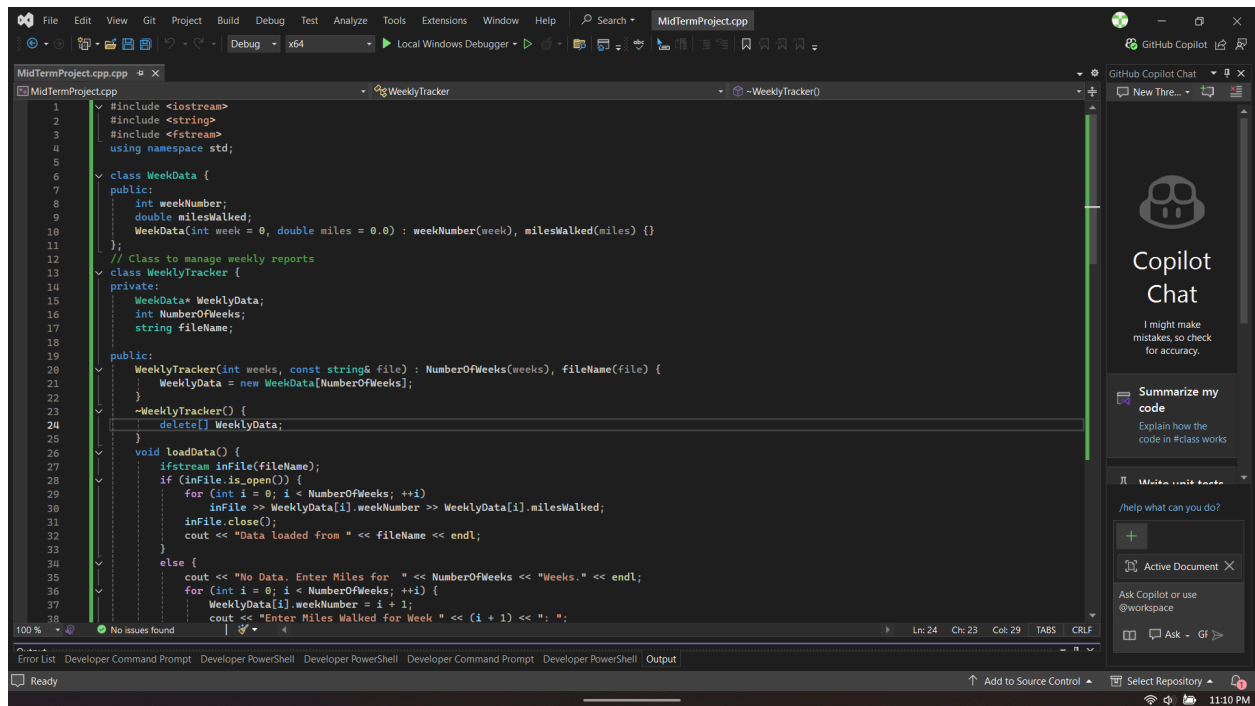


Brief Explanation of Program:

