

Software and Embedded System Lab 2 (ELEE08022)

Pointer & Data Operation in C language

1. If you have an integer array **marks** with 5 elements. Use a **for** loop to sum the elements of the array, then print the sum out. You have to use pointer in your program.

2. A function named **time()** has the function header:

```
void time(int tot_secs, int *hr_p, int *min_p, int *sec_p)
```

The function is called with the first argument (**tot_secs**) being the value of a time period, in seconds. The function evaluates the corresponding number of hours, minutes and (remaining) seconds, the total value of which are equivalent to the first argument. These three values are passed back to the calling function via the three pointer arguments. Create the function, and a suitable **main()** program to take a input, call **time()** and print three values out in hours, minutes and seconds.

3. Write a C program which declares three arrays **volts** **amps** and **watts** each capable of storing 5 integers. Your program should read in values from the keyboard to fill the **volts** and **amps** arrays and then fill the **watts** array by forming the product of the corresponding entries in the other two arrays. Finally, you should print out the contents of **watts**. *All the array accesses in your program should only make use of pointers.*

4. Rewrite your solution to Question 2 to incorporate a function **power()** which, when passed the addresses of the three arrays, carries out the required multiplication calculation for each element of the **volts** and **amps**. The final contents of **watts** should still be printed out in your **main()** program.

5. Write a **main()** program to accept two **date** structures, then compare two dates and print the later date structure out. The date structure should have three members, i.e. day, month and year. You should use structure pointers in your program.

6. Write a C function called **later()** to accept two **date** structure **pointers** and return a structure pointer, which points to the later one of the two dates. Modify your Exercise 5 program to test the correct operation of your function **later()** and print out the later date structure out.