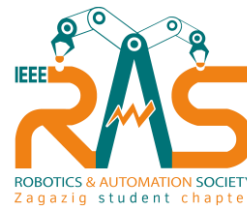


Embedded Systems Track

C Language

Enums-Preprocessors

- User Defined Data Types



Assignment 1

- **Bit-Field and Typedef Keyword :**

- Create a struct named `student_info` which stores the following:
 - roll number(4-bit), age(8-bit) marks(3-bit) of 15 students.
 - address, name as strings (try to apply ***bit-field*** concept for them and comment on the output)

then write a Function that prints all the info related to each of the 15 student. Explain how the processor will deal with each member of the struct and print the total size of the struct with these modifications.

- Write a C Program to Add Two Complex Numbers by Passing Structure to a Function and make use of ***typedef*** keyword in your code
- Use typedef keyword to rename all primitive datatypes and print the size of each one of them with their new name(Try to think of a new naming method that helps identifying what datatype does this new name point to...)

Assignment 2

- **Enums:**
 - Create an enum with members indicating some arithmetic operations like: [+, -, *, /, &, |, !] then Implement a calculator that takes three inputs from the user: {operand1, operand2 ,operation char} and prints the result. Note that you have to match the operation value inside the enum with its corresponding value in ASCII.
 - What is the size of the previous enum? If we add some extra members to the enum what would be the new size and why?

Assignment 3

- **Preprocessor :**

- Create two functions that takes integer inputs from the user and stores the input values into an array then returns the array to be printed in the main function.
 - One function sorts values in Ascending order and the other in Descending order.
 - The switch decision between the two Functions depend on predefined Macros and #ifdef to control the code flow.
- Create two Functions one adds two integer values and the other subtracts them, Control the code functionality using same switch concept of previous problem and you must implement the two operations with the Macros like functions NOT the regular function implementation.



Notes

- ***Deadline is due to next Thursday at 11:59 pm.***