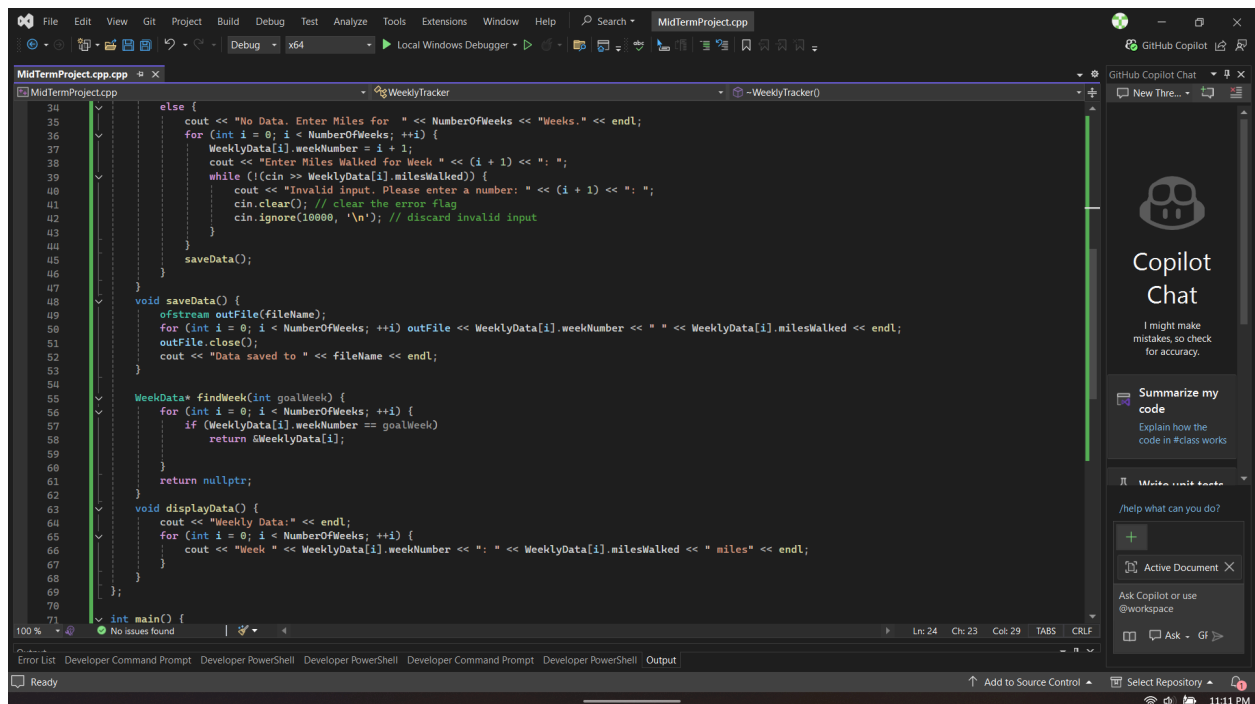
This is a simple Miles Tracker that records and manages the miles walked over a period of four weeks. It automatically saves your weekly miles into a simple text file. When you run the program again it loads the previously saved miles. So in all it allows the user to input weekly walking