

# Task for Candidates

### Backend engineer

## Overview

Joe is starting to do Stock Trading, he has a list of companies and their closing stock prices for each day (in INR). Your task is to help him by providing a Web Based tool where he can upload the list (CSV File) and input which company he wants to track and give date range. Based on that, you have to give at what date he should have purchased the stocks and at what date he should have sold those stocks to maximise profit/minimise loss.

## Goals

1. **Provide the Dates of Buying and Selling:** Your tool should give the Date when Joe should Buy that stock and when he should sell that Stock. He can only perform 1 transaction a day, so he can either buy or sell in a single day. Also, Joe does not have any stocks with him initially, so he has to buy them before selling. The dates given by your tool should either maximise his profit or minimise his loss for that Stock.
2. **Provide the Numbers:** Your tool should return the Mean Stock Price, Standard Deviation of the Stock Prices and Profit made by Joe (Joe will be buying 200 shares).

## Specifications

The tool should take a CSV File and inputs on The Stock to Pick, Start and End Date of the range to be considered for Trading. If the price of stock is not available at that date, it should take the price of the stock on the previous date. It should search between the dates given by Joe. A sample CSV file is attached with this Task. Your code should be written primarily in CorePHP. You can use Libraries but not for the main functionalities.

## Points to Excel

These are not the requirements but it will be good if you can implement it in your tool to make it easy for Joe.

- Make a friendly UI. (i.e., Use datepickers for both Input Dates, make it responsive, use dropdown for the Stocks, etc... Go Creative).
- Accept multiple Date Formats from the CSV, accept stock names as Case-Insensitive.
- Add a Suggest if the Stock name entered by Joe is incorrect. Your tool will suggest the nearest matching stock name with the input.
- Follow an Object Oriented Approach in your code. (i.e., separate Util from the UI Class).
- Accept an unsorted CSV.
- Add Automated Test cases. (i.e., PHPUnit, Selenium, Codeception, etc).

## What we will be checking in detail

### 1. Code Structure and Quality

We will be checking what code structure you are following and if it is consistent throughout the Project. We will also check what code standards/convention you are following, including indentation and braces style.

### 2. Handling of Errors

We will check how you are handling Errors and Edge Cases without explicitly defining each situation. These include but not limited to Empty/Invalid/Out of range Inputs. Under no circumstances should your code crash or throw an Exception. But we do not want you to put everything inside a big try/catch block.

### 3. Performance of the Code for Large Data Inputs

We will check how your code performs when there are thousands of Data points in the CSV. So try to make your code as efficient as possible.

## Finally

You can share your code on Github, GitLAB, Bitbucket or any other VCS Service. We will execute that in the Core PHP7.2 environment created by using [Remi's Repository](#) and it's default extensions. If there are any additional Steps to run, please mention that in the README.md of your repository.

If Github is an issue, then you can also share the zip file of the Code on Email with the steps to execute.

## All the Best!