

Lab 9

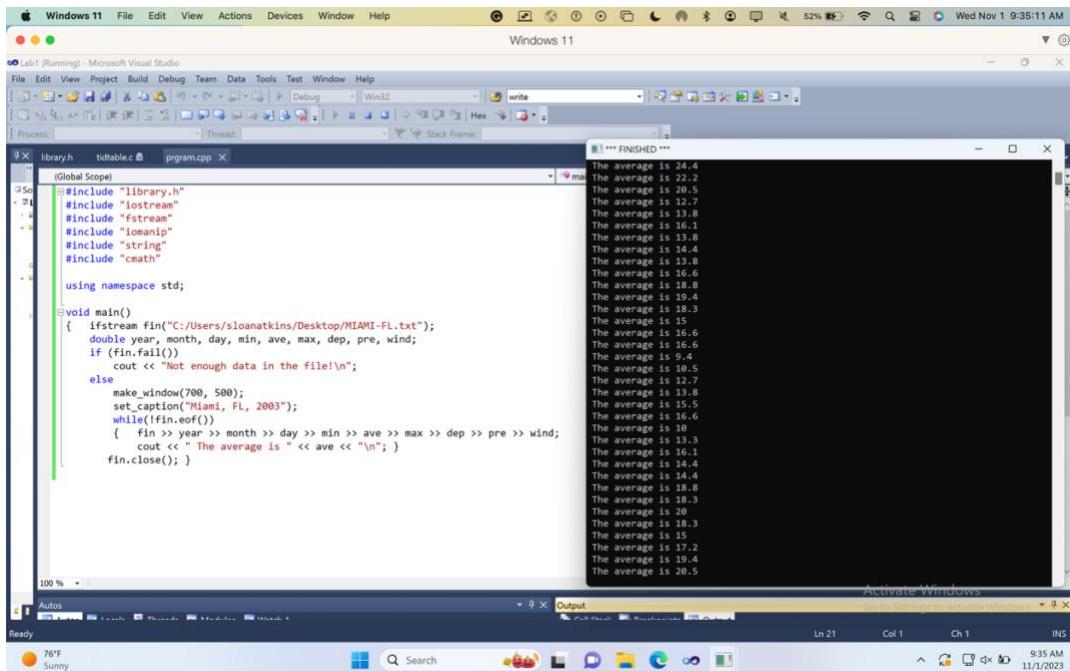
ECE 118 – Section R/RC
Lab on Wednesday at 5:05
Sloan Atkins

1. Make sure you can read the file

```
#include "library.h"
#include "iostream"
#include "fstream"
#include "iomanip"
#include "string"
#include "cmath"

using namespace std;

void main()
{
    ifstream fin("C:/Users/sloanatkins/Desktop/MIAMI-FL.txt");
    double year, month, day, min, ave, max, dep, pre, wind;
    if (fin.fail())
        cout << "Not enough data in the file!\n";
    else
        make_window(700, 500);
        set_caption("Miami, FL, 2003");
        while(!fin.eof())
        {
            fin >> year >> month >> day >> min >> ave >> max >> dep >> pre
            >> wind;
            cout << " The average is " << ave << "\n";
        }
    fin.close(); }
```



2. Turn the numbers into a graph

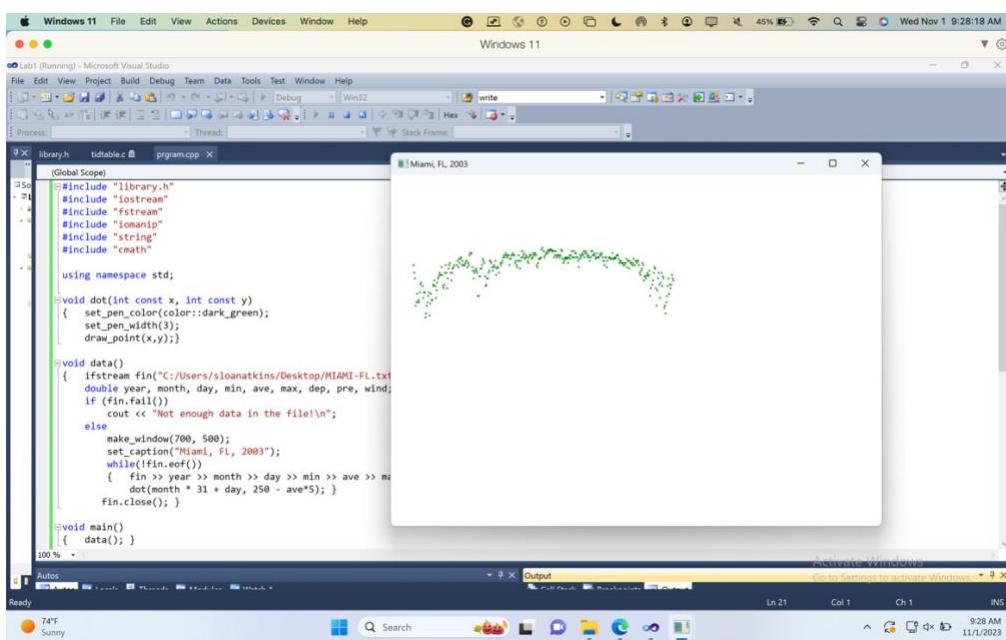
```
#include "library.h"
#include "iostream"
#include "fstream"
#include "iomanip"
#include "string"
#include "cmath"

using namespace std;

void dot(int const x, int const y)
{
    set_pen_color(color::dark_green);
    set_pen_width(3);
    draw_point(x,y);}

void data()
{
    ifstream fin("C:/Users/sloanatkins/Desktop/MIAMI-FL.txt");
    double year, month, day, min, ave, max, dep, pre, wind;
    if (fin.fail())
        cout << "Not enough data in the file!\n";
    else
        make_window(700, 500);
        set_caption("Miami, FL, 2003");
        while(!fin.eof())
        {
            fin >> year >> month >> day >> min >> ave >> max >> dep >> pre
>> wind;
            dot(month * 31 + day, 250 - ave*5); }
    fin.close(); }

void main()
{    data(); }
```



