Самостійна робота 1

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```
##
## 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
```

Населення країн за роками

```r
 # Населення  за роками

ind_pop_totl <- "SP.POP.TOTL"

pop_totl <- data.frame(
  year = start:end,
  ukr = WDI(country="UA", indicator=ind_pop_totl, start=start, end=end, extra=FALSE, cache=NULL) %>%
    arrange(year) %>%
      select(SP.POP.TOTL) %>%
        rename(ukr = SP.POP.TOTL),
  pol = WDI(country="PL", indicator=ind_pop_totl, start=start, end=end, extra=FALSE, cache=NULL) %>%
    arrange(year) %>%
      select(SP.POP.TOTL) %>%
        rename(pol = SP.POP.TOTL),
  rus = WDI(country="RU", indicator=ind_pop_totl, start=start, end=end, extra=FALSE, cache=NULL) %>%
    arrange(year) %>%
      select(SP.POP.TOTL) %>%
        rename(rus = SP.POP.TOTL)
)

pop_totl <- mutate(pop_totl, decade = as.character(as.integer(year / 10) * 10))

head(pop_totl)
```

```
##   year      ukr      pol      rus decade
## 1 1990 51891400 38110782 147969407   1990
## 2 1991 52000500 38246193 148394216   1990
## 3 1992 52150400 38363667 148538197   1990
## 4 1993 52179200 38461408 148458777   1990
## 5 1994 51921400 38542652 148407912   1990
```

```
## 6 1995 51512800 38594998 148375787   1990
```
```
summary(pop_totl)
```
```
##       year          ukr              pol              rus
##  Min.   :1990   Min.   :44385155   Min.   :37970087   Min.   :142742366
##  1st Qu.:1997   1st Qu.:45621528   1st Qu.:38047886   1st Qu.:143509950
##  Median :2004   Median :47278398   Median :38158524   Median :144487300
##  Mean   :2004   Mean   :47969196   Mean   :38228136   Mean   :145357619
##  3rd Qu.:2012   3rd Qu.:50482075   3rd Qu.:38337408   3rd Qu.:147854217
##  Max.   :2019   Max.   :52179200   Max.   :38663481   Max.   :148538197
##     decade
##  Length:30
##  Class :character
##  Mode  :character
##
##
##
```
```
write.csv(pop_totl, file = "pop_totl.csv")
```

ВВП на душу населення за роками

```
# ВВП на душу населення  за роками

ind_gdp_pcap <- "NY.GDP.PCAP.PP.CD"

gdp_pcap <- data.frame(
  year = start:end,
  ukr = WDI(country="UA", indicator=ind_gdp_pcap, start=start, end=end, extra=FALSE, cache=NULL) %>%
    arrange(year) %>%
      select(NY.GDP.PCAP.PP.CD) %>%
        rename(ukr = NY.GDP.PCAP.PP.CD),
  pol = WDI(country="PL", indicator=ind_gdp_pcap, start=start, end=end, extra=FALSE, cache=NULL) %>%
    arrange(year) %>%
      select(NY.GDP.PCAP.PP.CD) %>%
        rename(pol = NY.GDP.PCAP.PP.CD),
  rus = WDI(country="RU", indicator=ind_gdp_pcap, start=start, end=end, extra=FALSE, cache=NULL) %>%
    arrange(year) %>%
      select(NY.GDP.PCAP.PP.CD) %>%
        rename(rus = NY.GDP.PCAP.PP.CD)
)


gdp_pcap <- mutate(gdp_pcap, decade = as.character(as.integer(year / 10) * 10))

head(gdp_pcap)
```
```
##   year      ukr      pol      rus decade
## 1 1990 7305.143 6173.862 8027.846   1990
## 2 1991 6902.486 5913.855 7857.906   1990
## 3 1992 6356.734 6181.769 6862.463   1990
## 4 1993 5578.521 6548.119 6419.516   1990
## 5 1994 4412.745 7027.078 5734.414   1990
```

