Name : Sugavanesh M Date: 9/5/2021
RollNo: 20EUCS147

CDS Assignment No : 1

Question no 1.

Print the Sum of Adjacent integers [Use function]

The program must accept an integer array of size N as the input. For each integer, the program must print the sum of its adjacent integers as the output.

Input: 5

60 20 10 25 100

Output:

20 70 45 110 25

Code:

```c
#include<stdio.h>
void adj_sum(int a[], int);
void main()
{
    int size, i;
    scanf("%d", &size);
    int arr[size];
    for (i = 0; i < size ; i++)
    {
        scanf("%d", &arr[i]);
    }
    adj_sum(arr, size);
    //20EUCS147
}
void adj_sum(int a[], int size)
{
    int i;
    for (i = 0; i < size ; i++)
    {
        if (i == 0)
        {
            printf("%d ", a[1]);
        }
        else if (i == (size - 1))
        {
            printf("%d ", a[i - 1]);
        }
        else
        {
            printf("%d ", (a[i - 1] + a[i + 1]));
        }
    }
}
```

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Sample out put:

```
PS C:\Users\sugan\Documents\college files\C and Data structures\C programs> cd "c:\Users\sugan
\" ; if ($?) { gcc adjsum.c -o adjsum } ; if ($?) { .\adjsum }
5
60
20
10
25
100
20 70 45 110 25
PS C:\Users\sugan\Documents\college files\C and Data structures\C programs\assignment>
```

Question 2

Write a C program to print only unique elements in an array using function

Input: 5
10 20 10 30 40

Output:
20 30 40

Code :

```c
#include<stdio.h>
void perfect(int[] ,int);
void main()
{
    int size, i;
    scanf("%d", &size);
    int arr[size];
    for (i = 0; i < size ; i++)
    {
        scanf("%d", &arr[i]);
    }
    perfect(arr, size);
    // 20EUCS147
}
void perfect(int a[], int size)
{
    int i, j, temp;
    for (i = 0; i < size ; i++)
    {
        for (j = i + 1; j < size ; j++ )
        {
            if (a[i] == a[j])
            {
                temp = a[j];
            }
        }
        if (!(temp == a[i]))
        {
            printf("%d ", a[i]);
        }
```

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```
    }
}
```

Output :

```
PS C:\Users\sugan\Documents\college files\C and Data structures\C programs> cd "c:\Users\
\" ; if ($?) { gcc unique.c -o unique } ; if ($?) { .\unique }
5
10
20
10
30
40
20 30 40
PS C:\Users\sugan\Documents\college files\C and Data structures\C programs\assignment>
```

Question 3:

Write a C program to check the given number is perfect number or not using function

Code:

```c
#include<stdio.h>
void is_perfect_num(int);
void main()
{
    int num;
    scanf("%d", &num);
    is_perfect_num(num);
    // 20EUCS147

}
void is_perfect_num(int num)
{
    int temp = 0, i;
    for (i = 1;i < num; i++)
    {
        if (num%i == 0)
        {
            temp += i;
        }
    }
    if (temp == num)
    {
        printf("It is a perfect number !");
    }
    else
    {
        printf("It is not a perfect number :(");
    }
}
```

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Output:

```
PS C:\Users\sugan\Documents\college files\C and Data structures\C progr
\" ; if ($?) { gcc perfect.c -o perfect } ; if ($?) { .\perfect }
28
It is a perfect number !
PS C:\Users\sugan\Documents\college files\C and Data structures\C progr
```

```
PS C:\Users\sugan\Documents\college files\C and Data s
\assignment\" ; if ($?) { gcc perfect.c -o perfect } ;
27
It is not a perfect number :(
PS C:\Users\sugan\Documents\college files\C and Data s
```

Question 4:
Write a C program to reverse a given string using recursion
Code:

```c
#include<stdio.h>
void revrse(char[] ,int);
void main()
{
    int size = 10;
    char st[10] = "Goodstring";
    printf("%s", st);
    revrse(st, size);
    //20EUCS147
}
void revrse(char st[], int size)
{
    printf("%c", st[size - 1]);
    size--;
    if (size != 0)
    {
        return revrse(st, size);
    }
}
```

Output:

```
PS C:\Users\sugan\Documents\college files\C and Data structures\C programs>
\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) {
Goodstring
gnirtsdooG
PS C:\Users\sugan\Documents\college files\C and Data structures\C programs\a
```

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Question 5:

Write a C program to compute the sum of all elements in an array using pointers

Code:

```c
#include<stdio.h>
void main()
{
    int size, i, total = 0, *arrp;
    printf("give the arr size");
    scanf("%d", &size);
    int arr[size];
    printf("Enter the arr elements \n");
    for (i = 0; i < size; i++)
    {
        printf("Enter element %d :", i);
        scanf("%d", &arr[i]);
    }
    for (i = 0; i< size; i++)
    {
        arrp = &arr[i];
        total += *arrp;
    }
    printf("The total sum is %d", total);
    //20EUCS147
}
```

Output:

```
PS C:\Users\sugan\Documents\college files\C
\" ; if ($?) { gcc sum_pt.c -o sum_pt } ; i
give the arr size5
Enter the arr elements
Enter element 0 :1
Enter element 1 :2
Enter element 2 :3
Enter element 3 :4
Enter element 4 :5
The total sum is 15
PS C:\Users\sugan\Documents\college files\C
```

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Question 6:

Write a C program to compute the sum of all elements in an array using pointers Write a C program to calculate class pass percentage by using structure Input:

Enter the number of students: N

Code:

```c
#include<stdio.h>
struct student_mark
{
    char name[10];
    int marks[5];
};
void main()
{
    int i, n, j, count;
    float res, temp;
    printf("Enter no of students :");
    scanf("%d", &n);
    struct student_mark student[n];
    for (i = 0; i < n; i++ )
    {
        printf("Enter the student%d name :", i + 1);
        scanf("%s", student[i].name);
        for (j = 0; j < 5; j++)
        {
            printf("Enter %s subject%d mark:", student[i].name, j + 1);
            scanf("%d", &student[i].marks[j]);
        }
    }
    for (i = 0; i < n; i++)
    {
        count = 0;
        for(j = 0; j < 5; j++)
        {
            if (student[i].marks[j] < 40)
            {
                count = 1;
            }
        }
        if (count == 1)
        {
            temp += 1;
        }
    }
    res = ((n - temp)/n)*(100.0) ;
    printf("\nThe pass percentage is %.2f", res);
```

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```
    // 20EUCS147

}
```

Output:

```
PS C:\Users\sugan\Documents\college files\C and Data structures\C programs> cd "c:\User
\" ; if ($?) { gcc pass_percent.c -o pass_percent } ; if ($?) { .\pass_percent }
Enter no of students :5
Enter the student1 name :Don
Enter Don subject1 mark:100
Enter Don subject2 mark:10
Enter Don subject3 mark:10
Enter Don subject4 mark:100
Enter Don subject5 mark:10
Enter the student2 name :Kali
Enter Kali subject1 mark:100
Enter Kali subject2 mark:100
Enter Kali subject3 mark:100
Enter Kali subject4 mark:100
Enter Kali subject5 mark:100
Enter the student3 name :Perfect
Enter Perfect subject1 mark:100
Enter Perfect subject2 mark:20
Enter Perfect subject3 mark:30
Enter Perfect subject4 mark:100
Enter Perfect subject5 mark:100
Enter the student4 name :Rider
Enter Rider subject1 mark:100
Enter Rider subject2 mark:100
Enter Rider subject3 mark:100
Enter Rider subject4 mark:100
Enter Rider subject5 mark:100
Enter the student5 name :Me
Enter Me subject1 mark:10
Enter Me subject2 mark:100
Enter Me subject3 mark:100
Enter Me subject4 mark:100
Enter Me subject5 mark:100

The pass percentage is 40.00
PS C:\Users\sugan\Documents\college files\C and Data structures\C programs\assignment>
```