3. A good test.

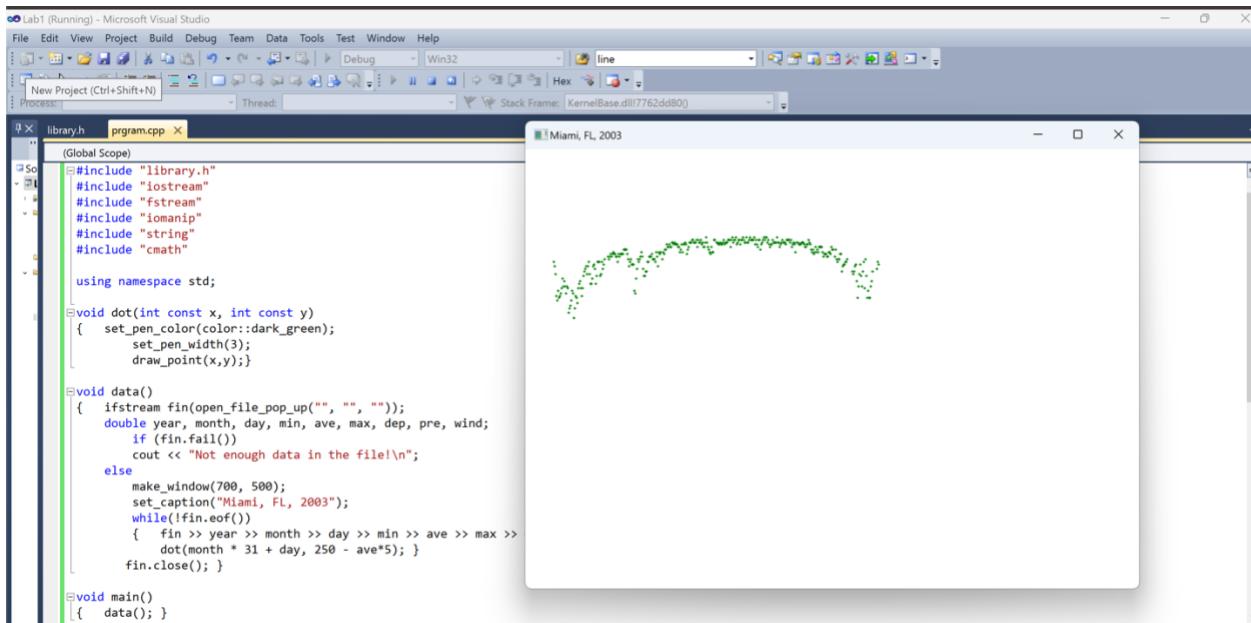
```
#include "library.h"
#include "iostream"
#include "fstream"
#include "iomanip"
#include "string"
#include "cmath"

using namespace std;

void dot(int const x, int const y)
{
    set_pen_color(color::dark_green);
    set_pen_width(3);
    draw_point(x,y);}

void data()
{
    ifstream fin(open_file_pop_up("", "", ""));
    double year, month, day, min, ave, max, dep, pre, wind;
    if (fin.fail())
        cout << "Not enough data in the file!\n";
    else
        make_window(700, 500);
        set_caption("Miami, FL, 2003");
        while(!fin.eof())
        {
            fin >> year >> month >> day >> min >> ave >> max >> dep >> pre
>> wind;
            dot(month * 31 + day, 250 - ave*5); }
    fin.close(); }

void main()
{    data(); }
```



