Explain the difference between a time series and panel data in at least 150 words.

A time series is represented by a variable or a set of variables whose observations or values are measure at different points of time. Usually, the periods of collection can be annually, quarterly, monthly, weekly, daily, hourly, etc. It is use in many applications, like, for example, analyzing the price of a stock between January 30, 2020 and June 16, 2020 or the hourly consumption of electricity of a household in a month.

Before explaining a panel data and its differences with time series, it is important to explain a different type of data set that is call cross-section, which is a collection of observations at the same point of time for several individual. Examples of this type of data set are poverty rates of Latin American countries in 2019, Saber 11 grades in 2019, years of education, etc.

Taking into account the two types of data sets explained beforehand, the panel data is nothing more than a mixture of time series and cross-section data that allows the researcher the possibility to measure over a period of time the same cross sectional unit (individual, households, firms, countries, etc.). Examples if this type of data sets are income distributions of households in Bogotá over ten years, monthly temperature of European cities over the last 2 years, rain precipitation in the city of Barranquilla over the last two months.