data, saves the data to a txt file and can load it back when the program is run again.

Concept Uses: The program incorporates all the concepts listed like File Types, Pointers, Arrays, a Search algorithm, Strings, File I/O and two classes.

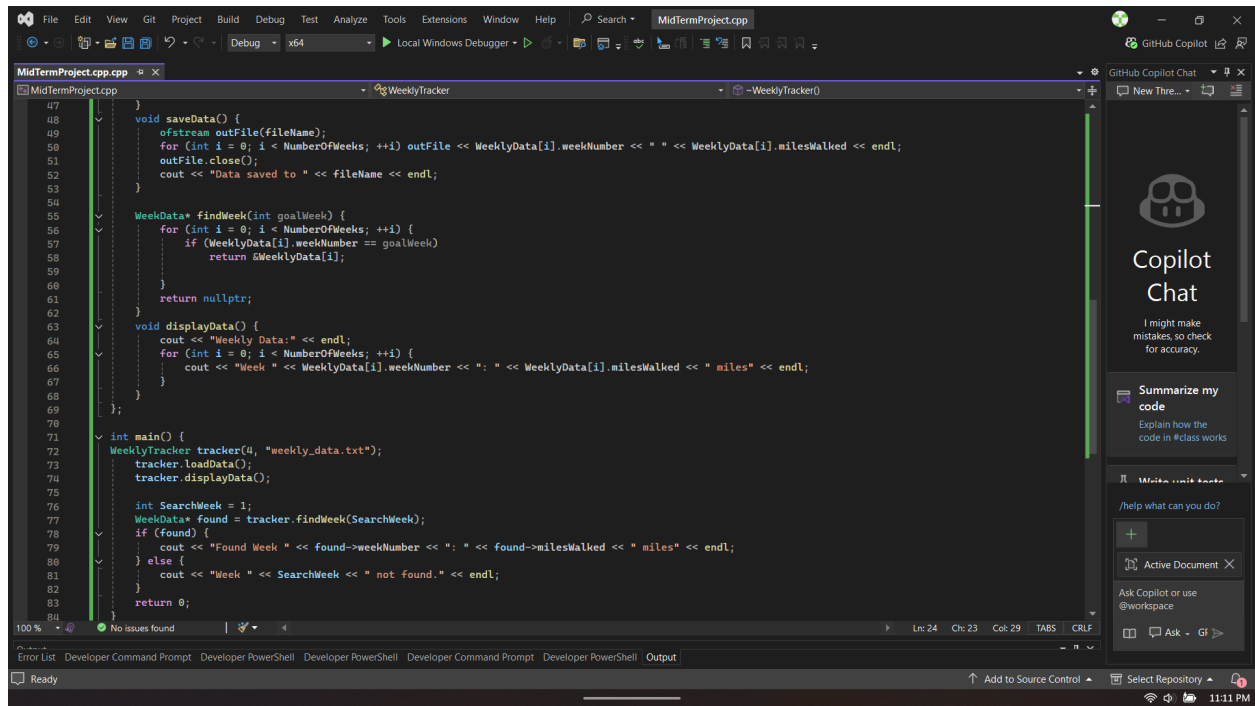
Screenshots of Program running: Program Code:



