

Author: James Abreu.

Oct 30 2017

Mon Oct 30 11:40:00 2017

Distance calculator.

Enter the miles per hour of the vehicle:40

40

Enter the time the vehicle was driven:3

3

Time	Total Distance Traveled
------	-------------------------

1	40
---	----

2	80
---	----

3	120
---	-----

Process finished with exit code 0

|

```

1  #include <iostream>
2
3  using namespace std;
4
5
6  void user_info() {
7      cout << "\tAuthor: James Abreu." << endl;
8      cout << "\t" << __DATE__ << endl;
9      cout << "\t" << __TIMESTAMP__ << endl;
10     cout << endl;
11 }
12
13 int main() {
14     user_info();
15     cout << "Distance calculator." << endl;
16     /*
17      * Variable definitions
18      * =====
19      */
20     float speed{0};
21     float time{0};
22     float distance{0};
23
24     /*
25      * Ask for user input
26      * =====
27      */
28     cout << "Enter the miles per hour of the vehicle: ";
29     cin >> speed;
30     cout << "Enter the time the vehicle was driven: ";
31     cin >> time;
32
33     /*
34      * Input validation
35      */
36     if (time < 1 || distance < 0) {
37         cout << "Input validation error." << endl;
38         return -1;
39     }
40
41     /*
42      * Display values
43      */
44     int hour{1};
45     cout << "Time| Total Distance Traveled" << endl;
46     do {
47         distance = speed * hour;
48         cout << hour << " " << distance << endl;
49         hour++;
50     } while (hour <= time);
51
52     return 0;
53 }

```

Enter the total number of rain in month: November
3

3
Enter the total number of rain in month: December
9
9

Months: 12

Total Rain: 31.5

Average per month: 2.625

Process finished with exit code 0

```

1  #include <iostream>
2
3  using namespace std;
4
5
6  void user_info() {
7      cout << "\tAuthor: James Abreu." << endl;
8      cout << "\t" << __DATE__ << endl;
9      cout << "\t" << __TIMESTAMP__ << endl;
10     cout << endl;
11 }
12
13 int main() {
14     user_info();
15     cout << "Average Rain Fall Calculator." << endl;
16
17     /*
18      * =====
19      */
20     take_year:
21     cout << "Enter the number of years worth of information: ";
22     unsigned year{1};
23     cin >> year;
24
25     if (year < 1) {
26         if (year == 0) {
27             cout << "No data entries." << endl;
28             return 0;
29         } else if (year < 0) {
30             cout << "The year cannot be less than zero. " << endl;
31             cout << "Try again." << endl;
32             goto take_year;
33         }
34     }
35
36     string current_month[12]{
37         "January",
38         "February",
39         "March",
40         "April",
41         "May",
42         "June",
43         "July",
44         "August",
45         "September",
46         "October",
47         "November",
48         "December"
49     };
50
51     unsigned length_of_year{12};
52     float total_rain{0};
53     unsigned month{12};
54     unsigned index{0};
55     for (unsigned y = 1; y <= year; y++) {
56         for (unsigned m = 1; m <= month; m++) {
57             cout << "Enter the total number of rain in month: " <<
current_month[index] << endl;
58             float rain_in_inches{0};

```

```
59         cin >> rain_in_inches;
60
61         if (index == length_of_year) {
62             index = 0;
63         }
64
65         if (rain_in_inches < 0) {
66             cout << "Rain cannot be less than zero" << endl;
67             return -1;
68         }
69
70         total_rain += rain_in_inches;
71         index++;
72     }
73
74     if (y == year) {
75         break;
76     }
77 }
78
79 cout << "Months: " << month * year << endl;
80 cout << "Total Rain: " << total_rain << endl;
81 cout << "Average per month: " << total_rain / month << endl;
82
83 return 0;
84 }
```

Your expenses were less than the monthly budget by: \$13.02
Total Expenses: \$36.98
Monthly budget: \$50.00
Budget Left: \$13.02

Items:

