Run-time Type Information Solutions

typeid

- What does typeid() do? When could it be useful?
  - typeid() returns a type_info object containing information about the dynamic type of its argument
  - It is mainly used in comparisons, to determine whether two objects have the same dynamic type
- Write a simple program which uses typeid()

type_info

- Briefly describe type_info
  - type_info is a class which contains information about the dynamic type of an object
  - It has a name() member function which returns a C-style string
- Write a simple program which uses type_info

dynamic_cast

- What safety features does dynamic_cast include?
  - The cast is only done if the dynamic type of the argument is the same as the type being cast to
  - For a pointer to base, a null pointer is returned on failure
  - For a reference to base, std::bad_cast exception is thrown
- Why are these safety features needed?
  - A base-to-derived conversion is potentially dangerous
  - If the resulting object is not the expected type, we may access data members or call member functions which do not exist, or which do not produce the expected result
- Write a simple program which uses dynamic_cast