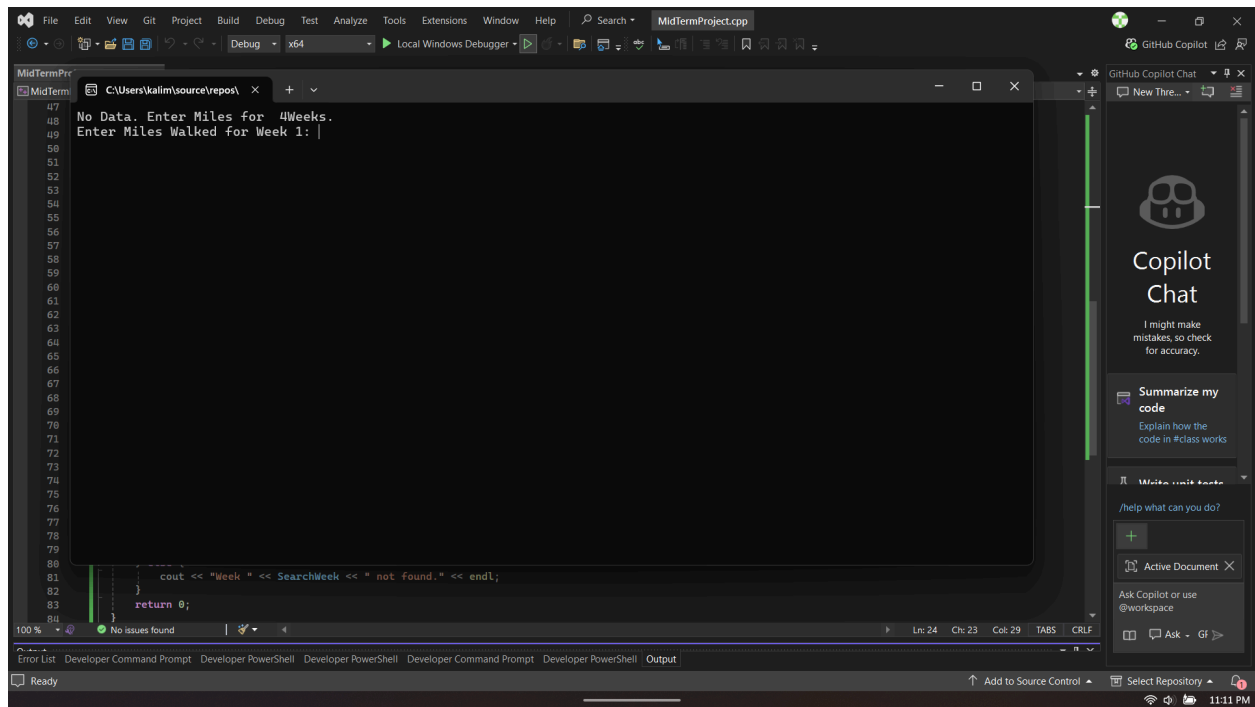
```
1 #include <iostream>
2 #include <string>
3 #include <fstream>
4 using namespace std;
5
6 class WeekData {
7 public:
8     int weekNumber;
9     double milesWalked;
10    WeekData(int week = 0, double miles = 0.0) : weekNumber(week), milesWalked(miles) {}
11 };
12 // Class to manage weekly reports
13 class WeeklyTracker {
14 private:
15     WeekData* WeeklyData;
16     int NumberOfWeeks;
17     string fileName;
18
19 public:
20    WeeklyTracker(int weeks, const string& file) : NumberOfWeeks(weeks), fileName(file) {
21        WeeklyData = new WeekData[NumberOfWeeks];
22    }
23    ~WeeklyTracker() {
24        delete[] WeeklyData;
25    }
26    void loadData() {
27        ifstream inFile(fileName);
28        if (inFile.is_open()) {
29            for (int i = 0; i < NumberOfWeeks; ++i)
30                inFile >> WeeklyData[i].weekNumber >> WeeklyData[i].milesWalked;
31            inFile.close();
32            cout << "Data loaded from " << fileName << endl;
33        }
34        else {
35            cout << "No Data. Enter Miles for " << NumberOfWeeks << "Weeks." << endl;
36            for (int i = 0; i < NumberOfWeeks; ++i) {
37                WeeklyData[i].weekNumber = i + 1;
38                cout << "Enter Miles Walked for Week " << (i + 1) << ": ";
39            }
40        }
41    }
42    void saveData() {
43        ofstream outFile(fileName);
44        for (int i = 0; i < NumberOfWeeks; ++i) outFile << WeeklyData[i].weekNumber << " " << WeeklyData[i].milesWalked << endl;
45        outFile.close();
46        cout << "Data saved to " << fileName << endl;
47    }
48    WeekData* findWeek(int goalWeek) {
49        for (int i = 0; i < NumberOfWeeks; ++i) {
50            if (WeeklyData[i].weekNumber == goalWeek)
51                return &WeeklyData[i];
52        }
53        return nullptr;
54    }
55    void displayData() {
56        cout << "Weekly Data:" << endl;
57        for (int i = 0; i < NumberOfWeeks; ++i) {
58            cout << "Week " << WeeklyData[i].weekNumber << ": " << WeeklyData[i].milesWalked << " miles" << endl;
59        }
60    }
61 };
62
63 int main() {
64     int weeks;
65     string file;
66     cout << "Enter the number of weeks: ";
67     cin >> weeks;
68     while (cin.get() != '\n')
69         continue;
70     cout << "Enter the file name: ";
71     cin >> file;
72     while (cin.get() != '\n')
73         continue;
74     WeeklyTracker tracker(weeks, file);
75     tracker.loadData();
76     tracker.saveData();
77     int goalWeek;
78     cout << "Enter the week number to find: ";
79     cin >> goalWeek;
80     while (cin.get() != '\n')
81         continue;
82     WeekData* weekData = tracker.findWeek(goalWeek);
83     if (weekData != nullptr)
84         cout << "Miles walked for week " << weekData->weekNumber << " is " << weekData->milesWalked << endl;
85     else
86         cout << "No data found for week " << goalWeek << endl;
87     tracker.displayData();
88 }
```



