WINTER SEMESTER 2016

CSE2003: DATA STRUCTURES AND ALGORITHMS (EMBEDDED LAB) SLOT: L51+L52

FACULTY: THENDRAL.P

ASSIGNMENT-1

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11.

Write a program to solve the following problem:- Create an array with 6 student names (name length should be 7 characters long), two arrays to store their age and grade point and create two independent structures to store the followings from the original arrays:- i) First structure should store the student names with prefix and suffix gets interchanged vice versa. (Note: prefix length=4). ii) Second structure should store the age and grade point of all students from the original arrays.

Code:

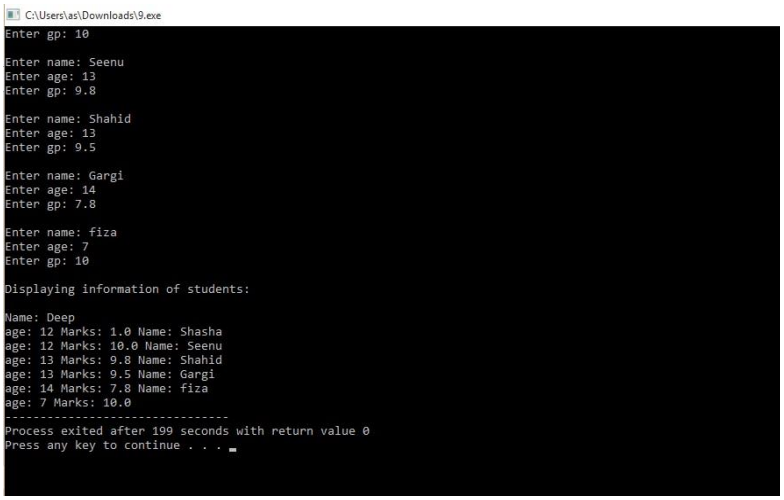
```
#include <stdio.h>
struct student{
   char name[8];
   int age;
   float gp;
};
struct change{
        char str1[5];
        char str2[5];
};

//* 2nd part *//
int main(){
        struct change c[6];
        int j;
```

```
        for(j=0;j<6;++j)
        {
                printf("enter first name :- ");
                scanf("%s",c[j].str1);
                printf("enter last name :-");
                scanf("%s",c[j].str2);
                printf("changed name is %s %s \n", c[j].str2,c[j].str1);
                getchar();
        }
        struct student s[6];
   int i;
   printf("Enter information of students:\n");
   for(i=0;i<6;++i)
   {
      printf("Enter name: ");
      scanf("%s",s[i].name);
      printf("Enter age: ");
      scanf("%d",&s[i].age);
      printf("Enter gp: ");
      scanf("%f",&s[i].gp);
      printf("\n");
   }
   printf("Displaying information of students:\n\n");
   for(i=0;i<6;++i)
   {
    printf("Name: ");
    puts(s[i].name);
    printf("age: %d ",s[i].age );
    printf("Marks: %.1f ",s[i].gp);

   }
  return 0;}
```

Output:

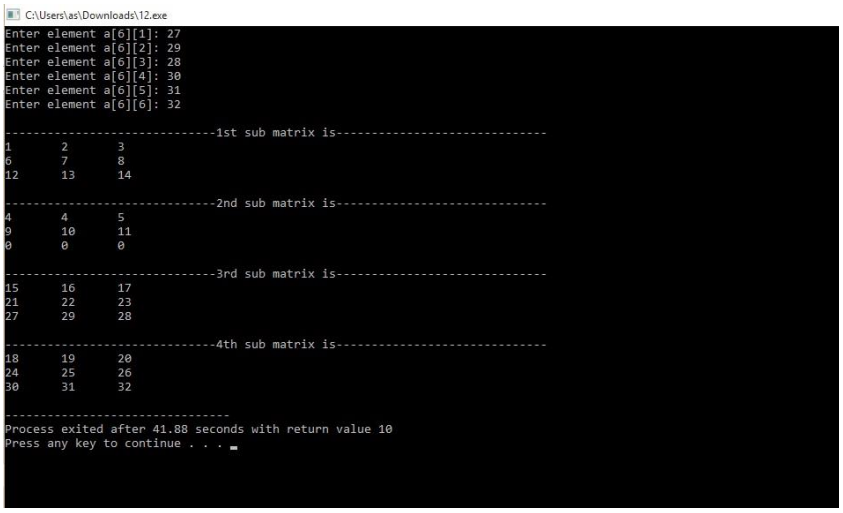


12. Write a C program to solve the following problem:-
Get a 6x6 matrix and print the same. Create 4 symmetrical sub-matrices from the above matrix and print all the sub-matrices. Find out the sum of all the outermost (boundary) elements and the sum of the inner most elements and print the result.

Code:

```
#include <stdio.h> main()
{
	int  a[6][6],i,j; for
	(i=0;i<6;i++)
	{
		for (j=0;j<6;j++)
		{
			printf("Enter element a[%d][%d]: ",i+1,j+1);
			scanf("%d",&a[i][j]);
		}
	}
	printf("\n------------------------------1st sub matrix is------------------------------\n");
	for (i=0;i<3;i++)
	{
		for (j=0;j<3;j++)
		{
			printf("%d\t",a[i][j]);
		}
		printf("\n");
	}
	printf("\n------------------------------2nd sub matrix is------------------------------\n");
	for (i=0;i<3;i++)
	{
		for (j=3;j<6;j++)
		{
			printf("%d\t",a[i][j]);
		}
		printf("\n");
	}
	printf("\n------------------------------3rd sub matrix is------------------------------\n");
	for (i=3;i<6;i++)
	{
		for (j=0;j<3;j++)
		{
			printf("%d\t",a[i][j]);
		}
		printf("\n");
	}
	printf("\n------------------------------4th sub matrix is------------------------------\n");
	for (i=3;i<6;i++)
	{
		for (j=3;j<6;j++)
		{
			printf("%d\t",a[i][j]);
		}
		printf("\n");
	}
}
```

Output:


C:\Users\as\Downloads\12.exe
Enter element a[6][1]: 27
Enter element a[6][2]: 29
Enter element a[6][3]: 28
Enter element a[6][4]: 30
Enter element a[6][5]: 31
Enter element a[6][6]: 32
------------------------------1st sub matrix is------------------------------
1 2 3
6 7 8
12 13 14
------------------------------2nd sub matrix is------------------------------
4 4 5
9 10 11
0 0 0
------------------------------3rd sub matrix is------------------------------
15 16 17
21 22 23
27 29 28
------------------------------4th sub matrix is------------------------------
18 19 20
24 25 26
30 31 32

Process exited after 41.88 seconds with return value 10
Press any key to continue . . .