The role of data analysis in the IoT architecture:

According to my perspective, data analysis is considered the cornerstone of IoT systems, in which if we suppose the following analogy, where the IoT system is considered a vehicle (Car, bus), the data will be the feeding fuel to run this vehicle. Data analysis can be defined as the process of extraction valid and meaningful information from large amount of data used to issue some conclusions or to make decisions.

For instance, if we deal with HACV system (Heating Ventilation and Air Conditioning) the sensors will start collecting the analog data from the surrounding environment to check the current temperature in a building, these collected data is converted to digital signals to be handled with the processing unit to extract valid information either via the data specialist or the computational systems to enable the HACV system to either take a decision or inform the end user. , also these data can be saved in a central entity to eventually extract long term information, regarding to welfare, comfort , security, energy saving for example, the peak hours, during the year, month, week, what is the average consumed power in a building hours of residents exitance to turn off the services for the purpose of energy saving etc...

we can conclude some of importance roles of data analysis:

* an essential part in IoT systems used to recognize and evaluate the circumstances & surrounding environment of the system
* Data analysis information could be used to take real-time decision or inform the end-user
* The gathered data can be used for long term to conclude statistics are useful to enhance the system in the future
* Data analysis is one of the promising and crucial sectors, because the gathered data are Sensitive, and directly correlated to the user.

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