**Differential Privacy**

‘Data’ is an important property in this world next to human, as they are interrelated to each other. Data is created by human activities and used for them to make life easy. In this electronic world all the people are interlinked with gadgets that generates lots of data about them, which includes their daily activities, personal information, mails etc. All these data are getting collected from the gadgets and storing them in databases by using internet. After evolution of internet the quantity of data increased to many times.

This huge data which is stored in database flows to and fro in the presence of Data analyst. The main responsibility of data analyst is to analyze the data from the databases and develop the new algorithms, prototypes that are useful for the company development. In other sense data analyst observes the data and use them for their requirement. Usually people treat data analyst as polite one but even in them also there is a chance of fake people, who use the data for their personal use or selling information to others. Irrespective the nature of data analyst using the database that contains the personal information, confidential mails are treated as violating the privacy rules.

Data analyst are meant for using the data and produce the results. But using them directly became a violation. To overcome this problem, scientists developed algorithms that help data analyst to pull them out of this problem like K-anonymization. For instance, it replaces one row with other one by this exact person information can be hidden. But after this usage scientist found the loop holes in finding the true results out of them.

After continuous research scientists come up with new algorithm that hides the information and identity, that is Differential Privacy. In short Differential privacy is stated as “Results that come out of a query on a particular database, produces the same result whether your information is present or not.” In sight of this definition is all the users who participated in the survey will be remained as anonymous. This nature of data storage policy will help the users to participate in any survey without getting out their identity.

Coming to implementation of such an algorithm can be easily explained by Head-Toss game. Let’s assume a coin is tossed and the result will be head or tail.

* If Tail is the result, then reveal the original answer that you got.
* If Head is the result, then toss the coin once again and you will observe two results
  + If Head say it as Yes
  + If Tail say it as No