DS Lab Assignment 03 07/09/2021

Implement the following programs using struct:

Q.1. Write a program of your choice to properly demonstrate the usage and differences of Local and Global variable :-

Source Code:

```
#include <stdio.h>
struct student {
    char name[50];
    int age;
    char sec;
} s1 = {"Aditya", 19, 'A'};

void myfun() {
struct student s1 = {"Tanya", 20, 'B'};
printf("variable s1 of struct student declared locally :\n");
printf("%s, %d, %c\n", s1.name, s1.age, s1.sec);
}
void main() {
    printf("Variable s1 of struct student declared globally :\n");
    printf("%s, %d, %c\n", s1.name, s1.age, s1.sec);
    myfun();
}
```

Output:-

variable s1 of struct student declared globally :

Aditya, 19, A

variable s1 of struct student declared locally :

Tanya, 20, B

0.2. To demonstrate the usage and implementation of a struct. Accept an integer and display it.

Source Code:

```
#include <stdio.h>
struct NUM {
    int n;
};
void main (){
    struct NUM Data;
    printf ("Enter an integer : ");
    scanf ("%d", &Data.n);
    printf ("The entered integer is : %d", Data.n );
}
```

Output :-

```
Enter an integer : 10
The entered integer is : 10
```

Q.3. Apply struct to accept data of an employee mentioned below and also display them in a proper formatted manner:
a. empId b. empName c. basic d. da : 25% of basic
e. hra : 15% of basic f. ta : 10% of basic.
g. gross : basic + da + hra + ta.

Source Code:

```
# include <stdio.h>
Struct employee{
    char empId[20], empName[30];
    float basic, da, hra, ta, gross;
};
void main() {
    struct employee e1;
    printf("Enter name of employee : ");
    fgets(e1.empName, 30, stdin);
    printf("Enter employee ID : ");
    scanf("%s", e1.empId);
    printf("Enter basic amount : ");
    scanf("%f", &e1.basic);

    e1.da = 0.25 * e1.basic, e1.hra = 0.15 * basic;
    e1.ta = 0.10 * e1.basic;
    e1.gross = e1.da + e1.ta + e1.basic + e1.hra;

    printf("Name : %s", e1.empName);
    printf("Employee ID : %s\n", e1.empId);
    printf("Basic : Rs %.2f\n", e1.basic);
    printf("DA : Rs %.2f\n", e1.da);
    printf("HRA : Rs %.2f\n", e1.hra);
    printf("TA : Rs %.2f\n", e1.ta);
    printf("Gross : Rs %.2f\n", e1.gross);
```

Output :-

Enter name of employee : Aditya Kiran Pal

Enter employee Id : 20UCS119

Enter basic amount : 10000

Name : Aditya Kiran Pal

Employee ID : 20UCS119

Basic : 10000.00

DA : Rs 2500.00

HRA : Rs 1500.00

TA : Rs 1000.00

Gross : Rs 15000.00

Q.4. Implement struct to accept the data of three students (without using array of structure / pointer to structure) and display them in proper formatted manner.

(a) enrollment no
(b) regNo.
(c) stud Name.
(d) stud Sem
(e) stud CGPA

Source Code :-

```
#include <stdio.h>
struct student {
    char enrollmentNo[10], studName[30], studSem[15];
    int regNo;
    float studCGPA;
} s1, s2, s3;

void main () {
    void main () {
printf ("Enter Name, Enroll.no, Reg. no, Sem, CGPA for student 1 \n");
 scanf ("%[^\n]s", s1.studName);
scanf ("%s %d %s %f", s1.enrollmentNo, &s1.regNo,
  s1.studSem, &s1.studCGPA);

printf("Enter Name, Enroll.no., Reg. no, Sem, CGPA for student 2\n");
scanf("%[^\n]s", s2.studName);
 scanf("%s %d %s %f", s2.enrollmentNo, &s2.regNo,
  s2.studSem, &s2.studCGPA);

printf("Enter Name, Enroll.no., Reg.no., Sem, CGPA for student 3\n");
scanf("%[^\n]s", s3.studName);
scanf("%s %d %s %f", s3.enrollmentNo, &s3.RegNo,
s3.studSem, &s3.studCGPA);

printf("Student 1 :- \n");
printf("Name : %s", s1.studName);
printf(" | Enrollment no : %s | Registration no : %d\n", s1.
s1.enrollmentNo, s1.regNo);
printf("Semester : %s | CGPA : %2f \n", s2.studSem,
    s1.studCGPA);
```

```
printf("Student 2 :- \n");
printf("Name : %s", s2.studName);
printf(" | Enrollment no : %s | Registration no : %d\n",
s2.enrollmentNo, s2.regNo);
printf("Semester : %s | CGPA : %f \n", s2.studSem,
s2.stud CGPA);

printf("Student 3 :- \n");
printf("Name : %s ", s3.studName);
printf(" | Enrollment no : %s | Registration no : %d \n",
s3.enrollmentNo, s3.regNo);
printf("Semester : %s | CGPA : %2f ", s3.studSem,
s3.stud CGPA);
```

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Output :-

```
Enter Name, Enroll. no., Reg. no., Sem, CGPA for student 1
Aditya Kiran Pal
20UCS119  2012709  3rd  9.75
Enter Name, Enroll. no., Reg. no., Sem, CGPA for student 2
Tushar Ranjan Pal
20UCS100  2012690  3rd  9.8
Enter Name, Enroll no., Reg. no., Sem, CGPA for student 3
Avneet Gian Chaudhari
20UCS420  2012420  3rd  10.0

Student 1 :-
Name : Aditya Kiran Pal | Enrollment no : 20UCS119 |
Registration no : 2012709
Semester : 3rd | CGPA : 9.75

Student 2 :-
Name : Tushar Ranjan Pal | Enrollment no : 20UCS100 |
Registration no : 2012690
Semester : 3rd | CGPA : 9.8
```

Student 3:-

Name : Arunceet Gian Chaudhari | Enrollment no : 20VCS420

| Registration no : 2012420.

Semester : 3rd | CGPA : 10.00