Main Topics of Data Science:

In my experience, Data Science includes 3 main topics.

1. Statistics: Statistics techniques are needed to explore data and answer questions from the data by finding common patterns. Some may include the ability to create predictive models.

2. Computer Science: Computer Science techniques are needed for most backend processes involved in Data Science. This includes understanding how to scale systems as data grows and where to apply various algorithms for the best computational efficiency. For example, say you work for a bank and have identified a common pattern in the data for fraudulent transactions using statistical techniques. Now you want to take those techniques and apply them to all your customers (future and current) on an ongoing basis. Computer Science techniques will help us do this.

3. Machine Learning: Machine learning allows us to teach computers how to program themselves so that we don't have to write explicit instructions for certain tasks. It has basically two main concepts. Supervised and Unsupervised learning.

How Data Science can be applied to Graph Data Network:

As data becomes increasingly interconnected and systems increasingly sophisticated, it's essential to make use of the rich and evolving relationships within our data. Graphs are uniquely suited to this task because they are, very simply, a mathematical representation of a network.

It's no secret that machine learning methods are highly dependent on the quality of the data they receive as input. If we think of machine learning as a manufacturing process, the higher the quality of the input data, the more likely it is that the final product is of high quality as well. So it is important that we use a proper modeling for our input data.

For example, with the task that I was given to complete my goal was to compare accuracy analysis of a machine learning model before and after applying graph algorithms. I used graph algorithm like page rank and closeness centrality to make my model better. In terms of accuracy I saw very minimal improvement and there was slight improvement in terms of precision. I believe this could be due to my lack of proper understanding.