```
 1: // $Id: demangle.cpp,v 1.10 2015-05-19 15:18:07-07 - - $
 2:
 3: // Demangle a typeid(X).name() string
 4:
 5: #include <cstdlib>
 6: #include <iostream>
 7: #include <list>
 8: #include <map>
 9: #include <memory>
10: #include <string>
11: #include <typeinfo>
12: #include <vector>
13:
14: using namespace std;
15:
16: #include <cxxabi.h>
17: template <typename type>
18: string demangle (const type &object) {
19:    const char *const name = typeid (object).name();
20:    int status = 0;
21:    using deleter = void (*) (void*);
22:    unique_ptr<char,deleter> result {
23:       abi::__cxa_demangle (name, nullptr, nullptr, &status),
24:       std::free,
25:    };
26:    return status == 0 ? result.get() : name;
27: }
28:
29: class foo { };
30: class bar: foo { };
31: class baz: bar { };
32: template <typename T> class tmpl { T x; };
33:
34: template <typename type>
35: void print_demangled (const string &str, const type &obj) {
36:    cout << str << " => " << sizeof obj << endl;
37:    cout << "   mangled:   " << typeid(obj).name() << endl;
38:    cout << "   demangled: " << demangle (obj) << endl;
39: }
40:
41: #define DEMANGLE(X) print_demangled (#X, X())
42: int main() {
43:    using schar = signed char;
44:    using uchar = unsigned char;
45:    using ushort = unsigned short;
46:    using uint = unsigned int;
47:    using ulong = unsigned long;
48:    using map_string_int = map<string,int>;
49:    DEMANGLE (bool);
50:    DEMANGLE (char);
51:    DEMANGLE (uchar);
52:    DEMANGLE (schar);
53:    DEMANGLE (short);
54:    DEMANGLE (ushort);
55:    DEMANGLE (int);
56:    DEMANGLE (uint);
57:    DEMANGLE (long);
58:    DEMANGLE (ulong);
```

```
59:     DEMANGLE (float);
60:     DEMANGLE (double);
61:     DEMANGLE (size_t);
62:     DEMANGLE (foo);
63:     DEMANGLE (bar);
64:     DEMANGLE (baz);
65:     DEMANGLE (tmpl<int>);
66:     DEMANGLE (vector<string>);
67:     DEMANGLE (vector<int>);
68:     DEMANGLE (list<vector<long>>);
69:     DEMANGLE (map_string_int);
70:     return 0;
71: }
72:
73: //TEST// demangle >demangle.out 2>&1
74: //TEST// mkpspdf demangle.ps demangle.cpp* demangle.out
75:
```

```
1: @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ mkc: starting demangle.cpp
2: demangle.cpp:
3:      $Id: demangle.cpp,v 1.10 2015-05-19 15:18:07-07 - - $
4: g++ -g -O0 -Wall -Wextra -rdynamic -std=gnu++11 demangle.cpp
5:          -o demangle -lglut -lGLU -lGL -lX11 -lrt -lm
6: rm -f demangle.o
7: @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@ mkc: finished demangle.cpp
```

```
 1: bool => 1
 2:    mangled:   b
 3:    demangled: bool
 4: char => 1
 5:    mangled:   c
 6:    demangled: char
 7: uchar => 1
 8:    mangled:   h
 9:    demangled: unsigned char
10: schar => 1
11:    mangled:   a
12:    demangled: signed char
13: short => 2
14:    mangled:   s
15:    demangled: short
16: ushort => 2
17:    mangled:   t
18:    demangled: unsigned short
19: int => 4
20:    mangled:   i
21:    demangled: int
22: uint => 4
23:    mangled:   j
24:    demangled: unsigned int
25: long => 8
26:    mangled:   l
27:    demangled: long
28: ulong => 8
29:    mangled:   m
30:    demangled: unsigned long
31: float => 4
32:    mangled:   f
33:    demangled: float
34: double => 8
35:    mangled:   d
36:    demangled: double
37: size_t => 8
38:    mangled:   m
39:    demangled: unsigned long
40: foo => 1
41:    mangled:   3foo
42:    demangled: foo
43: bar => 1
44:    mangled:   3bar
45:    demangled: bar
46: baz => 1
47:    mangled:   3baz
48:    demangled: baz
49: tmpl<int> => 4
50:    mangled:   4tmplIiE
51:    demangled: tmpl<int>
52: vector<string> => 24
53:    mangled:   St6vectorISsSaISsEE
54:    demangled: std::vector<std::string, std::allocator<std::string> >
55: vector<int> => 24
56:    mangled:   St6vectorIiSaIiEE
57:    demangled: std::vector<int, std::allocator<int> >
58: list<vector<long>> => 16
```

```
   59:     mangled:    St4listISt6vectorIlSaIlEESaIS2_EE
   60:     demangled: std::list<std::vector<long, std::allocator<long> >, std::a
llocator<std::vector<long, std::allocator<long> > > >
   61: map_string_int => 48
   62:     mangled:    St3mapISsiSt4lessISsESaISt4pairIKSsiEEE
   63:     demangled: std::map<std::string, int, std::less<std::string>, std::al
locator<std::pair<std::string const, int> > >
```