



# Execution System Developer Take Home Project

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## Problem Description

Write an efficient C++ program that parses trades from a NASDAQ ITCH 5.0 tick data file and outputs a running volume-weighted average price (VWAP) for each stock at every hour including market close.

## Data

Download raw ITCH 5.0 data from the following link:

[https://emi.nasdaq.com/ITCH/Nasdaq%20ITCH/01302019.NASDAQ\\_ITCH50.gz](https://emi.nasdaq.com/ITCH/Nasdaq%20ITCH/01302019.NASDAQ_ITCH50.gz)

## Specification

The format is defined by the following document:

<https://www.nasdaqtrader.com/content/technicalsupport/specifications/dataproducts/NQTVITCHspecification.pdf>