```
1  //
2  // Application source file for A3
3  //
4  // Hal Bettle
5  //
6  // 31 August 2008
7  //
8
9  #include <iostream>
10 #include <iomanip>
11 using namespace std;
12
13 #include "CPTN230A3class_bettle.h"
14
15 #define MAX_NUM_PLANES 10
16
17 void display_a_plane(plane *);
18 void playing_with_addresses(plane **);
19
20 int main(int argc, char* argv[])
21 {
22
23     plane **all_planes;
24     plane *current_plane;
25
26     cout << "Welcome to Assignment 3\n" << endl;
27
28     cout << "There are " << plane::get_plane_count() << " actual planes." << endl;
29
30     all_planes = new plane *[MAX_NUM_PLANES];
31     for( int i = 0; i < MAX_NUM_PLANES; i++)
32     {
33         all_planes[i] = 0;
34     }
35
36     cout << "There are " << plane::get_plane_count() << " actual planes." << endl;
37     cout << endl;
38
39     current_plane = new plane;
40     cout << "There are " << plane::get_plane_count() << " actual planes." << endl;
41     current_plane->set_owner("Hal's");
42     current_plane->set_speed(100);
43     current_plane->set_altitude(1000);
44     current_plane->set_direction(90);
45     all_planes[0] = current_plane;
46     display_a_plane(current_plane);
47     display_a_plane(all_planes[0]);
48
49     current_plane = new plane;
50     current_plane->set_owner("Terry's");
51     current_plane->set_speed(200);
52     current_plane->set_altitude(2000);
53     current_plane->set_direction(180);
54     all_planes[1] = current_plane;
55
56     current_plane = new plane;
57     current_plane->set_owner("Mickey's");
58     current_plane->set_speed(300);
59     current_plane->set_altitude(3000);
60     current_plane->set_direction(270);
61     all_planes[2] = current_plane;
62
63     cout << "There are " << plane::get_plane_count() << " actual planes." << endl;
64     cout << "There are " << current_plane->get_plane_count() << " actual planes." <<
       endl;
65     cout << "There are " << all_planes[1]->get_plane_count() << " actual planes." <<
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    endl;
66
67      cout << endl;
68      playing_with_addresses(all_planes);
69
70      cout << endl;
71      delete all_planes[0];
72      cout << "There are " << plane::get_plane_count() << " actual planes." << endl;
73
74      delete all_planes[1];
75      delete all_planes[2];
76      cout << "There are " << plane::get_plane_count() << " actual planes." << endl;
77
78      delete [] all_planes;
79
80      cout << endl;
81      cout << "Thank you for using Assignment 3" << endl;
82
83      return 0;
84  }
85
86  void display_a_plane(plane *the_plane)
87  {
88      cout << the_plane->get_owner()
89           << " plane's speed is "
90           << the_plane->get_speed()
91           << ",\n"
92           << "and the altitude is "
93           << the_plane->get_altitude()
94           << " on a heading of "
95           << the_plane->get_direction()
96           << " degrees."
97           << endl;
98
99      return;
100 }
101
102 void playing_with_addresses(plane **plane_ptr_ptr)
103 {
104     plane **walking_ptr = plane_ptr_ptr;
105     int i = 0;
106
107     while(*walking_ptr != 0)
108     {
109         display_a_plane(*walking_ptr);
110         walking_ptr++;
111     }
112
113     cout << endl;
114     cout << "Address of the pointer to the array of pointers is \""
115          << &plane_ptr_ptr
116          << "\"."
117          << endl;
118     cout << "Address of the array of pointers is \""
119          << plane_ptr_ptr
120          << "\"."
121          << endl;
122     cout << (*plane_ptr_ptr)->get_owner()
123          << " plane's addresses by two other methods are \""
124          << *plane_ptr_ptr
125          << "\" == \""
126          << (*plane_ptr_ptr)->get_address()
127          << "\"."
128          << endl;
129
130     return;
```

```
131 }
132
```