Lab 11

Namespaces

The exercise will show how to organize classes into namespaces.

Suggested Time: 20 minutes

In this lab you will model two domains, woodworking tools and transportation, that each contain several classes and that overlap slightly in their use of names.

Create two namespaces, Tool and Transport and create three classes in each. In Tool, create Mallet, Saw and Plane. In Transport create Plane, Ship and Truck.

```
namespace Tool
{
class Mallet
  {...};
class Saw
  {...}
class Plane
  {...};
}
namespace Transport
{
  class Plane
  {...};
  class Truck
  {...};
  class Ship
  {...};
}
```

Give each class an operation as a public member function, such as Truck::drive() or Mallet::pound() and have each function simply print out a message, as in

```
void Mallet::pound()
{
  cout << "pound mallet\n";
}
```

In main, use scope resolution syntax to declare an object of each type. Invoke the appropriate member function for each object.

```
int main()
{
  Tool::Mallet m1;
  Tool::Saw    s1;
  Tool::Plane  p1;

  Transport::Plane  p2;
  Transport::Truck  t2;
  Transport::Ship   s2;

  m1.pound();

  ...
}
```

Try the class-using syntax by adding a using statement for one of the classes such as Mallet and removing the explicit qualification in the variable declaration.

```
using Tool::mallet;
int main()
{
  Mallet m1;
  ...
}
```

Try the namespace- using syntax by using one of the namespaces such as Tool and removing the qualification for all the variable declarations for that namespace.

```
using namespace Tool;
int main()

{
  Mallet m1;
  Saw   s1;
  Plane p1;
  ...
}
```

Put using statements for both namespaces and remove all qualification in variable declarations. Note how Plane declarations will be marked ambiguous because there are two Plane classes. Put in qualification just for the Plane declarations to get everything to compile.

Break each namespace up into pieces, with one piece per class.

```
namespace Tool
{
  class Mallet
  {...};
}
namespace Tool
{
  class Saw
  {...};
}
// etc.
```