Australian
National
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Week 04

Students are expected to attempt <u>ALL</u> of the questions in the Multi choice, Short answer and Lab quesitons. They will be discussed and marked at the beginning of the lab. Note the multi choice/short answer prep is worth 2 marks, lab exersizes 2 marks, and in class participation 2 marks.

Multi choice

Question: What is the correct syntax to define an array of `int` with length 256 called `arr` in C? D	**A)** int[256] arr; **B)** int[] arr = new int[256]; **C)** arr = int[256]; **D)** int arr[256];

Question: How do you use printf to print a null-terminated string `char *str;` with a new line after? C	**A)** printf(str + "\n"); **B)** printf("%string%nl", str); **C)** printf("%s\n", str); **D)** printf("%c", str); **E)** printf("%s\n", &str);

Question: How would you define a macro `square(x)` which gives the value of x^2? A	**A)** #define square(x) ((x)*(x)) **B)** #define square(x) x**2 **C)** #define square(x) x^2 **D)** #def square(x*x) (x) **E)** Both A and C

Short answer

Question: What is the output of the following code:

```
// Example solution:
```

```
#include <stdio.h>

int main(void)

{
        int x[10];
        int i;
        x[0] = 0;
        x[1] = 1;
        for (i = 2; i < 10; i++)
        {
                x[i] = x[i - 1] + x[i - 2];
        }
        for (i = 0; i < 10; i++)
        {
                printf("%d ", x[i]);
        }
        printf("\n");
        return 0;
}
```

Generate a Fibonacci series.

Question: How are strings usually represented in C, and how do you tell where the end of the string is (ie. how do you tell how long they are)?

A series of characters and ended with a null character '\n'. count the number of characters until meeting its null character.

Question: What is the C preprocessor (cpp)?

Suffix of codes of c ++ programming language.

Lab questions

Excercise: Write a function, without using the "string" library, which concatenates two null-terminated strings and puts the output into `output`, with the prototype:

```
void concat(char* str1, char* str2, char* output);
```

DONE

Excercise: Write a macro which takes two arguments, and gives back the lowest of the two.

DONE

In-class group task

In a groups of 2 or 3 choose any programming language and implement a program that takes a list of numbers on standard input and finds if any 3 numbers sum to 100. If there are 3 numbers that sum to 100 then output "yes" otherwise output "no". You can use a simple approach that loads the numbers in any array and uses three nested loops with a check for summing to 100 in the middle.

There are 4 simple test files you can use to help check your implementation. test1no.txt, test2yes.txt, test3no.txt, test4yes.txt.

There are three aspects we would like to find out about this program:

- what system calls does it use (run your program with "strace" to find this out),
- how long does it take to execute test3no.txt (run your program with "time"),
- how big is the source code in terms of lines and characters (use "wc").

Share the results using the whiteboard with the rest of the class.

It would be good to have atleast one group use c. Also if groups have time they may wish to impement it using both c and another programming language.

Start Working on Next Weeks Lab

In the remaining time for the lab you should start on next weeks lab work. Your tutor will be able to help you with this (also they will finalize your paticipation mark for todays lab).

UPDATED: **21 February 2013** / RESPONSIBLE OFFICER: **Head of School** / PAGE CONTACT: **COMP2300 Course Webmaster**