

**Assignment:** Write a program that will evaluate postfix expressions.  
**Prohibition:** Use of the C++ Standard Template Library is prohibited in the implementation of this project.  
**Program Files:** Project 3 consists of files **p03.cpp**, **Scan03.h**, **Scan03.l**, **Stack03.h**, **Stack03.cpp**, and **p03make**. Project file names are exactly as given. Failure to employ the foregoing names will result in a score of **zero (0)** for this project

Project files must be stored in the **root directory of your student account**. Failure to store project files in the root directory of your student account will result in a score of **zero (0)** for this project.  
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File	Description
<b>p03.cpp</b>	File <b>p03.cpp</b> contains functions that process command line arguments and evaluates postfix expressions.
<b>Scan03.h</b>	File <b>Scan03.h</b> is the interface to functions and data types exported by file <b>Scan03.l</b> . File <b>Scan03.h</b> is found in the class directory <b>~tt/cs2613/</b> .
<b>Scan03.l</b>	File <b>Scan03.l</b> is in the class directory <b>~tt/cs2613/</b> and extracts tokens from the input file. Each time function <b>yylex</b> is called a token is read from the input file.
<b>Stack03.h</b>	File <b>Stack03.h</b> contains the definition of class <i>Stack</i> . Class <i>Stack</i> implements an integer Stack by <b>dynamically allocating linked elements</b> . Each element on the stack contains an integer. <b>File Stack03.h is not implemented as a template.</b>
<b>Stack03.cpp</b>	File <b>Stack03.cpp</b> contains the implementation of member functions of class <i>Stack</i> .
<b>p03make</b>	File <b>p03make</b> contains instructions for creating executable file <b>p03</b> . Instructions in file <b>p03make</b> are accepted by the UNIX utility <b>make</b> . Since file <b>Scan03.l</b> requires special translation, use file <b>p03make</b> in the class directory to create program <b>p03</b> .

**Command Line:** Project **3** can be invoked with zero, one, or two program parameters. The first program parameter is the input file name. The second parameter is the output file name. Sample command lines together with corresponding actions by program **p03** are shown below. Boldfaced type indicates data entered at the keyboard by the user.

**\$ p03**

Enter the input file name: **i03.dat**

Enter the output file name: **o03.dat**

**\$ p03 i03.dat**

Enter the output file name: **o03.dat**

**\$p03 i03.dat o03.dat**

**Input File:** The input file consists of a sequence of integers and arithmetic operators in postfix form as shown in Figure 1.

**Output File:** Figure 2 contains the output of program **p03** given the input shown in Figure 1. Print the contents of the stack after the last token has been processed.

**Figure 1.** 7 6 \* 3 + 88 1 7 + /

**Input file format**

**Figure 2.** Stack[tos]=11

**Output file format** Stack[tos-1]=45