(aes(x=long, y=lat, group = group,fill=media),colour="black") +
  scale_fill_continuous(low = "thistle2", high = "darkred", guide="colorbar") +
  theme_bw() +
  labs(fill = "legend" ,title = paste(paste(i*10+1960,"s",sep = ""), "per Capita"), x="", y="") +
  scale_y_continuous(breaks=c()) +
  scale_x_continuous(breaks=c()) +
  theme(panel.border = element_blank())+coord_fixed(1))
}
```

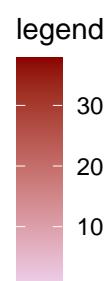
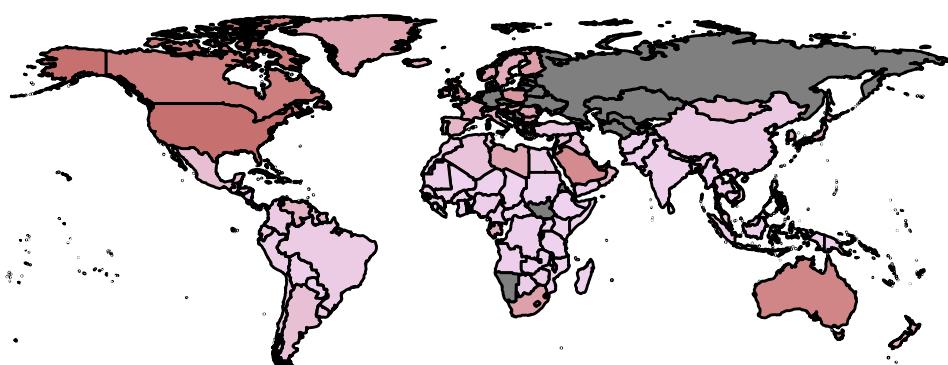
1960s per Capita



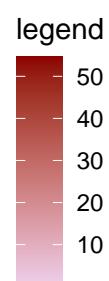
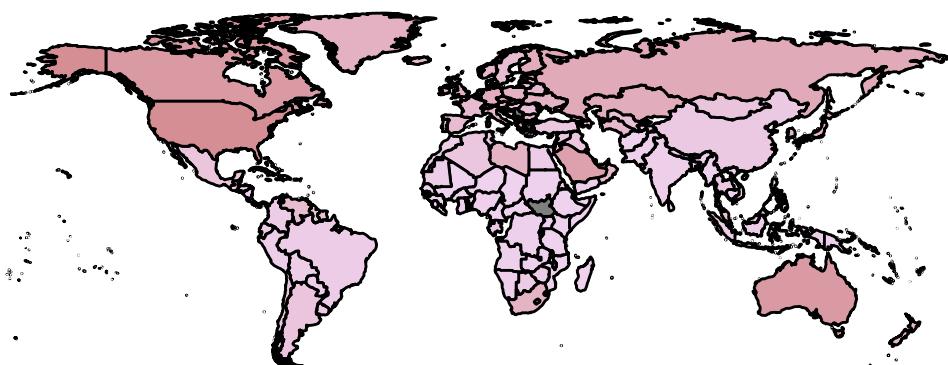
1970s per Capita



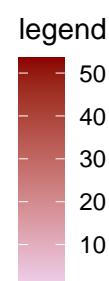
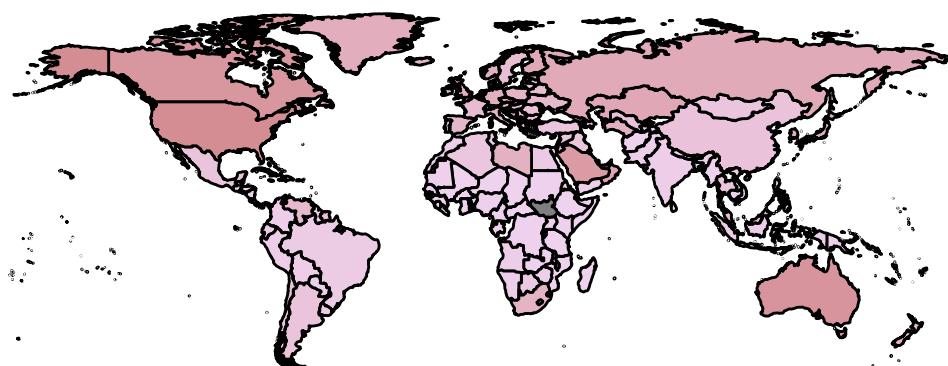
1980s per Capita



1990s per Capita



2000s per Capita



2010s per Capita

