```
 1 //
 2 // Application source file for A5
 3 //
 4 // Hal Bettle
 5 //
 6 // 5 September 2008
 7 //
 8
 9 #include <iostream>
10 #include <iomanip>
11 using namespace std;
12
13 #include "CPTN230A5class_foot_bettle.h"
14 #include "CPTN230A5class_meter_bettle.h"
15
16 int main(int argc, char* argv[])
17 {
18
19     cout << "Welcome to Assignment 5\n" << endl;
20
21     Foot  F0;
22     Foot  F1(1.2);
23     Foot  F2(2.4);
24     Foot  F3(4.8);
25     Foot  F4(F1);
26
27     Meter M0;
28     Meter M1(1.2);
29     Meter M2(2.4);
30     Meter M3(4.8);
31     Meter M4(M1);
32
33     Foot  F5(M1);
34     Meter M5(F1);
35
36     cout << endl;
37     cout << "F0 = " << F0.get_feet() << endl;
38     cout << "F1 = " << F1.get_feet() << endl;
39     cout << "F2 = " << F2.get_feet() << endl;
40     cout << "F3 = " << F3.get_feet() << endl;
41     cout << "F4 = " << F4.get_feet() << endl;
42     cout << "F5 = " << F5.get_feet() << endl;
43     cout << "M0 = " << M0.get_meters() << endl;
44     cout << "M1 = " << M1.get_meters() << endl;
45     cout << "M2 = " << M2.get_meters() << endl;
46     cout << "M3 = " << M3.get_meters() << endl;
47     cout << "M4 = " << M4.get_meters() << endl;
48     cout << "M5 = " << M5.get_meters() << endl;
49
50     cout << endl;
51     cout << "Demo 1" << endl;
52     cout << "F4 = F3" << endl;
53     F4 = F3;
54     cout << "F4 = " << F4.get_feet() << endl;
55
56     cout << endl;
57     cout << "Demo 2" << endl;
58     cout << "F4 = -F3" << endl;
59     F4 = -F3;
60     cout << "F3 = " << F3.get_feet() << endl;
61     cout << "F4 = " << F4.get_feet() << endl;
62
63     cout << endl;
64     cout << "Demo 3" << endl;
65     cout << "F4 = F1 + F2" << endl;
66     F4 = 0;
```

```
 67     cout << "F4 = " << F4.get_feet() << endl;
 68     F4 = F1 + F2;
 69     cout << "F4 = " << F4.get_feet() << endl;
 70
 71     cout << endl;
 72     cout << "Demo 4" << endl;
 73     cout << "F4 = F2 + F1" << endl;
 74     F4 = 0;
 75     cout << "F4 = " << F4.get_feet() << endl;
 76     F4 = F2 + F1;
 77     cout << "F4 = " << F4.get_feet() << endl;
 78
 79     cout << endl;
 80     cout << "Demo 3" << endl;
 81     cout << "F4 = F1 + F2" << endl;
 82     F4 = 0;
 83     cout << "F4 = " << F4.get_feet() << endl;
 84     F4 = F1 + F2;
 85     cout << "F4 = " << F4.get_feet() << endl;
 86
 87     cout << endl;
 88     cout << "Demo 4" << endl;
 89     cout << "F4 = F2 + F1" << endl;
 90     F4 = 0;
 91     cout << "F4 = " << F4.get_feet() << endl;
 92     F4 = F2 + F1;
 93     cout << "F4 = " << F4.get_feet() << endl;
 94
 95     cout << endl;
 96     cout << "Demo 5" << endl;
 97     cout << "F4 = F1 - F2" << endl;
 98     F4 = 0;
 99     cout << "F4 = " << F4.get_feet() << endl;
100     F4 = F1 - F2;
101     cout << "F4 = " << F4.get_feet() << endl;
102
103     cout << endl;
104     cout << "Demo 6" << endl;
105     cout << "F4 = F2 - F1" << endl;
106     F4 = 0;
107     cout << "F4 = " << F4.get_feet() << endl;
108     F4 = F2 - F1;
109     cout << "F4 = " << F4.get_feet() << endl;
110
111     cout << endl;
112     cout << "Demo 7" << endl;
113     cout << "F4 = F1 * F2" << endl;
114     F4 = 0;
115     cout << "F4 = " << F4.get_feet() << endl;
116     F4 = F1 * F2;
117     cout << "F4 = " << F4.get_feet() << endl;
118
119     cout << endl;
120     cout << "Demo 8" << endl;
121     cout << "F4 = F2 * F1" << endl;
122     F4 = 0;
123     cout << "F4 = " << F4.get_feet() << endl;
124     F4 = F2 * F1;
125     cout << "F4 = " << F4.get_feet() << endl;
126
127     cout << endl;
128     cout << "Demo 9" << endl;
129     cout << "F4 = F1 / F2" << endl;
130     F4 = 0;