Bag of Bread: \$3.99
Eggs: \$1.50
Milk: \$3.99
Rice: \$20.00
Tropicana Juice: \$7.50

```

1 #include <iostream>
2 #include <iomanip>
3 #include <map>
4 #include <cmath>
5 #include <string>
6
7 using namespace std;
8
9
10 void user_info() {
11     cout << "\tAuthor: James Abreu." << endl;
12     cout << "\t" << __DATE__ << endl;
13     cout << "\t" << __TIMESTAMP__ << endl;
14     cout << endl;
15 }
16
17 int main() {
18     user_info();
19     map<string, float> items;
20     float monthly_budget{0};
21     cout << "Enter Monthly Budget: ";
22     cin >> monthly_budget;
23
24     float total{0};
25     float expenses{0};
26     string item_name;
27     cout << "Enter -1 to exit" << endl;
28     int current_item {0};
29     do {
30         cout << "Enter expense: ";
31         cin >> expenses;
32         if (expenses == -1) { continue; }
33         cout << "Name of product: ";
34         cin.ignore();
35         getline(cin, item_name);
36         items[item_name] = expenses;
37         total += expenses;
38     } while (expenses != -1);
39
40     float difference = abs(total - monthly_budget);
41     if (total < monthly_budget){
42         cout << "Your expenses were less than the monthly budget by: ";
43     }else if (total > monthly_budget){
44         cout << "Your expenses were more than the monthly budget by: ";
45     }else {
46         cout << "Your expenses break even: ";
47     }
48
49     cout << "$" << setprecision(2) << fixed << difference << endl;
50     cout << "Total Expenses: $" << setprecision(2) << fixed << total << endl;
51     cout << "Monthly budget: $" << setprecision(2) << fixed << monthly_budget
    << endl;
52     cout << "Budget Left: $" << setprecision(2) << fixed << monthly_budget -
    total << endl;
53
54 // Range base loops
55     cout << endl << "Items: " << endl;
56     for(const auto& item: items){
57         cout << item.first << ": $" << item.second << endl;
58     }

```

```
59     return 0;  
60 }
```


Enter an integer representing the sides of a square: 8

8

X X X X X X X X

X X X X X X X X

X X X X X X X X

X X X X X X X X

X X X X X X X X

X X X X X X X X

X X X X X X X X

X X X X X X X X

Process finished with exit code 0

|

```
1 #include <iostream>
2 #include <iomanip>
3 #include <map>
4 #include <cmath>
5 #include <string>
6
7 using namespace std;
8
9
10 void user_info() {
11     cout << "\tAuthor: James Abreu." << endl;
12     cout << "\t" << __DATE__ << endl;
13     cout << "\t" << __TIMESTAMP__ << endl;
14     cout << endl;
15 }
16
17 int main() {
18     cout << "Enter an integer representing the sides of a square: ";
19     unsigned size {1};
20     cin >> size;
21
22     if (size < 1){
23         cout << "The size cannot be less than 1" << endl;
24         return -1;
25     }
26
27     for (unsigned i = 1; i <= size; i++){
28         for (unsigned j = 1; j <= size; j++){
29             cout << "X" << " ";
30         }
31         cout << endl;
32     }
33     return 0;
34 }
```

Author: James Abreu.

Oct 31 2017

Tue Oct 31 15:54:15 2017

Line count: 200

Running total: 105527

Average of Numbers: 527.64

```
1  #include <iostream>
2  #include <fstream>
3  #include <string>
4  #include <iomanip>
5
6  using namespace std;
7
8  int main ()
9  {
10     cout << "Author: James Abreu." << endl;
11     cout << __DATE__ << endl;
12     cout << __TIMESTAMP__ << endl;
13     cout << endl;
14     fstream file{ "Random.txt" };
15     if (!file.is_open ())
16     {
17         cout << "The file could not be found." << endl;
18         return -1;
19     }
20
21     float running_total{ 0 };
22     string num{ 0 };
23     int line_count{ 0 };
24     while (!file.eof ())
25     {
26         file >> num;
27         running_total += stol (num);
28         num.empty ();
29         line_count++;
30     }
31
32     cout << "Line count: " << line_count << endl;
33     cout << "Running total: " << running_total << endl;
34     cout << "Average of Numbers: " << setprecision (2) << fixed <<
        running_total / line_count << endl;
35
36     file.close ();
37
38     cin.get ();
39     return 0;
40 }
```