A short taxonomy of data analytics

A natural taxonomy that exists in data analytics is:

- Descriptive analytics: summarize or condense data to extract patterns
- Predictive analytics: extract models from data to be used for future predic- tions.

In descriptive analytics tasks, the result of a given method or technique,[1] is obtained directly by applying an algorithm to the data.

Method or technique A method or technique is a systematic procedure that allows us to achieve an intended goal.

A method shows how to perform a given task. But in order to use a language closer to the language computers can understand, it is necessary to describe the method/technique through an algorithm.

Algorithm An algorithm is a self-contained, step-by-step set of instructions easily understandable by humans, allowing the implementation of a given method. They are self-contained in order to be easily translated to an arbi- trary programming language.

Example 1.5 The method to obtain the average age of my contacts uses the ages of each (we could use other methods, such as using the number of contacts for each different age). A possible algorithm for this very simple example is shown

Algorithm An algorithm to calculate the average age of our contacts

1: INPUT: A: a vector of size N with the ages of all contacts.
2: $S \leftarrow 0$ ▷ Initialize the sum S to zero
3: **for** $i = 1$ **to** N **do**   ▷ Iterate through all the elements of A.
4: $S \leftarrow S + A_i$ ▷ Add the current (*ith*) element of A to S.
5: $A \leftarrow S/N$ ▷ Divide the sum by the number N of contacts.

6: return(A)   ▷ Return the result, i.e. the average age of the N contacts.