Programming Lab 16

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Ques: Write a program to accept the name, age and address of five students and display the name of the eldest student. Ans: `#include <stdio.h>`

```
struct student
{
    char name[20];
    int age;
    char address[50];
} stu[5];

int main()
{
    int i, j; for (i = 0; i
    < 5; i++)
    {
        printf("Enter the name of student %d- ", i + 1);
        fgets(stu[i].name, 20, stdin);
        printf("Enter the age of the student %d- ", i + 1);
        scanf("%d", &stu[i].age);
        printf("Enter address of the student %d- ", i + 1);
        char c = getchar();
        fgets(stu[i].address, 50, stdin);
        printf("%c", c);
    }

    printf("The details of the students are - \n");
    for (i = 0; i < 5; i++)
    {
        printf("name%d - %s\nage%d-%d\naddress%d-%s\n", i + 1,
stu[i].name, i + 1, stu[i].age, i + 1, stu[i].address);
```

```
    }
}
```

Ques: Define a structure type *struct_element* to represent an element from the periodic table of elements. Members of the structure should include the atomic number (an integer); the name, chemical symbol, and class (strings); a numeric field for the atomic weight; and a seven-element array of integers for the number of electrons in each shell. The following are the components of a *struct_element* structure for sodium.

11 Sodium Na alkali_metal 22.9898 2 8 1 0 0 0 0

Ans:

```c
#include <stdio.h>
#include <string.h>
struct struct_element
{
    int atomicnumber;
    char name[10];
    char symbol[3];
    char class[10];
    float atomicweight;
    int electrons[7];
};

int main()
{
    struct struct_element element1;

    printf("Enter the atomic number - ");
    scanf("%d", &element1.atomicnumber);
    getchar();
    printf("Enter the name of the element - ");
    fgets(element1.name, 10, stdin);
    printf("Enter symbol of the element - ");
    int z = strlen(element1.name);
    element1.name[z - 1] = '\0';
    scanf("%s", element1.symbol);
    printf("Enter the class of the element - ");
    getchar();
    fgets(element1.class, 10, stdin);
```

```
    z = strlen(element1.class);
    element1.class[z - 1] = '\0';
    printf("Enter the atomic weight - ");
    scanf("%.3f", &element1.atomicweight);
    printf("Enter the electron configuration - ");
    for (int i = 0; i < 7; i++)
    {
        scanf("%d", &element1.electrons[i]);
    }

    printf("\t%d\t%s\t%s\t%f\n", element1.atomicnumber, element1.name,
element1.symbol, element1.class, element1.atomicweight);

    for (int i = 0; i < 7; i++)
    {
        printf("%d ", element1.electrons[i]);
    }

    return 0;
}
```

Ques: Write a program to accept the name, age and salary of ten employees. Display the records after sorting based on their age.

Ans:

```
#include <stdio.h>
struct employee
{
    char name[10];
    int age;
    int salary;
};

int main()
{
    struct employee emp[10];

    for (int i = 0; i < 3; i++)
    {
        printf("name - ");
```

```
        scanf("%s", emp[i].name);


        printf("age - ");
        scanf("%d", &emp[i].age);


        printf("salary - ");
        scanf("%d", &emp[i].salary);
    }


    for (int i = 0; i < 2; i++)
    {
        for (int j = 0; j < 2 - i; j++)
        {
            if (emp[j].age > emp[j + 1].age)
            {
                struct employee temp = emp[j];
                emp[j] = emp[j + 1];
                emp[j + 1] = temp;
            }
        }
    }


    for (int i = 0; i < 3; i++)
    {
        printf("%s\t%d\t%d\n", emp[i].name, emp[i].age, emp[i].salary);
    }
}
```

Ques: Write a program to accept records of five employees. The structure is

```
struct employee
{ char name[25];


    int age;
```

1. **struct{ char name [25] ; int age; int basic_salary; }**

```
    int basic_salary;
};


int main()
```

Calculate the total salary of the employees asTotal_salary = Basic_salary + DA + HRA

DA = 10% of basic

HRA = 5% of basic

Display the name, age and total salary of the employees in descending order of their basis of salary.

Ans:

```
#include <stdio.h>
{
    struct employee emp[5];


    for (int i = 0; i < 5; i++)
    {
        printf("name %d - ", i + 1);
        scanf("%s", emp[i].name);
        printf("age %d - ", i + 1);
        scanf("%d", &emp[i].age);
        printf("Basic salary %d - ", i + 1);
        scanf("%d", &emp[i].basic_salary);
    }
    float total[5];
    for (int i = 0; i < 5; i++)
    {
        total[i] = emp[i].basic_salary + ((10 * emp[i].basic_salary) /
100) + ((5 * emp[i].basic_salary) / 100);
    }

    for (int i = 0; i < 5; i++)
    {
        for (int j = 0; j < 4 - i; j++)
        {
            if (total[j] < total[j + 1])
```

```
            { float temp = total[j];

                total[j] = total[j + 1];
                total[j + 1] = temp;

                struct employee tempo = emp[j];
                emp[j] = emp[j + 1];
                emp[j + 1] = tempo;
            }
        }
    }

    for (int i = 0; i < 5; i++)
    {
        printf("name - %s\tage - %d\ttotal salary - %.2f\n", emp[i].name,
emp[i].age, total[i]);

    }
}
```