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# Homework 1

The program was implemented using following steps.

- Step 1: Implementation of csv reader part
  - I used getline c++ function to read lines from local csv file.
  - First six lines were skipped using for loop because they contained other metadata and not the actual data.
  - Each of the following line was read by following logic:

```
getline( &: infile,  &: date_value,  dlm: ',');
getline( &: infile,  &: rate_value,  dlm: '\n');

date.push_back(date_value);
rate.push_back(atof(rate_value.c_str()));
```

  - As each line is a comma separated line containing two variables, the first variable was read until the character ‘,’ was identified and the second variable was read until the ‘\n’ character was encountered.
  - Rate value was casted from string to double.
- Step 2: Implementation of average function
  - Used for loop to compute sum of all elements of the input vector.
  - Divided the computed sum by the size of input vector to get the average.
  - Return the computed average.
- Step 3: Implementation of find rate function.
  - Used for loop to iterate over the date vector
  - If the target date matches with the current date in the loop, return the current date in the loop.
- Step 4: User interaction:
  - User is prompted to enter the date.
  - Following validations are performed on the date. If the input date fails any of these validations, the user is prompted again to enter the date.
    - Length of the date string must be 7
    - Date must be in format yyyy-mm
    - Year must be between 1919 to 2013
    - Month must be between 1 to 12
    - Date must be between 1919-01 to 2013-07
- Step 5: Call average function to pre-compute average rate.
- Step 6
  - Call find rate function to get the rate of the date entered by the user.
  - Compute the difference and return the value.