

CP2L1 Script and Output

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Listing 1: CP2L1 Script

```
1  /*
2  *  =====
3  *
4  *      Filename:  CP2L1MBROD.cpp
5  *      Assignment: C++ Lab #2 Lesson 1
6  *      Title:    Ticker Tape Calculator
7  *
8  *      Description:  Outputs calculation information to file
9  *
10 *      Version:    1.0
11 *      Created:    11/08/2022
12 *      Revision:   none
13 *      Compiler:   GCC
14 *
15 *      Author:    M. Brodskiy
16 *
17 *  =====
18 */
19
20
21 // — Libraries & Directives —
22 #include <iostream> // For Console Window Communication
23 #include <string> // For Using Strings
24 #include <fstream> // For Output File Communication
25 #include <iomanip> // For Formatting Communications
26
27 using namespace std;
28
29 // PROGRAM TickerTapeCalculator:
30 int main() {
```

```

31 // — Declare Variables —
32 ofstream outfile;
33 // An output stream object will be needed
34 string filename("");
35 // The user must establish the filename
36 int accuracy;
37 // The user must define the accuracy of
information recorded to the output
38 char oper;
39 // The user must input an operation based
on a limited set of characters
40 double num;
41 // The user must input a numerical value
to be used in a calculation
42 double total = 0;
43 // A total must be updated by each calculation
44
45 // — Main Program —
46 // Introduce Program to user
47 cout << " — Ticker Tape Calculator — " << endl;
48 cout << " Enter operator and operand to " << endl;
49 cout << " run and record calculations. " << endl << endl;
50 // Ask user for filename for ticker tape
51 cout << "Enter the output file name: ";
52 cin >> filename;
53 // Specify accuracy for output
54 cout << "Enter the decimal point accuracy: ";
55 cin >> accuracy;
56 cout << fixed << setprecision(accuracy);
57 outfile << fixed << setprecision(accuracy);
58 // Establish output file stream
59 outfile.open(filename);
60
61 while (oper != 'e') {
62 // Ask user for intended operation (+,-,*,/,=,e)
63 cout << "Enter operation (+,-,*,/,=,e): ";
64 cin >> oper;
65 // IF operation is = or e
66 if (oper == '=' || oper == 'e') {
67 // Print total to ticker tape
68 cout << "Print total" << endl;
69 outfile << "=\\t" << total << endl;
70 // reset total
71 total = 0;
72 // IF operation is e

```

```

73         if (oper == 'e') break;
74         //         end forever loop
75     } //         ENDIF
76     //     ELSE
77     else {
78         //         ask user for operand
79         cout << "Enter operand: ";
80         cin >> num;
81         //         Print operation and operand to ticker tape
82         outfile << oper << "\t" << num << endl;
83         //         SWITCH operation
84         switch (oper) {
85             //         CASE +,-,*,/
86             case '+':
87                 //         Calculate update to total based on operator and operand
88                 cout << total;
89                 total = total + num;
90                 //         Print mathematical operation and updated
91                 // total to console
92                 cout << " " << oper << " " << num <<
93                 " = " << total << endl;
94                 break;
95             case '-':
96                 //         Calculate update to total based on operator and operand
97                 cout << total;
98                 total = total - num;
99                 //         Print mathematical operation and updated
100                // total to console
101                cout << " " << oper << " " << num <<
102                " = " << total << endl;
103                break;
104            case '*':
105                //         Calculate update to total based on operator and operand
106                cout << total;
107                total = total * num;
108                //         Print mathematical operation and updated
109                // total to console
110                cout << " " << oper << " " << num <<
111                " = " << total << endl;
112                break;
113            case '/':
114                //         Calculate update to total based on operator and operand
115                cout << total;
116                total = total / num;
117                //         Print mathematical operation and updated

```

```

112 total to console
113         cout << " " << oper << " " << num <<
" = " << total << endl;
114         break;
115     // CASE default
116     default:
117     // Print warning to console and ticker tape
118     cout << "ERROR: character " << oper <<
" unknown" << endl;
119     outfile << "ERROR: character " << oper <<
" unknown" << endl;
120     } // ENDCASE
121 } // ENDIF
122 } // ENDWHILE
123
124 outfile.close();
125 // Check the output file was created
126
127 if (!outfile) {
128     cout << "Unable to write to file" << endl;
129     cout << "No output generated...\n";
130     return(1);
131 }
132
133 } // ENDPROGRAM
134

```

Listing 2: CP2L1 Output

```

1  ——— Ticker Tape Calculator ———
2  Enter operator and operand to
3  run and record calculations.
4
5  Enter the output file name: TickerTape.txt
6  Enter the decimal point accuracy: 3
7  Enter operation (+,-,*,/,=,e): +
8  Enter operand: 679.275
9  0.000 + 679.275 = 679.275
10 Enter operation (+,-,*,/,=,e): -
11 Enter operand: 273.564
12 679.275 - 273.564 = 405.711
13 Enter operation (+,-,*,/,=,e): ]
14 Enter operand: 39
15 ERROR: character ] unknown

```

```
16 Enter operation (+,-,*,/,=,e): *
17 Enter operand: 2
18 405.711 * 2.000 = 811.422
19 Enter operation (+,-,*,/,=,e): /
20 Enter operand: 39
21 811.422 / 39.000 = 20.806
22 Enter operation (+,-,*,/,=,e): e
23 Print total
```