

Script started on 2023-10-26 14:42:10-05:00 [TERM="xterm" TTY="/dev/pts/2" COLUMNS: 80]
a_vitale3@ares:~\$ pwd
/home/students/a_vitale3
a_vitale3@ares:~\$ cat PickAndChoose.info
Name: Andrew Vitale

Class: CSC121

Activity: Pick and Choose

Level: 2

Description:

Allows the user to pick between the distance of two points or the midpoint of two points.

a_vitale3@ares:~\$ show-code PickAndChoose.cpp

PickAndChoose.cpp:

```
1  #include <iostream>
2  #include <cmath>
3
4  using namespace std;
5
6  void Menu();
7  void Distance();
8  void MidPoint();
9
10 string user;
11
12 int main (void)
13 {
14     bool exit = false;
15     cout << "\nWelcome to the Point Menu Program\n" << endl; //
16     while (!exit)
17     {
18         Menu();
19         cout << " Choice: ";
20         cin >> ws;
21         getline(cin, user);
22         switch (tolower(user[0]))
23         {
24             case '1': case 'd':
```

```
25             {
26                 Distance();
27                 break;
28             }
29             case '2': case 'm':
30             {
31                 MidPoint();
32                 break;
33             }
34             case '3': case 'e':
35             {
36                 exit = true;
37                 break;
38             }
39             default:
40             {
41                 cerr << "\nInvalid Choice." << endl;
42                 break;
43             }
44         }
45     }
46     cout << "\nThank you for using the Point Menu Program" << endl;
47     return 0;
48 }
49
50 void Menu()
51 {
52     cout << endl;
53     cout << " 1) Calculate Distance between two points" << endl;
54     cout << " 2) Calculate Midpoint of two points" << endl;
55     cout << " 3) Quit" << endl;
56     cout << endl;
57 }
58
59 void Distance()
60 {
61     double x1 = 0, y1 = 0, x2 = 0, y2 = 0, d = 0;
62     cout << "\nWelcome to the Distance Program\n";
63     cout << "\nFirst point: ";
64     cin >> ws;
65     if (cin.peek() == '(')
66     {
67         cin.ignore();
68     }
69     if (isdigit(cin.peek()))
70     {
71         cin >> x1;
72     }
73     else
74     {
75         cin.ignore();
76         if (isdigit(cin.peek()))
77         {
78             cin >> x1;
```

```

79         }
80     }
81     cin.ignore();
82     if (isdigit(cin.peek()))
83     {
84         cin >> y1;
85     }
86     else
87     {
88         cin.ignore();
89         if (isdigit(cin.peek()))
90         {
91             cin >> y1;
92         }
93     }
94     getline(cin, user);
95     cout << "\nSecond point: ";
96     cin >> ws;
97     if (isdigit(cin.peek()))
98     {
99         cin >> x2;
100     }
101     else
102     {
103         cin.ignore();
104         if (isdigit(cin.peek()))
105         {
106             cin >> x2;
107         }
108     }
109     cin.ignore();
110     if (isdigit(cin.peek()))
111     {
112         cin >> y2;
113     }
114     else
115     {
116         cin.ignore();
117         if (isdigit(cin.peek()))
118         {
119             cin >> y2;
120         }
121     }
122     getline(cin, user);
123     cout << "\nCalculating...\n";
124     d = pow((pow((x2 - x1), 2) + pow((y2 - y1), 2)), 0.5);
125     cout << "\n(" << x1 << ", " << y1 << ") is " << d << " units away .";
126     cout << "\nThank you for using the Distance Program.\n";
127 }
128
129 void MidPoint()
130 {
131     double x1 = 0, y1 = 0, x2 = 0, y2 = 0, x3 = 0, y3 = 0;
132     cout << "\nWelcome to the Midpoint Program\n";

```

```

133     cout << "\nFirst end-point: ";
134     cin >> ws;
135     if (cin.peek() == '(')
136     {
137         cin.ignore();
138     }
139     if (isdigit(cin.peek()))
140     {
141         cin >> x1;
142     }
143     else
144     {
145         cin.ignore();
146         if (isdigit(cin.peek()))
147         {
148             cin >> x1;
149         }
150     }
151     cin.ignore();
152     if (isdigit(cin.peek()))
153     {
154         cin >> y1;
155     }
156     else
157     {
158         cin.ignore();
159         if (isdigit(cin.peek()))
160         {
161             cin >> y1;
162         }
163     }
164     getline(cin, user);
165     cout << "\nSecond end-point: ";
166     cin >> ws;
167     if (isdigit(cin.peek()))
168     {
169         cin >> x2;
170     }
171     else
172     {
173         cin.ignore();
174         if (isdigit(cin.peek()))
175         {
176             cin >> x2;
177         }
178     }
179     cin.ignore();
180     if (isdigit(cin.peek()))
181     {
182         cin >> y2;
183     }
184     else
185     {
186         cin.ignore();

```

```
187         if (isdigit(cin.peek()))
188         {
189             cin >> y2;
190         }
191     }
192     getline(cin, user);
193     cout << "\nCalculating...\n";
194     x3 = (x1 + x2) / 2.0;
195     y3 = (y1 + y2) / 2.0;
196     cout << "\nThe MidPoint of the line segment between (" << x1 << ",
197     cout << "\nThank you for using the Midpoint Program.\n";
198 }
```

a_vitale3@ares:~\$ CPP PickAndChoose
PickAndChoose.cpp***

a_vitale3@ares:~\$ CPP Welcome to the Point Menu Program

- 1) Calculate Distance between two points
- 2) Calculate Midpoint of two points
- 3) Quit

Choice: 1

Welcome to the Distance Program

First point: 8,9

Second point: 1,35

Calculating...

(8, 9) is 26.9258 units away from (1, 35).

Thank you for using the Distance Program.

- 1) Calculate Distance between two points
- 2) Calculate Midpoint of two points
- 3) Quit

Choice: 2

Welcome to the Midpoint Program

First end-point: 4 12

Second end-point: 24 07

Calculating...

The MidPoint of the line segment between (4, 12) and (24, 7) is (14, 9.5).

Thank you for using the Midpoint Program.

- 1) Calculate Distance between two points
- 2) Calculate Midpoint of two points
- 3) Quit

Choice: j

Invalid Choice.

- 1) Calculate Distance between two points
- 2) Calculate Midpoint of two points
- 3) Quit

Choice: q

Invalid Choice.

- 1) Calculate Distance between two points
- 2) Calculate Midpoint of two points
- 3) Quit

Choice: 3

Thank you for using the Point Menu Program

a_vitale3@ares:~\$.at tpq

Q1:

How do you get the menu to repeat until they choose the quit option?

A1:

Make a while loop that runs the program when the variable is not true, add a section to the switch that will turn that variable to true when chosen.

Q2:

How do you detect when they've entered something invalid?

A2:

in the switch make the default tell them they have entered something in wrong.

Q3:

Can you easily check for both upper- and lower- case menu entries?

A3:

yes, I used tolower to fore lowercase choices.

Q4:

How can you dispose of the excess of a word they may have typed at the choice promp

A4:

Using cin >> ws and only looking at the first letter/number entered.

Q5:

How many tests would be needed to thoroughly

(i.e. the menu, the calculations, ...everything) test this application?

A5:

there would need to be at least 4 to test the menus.

(all 3 options + none/wrong entry)

a_vitale3@ares:~\$ exit
exit

Script done on 2023-10-26 14:45:25-05:00 [COMMAND_EXIT_CODE="0"]