

Associative Containers and Custom Types Solutions

- Why is it useful to be able to use custom types with associative containers?
 - Using custom types allows us to use higher-level concepts which map onto the application (personnel record, component details, columns returned by a database query)
 - Using custom types allows us to have more complex key types (e.g. compound keys in a database)
- Write a simple program which uses a custom type for the value of a container

- Explain what it means for two instances of the same C++ class to be
 - a) Identical - Have same address in memory
 - b) Equal - Corresponding members all have the same value
 - c) Equivalent - Corresponding members all have the same value, except for ones which are not “important”

- What factors need to be considered when using a custom type as the key of an associative container?
 - The type must define an `<` operator
 - This must behave the same way as the `<` operator for built-in types
 - The `<` operator should sort the elements in a way that makes sense for the entity it represents

- Without writing any code, describe how you would write the following program
 - The program will read in employee records. It will process them and display them in order of job title. If several employees have the same job title, they should be displayed in order of years employed, with the longest-serving employee first
 - The program will read in the employee records and store them as the values of a multimap
 - The keys of the multimap will be a class which holds the job title and length of service of the employee

- Without writing any code, describe how you would write the following program
 - The program will read in employee records. It will process them and display them in order of job title. If several employees have the same job title, they should be displayed in order of years employed, with the longest-serving employee first
- Write a skeleton class (data members only) that would be useful in this program
- Implement any operators that would make this class useful