

Tutorial Exercises Week 3

Question 1

Install the R package "WDI". This is the World Bank Development Indicators R package. It is a way to access the data on <https://data.worldbank.org/> conveniently within R.

Search for the name of indicator which gives the annual inflation in consumer prices (in %). Do this by using the `WDIsearch()` function to search for "inflation".

Once you have the name of the indicator, use the `WDI()` function to get the annual inflation rate in the Netherlands. Use the following four arguments in the `WDI()` function:

- `indicator` =[the indicator you found in the first step (surrounded by quotes)]
- `country` = "NLD"
- `start` = 1960
- `end` = 2022

What was the inflation rate in the Netherlands in 2022 according to these data?

Write your answer with 3 digits after the decimal

Question 2

What was the average annual inflation rate in consumer prices (in %) over the period 2000-2019?

Write your answer with 3 digits after the decimal.

Question 3

What was the median annual inflation rate in consumer prices (in %) in years that end in a zero between 1960-2020 (so the years 1960, 1970, 1980, 1990, 2000, 2010, 2020)?

Write your answer with 3 digits after the decimal.

Question 4

The `WDI()` function returns a dataframe with the most-recent year first. You want to sort the data so that the years are ascending.

Which of the following commands achieves that goal?

- `df <- df[order(df$year),]`
- `df <- df[order(df$year, decreasing = TRUE),]`
- `df <- df[sort(df$year),]`
- `df <- df[sort(df$year, ascending = TRUE),]`

Also sort your data by year for the remaining questions.

Question 5

Create a vector called `inflation_change` which is the change in inflation from the previous year:

- The first element should be the difference in the inflation rate between 1961 and 1960 (inflation 1961 minus inflation 1960).
- The second element should be the difference in the inflation rate between 1962 and 1961.
- ...
- The last element should be difference in the inflation rate between 2022 and 2021.

This vector should have 62 elements. We don't have a change for 1960 because we don't observe the inflation rate in 1959.

What is the value of the 5th element in your vector? Report your answer with 3 numbers after the decimal.

Question 6

You want to add this `inflation_change` vector as a variable to your dataframe which is sorted ascending by year.

However, because your vector has only 62 elements (because we do not know the value of inflation in 1959), we cannot add it directly. Instead, we replace the value for the change of inflation in 1960 with a missing value indicator `NA`.

Which of the following commands will add the `inflation_change` variable correctly in your data?

- `df$inflation_change <- c(inflation_change, NA)`
- `df$inflation_change <- c(NA, inflation_change)`
- `df$inflation_change <- inflation_change`