

# Less-than Operator Solutions

- What is the prototype of the less-than operator?

`bool operator <(const T& rhs); // Less-than operator for type T`

- Whenever we write a statement such as

`a < b;`

- The compiler will generate code which calls the operator with the appropriate argument
- The operator is a member function, so it will be called as  
`a.operator<(b)`

- Why is the less-than operator more important than the other comparison operators?
  - Containers in the Standard Library use the less-than operator of the element type for sorting and ordering operations
  - All other comparison operators can be derived from less-than

- What factors should be considered when implementing a less-than operator?
  - The results of applying the operator should be consistent with the equality and inequality operators
  - If  $a < b$  is true, then  $a == b$  is false and  $a != b$  is true
  - If  $a == b$  is true, then  $a < b$  is false and  $b < a$  is false
  - Think carefully about what it means to compare two objects (e.g. different people can have the same name)