CMI/2021/Assignment 2 Dec 2021

Chennai Mathematical Institute

RDBMS and SQL Deadline: Dec 17, 2021 11:59 PM. Max Marks: 15.

Instructions:

(1) You may do this assignment in a group of a maximum of three students. Clearly mention the names and roll numbers of all group members.
(2) Wherever possible, make your assumptions explicit.
(3) Submit your assignment on moodle.
(4) Late submissions (irrespective of reasons) will be penalized 2 marks per day.

Finance in general and stock markets in particular play a significant role in the development of a country. Stocks (also called shares) allow us to own a part of a business. Stocks of various companies are bought and sold online through stock brokers. Figure 1 shows the price movement of SUN TV Network[1]. The company named SUN TV Network is listed on the stock exchange under the symbol, SUNTV. Note that, on 01-Nov-2019, the stock price opened at 527.50, touched a low of 526.05, went as high as 551.30 and finally closed at 541.70[2]. The daily price movement of such a stock is readily available on the National Stock Exchange (NSE) website[3]. Thousands of stocks of various companies are traded daily on the stock exchange. While some stocks raise in value and make the investor profitable, there are many that lose value due to various reasons such as poor management, government regulations and even scams.

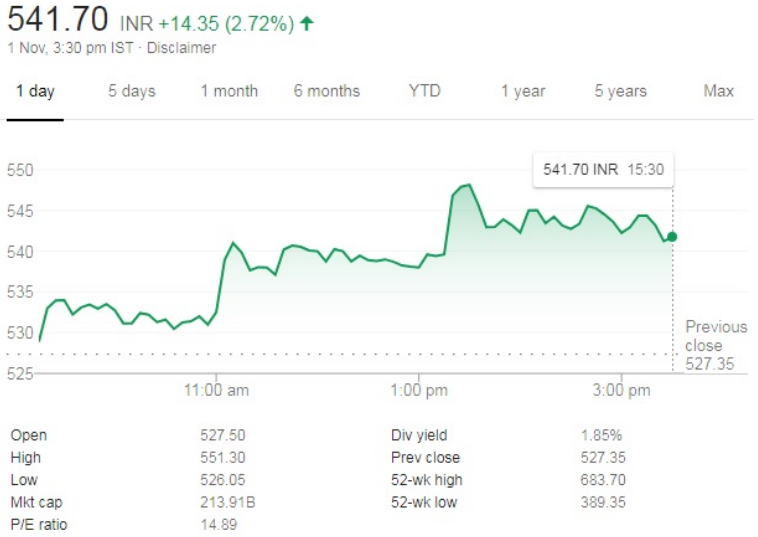

Figure 1. SUNTV stock price on 01st Nov 2019.

[1]Source google.com/finance
[2]This chart averages price over smaller time intervals.
[3]https://www.nseindia.com/products/content/equities/equities/eq_security.htm

Symbol	Date	Prev Close	Open Price	High Price	Low Price	Close Price
SUNTV	01-NOV-2019	527.35	527.50	551.30	526.05	541.70

TABLE 1. Data Format

The goal of this assignment is to demonstrate your knowledge of analyzing data using SQL. The historical stock price movement of five companies (SUNTV, ICICIBANK, APOLLOHOSP, INDIGO and RELIANCE) for the past 2 years is given to you. The data is in the format as mentioned in Table 1. Use SQL to accomplish the following tasks. Turn in one single pdf/doc file with all relevant SQL queries.

Task 1. Create a database, and create one table named *stock*. Import the historical data provided to you into the *stock* table. Although there are five files, you should import all of them into the same single table. You may use the MySQL Table Import Wizard to accomplish this task. After importing the data, let us ensure that you have all the records imported. To do this, write the SQL query to count the total number of rows in the stock table. Provide the SQL query along with the result.

Task 2. What is the highest overall (across multiple days) percentage gain and highest percentage loss per company ever achieved, assuming you bought their shares on 02-11-2017? Provide the SQL query (or queries) along with the result.

Task 3. Which were the top 5 days for each company when its stocks registered highest daily price gains? Daily gain refers to the percentage gain of close price over the prev close. For instance, as per Table 1, SUNTV registered 2.72% gain on 01-Nov-2019 ((541.70 - 527.35)*100/527.35 = 2.72).

Task 4. Provide the SQL query to find the dates in which all the five stocks closed higher than previous close. Similarly, find the days in which all the stocks closed lower than the previous close.

Task 5. Assuming you had invested Rs. 2,000 on one of these stocks during the first week of Jan 2018, what is the best gain you could have achieved during the last week of Jan 2018? Give the queries to find the best day to invest in the first week of 2018, the best day to sell during the last week of 2018, name the stock that would have given the best result and also provide the exact profit (or minimum loss, in case there is no stock that gives profit) you would have made. Note that you cannot buy fractional quantities.

You may use multiple queries, sub-queries or joins if needed for any task. However, you should not create additional tables or columns or records. If you find any task impossible to accomplish using SQL, mention it along with your explanation.