**In-class Lab 1 – Scala Anonymous and Higher Order Functions**

**Question 1:**

The idea of a maximum improvement of 100X in speed for Apache Spark is based on the assumption that all the data being handled can fit in the memory. The significant improvement in speed is due to the ability of Spark to access data stored in memory more quickly than data stored on disk. When comparing to other big data processing technologies that rely on disk-based storage and processing, Spark's in-memory processing and ability to divide work across multiple machines can lead to a significant increase in speed.

To sum up, the 100X improvement in speed that is often associated with Apache Spark can be achieved when using Spark to process large datasets simultaneously across a cluster of computers, assuming that the data can fit in memory.

**Question 2:Graphical user interface, text, application, email

Description automatically generated**

**Question 3:**

Graphical user interface, text, application, email

Description automatically generated

**Question 4:**

Higher order functions are functions that take other functions as input or output, making it possible to create reusable and composable functions that can be easily combined to perform complex tasks.

In order to efficiently and adaptively handle data in a Big Data setting, where data is often large and varied, the ability to easily reuse and combine functions is crucial. This is why higher order functions are more efficient than having the function only as a method within a class, as they provide this ability to reuse and compose functions.