4. Get the X coordinate right.

```
#include "library.h"
#include "iostream"
#include "fstream"
#include "iomanip"
#include "string"
#include "cmath"

using namespace std;

void dot(int const x, int const y)
{
    set_pen_color(color::dark_green);
    set_pen_width(4);
    draw_point(x,y);}

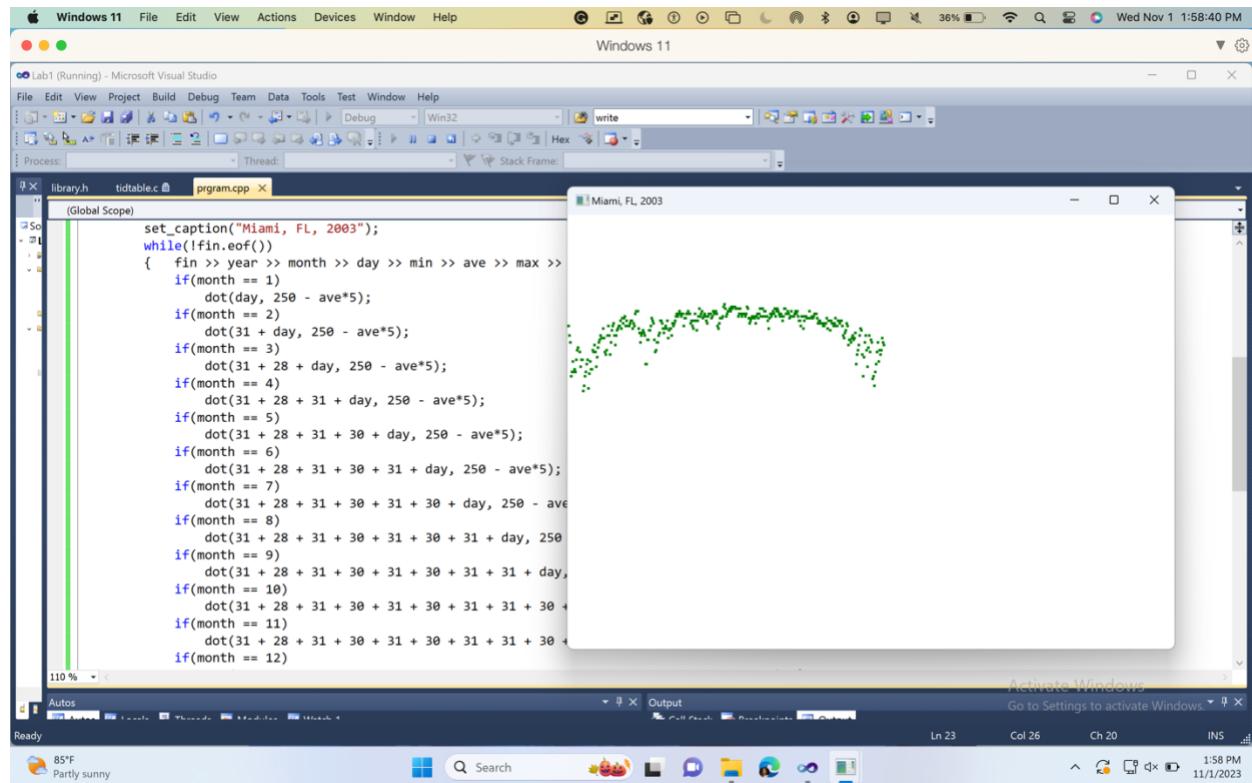
void data()
{
    ifstream fin("C:/Users/sloanatkins/Desktop/MIAMI-FL.txt");
    double year, month, day, min, ave, max, dep, pre, wind;
    if (fin.fail())
        cout << "Not enough data in the file!\n";
    else
        make_window(700, 500);
        set_caption("Miami, FL, 2003");
        while(!fin.eof())
        {
            fin >> year >> month >> day >> min >> ave >> max >> dep >> pre
>> wind;
            if(month == 1)
                dot(day, 250 - ave*5);
            if(month == 2)
                dot(31 + day, 250 - ave*5);
            if(month == 3)
                dot(31 + 28 + day, 250 - ave*5);
            if(month == 4)
                dot(31 + 28 + 31 + day, 250 - ave*5);
            if(month == 5)
                dot(31 + 28 + 31 + 30 + day, 250 - ave*5);
            if(month == 6)
                dot(31 + 28 + 31 + 30 + 31 + day, 250 - ave*5);
            if(month == 7)
                dot(31 + 28 + 31 + 30 + 31 + 30 + day, 250 - ave*5);
            if(month == 8)
                dot(31 + 28 + 31 + 30 + 31 + 30 + 31 + day, 250 -
ave*5);
            if(month == 9)
                dot(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + day, 250 -
ave*5);
            if(month == 10)
                dot(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + day,
250 - ave*5);
            if(month == 11)
```

```

dot(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31 +
day, 250 - ave*5);
    if(month == 12)
        dot(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31 +
+ day, 250 - ave*5);
    fin.close(); }

void main()
{    data(); }

