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#include <stdio.h>
#include <stdlib.h>
#include <string.h>

#define MAX_LINE 256
#define MAX_DAYS 400 // Approx. 365 days + buffer

typedef struct {
    char date[11]; // YYYY-MM-DD + null
    double close;
} StockData;

typedef struct {
    char date[11];
    double pct_change;
} PctChange;

int main() {
    FILE *input = fopen("dji_data.csv", "r");
    if (!input) {
        fprintf(stderr, "Error: Cannot open dji_data.csv\n");
        return 1;
    }

    // Arrays to store data
    StockData data[MAX_DAYS];
    PctChange changes[MAX_DAYS - 1];
    int n = 0;

    // Skip header
    char line[MAX_LINE];
    fgets(line, MAX_LINE, input);

    // Read CSV
    while (fgets(line, MAX_LINE, input) && n < MAX_DAYS) {
        char *token = strtok(line, ",");
        if (token) strncpy(data[n].date, token, 10);
        token = strtok(NULL, ",");
        if (token) data[n].close = atof(token);
    }
}

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    n++;
}
fclose(input);

// Calculate percentage changes
for (int i = 1; i < n; i++) {
    double prev = data[i-1].close;
    double curr = data[i].close;
    changes[i-1].pct_change = ((curr - prev) / prev) * 100.0;
    strncpy(changes[i-1].date, data[i].date, 10);
}

// Write results to CSV
FILE *output = fopen("dji_pct_change.csv", "w");
if (!output) {
    fprintf(stderr, "Error: Cannot create dji_pct_change.csv\n");
    return 1;
}
fprintf(output, "Date,Pct_Change\n");
for (int i = 0; i < n-1; i++) {
    fprintf(output, "%s,%.4f\n", changes[i].date, changes[i].pct_change);
}
fclose(output);

// Print summary
printf("Processed %d days. Output saved to dji_pct_change.csv\n", n);
return 0;
}

```