131     cout << "F4 = " << F4.get_feet() << endl;
132     F4 = F1 / F2;
```

```
133     cout << "F4 = " << F4.get_feet() << endl;
134
135     cout << endl;
136     cout << "Demo 10" << endl;
137     cout << "F4 = F2 / F1" << endl;
138     F4 = 0;
139     cout << "F4 = " << F4.get_feet() << endl;
140     F4 = F2 / F1;
141     cout << "F4 = " << F4.get_feet() << endl;
142     cout << endl;
143
144     cout << "Demo 11" << endl;
145     cout << "F4 = F2 / F0" << endl;
146     F4 = 0;
147     cout << "F4 = " << F4.get_feet() << endl;
148     F4 = F2 / F0;
149     cout << "F4 = " << F4.get_feet() << endl;
150
151     cout << endl;
152     cout << "Demo 101" << endl;
153     cout << "M4 = M3" << endl;
154     M4 = M3;
155     cout << "M4 = " << M4.get_meters() << endl;
156
157     cout << endl;
158     cout << "Demo 102" << endl;
159     cout << "M4 = -M3" << endl;
160     M4 = -M3;
161     cout << "M3 = " << M3.get_meters() << endl;
162     cout << "M4 = " << M4.get_meters() << endl;
163
164     cout << endl;
165     cout << "Demo 103" << endl;
166     cout << "M4 = M1 + M2" << endl;
167     M4 = 0;
168     cout << "M4 = " << M4.get_meters() << endl;
169     M4 = M1 + M2;
170     cout << "M4 = " << M4.get_meters() << endl;
171
172     cout << endl;
173     cout << "Demo 104" << endl;
174     cout << "M4 = M2 + M1" << endl;
175     M4 = 0;
176     cout << "M4 = " << M4.get_meters() << endl;
177     M4 = M2 + M1;
178     cout << "M4 = " << M4.get_meters() << endl;
179     cout << endl;
180
181     cout << "Demo 105" << endl;
182     cout << "M4 = M1 - M2" << endl;
183     M4 = 0;
184     cout << "M4 = " << M4.get_meters() << endl;
185     M4 = M1 - M2;
186     cout << "M4 = " << M4.get_meters() << endl;
187
188     cout << endl;
189     cout << "Demo 106" << endl;
190     cout << "M4 = M2 - M1" << endl;
191     M4 = 0;
192     cout << "M4 = " << M4.get_meters() << endl;
193     M4 = M2 - M1;
194     cout << "M4 = " << M4.get_meters() << endl;
195     cout << endl;
196
197     cout << "Demo 107" << endl;
198     cout << "M4 = M1 * M2" << endl;
```

```
199     M4 = 0;
200     cout << "M4 = " << M4.get_meters() << endl;
201     M4 = M1 * M2;
202     cout << "M4 = " << M4.get_meters() << endl;
203
204     cout << endl;
205     cout << "Demo 108" << endl;
206     cout << "M4 = M2 * M1" << endl;
207     M4 = 0;
208     cout << "M4 = " << M4.get_meters() << endl;
209     M4 = M2 * M1;
210     cout << "M4 = " << M4.get_meters() << endl;
211     cout << endl;
212
213     cout << "Demo 109" << endl;
214     cout << "M4 = M1 / M2" << endl;
215     M4 = 0;
216     cout << "M4 = " << M4.get_meters() << endl;
217     M4 = M1 / M2;
218     cout << "M4 = " << M4.get_meters() << endl;
219
220     cout << endl;
221     cout << "Demo 110" << endl;
222     cout << "M4 = M2 / M1" << endl;
223     M4 = 0;
224     cout << "M4 = " << M4.get_meters() << endl;
225     M4 = M2 / M1;
226     cout << "M4 = " << M4.get_meters() << endl;
227     cout << endl;
228
229     cout << "Demo 111" << endl;
230     cout << "M4 = M1 / M0" << endl;
231     M4 = 0;
232     cout << "M4 = " << M4.get_meters() << endl;
233     M4 = M1 / M0;
234     cout << "M4 = " << M4.get_meters() << endl;
235
236     cout << endl;
237     cout << "Demo 201" << endl;
238     cout << "F4 = M3" << endl;
239     F4 = 0;
240     cout << "F4 = " << F4.get_feet() << endl;
241     F4 = M3;
242     cout << "F4 = " << F4.get_feet() << endl;
243
244     cout << endl;
245     cout << "Demo 202" << endl;
246     cout << "M4 = F3" << endl;
247     M4 = 0;
248     cout << "M4 = " << M4.get_meters() << endl;
249     M4 = F3;
250     cout << "M4 = " << M4.get_meters() << endl;