```



5. Less dotiness

```
#include "library.h"
#include "iostream"
#include "fstream"
#include "iomanip"
#include "string"
#include "cmath"

using namespace std;

void dot(int const x, int const y)
{
    set_pen_color(color::dark_green);
    set_pen_width(4);
    draw_point(x,y);}

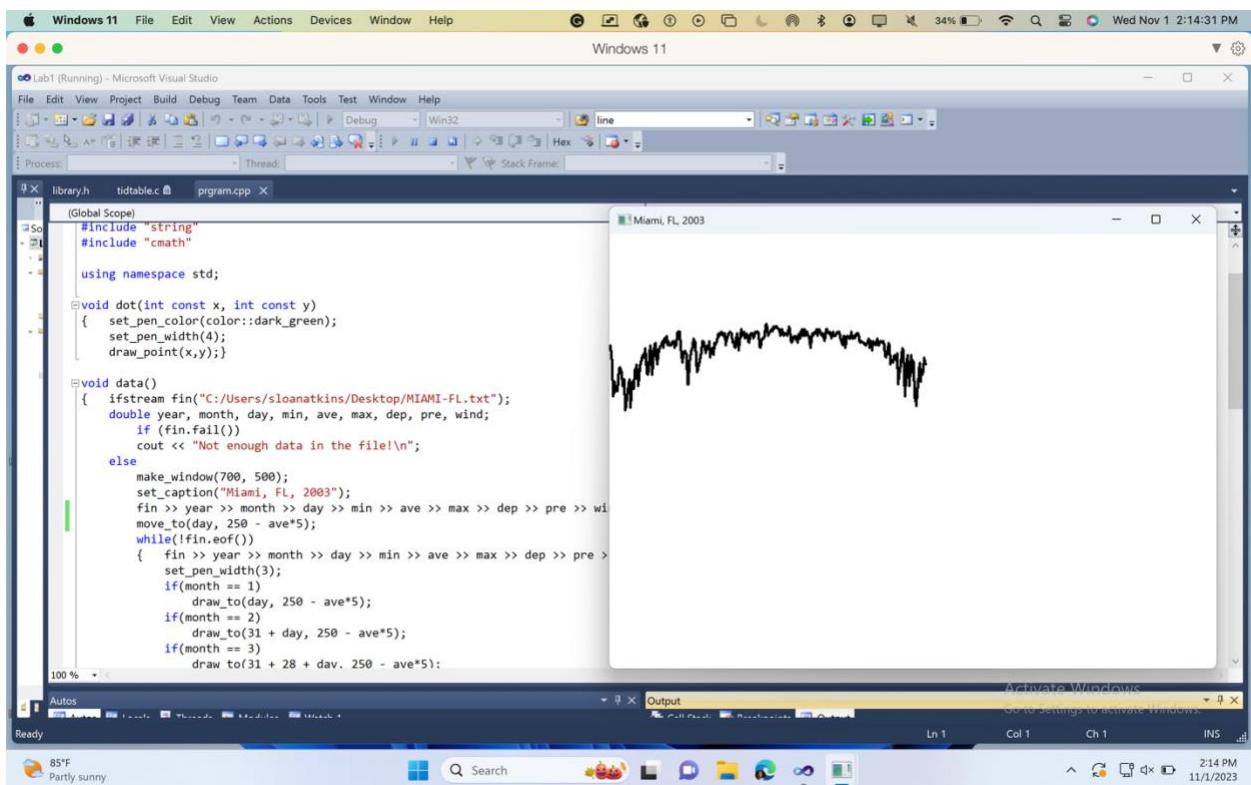
void data()
{
    ifstream fin("C:/Users/sloanatkins/Desktop/MIAMI-FL.txt");
    double year, month, day, min, ave, max, dep, pre, wind;
    if (fin.fail())
        cout << "Not enough data in the file!\n";
    else
        make_window(700, 500);
        set_caption("Miami, FL, 2003");
        fin >> year >> month >> day >> min >> ave >> max >> dep >> pre >> wind;
        move_to(day, 250 - ave*5);
        while(!fin.eof())
        {
            fin >> year >> month >> day >> min >> ave >> max >> dep >> pre >> wind;
            set_pen_width(3);
            if(month == 1)
                draw_to(day, 250 - ave*5);
            if(month == 2)
                draw_to(31 + day, 250 - ave*5);
            if(month == 3)
                draw_to(31 + 28 + day, 250 - ave*5);
            if(month == 4)
                draw_to(31 + 28 + 31 + day, 250 - ave*5);
            if(month == 5)
                draw_to(31 + 28 + 31 + 30 + day, 250 - ave*5);
            if(month == 6)
                draw_to(31 + 28 + 31 + 30 + 31 + day, 250 - ave*5);
            if(month == 7)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + day, 250 - ave*5);
            if(month == 8)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + day, 250 - ave*5);
            if(month == 9)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + day, 250 - ave*5);
            if(month == 10)
```

```

        draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 +
day, 250 - ave*5);
    if(month == 11)
        draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31
+ day, 250 - ave*5);
    if(month == 12)
        draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31
+ 30 + day, 250 - ave*5); }
fin.close(); }

void main()
{    data(); }

