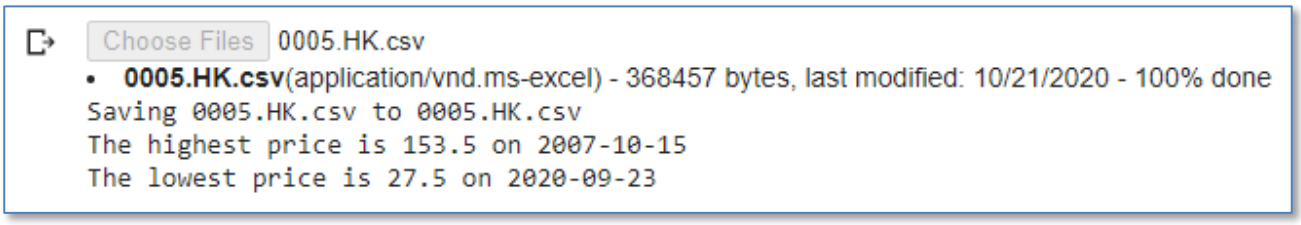
# Exercise 11

1. Yahoo Finance is a good place to find out stock information. Develop a program to read the downloaded file (For example, *0005.HK.csv* for HSBC). Then find out the highest price, lowest price and the corresponding date.




2. Upload the follow files to the "Colab Notebooks" folder in Google Drive, and then perform the corresponding analysis:
    - **user_usage.csv** – Users monthly mobile usage statistics
    - **user_device.csv** – Details of an individual use of the system, with dates and device information
    - **android_devices.csv** – Device and manufacturer data, which lists all Android devices and their model code

    A. We would like to determine if the usage patterns for users differ between different devices. For example, do users using Samsung devices use more call minutes than those using LG devices?

| device | outgoing_mins_per_month | outgoing_sms_per_month | monthly_mb |
|---|---|---|---|
| GT-I9505 | 21.97 | 4.82 | 1557.33 |
| SM-G930F | 1710.08 | 136.88 | 7267.55 |
| SM-G930F | 1710.08 | 136.88 | 7267.55 |
| D2303 | 94.46 | 35.17 | 519.12 |
| SM-G361F | 71.59 | 79.26 | 1557.33 |
| SM-G361F | 71.59 | 79.26 | 1557.33 |
| SM-G361F | 71.59 | 79.26 | 519.12 |
| SM-G361F | 71.59 | 79.26 | 519.12 |
| ONEPLUS A3003 | 30.92 | 22.77 | 3114.67 |

B. By using the data aggregation functionality, calculate the mean usage for users based on device manufacturer

| manufacturer | outgoing_mins_per_month | outgoing_sms_per_month | monthly_mb | use_id |
|---|---|---|---|---|
| **HTC** | 299.842955 | 93.059318 | 5144.077955 | 44 |
| **Huawei** | 81.526667 | 9.500000 | 1561.226667 | 3 |
| **LGE** | 111.530000 | 12.760000 | 1557.330000 | 2 |
| **Lava** | 60.650000 | 261.900000 | 12458.670000 | 2 |
| **Lenovo** | 215.920000 | 12.930000 | 1557.330000 | 2 |
| **Motorola** | 95.127500 | 65.666250 | 3946.500000 | 16 |
| **OnePlus** | 354.855000 | 48.330000 | 6575.410000 | 6 |
| **Samsung** | 191.010093 | 92.390463 | 4017.318889 | 108 |
| **Sony** | 177.315625 | 40.176250 | 3212.000625 | 16 |
| **Vodafone** | 42.750000 | 46.830000 | 5191.120000 | 1 |
| **ZTE** | 42.750000 | 46.830000 | 5191.120000 | 1 |