251
252     cout << endl;
253     cout << "Demo 203" << endl;
254     cout << "F4 = F1 + M1" << endl;
255     F4 = 0;
256     cout << "F4 = " << F4.get_feet() << endl;
257     F4 = F1 + M1;
258     cout << "F4 = " << F4.get_feet() << endl;
259
260     cout << endl;
261     cout << "Demo 204" << endl;
262     cout << "F4 = M1 + F1" << endl;
263     F4 = 0;
264     cout << "F4 = " << F4.get_feet() << endl;
```

```
265     F4 = M1 + F1;
266     cout << "F4 = " << F4.get_feet() << endl;
267
268     cout << endl;
269     cout << "Demo 205" << endl;
270     cout << "M4 = F1 + M1" << endl;
271     M4 = 0;
272     cout << "M4 = " << M4.get_meters() << endl;
273     M4 = F1 + M1;
274     cout << "M4 = " << M4.get_meters() << endl;
275
276     cout << endl;
277     cout << "Demo 206" << endl;
278     cout << "M4 = M1 + F1" << endl;
279     M4 = 0;
280     cout << "M4 = " << M4.get_meters() << endl;
281     M4 = M1 + F1;
282     cout << "M4 = " << M4.get_meters() << endl;
283
284     cout << endl;
285     cout << "Demo 207" << endl;
286     cout << "F4 = M1 + (Meter) F2" << endl;
287     F4 = 0;
288     cout << "F4 = " << F4.get_feet() << endl;
289     F4 = M1 + (Meter) F2;
290     cout << "F4 = " << F4.get_feet() << endl;
291
292     cout << endl;
293     cout << "Demo 208" << endl;
294     cout << "F4 = (Foot) M1 + F2" << endl;
295     F4 = 0;
296     cout << "F4 = " << F4.get_feet() << endl;
297     F4 = (Foot) M1 + F2;
298     cout << "F4 = " << F4.get_feet() << endl;
299
300     cout << endl;
301     cout << "Demo 209" << endl;
302     cout << "M4 = M1 + (Meter) F2" << endl;
303     M4 = 0;
304     cout << "M4 = " << M4.get_meters() << endl;
305     M4 = M1 + (Meter) F2;
306     cout << "M4 = " << M4.get_meters() << endl;
307
308     cout << endl;
309     cout << "Demo 210" << endl;
310     cout << "M4 = (Foot) M1 + F2" << endl;
311     M4 = 0;
312     cout << "M4 = " << M4.get_meters() << endl;
313     M4 = (Foot) M1 + F2;
314     cout << "M4 = " << M4.get_meters() << endl;
315
316     cout << endl;
317     cout << "Demo 211" << endl;
318     cout << "F4 = F1 / F2 + F3 * -F2 - F5" << endl;
319     F4 = 0;
320     cout << "F4 = " << F4.get_feet() << endl;
321     F4 = F1 / F2 + F3 * -F2 - F5;
322     cout << "F4 = " << F4.get_feet() << endl;
323
324     cout << endl;
325     cout << "Demo 212" << endl;
326     cout << "M4 = M1 / M2 + M3 * -M2 - M5" << endl;
327     M4 = 0;
328     cout << "M4 = " << M4.get_meters() << endl;
329     M4 = M1 / M2 + M3 * -M2 - M5;
330     cout << "M4 = " << M4.get_meters() << endl;
```

```
331
332     cout << endl;
333     cout << "Thank you for using Assignment 5\n" << endl;
334
335     return 0;
336 }
337
338
339 /*
340
341
342 Foot construction demos
343
344 f0 = 0
345 f1 = 1.2
346 f2 = 2.4
347 f3 = 4.8
348 f4 = f3
349 f5 = m1
350
351 Meter construction demos
352
353 m0 = 0
354 m1 = 1.2
355 m2 = 2.4
356 m3 = 4.8
357 m4 = m1
358 m5 = f1
359
360 Foot usage demos
361
362 f4 = f3
363 f4 = -f1
364 f4 = f1 + f2
365 f4 = f2 + f1
366 f4 = f1 - f2
367 f4 = f2 - f1
368 f4 = f1 * f2
369 f4 = f2 * f1
370 f4 = f1 / f2
371 f4 = f2 / f1
372 f4 = f1 / f0
373
374
375 Meter usage demos
376
377 m4 = m1
378 m4 = -m1
379 m4 = m1 + m2
380 m4 = m2 + m1
381 m4 = m1 - m2
382 m4 = m2 - m1
383 m4 = m1 * m2
384 m4 = m2 * m1
385 m4 = m1 / m2
386 m4 = m2 / m1
387 m4 = m1 / m0
388
389 Mixed object demos
390
391 f4 = m3
392 m4 = f3
393 f4 = f1 + m1
394 f4 = m1 + f1
395 m4 = f1 + m1
396 m4 = m1 + f1
```

```
397
398 f4 = m1 + (meter) f2
399 f4 = (foot) m1 + f2
400 m4 = m1 + (meter) f2
401 m4 = (foot) m1 + f2
402 f4 = f1 / f2 + f3 * -f2 - f5
403 m4 = m1 / m2 + m3 * -m2 - m5
404 */
```