```



6. More information

```
#include "library.h"
#include "iostream"
#include "fstream"
#include "iomanip"
#include "string"
#include "cmath"

using namespace std;

void dot(int const x, int const y)
{
    set_pen_color(color::dark_green);
    set_pen_width(4);
    draw_point(x,y);}

void maxi()
{
    ifstream fin("C:/Users/sloanatkins/Desktop/MIAMI-FL.txt");
    double year, month, day, min, ave, max, dep, pre, wind;
    if (fin.fail())
        cout << "Not enough data in the file!\n";
    else
        make_window(700, 500);
        set_caption("Miami, FL, 2003");
        fin >> year >> month >> day >> min >> ave >> max >> dep >> pre >> wind;
        set_pen_color(color::red);
        move_to(day, 250 - max*5);
        while(!fin.eof())
        {
            fin >> year >> month >> day >> min >> ave >> max >> dep >> pre
>> wind;
            set_pen_width(3);
            if(month == 1)
                draw_to(day, 250 - max*5);
            if(month == 2)
                draw_to(31 + day, 250 - max*5);
            if(month == 3)
                draw_to(31 + 28 + day, 250 - max*5);
            if(month == 4)
                draw_to(31 + 28 + 31 + day, 250 - max*5);
            if(month == 5)
                draw_to(31 + 28 + 31 + 30 + day, 250 - max*5);
            if(month == 6)
                draw_to(31 + 28 + 31 + 30 + 31 + day, 250 - max*5);
            if(month == 7)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + day, 250 - max*5);
            if(month == 8)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + day, 250 -
max*5);
            if(month == 9)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + day, 250
- max*5);
```

```

        if(month == 10)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 +
day, 250 - max*5);
        if(month == 11)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31
+ day, 250 - max*5);
        if(month == 12)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31
+ 30 + day, 250 - max*5); }
    fin.close(); }

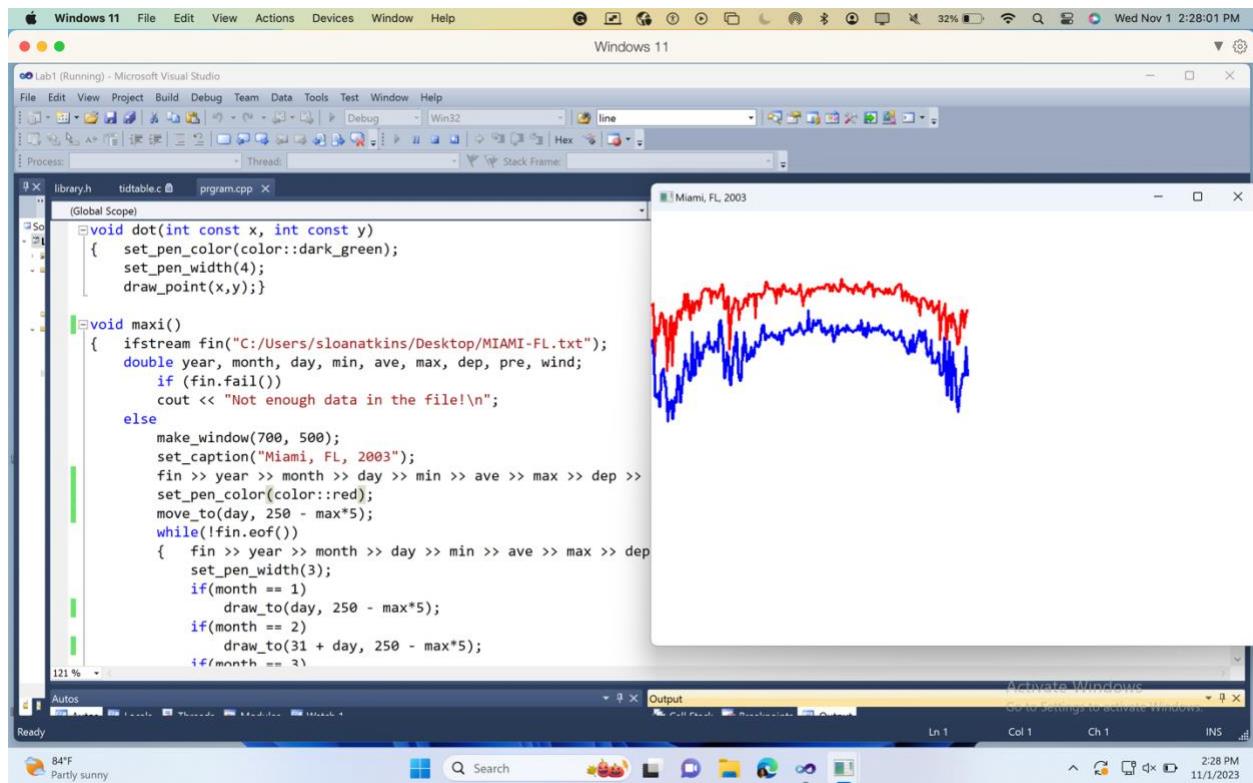
void mini()
{
    ifstream fin("C:/Users/sloanatkins/Desktop/MIAMI-FL.txt");
    double year, month, day, min, ave, max, dep, pre, wind;
    if (fin.fail())
        cout << "Not enough data in the file!\n";
    else
        set_caption("Miami, FL, 2003");
        fin >> year >> month >> day >> min >> ave >> max >> dep >> pre >>
wind;
        set_pen_color(color::blue);
        move_to(day, 250 - min*5);
        while(!fin.eof())
        {   fin >> year >> month >> day >> min >> ave >> max >> dep >> pre
>> wind;
            set_pen_width(3);
            if(month == 1)
                draw_to(day, 250 - min*5);
            if(month == 2)
                draw_to(31 + day, 250 - min*5);
            if(month == 3)
                draw_to(31 + 28 + day, 250 - min*5);
            if(month == 4)
                draw_to(31 + 28 + 31 + day, 250 - min*5);
            if(month == 5)
                draw_to(31 + 28 + 31 + 30 + day, 250 - min*5);
            if(month == 6)
                draw_to(31 + 28 + 31 + 30 + 31 + day, 250 - min*5);
            if(month == 7)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + day, 250 - min*5);
            if(month == 8)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + day, 250 -
min*5);
            if(month == 9)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + day, 250
- min*5);
            if(month == 10)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 +
day, 250 - min*5);
            if(month == 11)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31
+ day, 250 - min*5);

```

```

        if(month == 12)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31
+ 30 + day, 250 - min*5); }
    fin.close(); }

void main()
{
    maxi();
    mini();}
```



