BACKGROUND
Since 1867 when the New York Stock Exchange first opened, time has been of the essence and so the saying: “time is money”, applies to the financial-technology world. Different systems and methods have been employed over the years to ensure that the time period is efficiently utilized to produce maximum profit achievable.

In this day and age the demand for information to be sent over long distances between buyers and sellers during a very short period of time has increased tremendously with the quote volume doubling every year, this leads to problems such as overload of the system as a whole and In more technical terms bandwidth not keeping up with the volume at a particular instance(s) in time and there is high latency.

PROBLEM STATEMENT
The aim of IPRO 313 is to create a high performance data ticker plant. Ideally, the data ticker plant has to have a sustained optimal throughput of three million price quotes per second – the current industry state of the art - with minimal latency.

OBJECTIVES
As part of a multi-semesters project, for this semester, the team has set forth the following objectives:
- Explore competitors' solutions as well as available technologies
- Develop a functioning ticker plant system
- Research methods & algorithm to be used
- Determine hardware requirements
- Update the technical user manual
- Create a website contain all information regarding this project

TECHNICAL CHALLENGES
One of the biggest challenges of this project is understanding the specifications set forth by the real-world market. They include the protocol, the structure of the data feed as well as domain knowledge of the market and financial technology.

Other challenges identified are typical of a computer engineering project. Lack of knowledge and experience on the programming language in use, inconsistencies in programming environments used, etc. all add to the obstacles encountered.

Hardware limitation is also an obstacle preventing the team from achieving desirable result.

OPRA
OPRA provides, through Market Data Vendors, last sale information and current options quotations acquired from a group of Participant Exchanges designated as the Options Price Reporting Authority. Current OPRA participants include: AMEX, BSE, CBOE, ISE, NASDAQ, NYSE Arca, and PHLX

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RECOMMENDATIONS
For future work, different components of the system should be separated to run on separate machines. In-depth testing of the system over the network should be performed to accurately assess the system’s performance. To further increase the performance, future projects should not rely on software alone but also explore more hardware solutions to the problem.

Software Team
The software team is responsible for writing the code for the individual modules that the system consists of as well as testing and optimizing them. Basically, the team is responsible for creating the system.

- Konstantin Roytman, CS – Leader
- Jose Acuna-Rohter, CS
- Jong Su Yoon, CS
- Lance Cooper, CS

Research Team
The team is responsible for researching & testing different algorithms that could be used by the software team.

- Tarun Anupoju, CPE – Leader
- Jing Kai Tan, ECE

Web Design/ IPRO Team
The team is responsible for handling all the IPRO deliverables as well as design a website for the project.

- Khanh Duong, CPE – Leader
- Martin Kolodziej, ECE
- Oluwaseun Shonubi, ECE