Embedded Systems Track

C Language

Last C Task

IEEE ZAGAZIG Student Branch

IEEE RAS ROBOTICS & AUTOMATION SOCIETY Zagazig student chapter

Assignment 1

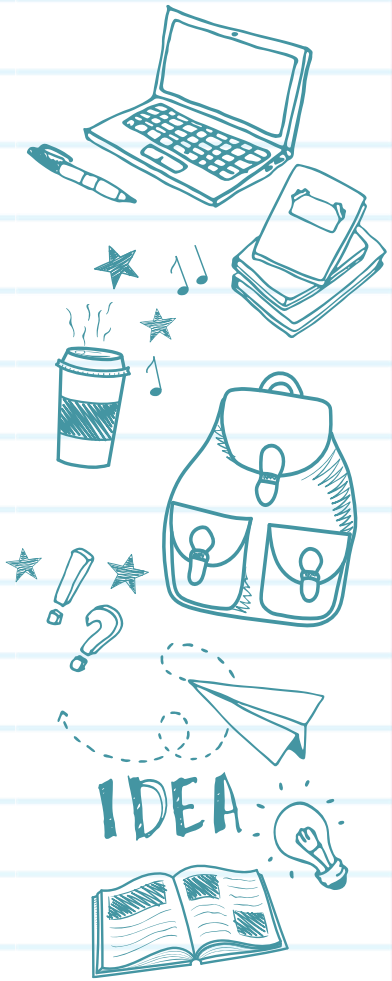
- **Dynamic Memory Allocation:**
  - Create a C program that contains 3 different allocated memory spaces using (malloc, calloc) and reallocate one of them to a different space using(realloc) for each allocation indicate if it was allocated successfully or not and then comment and print the values that was assigned to these memory blocks. ”Don’t forget to free your memory when you finish ☺”
  - Edit the previous program and instead of reallocating one of the memory spaces just free it and allocate a fourth space with a relatively bigger space then comment what this would do if you had a limited memory space.
  - Write a C program to read name input from user after asking him the maximum length for it then print the name he entered and the frequency of the most repeated character on it.

Assignment 2

- **General:**
  - Create a C program that stores an input time of format [hh:mm:ss] into a single integer variable then prints the time again out of that variable. Note: you should solve it without any string manipulation.
  - Write a C program to continuously ask the user for a string input and prints only the unique characters from that string and only stops if the user entered a string containing a Stop code characters predefined earlier for example”!!”.

Assignment 3

- **General :**
  - Implement your own sizeof() function one time with *macros* and the other with *inline* keyword then mention the difference between them and the regular declaration and what is the best use case for each one of them.
  - Write a C program that runs continuously and adds a node to a linked list if the user enters “+”, deletes one if he enters “-” and prints the linked list if he enters “p” then make it stop if “x” is entered.
    Hint: Handle empty list when printing



Notes

- ***Deadline is due to next Tuesday 11/4 at 11:59 pm.***