```cpp
/*
CS1110 - Assignment 7

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*/

#include <iostream>
#include <fstream>
#include <iomanip>

using namespace std;

void readData(string[], int[], int[], int[], int[]);
void analysis(int, string[], int[], int[], int[], int[]);

int main()
{
    int n = 15;  // 15 items
    //string line;
    string name[n];
    int first[n];
    int second[n];
    int third[n];
    int fourth[n];

    readData(name, first, second, third, fourth);

    analysis(n, name, first, second, third, fourth);

    //while(getline(items, line))
    //    cout << line << '\n';

    return 0;
}

void readData(string n[], int one[], int two[], int three[], int four[])
{
    ifstream items;
    items.open("datafile.txt");

    for(int i=0; items >> n[i] >> one[i] >> two[i] >> three[i] >> four[i]; ++i);
}

void analysis(int n, string m[], int one[], int two[], int three[], int four[])
{
    int sum = 0;
    int grandTotal = 0;
    float average = 0;
    int firstHigh = 0;
    string firstHighName = " ";
    int secondHigh = 0;
    string secondHighName = " ";
    int thirdHigh = 0;
    string thirdHighName = " ";
    int fourthHigh = 0;
    string fourthHighName = " ";
    int filossValue = 0;
    int figainValue = 0;
    int fievenValue = 0;
    int selossValue = 0;
    int segainValue = 0;
    int seevenValue = 0;
    int thlossValue = 0;
    int thgainValue = 0;
    int thevenValue = 0;
```

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 67      int folossValue = 0;
 68      int fogainValue = 0;
 69      int foevenValue = 0;
 70      string change = " ";
 71      cout << "ITEM     | " << "Q1 | " << "Q2 | " << "Q3 | " << "Q4 | " << "TOTAL
PROFIT | " \
 72      << "AVERAGE PROFIT" << " | CHANGE" << endl;
 73      for(int i=0; i<n; i++)
 74      {
 75          sum = one[i] + two[i] + three[i] + four[i];
 76          grandTotal += sum;
 77          average = float(sum) / 4;
 78
 79          if(one[i] > firstHigh)
 80          {
 81              firstHigh = one[i];
 82              firstHighName = m[i];
 83          }
 84          if(two[i] > secondHigh)
 85          {
 86              secondHigh = two[i];
 87              secondHighName = m[i];
 88          }
 89          if(three[i] > thirdHigh)
 90          {
 91              thirdHigh = three[i];
 92              thirdHighName = m[i];
 93          }
 94          if(four[i] > fourthHigh)
 95          {
 96              fourthHigh = four[i];
 97              fourthHighName = m[i];
 98          }
 99
100          if(one[i] < 0)
101          {
102              filossValue++;
103          }
104          else if(one[i] > 0)
105              figainValue++;
106          if(one[i] == 0)
107              fievenValue++;
108
109          if(two[i] < 0)
110          {
111              selossValue++;
112          }
113          else if(two[i] > 0)
114              segainValue++;
115          if(two[i] == 0)
116              seevenValue++;
117
118          if(three[i] < 0)
119          {
120              thlossValue++;
121          }
122          else if(three[i] > 0)
123              thgainValue++;
124          if(three[i] == 0)
125              thevenValue++;
126
127          if(four[i] < 0)
128          {
129              folossValue++;
130          }
131          else if(four[i] > 0)
```

```
132             fogainValue++;
133         if(one[i] == 0)
134             foevenValue++;
135 
136         if(one[i] < two[i] && three[i] < four[i] && two[i] < three[i])
137             change = "Increasing";
138         else if(one[i] > two[i] && three[i] > four[i] && two[i] > three[i])
139             change = "Decreasing";
140         else if(one[i] > two[i] && three[i] < four[i])
141             change = "Down and Up";
142         else if(one[i] < two[i] && three[i] > four[i])
143             change = "Up and Down";
144 
145         cout << setw(11) << left << m[i] << setw(5) << one[i] << setw(5) << two[i]
<< setw(5) << three[i] << setw(5) \
146         << four[i] << setw(10) << right << sum << setw(16) << right << average <<
setw(15) << change << endl;
147         change = "";    // Reset change each iteration
148     }
149     cout << endl;
150     cout << "First quarter greatest: " << setw(10) << firstHighName << "  Profit: "
<< firstHigh \
151     << "  Losses: " << filossValue << "  Gains: " << figainValue << "  Even: " <<
fievenValue << endl;
152     cout << "Second quarter greatest: " << setw(10) << secondHighName << "  Profit:
" << secondHigh \
153     << "  Losses: " << selossValue << "  Gains: " << segainValue << "  Even: " <<
seevenValue << endl;
154     cout << "Third quarter greatest: " << setw(10) << thirdHighName << "  Profit: "
<< thirdHigh \
155     << "  Losses: " << thlossValue << "  Gains: " << thgainValue << "  Even: " <<
thevenValue << endl;
156     cout << "Fourth quarter greatest: " << setw(10) << fourthHighName << "  Profit:
" << fourthHigh \
157     << "  Losses: " << folossValue << "  Gains: " << fogainValue << "  Even: " <<
foevenValue << endl;
158     cout << "Profit grand total: " << grandTotal << endl;
159 }
```