```
## 6 1995 3987.006 7662.772 5613.281   1990
```

```
summary(gdp_pcap)
```

```
##       year           ukr            pol            rus
##  Min.   :1990   Min.   : 3671   Min.   : 5914   Min.   : 5465
##  1st Qu.:1997   1st Qu.: 4723   1st Qu.: 9058   1st Qu.: 6835
##  Median :2004   Median : 7141   Median :13619   Median :11025
##  Mean   :2004   Mean   : 7419   Mean   :16271   Mean   :14645
##  3rd Qu.:2012   3rd Qu.: 9273   3rd Qu.:23588   3rd Qu.:23764
##  Max.   :2019   Max.   :13341   Max.   :34218   Max.   :29181
##     decade
##  Length:30
##  Class :character
##  Mode  :character
##
##
##
```

```
write.csv(gdp_pcap, file = "gdp_pcap.csv")
```

Країни з великим населенням та їх ВВП на душу за 2019 рік

```
 # Країн з великим населенням та їх ВВП на душу за 2019 рік

pop_all <- WDI(country="all", indicator=ind_pop_totl, start=end, end=end, extra=TRUE, cache=NULL) %>%
  filter(region != "Aggregates")  %>%
    slice_max(SP.POP.TOTL, n = 35) %>%
      arrange(iso2c)

countries <- select(pop_all, iso2c)

gdp_all <- WDI(country=c(countries$iso2c), indicator=ind_gdp_pcap, start=end, end=end, extra=TRUE, cache
    arrange(iso2c)

all <- inner_join(pop_all, select(gdp_all, iso2c, NY.GDP.PCAP.PP.CD), by = c("iso2c" = "iso2c"))

head(all)
```

```
##   iso2c          country SP.POP.TOTL year iso3c                    region
## 1    AR        Argentina    44938712 2019   ARG Latin America & Caribbean
## 2    BD       Bangladesh   163046161 2019   BGD                South Asia
## 3    BR           Brazil   211049527 2019   BRA Latin America & Caribbean
## 4    CD Congo, Dem. Rep.    86790567 2019   COD        Sub-Saharan Africa
## 5    CN            China  1397715000 2019   CHN        East Asia & Pacific
## 6    CO         Colombia    50339443 2019   COL Latin America & Caribbean
##        capital longitude latitude              income lending NY.GDP.PCAP.PP.CD
## 1 Buenos Aires  -58.4173 -34.6118 Upper middle income    IBRD         22947.140
## 2        Dhaka   90.4113  23.7055 Lower middle income     IDA          4950.744
## 3     Brasilia  -47.9292 -15.7801 Upper middle income    IBRD         15258.851
## 4     Kinshasa   15.3222   -4.325          Low income     IDA          1143.453
## 5      Beijing   116.286  40.0495 Upper middle income    IBRD         16784.659
## 6       Bogota   -74.082  4.60987 Upper middle income    IBRD         15643.731
```

```r
summary(all)
```

```
##     iso2c              country            SP.POP.TOTL            year
## Length:35          Length:35          Min.   :4.281e+07   Min.   :2019
## Class :character   Class :character   1st Qu.:5.331e+07   1st Qu.:2019
## Mode  :character   Mode  :character   Median :8.313e+07   Median :2019
##                                       Mean   :1.760e+08   Mean   :2019
##                                       3rd Qu.:1.360e+08   3rd Qu.:2019
##                                       Max.   :1.398e+09   Max.   :2019
##
##     iso3c              region             capital             longitude
## Length:35          Length:35          Length:35          Length:35
## Class :character   Class :character   Class :character   Class :character
## Mode  :character   Mode  :character   Mode  :character   Mode  :character
##
##
##
##
##    latitude            income             lending            NY.GDP.PCAP.PP.CD
## Length:35          Length:35          Length:35          Min.   : 1143
## Class :character   Class :character   Class :character   1st Qu.: 5350
## Mode  :character   Mode  :character   Mode  :character   Median :13170
##                                                          Mean   :20129
##                                                          3rd Qu.:28855
##                                                          Max.   :65118
##                                                          NA's   :1
```

```r
write.csv(all, file = "all.csv")
```