7. Make it useful

```
#include "library.h"
#include "iostream"
#include "fstream"
#include "iomanip"
#include "string"
#include "cmath"

using namespace std;

void dot(int const x, int const y)
{
    set_pen_color(color::dark_green);
    set_pen_width(4);
    draw_point(x,y);}

void maxi()
{
    ifstream fin("C:/Users/sloanatkins/Desktop/MIAMI-FL.txt");
    double year, month, day, min, ave, max, dep, pre, wind;
    if (fin.fail())
        cout << "Not enough data in the file!\n";
    else
        set_caption("Miami, FL, 2003");
        fin >> year >> month >> day >> min >> ave >> max >> dep >> pre >> wind;
        set_pen_color(color::red);
        move_to(day + 50, 150 - max*3);
        while(!fin.eof())
        {
            fin >> year >> month >> day >> min >> ave >> max >> dep >> pre >> wind;
            set_pen_width(3);
            if(month == 1)
                draw_to(day + 50, 150 - max*3);
            if(month == 2)
                draw_to(31 + day + 50, 150 - max*3);
            if(month == 3)
                draw_to(31 + 28 + day + 50, 150 - max*3);
            if(month == 4)
                draw_to(31 + 28 + 31 + day + 50, 150 - max*3);
            if(month == 5)
                draw_to(31 + 28 + 31 + 30 + day + 50, 150 - max*3);
            if(month == 6)
                draw_to(31 + 28 + 31 + 30 + 31 + day + 50, 150 - max*3);
            if(month == 7)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + day + 50, 150 - max*3);
            if(month == 8)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + day + 50, 150 - max*3);
            if(month == 9)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + day + 50, 150 - max*3);
```

```

        if(month == 10)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + day
+ 50, 150 - max*3);
        if(month == 11)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31
+ day + 50, 150 - max*3);
        if(month == 12)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31
+ 30 + day + 50, 150 - max*3); }
    fin.close(); }

void mini()
{
    ifstream fin("C:/Users/sloanatkins/Desktop/MIAMI-FL.txt");
    double year, month, day, min, ave, max, dep, pre, wind;
    if (fin.fail())
        cout << "Not enough data in the file!\n";
    else
        set_caption("Miami, FL, 2003");
    fin >> year >> month >> day >> min >> ave >> max >> dep >> pre >>
wind;
    set_pen_color(color::blue);
    move_to(day + 50, 150 - min*3);
    while(!fin.eof())
    {   fin >> year >> month >> day >> min >> ave >> max >> dep >> pre
>> wind;
        set_pen_width(3);
        if(month == 1)
            draw_to(day + 50, 150 - min*3);
        if(month == 2)
            draw_to(31 + day + 50, 150 - min*3);
        if(month == 3)
            draw_to(31 + 28 + day + 50, 150 - min*3);
        if(month == 4)
            draw_to(31 + 28 + 31 + day + 50, 150 - min*3);
        if(month == 5)
            draw_to(31 + 28 + 31 + 30 + day + 50, 150 - min*3);
        if(month == 6)
            draw_to(31 + 28 + 31 + 30 + 31 + day + 50, 150 - min*3);
        if(month == 7)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + day + 50, 150 -
min*3);
        if(month == 8)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + day + 50, 150
- min*3);
        if(month == 9)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + day +
50, 150 - min*3);
        if(month == 10)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + day
+ 50, 150 - min*3);
        if(month == 11)