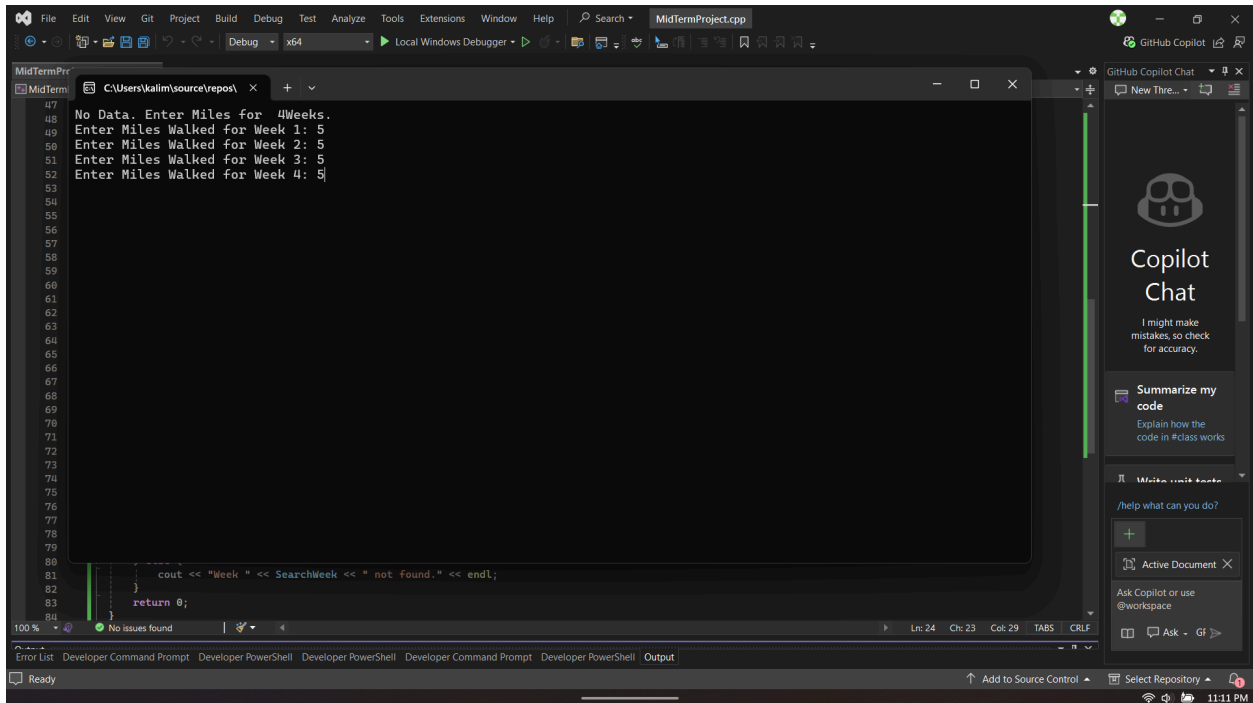
```
34 else {
35     cout << "No Data. Enter Miles for " << NumberOfWeeks << "Weeks." << endl;
36     for (int i = 0; i < NumberOfWeeks; ++i) {
37         WeeklyData[i].weekNumber = i + 1;
38         cout << "Enter Miles Walked for Week " << (i + 1) << ": ";
39         while (!(cin >> WeeklyData[i].milesWalked)) {
40             cout << "Invalid input. Please enter a number: " << (i + 1) << ": ";
41             cin.clear(); // clear the error flag
42             cin.ignore(10000, '\n'); // discard invalid input
43         }
44     }
45     saveData();
46 }
47
48 void saveData() {
49     ofstream outFile(fileName);
50     for (int i = 0; i < NumberOfWeeks; ++i) outFile << WeeklyData[i].weekNumber << " " << WeeklyData[i].milesWalked << endl;
51     outFile.close();
52     cout << "Data saved to " << fileName << endl;
53 }
54
55 WeekData* findWeek(int goalWeek) {
56     for (int i = 0; i < NumberOfWeeks; ++i) {
57         if (WeeklyData[i].weekNumber == goalWeek)
58             return &WeeklyData[i];
59     }
60     return nullptr;
61 }
62
63 void displayData() {
64     cout << "Weekly Data:" << endl;
65     for (int i = 0; i < NumberOfWeeks; ++i) {
66         cout << "Week " << WeeklyData[i].weekNumber << ": " << WeeklyData[i].milesWalked << " miles" << endl;
67     }
68 }
69
70 int main() {
71     int weeks;
72     string file;
73     cout << "Enter the number of weeks: ";
74     cin >> weeks;
75     while (cin.get() != '\n')
76         continue;
77     cout << "Enter the file name: ";
78     cin >> file;
79     while (cin.get() != '\n')
80         continue;
81     WeeklyTracker tracker(weeks, file);
82     tracker.loadData();
83     tracker.saveData();
84     int goalWeek;
85     cout << "Enter the week number to find: ";
86     cin >> goalWeek;
87     while (cin.get() != '\n')
88         continue;
89     WeekData* weekData = tracker.findWeek(goalWeek);
90     if (weekData != nullptr)
91         cout << "Miles walked for week " << weekData->weekNumber << " is " << weekData->milesWalked << endl;
92     else
93         cout << "No data found for week " << goalWeek << endl;
94     tracker.displayData();
95 }
```



