*This study investigates the relationship between Big Data management tools such as Relational Database Management System (RDBMS), Hadoop, and APIs, and how they can be separately interlinked with advanced data analytics, specifically neural networks. The purpose of the study is to compare a RDBMS with Hadoop when processing a 1.31 GB dataset, and then apply a Neural Network. To expand the scope, this study will also include the usage of APIs (Keras library) for implementing Neural Networks. This study was conducted using my personal laptop to load a 1.31 GB dataset into a RDBMS and Spark. I utilized Jupyter Notebooks to interact with these two technologies, exploring computing times, roadblocks faced, and other insights. Following this, we applied the same Neural Network to predict if certain jobs are more popular based on gender. Another aspect of the study involves utilizing an API; for this, we are employing Keras and a Convolutional Neural Network (CNN). Our aim is to evaluate the performance of the CNN model in classifying movie reviews as positive or negative based on their sentiment. The research findings indicate that using RDBMS or Hadoop for data processing is not as quick and straightforward as using an API like Keras, where you simply import the data without the need to worry about how to push it into databases, this becomes clear when modelling data using NN via Jupyter Notebooks.*

Relational Database Management Systems have been well-established since the late 1970s; at that time, the concept of Big Data was not the same as it is today. As technology rapidly advanced, the industry needed to process large amounts of data. To address this need, an open-source framework for writing and running distributed applications, called Hadoop, entered the scene (Lam, 2010). These two technologies, RDMS and Hadoop, are great; however, the implementation of both requires a high level of technical software skill. This is where APIs offer a solution to this problem, which the industry refers to as Machine Learning as a Service (MLaaS), e.g., Azure ML or AWS ML, just to mention a few (Atakan Cetinsoy et al., 2016).