```

```
        draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 31 + 30 + 31  
+ day + 50, 150 - min*3);  
        if(month == 12)  
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 31 + 30 + 31  
+ 30 + day + 50, 150 - min*3); }  
    fin.close(); }  
  
void lines()  
{    set_pen_color(color::grey);  
    set_pen_width(1);  
    move_to(50,30);  
    turn_right_by_degrees(90);  
    draw_distance(366);  
    turn_right_by_degrees(90);  
    draw_distance(181);  
    move_to(50,30);  
    draw_distance(18);  
    turn_left_by_degrees(90);  
    draw_distance(366);  
    move_to(50,30);  
    turn_right_by_degrees(90);  
    draw_distance(36);  
    turn_left_by_degrees(90);  
    draw_distance(366);  
    move_to(50,30);  
    turn_right_by_degrees(90);  
    draw_distance(54);  
    turn_left_by_degrees(90);  
    draw_distance(366);  
    move_to(50,30);  
    turn_right_by_degrees(90);  
    draw_distance(72);  
    turn_left_by_degrees(90);  
    draw_distance(366);  
    move_to(50,30);  
    turn_right_by_degrees(90);  
    draw_distance(90);  
    turn_left_by_degrees(90);  
    draw_distance(366);  
    move_to(50,30);  
    turn_right_by_degrees(90);  
    draw_distance(108);  
    turn_left_by_degrees(90);  
    draw_distance(366);  
    move_to(50,30);  
    turn_right_by_degrees(90);  
    draw_distance(126);  
    turn_left_by_degrees(90);  
    draw_distance(366);  
    move_to(50,30);  
    turn_right_by_degrees(90);  
    draw_distance(144);
```

```
turn_left_by_degrees(90);
draw_distance(366);
move_to(50,30);
turn_right_by_degrees(90);
draw_distance(162);
turn_left_by_degrees(90);
draw_distance(366);
move_to(50,30);
turn_right_by_degrees(90);
draw_distance(180);
turn_left_by_degrees(90);
draw_distance(366);

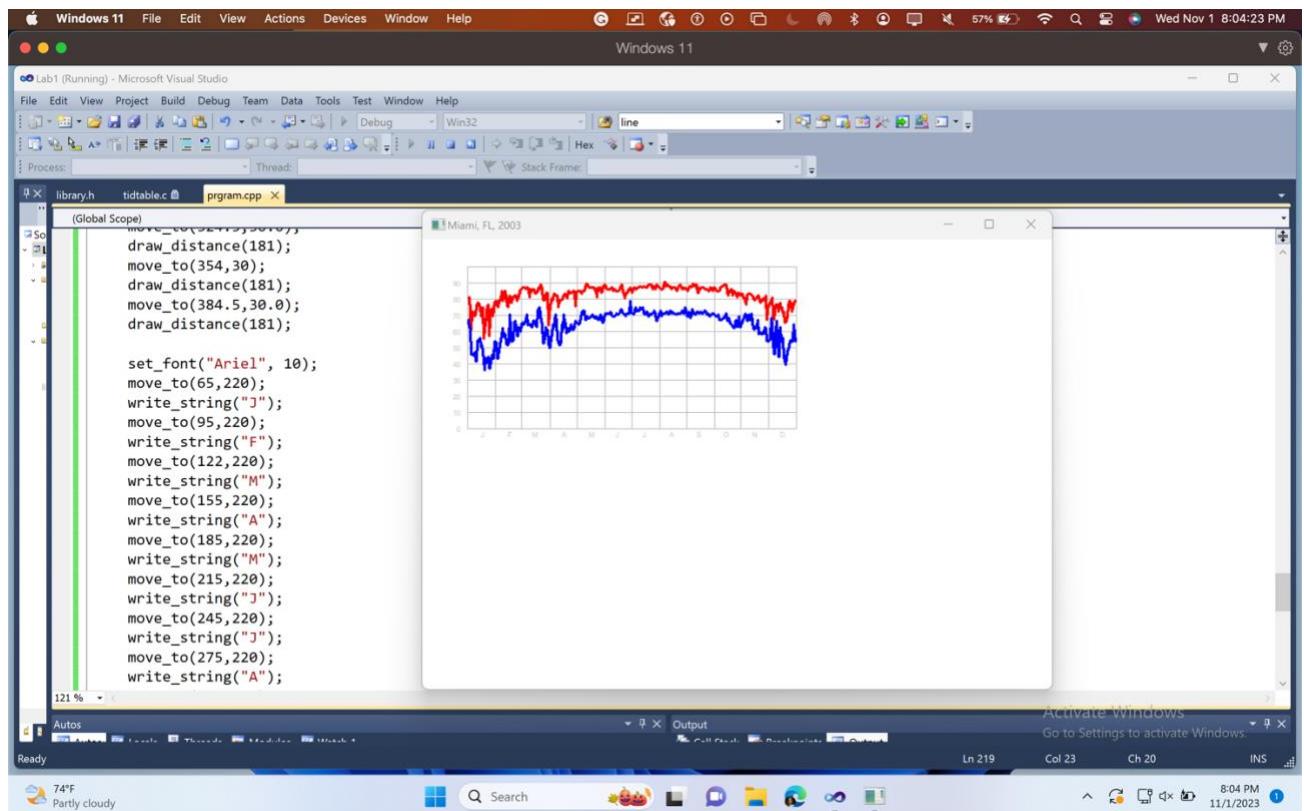
set_font("Ariel", 10);
move_to(30,34);
write_string("100");
move_to(34,52);
write_string("90");
move_to(34,70);
write_string("80");
move_to(34,88);
write_string("70");
move_to(34,106);
write_string("60");
move_to(34,124);
write_string("50");
move_to(34,142);
write_string("40");
move_to(34,160);
write_string("30");
move_to(34,178);
write_string("20");
move_to(34,196);
write_string("10");
move_to(38,214);
write_string("0");

set_pen_color(color::grey);
set_pen_width(1);
move_to(80.5,30.0);
turn_right_by_degrees(90);
draw_distance(181);
move_to(110,30);
draw_distance(181);
move_to(141.5,30.0);
draw_distance(181);
move_to(172,30);
draw_distance(181);
move_to(202.5,30.0);
draw_distance(181);
move_to(233,30);
draw_distance(181);
```

```
move_to(263.5,30.0);
draw_distance(181);
move_to(294,30);
draw_distance(181);
move_to(324.5,30.0);
draw_distance(181);
move_to(354,30);
draw_distance(181);
move_to(384.5,30.0);
draw_distance(181);

set_font("Ariel", 10);
move_to(65,220);
write_string("J");
move_to(95,220);
write_string("F");
move_to(122,220);
write_string("M");
move_to(155,220);
write_string("A");
move_to(185,220);
write_string("M");
move_to(215,220);
write_string("J");
move_to(245,220);
write_string("J");
move_to(275,220);
write_string("A");
move_to(305,220);
write_string("S");
move_to(335,220);
write_string("O");
move_to(367,220);
write_string("N");
move_to(398,220);
write_string("D");
}

void main()
{
    make_window(700, 500);
    lines();
    maxi();
    mini(); }
```