Program Before Inserting Weeks Walked:



Program Inserting Weeks Walked:

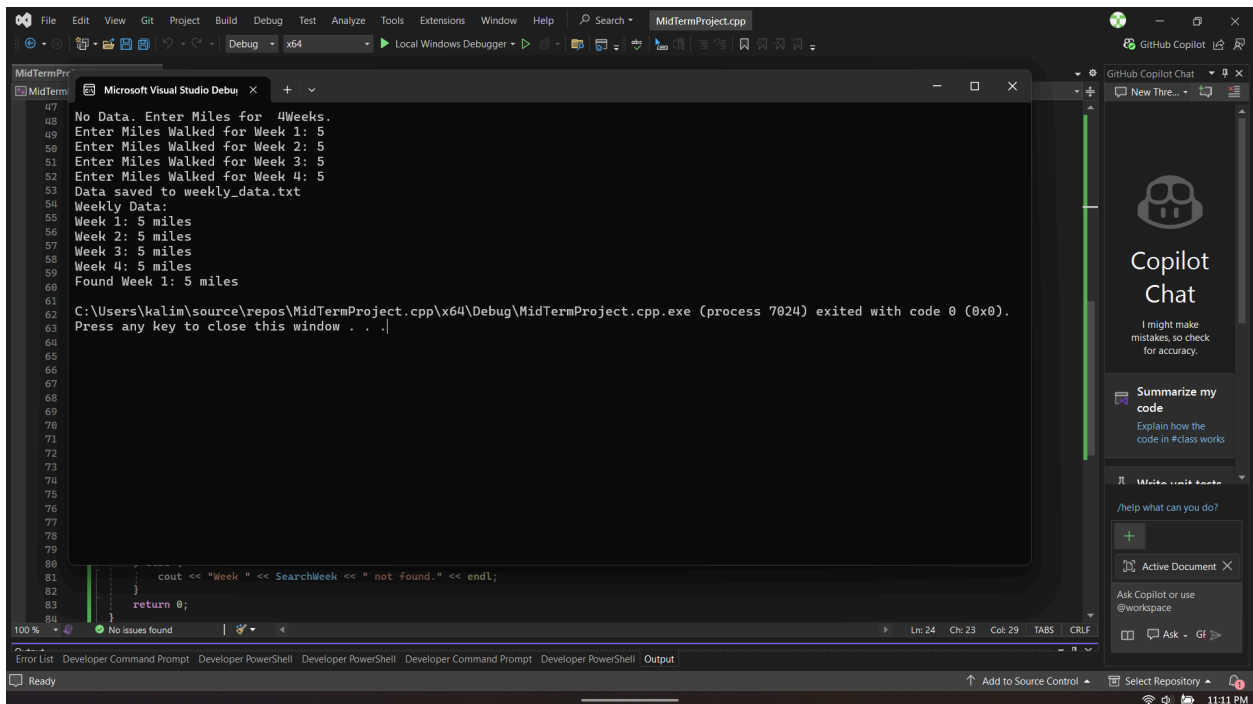


```
47 No Data. Enter Miles for 4Weeks.
48 Enter Miles Walked for Week 1: 5
49 Enter Miles Walked for Week 2: 5
50 Enter Miles Walked for Week 3: 5
51 Enter Miles Walked for Week 4: 5
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80
81 cout << "Week " << SearchWeek << " not found." << endl;
82
83 return 0;
84
```

100% No issues found | Lnc: 24 Ch: 23 Col: 29 TABS CRLF

Ready Add to Source Control Select Repository 11:11 PM

Programs After Running Weeks Walked:

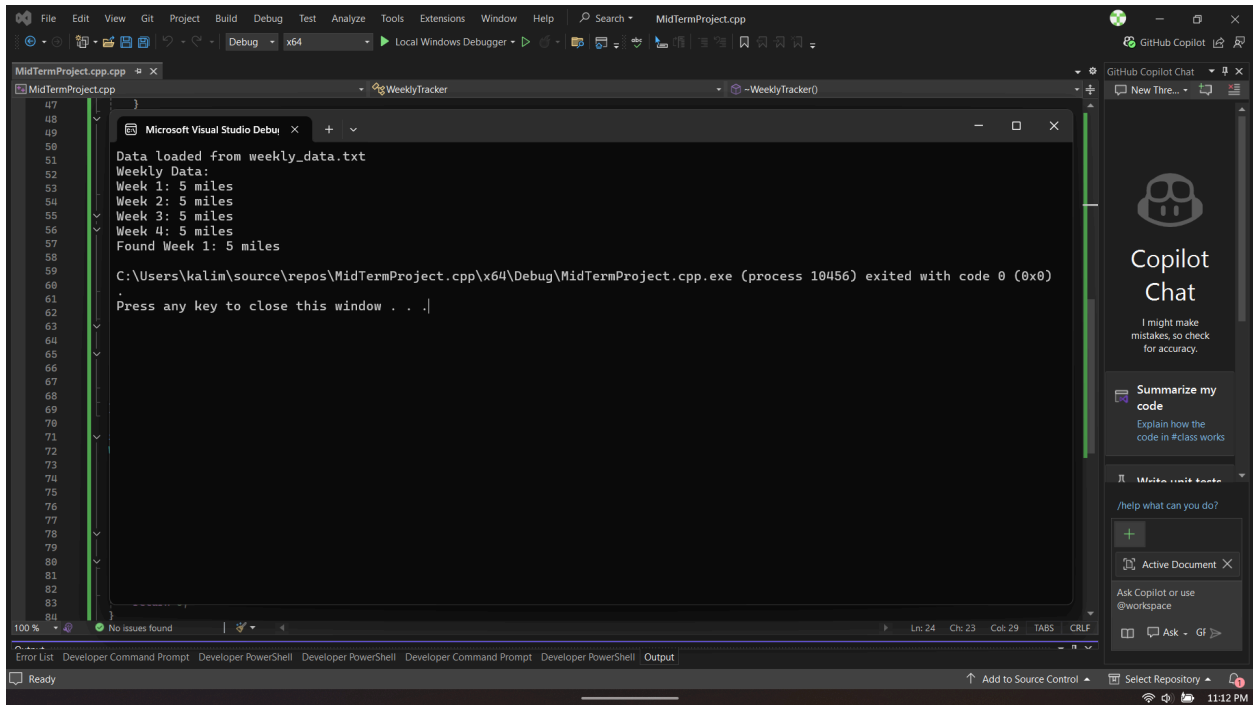


```
47 No Data. Enter Miles for 4Weeks.
48 Enter Miles Walked for Week 1: 5
49 Enter Miles Walked for Week 2: 5
50 Enter Miles Walked for Week 3: 5
51 Enter Miles Walked for Week 4: 5
52 Enter Miles Walked for Week 4: 5
53 Data saved to weekly_data.txt
54 Weekly Data:
55 Week 1: 5 miles
56 Week 2: 5 miles
57 Week 3: 5 miles
58 Week 4: 5 miles
59 Found Week 1: 5 miles
60
61 C:\Users\kalim\source\repos\MidTermProject.cpp\x64\Debug\MidTermProject.cpp.exe (process 7024) exited with code 0 (0x0).
62 Press any key to close this window . . .
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81 cout << "Week " << SearchWeek << " not found." << endl;
82
83 return 0;
84
```

