SSN COLLEGE OF ENGINEERING (Autonomous)
(Affiliated to Anna University, Chennai)
DEPARTMENT OF CSE

UCS 1211 PROGRAMMING IN C LABORATORY
A6: User Defined Data Types
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Learning Outcome   :
To be proficient in defining custom data types
  a) Structures
  b) Enumerations
  c) Passing Structures to a function by value and by reference
To learn modular and incremental programming.
To write maintainable code
To write multi-file program with user defined header files

   Write the algorithm to solve the following problems and implement them in C. Solving all the problems is mandatory.

1. Define a data type for *Date* having 3 members viz. *day, month* and *year*. Define a data type for Student with members *rollnum, name, marks[5], totalMarks, rank, dateofbirth* (of type Date), *age, gender*. Use a enumerated data type for gender with values MALE, FEMALE, TRANSGENDER. Write a C program that gets data for N students and computes and display the rank of the students. Use array of structures. Write a C function that takes an array of structures of students and compute their rank. If total marks of M students are same and get the same rank R, then assign R+M as the rank for next student. Write another function that takes two *Date* structures and returns the *age*. Use this function to set the age of the students. Write a C function that prints the transcript of a particular student with all the details in a proper format designed by you.

2. Modify the piglatin generator presented in Example 9.14 of text book by Byron Gottfried, so that it will accept multiple lines of text. Represent each line of text with a separate structure. Include the following three members within each structure:
   (a) The original line of text
   (b) The number of words within the line
   (c) The modified line of text (i.e., the piglatin equivalent of the original text)
   Include the enhancements described in Prob. 9.5 (i.e., provisions for punctuation marks, uppercase letters and double-letter sounds). Use pointer to structures.

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   If you try to solve problems yourself, then you will learn many things automatically.
   Spend few minutes and then enjoy the excitement of problem solving.
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