8. Last thing before you go

```
#include "library.h"
#include "iostream"
#include "fstream"
#include "iomanip"
#include "string"
#include "cmath"

using namespace std;

void dot(int const x, int const y)
{
    set_pen_color(color::dark_green);
    set_pen_width(4);
    draw_point(x,y);}

void maxi()
{
    ifstream fin("C:/Users/sloanatkins/Desktop/KEY-WEST-FL.txt");
    double year, month, day, min, ave, max, dep, pre, wind;
    if (fin.fail())
        cout << "Not enough data in the file!\n";
    else
        set_caption("Miami, FL, 2003");
        fin >> year >> month >> day >> min >> ave >> max >> dep >> pre >>
wind;
        set_pen_color(color::red);
        move_to(day + 50, 150 - max*3);
        while(!fin.eof())
        {
            fin >> year >> month >> day >> min >> ave >> max >> dep >> pre
>> wind;
            set_pen_width(3);
            if(month == 1)
                draw_to(day + 50, 150 - max*3);
            if(month == 2)
                draw_to(31 + day + 50, 150 - max*3);
            if(month == 3)
                draw_to(31 + 28 + day + 50, 150 - max*3);
            if(month == 4)
                draw_to(31 + 28 + 31 + day + 50, 150 - max*3);
            if(month == 5)
                draw_to(31 + 28 + 31 + 30 + day + 50, 150 - max*3);
            if(month == 6)
                draw_to(31 + 28 + 31 + 30 + 31 + day + 50, 150 - max*3);
            if(month == 7)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + day + 50, 150 -
max*3);
            if(month == 8)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + day + 50, 150
- max*3);
            if(month == 9)
                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + day +
50, 150 - max*3);
```

```

        if(month == 10)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + day
+ 50, 150 - max*3);
        if(month == 11)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31
+ day + 50, 150 - max*3);
        if(month == 12)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31
+ 30 + day + 50, 150 - max*3); }
    fin.close(); }

void mini()
{
    ifstream fin("C:/Users/sloanatkins/Desktop/MIAMI-FL.txt");
    double year, month, day, min, ave, max, dep, pre, wind;
    if (fin.fail())
        cout << "Not enough data in the file!\n";
    else
        set_caption("Miami, FL, 2003");
    fin >> year >> month >> day >> min >> ave >> max >> dep >> pre >>
wind;
    set_pen_color(color::blue);
    move_to(day + 50, 150 - min*3);
    while(!fin.eof())
    {   fin >> year >> month >> day >> min >> ave >> max >> dep >> pre
>> wind;
        set_pen_width(3);
        if(month == 1)
            draw_to(day + 50, 150 - min*3);
        if(month == 2)
            draw_to(31 + day + 50, 150 - min*3);
        if(month == 3)
            draw_to(31 + 28 + day + 50, 150 - min*3);
        if(month == 4)
            draw_to(31 + 28 + 31 + day + 50, 150 - min*3);
        if(month == 5)
            draw_to(31 + 28 + 31 + 30 + day + 50, 150 - min*3);
        if(month == 6)
            draw_to(31 + 28 + 31 + 30 + 31 + day + 50, 150 - min*3);
        if(month == 7)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + day + 50, 150 -
min*3);
        if(month == 8)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + day + 50, 150
- min*3);
        if(month == 9)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + day +
50, 150 - min*3);
        if(month == 10)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + day
+ 50, 150 - min*3);
        if(month == 11)

```

```

                draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31
+ day + 50, 150 - min*3);
        if(month == 12)
            draw_to(31 + 28 + 31 + 30 + 31 + 30 + 31 + 31 + 30 + 31
+ 30 + day + 50, 150 - min*3); }
    fin.close(); }

void lines()
{
    set_pen_color(color::grey);
    set_pen_width(1);
    move_to(50,30);
    turn_right_by_degrees(90);
    draw_distance(366);
    turn_right_by_degrees(90);
    draw_distance(181);
    move_to(50,30);
    draw_distance(18);
    turn_left_by_degrees(90);
    draw_distance(366);
    move_to(50,30);
    turn_right_by_degrees(90);
    draw_distance(36);
    turn_left_by_degrees(90);
    draw_distance(366);
    move_to(50,30);
    turn_right_by_degrees(90);
    draw_distance(54);
    turn_left_by_degrees(90);
    draw_distance(366);
    move_to(50,30);
    turn_right_by_degrees(90);
    draw_distance(72);
    turn_left_by_degrees(90);
    draw_distance(366);
    move_to(50,30);
    turn_right_by_degrees(90);
    draw_distance(90);
    turn_left_by_degrees(90);
    draw_distance(366);
    move_to(50,30);
    turn_right_by_degrees(90);
    draw_distance(108);
    turn_left_by_degrees(90);
    draw_distance(366);
    move_to(50,30);
    turn_right_by_degrees(90);
    draw_distance(126);
    turn_left_by_degrees(90);
    draw_distance(366);
    move_to(50,30);
    turn_right_by_degrees(90);
    draw_distance(144);
}

```

```
turn_left_by_degrees(90);
draw_distance(366);
move_to(50,30);
turn_right_by_degrees(90);
draw_distance(162);
turn_left_by_degrees(90);
draw_distance(366);
move_to(50,30);
turn_right_by_degrees(90);
draw_distance(180);
turn_left_by_degrees(90);
draw_distance(366);

set_font("Ariel", 10);
move_to(30,34);
write_string("100");
move_to(34,52);
write_string("90");
move_to(34,70);
write_string("80");
move_to(34,88);
write_string("70");
move_to(34,106);
write_string("60");
move_to(34,124);
write_string("50");
move_to(34,142);
write_string("40");
move_to(34,160);
write_string("30");
move_to(34,178);
write_string("20");
move_to(34,196);
write_string("10");
move_to(38,214);
write_string("0");

set_pen_color(color::grey);
set_pen_width(1);
move_to(80.5,30.0);
turn_right_by_degrees(90);
draw_distance(181);
move_to(110,30);
draw_distance(181);
move_to(141.5,30.0);
draw_distance(181);
move_to(172,30);
draw_distance(181);
move_to(202.5,30.0);
draw_distance(181);
move_to(233,30);
draw_distance(181);
```

```
move_to(263.5,30.0);
draw_distance(181);
move_to(294,30);
draw_distance(181);
move_to(324.5,30.0);
draw_distance(181);
move_to(354,30);
draw_distance(181);
move_to(384.5,30.0);
draw_distance(181);

set_font("Ariel", 10);
move_to(65,220);
write_string("J");
move_to(95,220);
write_string("F");
move_to(122,220);
write_string("M");
move_to(155,220);
write_string("A");
move_to(185,220);
write_string("M");
move_to(215,220);
write_string("J");
move_to(245,220);
write_string("J");
move_to(275,220);
write_string("A");
move_to(305,220);
write_string("S");
move_to(335,220);
write_string("O");
move_to(367,220);
write_string("N");
move_to(398,220);
write_string("D");
}

void main()
{
    make_window(700, 500);
    lines();
    maxi();
    mini(); }
```

