Main.cpp

```
#include "testScores.h"
#include <iostream>
#include <iomanip>
#include <string>

using namespace std;

int main()
{
    TestScores ts;

    double *testScores;
    string *studentNames;

    int numStudents;

    numStudents = ts.getNumStudents();
    studentNames = ts.getNames(numStudents);
    testScores = ts.getScores(numStudents, studentNames);
    cout << setprecision(4) << "The average test score is: " <<
ts.getAverage(numStudents, testScores) << endl;
    ts.sortScores(numStudents, testScores, studentNames);

    return 0;
}
```

testScores.h

```
#include <string>
using namespace std;

class TestScores
{
```

```
private:
public:
    int getNumStudents();
    string *getNames(int);
    double *getScores(int, string *);
    double getAverage(int, double *);
    void sortScores(int, double *, string *names);
};
```

testScores.cpp

```
#include "testScores.h"
#include <iostream>
#include <iomanip>
#include <string>

using namespace std;

int TestScores::getNumStudents()
{
    int students = 0;
    cout << "Please provide the number of students: ";
    cin >> students;

    while (students <= 0)
    {
        cin.clear();
        cin.ignore();
        cout << "Please provide a valid number of students: ";
        cin >> students;
    }

    return students;
}
```

```
string *TestScores::getNames(int numStudents)
{
    string *arr = nullptr; // Array to hold the numbers
    string tempName;

    arr = new string[numStudents];

    for (int i = 0; i < numStudents; i++)
    {
        cout << "Please provide the name for student " << i + 1
<< ": ";
        cin >> tempName;

        arr[i] = tempName;
    }
    return arr;
}

double *TestScores::getScores(int numStudents, string
*studentNames)
{
    double *arr = nullptr; // Array to hold the numbers
    double tempScore;

    arr = new double[numStudents];

    for (int i = 0; i < numStudents; i++)
    {
        cout << "Please provide the score for " <<
studentNames[i] << ": ";
        cin >> tempScore;
        while (tempScore < 0)
```

```
        {
            cin.clear();
            cin.ignore();
            cout << "Please provide a valid score for " <<
studentNames[i] << ": ";
            cin >> tempScore;
        }
        arr[i] = tempScore;
    }

    return arr;
}

double TestScores::getAverage(int numStudents, double *scores)
{
    double total = 0, average;
    for (int i = 0; i < numStudents; i++)
    {
        total += scores[i];
    }
    average = total / numStudents;

    return average;
}

void TestScores::sortScores(int numStudents, double *scores,
string *names)
{
    int tempScore;
    string tempName;

    for (int i = 0; i < numStudents; i++)
    {
```

```
        for (int j = 0; j < numStudents - 1 - i; j++)
        {
            if (scores[j] > scores[j + 1])
            {
                tempScore = scores[j];
                tempName = names[j];
                scores[j] = scores[j + 1];
                names[j] = names[j + 1];
                scores[j + 1] = tempScore;
                names[j + 1] = tempName;
            }
        }
    }
    cout << "Sorted Scores:" << endl;

    for (int x = 0; x < numStudents; x++)
    {
        cout << names[x] << " scored: " << scores[x] << endl;
    }
}
```

Output:

```
Please provide the number of students: 0
Please provide a valid number of students: 5
Please provide the name for student 1: Jim
Please provide the name for student 2: Joe
Please provide the name for student 3: Josh
Please provide the name for student 4: Jake
Please provide the name for student 5: John
Please provide the score for Jim: -10
Please provide a valid score for Jim: 100
Please provide the score for Joe: 75.5
Please provide the score for Josh: 55
Please provide the score for Jake: 80.5
Please provide the score for John: 95.5
The average test score is: 81.3
Sorted Scores:
Josh scored: 55
Joe scored: 75
Jake scored: 80.5
John scored: 95.5
Jim scored: 100
```