100% No issues found | Lnc: 24 Ch: 23 Col: 29 TABS CRLF

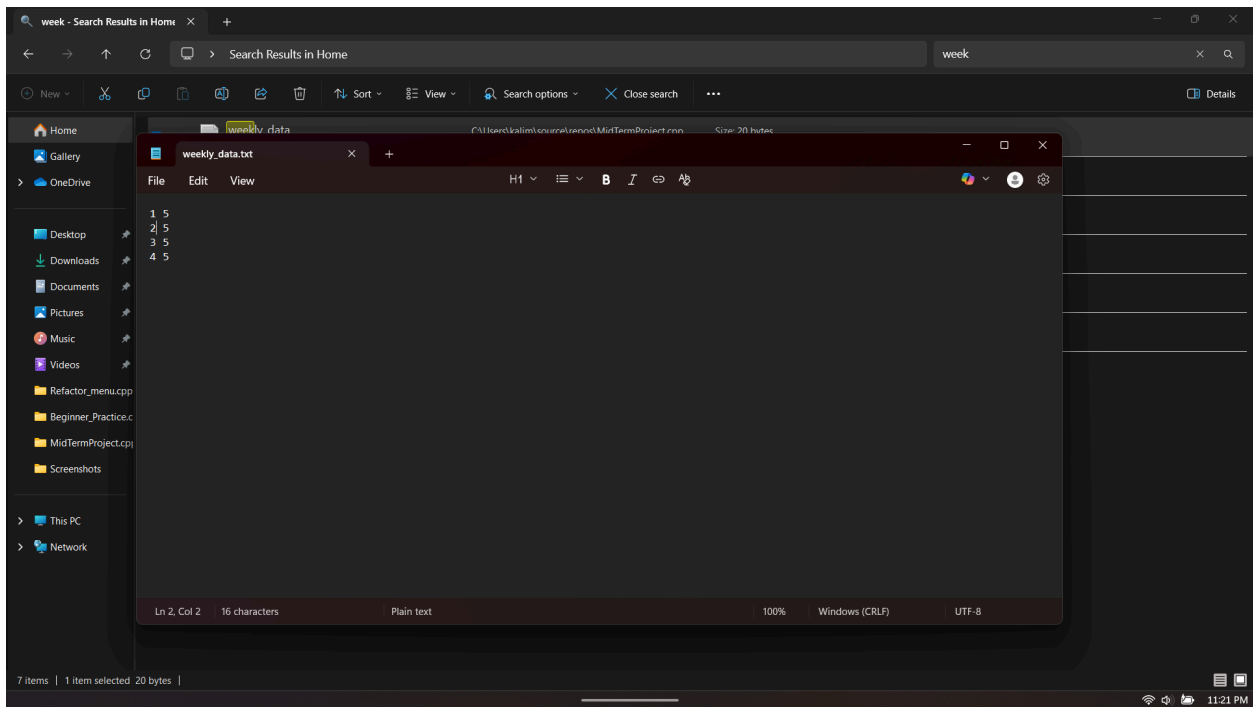
Ready Add to Source Control Select Repository 11:11 PM

Program After Loading Back In after Closed out:



```
47 }
48
49
50
51 Data loaded from weekly_data.txt
52 Weekly Data:
53 Week 1: 5 miles
54 Week 2: 5 miles
55 Week 3: 5 miles
56 Week 4: 5 miles
57 Found Week 1: 5 miles
58
59
60 C:\Users\kalim\source\repos\MidTermProject.cpp\x64\Debug\MidTermProject.cpp.exe (process 10456) exited with code 0 (0x0)
61
62 Press any key to close this window . . .
63
64
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81
82
83
84
```

Program File in Weekly_Data.txt :



```
1 5
2 5
3 5
4 5
```

Challenges You Faced:

I was trying to find a way to code the program without having to go over 100 lines and still include all of the required demonstrations like saving to file, using pointer and having two classes. After a lot of videos and learning different abbreviations and keywords I was able to include many of the requirements and learn new things. I also had a problem with the code itself. If I typed letters instead of numbers for miles, the program would stop responding. It got stuck because its input system couldn't process the incorrect text and would ask for more input. I fixed it by adding a small loop with `cin.clear()` and `cin.ignore()`.