Example programs for Module 6 – Stacks and Exceptions

Example 1	brackets.cpp	Uses the STL stack ADT to determine if the string input has balanced brackets.
Example 2	brackets2.cpp	A better application to test whether or not string input has balanced brackets. This version should function correctly for all test cases. The transform algorithm from STL <algorithm> is also utilized to convert string character to uppercase.
Example 3	numericConversion.cpp	Uses the STL stack ADT to convert decimal values to binary
Example 4	ArrayStackNoExceptions folder StackInterface.h ArrayStack.h ArrayStack.cpp example.cpp main.cpp	A static implementation of a Stack ADT using an Array. There are two test clients: numbericConversion.cpp which converts decimal values to binary and main.cpp which is a test client. Note: the main.cpp will abort when the peek method is called on an empty stack. This is due to the assert macro in the peek method. Although the assert macro is helpful in debugging, it does not provide an adequate way of handling the situation.
Example5	Exceptions folder InvalidValue.h InvalidValue.cpp OneNumber.h OneNumber.cpp Client.cpp	Defines a custom exception class, InvalidValueException which is used by the basic class OneNumber. The Client application tests the OneNumber class and the exception class.
Example 6	ArrayStackExceptions folder PrecondViolatedExcep.h PrecondViolatedExcep.cpp StackInterface.h ArrayStack.h ArrayStack.cpp example.cpp main.cpp makefile	Same as the ArrayStack implementation above except that exception handling is utilized. When the peek method is called on an empty stack, an exception will be thrown. The main method is prepared to catch and handle the exception. The program terminates normally without aborting.
Example 7	LinkedStackNoExceptions folder StackInterface.h Node.h Node.cpp LinkedStack.h LinkedStack.cpp main.cpp	Using the same StackInterface utilized by the ArrayStack class, this folder contains the dynamic implementation of a Stack ADT. Exception handling not implemented.

| Example 8 | LinkedStackNoExceptions folder
  StackInterface.h
  PrecondViolatedExcep.h
  PrecondViolatedExcep.cpp
  Node.h
  Node.cpp
  LinkedStack.h
  LinkedStack.cpp
  main.cpp | Same as above except that the custom exception class is utilized to handle exceptions in the LinkedStack class. |