

Exercise 12 – The Preprocessor

Objective

The objective is to practice the preprocessor directives `#define`, `#include` and `#if`.

Reference Material

This material is based entirely on the *Preprocessor* chapter. The questions are based on the solution to question 3 of the *Structures* practical.

The practical session is located in the following directory:

<i>Windows Directory:</i>	c:\qacprogex\preproc
<i>Windows Solution directory:</i>	c:\qacprogex\preproc\solution
<i>Linux Directory:</i>	/home/user1/qacprg/PREPROC
<i>Linux Solution directory:</i>	/home/user1/qacprg/PREPROC/Solution

Overview

Both questions revisit the Phone application from the *Structures* practical. The first introduces a header file to house the struct and prototypes, together with some `#define` tokens. The second question investigates file guarding, pre-processor decision making and macros.

Practical Outline

1. Open the Visual Studio Solution **phone.sln**, and take a look at the code template in **phone.c**. This is a full and working program. In fact, it's the model solution to Question 3 in the Structures practical (if you prefer, you can use your original version of this program, in the Visual Studio Solution **c:\qacprogex\struct\phone.sln**).

Modify the program by using `#defines` to define the array sizes of the `num` and `name` strings and the `friends` array. Place all convenient material in the header file called `phone.h`, which we have already provided in cut-down form. Don't forget to `#include` this header in your source file!

A solution for this question is available in the **solution\phone1.sln** Visual Studio Solution.

Optional:

2. Working in the same project, incorporate an appropriate `#if` construct and `#defines` in your header file so that your program is robust portable for all QA sites:

Add `#defines` and a `#if/#elif` construct to maintain the sites thus

QA Castle is "1285" "655888"

QA Rosebery Avenue is "171" "7137639"

QA Barton House is "1285" "641052"