```cpp
//Devin Hardy
//CS372
//Statistician

#include <iostream>
#include <iomanip>
#include <cstdlib>

using namespace std;

class statistic
{
private:
    float sum = 0.0;
    int length = 0;
    float largest = 0.0;
    float smallest = 0.0;

public:
    //Methods
    void initstat(float val);
    void add(float val);
    int getlength();
    float getsum();
    float getaverage();
```

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    float getlargest();
    float getsmallest();
    void emptystat();
};

//Method Details
    void statistic::initstat(float val)
    {
        sum = val;
        length = 1;
        largest = val;
        smallest = val;
    }

    void statistic::add(float val)
    {
        sum = sum + val;
        length++;
        if(smallest > val)
            smallest = val;
        if(largest < val)
            largest = val;
    }

    int statistic::getlength()
```

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{
    return length;
}

float statistic::getsum()
{
    return sum;
}

float statistic::getaverage()
{
    if(length > 0)
        return (sum / length);
    else
        return 0.0;
}

float statistic::getlargest()
{
    return largest;
}

float statistic::getsmallest()
{
    return smallest;
```

```cpp
    }

    void statistic::emptystat()
    {
        sum = 0.0;
        length = 0.0;
        largest = 0.0;
        smallest = 0.0;
    }



int main()
{
    //Stat 1
    statistic statistician1;
    statistician1.initstat(5.5);
    statistician1.add(6.6);
    statistician1.add(8.8);
    statistician1.add(-3.4);
    statistician1.add(-0.5);
    statistician1.add(4.7);
    statistician1.add(9.1);
    //Print 1
    cout << "   Statistician 1    " << endl;
    cout << "Sum     = " << statistician1.getsum() << endl;
```

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cout << "Length  = " << statistician1.getlength() << endl;
cout << "Average = " << statistician1.getaverage() << endl;
cout << endl;
statistician1.add(5.2);
statistician1.add(-3.3);
statistician1.add(-8.5);
statistician1.add(3.2);
statistician1.add(5.5);
//Print 2
cout << "Average  = " << statistician1.getaverage() << endl;
cout << "Smallest = " << statistician1.getsmallest() << endl;
cout << "Largest  = " << statistician1.getlargest() << endl;
cout << endl;

//Stat 2
statistic statistician2;
//Print 3
cout << "   Empty    " << endl;
cout << "Sum     = " << statistician2.getsum() << endl;
cout << "Length  = " << statistician2.getlength() << endl;
cout << "Average = " << statistician2.getaverage() << endl;
cout << endl;
statistician2.initstat(103);
statistician2.add(821);
statistician2.add(871);
```

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statistician2.add(487);
statistician2.add(312);
statistician2.add(245);
statistician2.add(224);
statistician2.add(623);
statistician2.add(424);
statistician2.add(432);
//Print 4
cout << "   Statistician 2    " << endl;
cout << "Sum     = " << statistician2.getsum() << endl;
cout << "Length  = " << statistician2.getlength() << endl;
cout << "Average = " << statistician2.getaverage() << endl;
cout << endl;
statistician2.emptystat();
//Print 5
cout << "   Empty    " << endl;
cout << "Sum      = " << statistician2.getsum() << endl;
cout << "Length   = " << statistician2.getlength() << endl;
cout << "Average  = " << statistician2.getaverage() << endl;
cout << "Smallest = " << statistician2.getsmallest() << endl;
cout << "Largest  = " << statistician2.getlargest() << endl;
cout << endl;

statistician2.initstat(9.3);
statistician2.add(-6.3);
```

```cpp
        statistician2.add(8.2);
        statistician2.add(7.2);
        statistician2.add(8.2);
        statistician2.add(8.8);
        statistician2.add(7.2);
        statistician2.add(-3.2);
        statistician2.add(7.6);
        statistician2.add(9.3);
        //Print 6
        cout << "   Statistician 2    " << endl;
        cout << "Sum      = " << statistician2.getsum() << endl;
        cout << "Length   = " << statistician2.getlength() << endl;
        cout << "Average  = " << statistician2.getaverage() << endl;
        cout << "Smallest = " << statistician2.getsmallest() << endl;
        cout << "Largest  = " << statistician2.getlargest() << endl;
        cout << endl;

        return 0;
}
```

```
    Statistician 1
Sum      = 30.8
Length   = 7
Average  = 4.4

Average   = 2.74167
Smallest = -8.5
Largest   = 9.1

    Empty
Sum      = 0
Length   = 0
Average  = 0

    Statistician 2
Sum      = 4542
Length   = 10
Average  = 454.2

    Empty
Sum       = 0
Length    = 0
Average   = 0
Smallest = 0
Largest   = 0

    Statistician 2
Sum       = 56.3
Length    = 10
Average   = 5.63
Smallest = -6.3
Largest   = 9.3
```