Massachusetts Institute of TechnologyDepartment of Electrical Engineering and Computer Science

6.087: Practical Programming in C

IAP 2010

Problem Set 1

Writing, compiling, and debugging programs. Preprocessor macros. C file structure. Variables.Functions and program statements. Returning from functions.

Out: Monday, January 11, 2010. Due: Tuesday, January 12, 2010.

Problem 1.1

1. What do curly braces denote in C? Why does it make sense to use curly braces to surround the body of a function?   
   - Curly braces denote: {}

* Type tênfunction ()

{

// instructions mà function thực hiện

}

(b) Describe the difference between the literal values 7, "7", and ’7’.

7 là giá trị, ví dụ: int a=7; chính là gán cho a giá trị bằng 7

“7” là chuỗi

‘7’ là kí tự

(c) Consider the statement

double ans = 10.0+2.0/3.0-2.0\*2.0;

Rewrite this statement, inserting parentheses to ensure that ans = 11.0 upon evaluation of this statement.

Double ans = 10.0+2.0/(3.0-2.0)\*2.0;

Problem 1.2

Consider the statement

double ans = 18.0/squared(2+1);

For each of the four versions of the function macro squared() below, write the corresponding value of ans.

1. #define squared(x) x\*x // ans = 12.000000
2. #define squared(x) (x\*x) // ans = 3.600000
3. #define squared(x) (x)\*(x) //ans = 18.000000
4. #define squared(x) ((x)\*(x)) //ans= 2.000000

Problem 1.3

Write the “Hello, 6.087 students” program described in lecture in your favorite text editor and compile and execute it. Turn in a printout or screen shot showing

* the command used to compile your program
* the command used to execute your program (using gdb)
* the output of your program  
   Dùng cmd biên dịch chương trình “Hello, 6.087” lưu trong Hello.c:

cd Desktop  
 gcc Hello.c –o Hello  
 Hello

//e toàn dùng IDE

Problem 1.4

The following lines of code, when arranged in the proper sequence, output the simple message “All your base are belong to us.”

1. return 0;
2. const char msg[] = MSG1;
3. }
4. #define MSG1 "All your base are belong to us!"
5. int main(void){
6. #include <stdio.h>
7. puts(msg);

Write out the proper arrangement (line numbers are sufficient) of this code.

6-> 4-> 5-> 2-> 7-> 1->3

Problem 1.5

For each of the following statements, explain why it is not correct, and fix it.

1. #include <stdio.h>;   
   không được có dấu chấm phẩy

Sửa: #include<stdio.h>

(b) int function(void arg1){

return arg1-1;}

không được dùng đối số arg1 và kiểu khai báo void

int function(int a){  
 return a-1;}

1. #define MESSAGE = "Happy new year!" //tiền xử lý #difine cho phép đưa giá trị số vào 1 từ, ko có dấu =

Sửa: #define MESSAGE 3

puts(MESSAGE);

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