**Microsoft Vivli Datathon**

The data from clinical trials are imperative for the research but on the same time, data privacy of the subjects is at stake. It is more true in the case of rare disease studies, as the number of the subjects are very limited.

The challenge: The data should be reusable as well as well protected.

Solution: This is where the combination of technologies like AI and ML can make a difference. The traditional analytical methods need to be programmed to find connections and links, and understand the integrities of the data. Moreover the clinical data is having varied forms of data like the demographics, drug dose, dictionaries, adverse event data and different formats of the medical diagnostic reports. The challenge of encrypting of data is huge, as every time different set of data will be added to the trial data. AI can help in solving this challenge as AI learns from all the data it sees. The data from the previous trial could be the sample data for AI to learn from and understand. With the help of AI, systems can respond continuously to new data and adjust their analyses without human intervention. Thus, AI helps to remove the technical barriers that traditional methods run into when analysing Big Data and keep it secure. AI can help in coding the data in the unique way. With the hidden layer of neural network the new and unique codes can be created, from where the AI will learn further, how to create new codes, assign them to the new study data, and use the data for further analysis and use. AI can create additional noise to the data, without changing the meaningful insights form the data, which can help again in securing the privacy of the supjects.