COMPUTER PROGRAMING ASSGINMENT (NO-5)

Name: Kakavakam Jaswanth Sai

Roll no: CH.EN.U4CSE20130

Section: CSE-B

Subject code: 19CSE102 LAB

Question – 1:

You have to accept two numbers and output sum and absolute difference using pointers.

C-program:

```c
#include <stdio.h>
#include<stdlib.h>
int main()
{
   int first, second, *p, *q, p1,q1;

   printf("Enter two integers \n");
   scanf("%d%d", &first, &second);

   p = &first;
   q = &second;

   p1 = *p + *q;
   q1 = abs(*p-*q);
   printf("%u + %u = %d\n|%u-%u| = %d", *p,*q,p1,*p,*q,q1);

   return 0;
}
```

Output:

```
Enter two integers
7
13
7 + 13 = 20
|7-13| = 6
Process returned 0 (0x0)   execution time : 27.027 s
Press any key to continue.
```

Question – 2:

Input a triplet of three numbers (a, b, c) and output 1 if they are either in strictly increasing (a>b>c) or decreasing (a<b<c) order 0, otherwise.

C-program:

```c
#include<stdio.h>

void main()
{
   int a,b,c,*a1,*b1,*c1;
      printf("Enter three integers \n");
   scanf("%d %d %d",&a,&b,&c);
   a1 =&a;
   b1=&b;
   c1=&c;
   if((*a1>*b1 && *b1>*c1 )|| (*a1<*b1 && *b1<*c1))
     printf("1");
   else
    printf("0");
}
```

Output:

```
Enter three integers
89 65 43
1
Process returned 49 (0x31)
Press any key to continue.
```

```
Enter three integers
58 12 89
0
Process returned 48 (0x30)
Press any key to continue.
```

```
Enter three integers
3 9 18
1
Process returned 49 (0x31)
Press any key to continue.
```

Question – 3:

Input a sequence of non-negative floating point numbers terminated by a "-1".we have to out put the moving average of the sequence. the output should be printed correct to one digit after decimal.

C-program:

```c
#include<stdio.h>
void main()
{
    float p,q,*p1,*q1;
    printf("Enter the Numbers:\n");
    scanf("%f",&p);
    while(p != -1)
    {
        scanf("%f",&q);
         if(q == -1)
         {
             break;
         }
        p1 = &p;
        q1 = &q;
        printf("%.1f\t",(*p1+*q1)/2);
        p = q;
    }
}
```

Output:

```
Enter the Numbers:
6 9 7 8 0 3 12 5 -1
7.5     8.0     7.5     4.0     1.5     7.5     8.5
Process returned 1 (0x1)   execution time : 20.634 s
Press any key to continue.
```

Question – 4:

Reverse a string without 0 using pointers.

C-program:

```c
// Reverse a string
#include<stdio.h>
void rev()
{
    char c;
    scanf("%c",&c);
    char *p =&c;
    if(*p != '0')
    {
        rev();
        printf("%c",*p);
    }
}
int main()
{
    printf("Enter the string : ");
    rev();
    return 0;
}
```

Output:

```
Enter the string : COMPUTER PROGRAMING0
GNIMARGORP RETUPMOC
Process returned 0 (0x0)   execution time : 27.194 s
Press any key to continue.
```

Question – 5:

You are given a sorted (either in increasing or decreasing order) sequence of positive numbers, ending with a "-1". you have to output 1 if there are at least three distinct numbers in the sequence. otherwise output 0.

C-program:

```c
// Atleast three diff num
#include<stdio.h>
int main()
{
    int p,q,*x,*y,c=1;
    printf("Enter the numbers : \n");
    scanf("%d",&p);
    while(p != -1)
    {
        scanf("%d",&q);
        if(q == -1)
        {
            break;
        }
        x =&p;
        y = &q;
        if(*y != *x)
        {
            c++;
        }
        p = q;
    }
    if(c >= 3)
        printf("1");
    else
         printf("0");
    return 0;
}
```

Output:

```
Enter the numbers :
4  44 44 -1
0
Process returned 0 (0x0)
Press any key to continue.
```

```
Enter the numbers :
55 55 55 55 -1
0
Process returned 0 (0x0)
Press any key to continue.
```

```
Enter the numbers :
89 65 65 21 -1
1
Process returned 0 (0x0)
Press any key to continue.
```

Question – 6:

You have to output the second largest element of the sequence. if there is no second largest element in the sequence output zero.

C-program:

```c
//second largest
#include <stdio.h>
int main(void)
{
    int curr, second, first;
    scanf("%d", &curr);
    second = curr;
    first = curr;
    while (1) {
        scanf("%d", &curr);
        if (curr == -1) {
            break;
        }
        if (curr == first ) {
                continue;
        }
        else if (curr > first) {
            second = first;
            first = curr;
        }

        else if(curr > second)
        {
            second = curr;
        }
    }
    if( first == second )
        printf("0");
    else
        printf("%d\n",second);

    return 0;
}
```

Output:

```
9 7 18 62 56 -1
56

Process returned 0 (0x0)
Press any key to continue.
```

```
6 8 8 9 3 1 -1
8

Process returned 0 (0x0)
Press any key to continue.
```

Question – 7:

Given two arrays of integers output the largest number in the first array not present in second one.

C-program:

```c
// largest in first array but not in second array
#include<stdio.h>
#include<stdlib.h>
void asc_sort(int a[], int n){
 int i, j, temp;
     for(i=0;i< n-1;i++){
        for(j=i+1;j< n;j++){
            if(a[i]>a[j]){
               temp = a[i];
               a[i] = a[j];
               a[j] = temp;}
        }}}
int main(){
    int x,y;
    scanf("%d",&x);
    int A[x];
    for(int i=0;i<x;i++){
           scanf("%d",&A[i]);}
    scanf("%d",&y);
    int B[y];
    for(int i=0;i<y;i++){
           scanf("%d",&B[i]);}
    asc_sort(A,x);
    int flag = 0;
    for(int i = x-1 ; i>=0 ;i--){
        for(int j = 0; j<=y;j++){
            if(A[i] == B[j]){
                flag = 0;
                break;
            }
            else if(A[i] != B[j]){
                flag = 1;
            }}
        if(flag == 1){
            printf("%d",A[i]);
            return 0;
        }}
    printf("0");
    return 0;
}
```

Output:

```
5
6 9 8 12 7
4
12 8 7 5
9
Process returned 0 (0x0)
Press any key to continue.
```

Question – 8:

A string is passed as input. the program must find the vowels present in the string and print them reverse.

C-program:

```c
#include<stdio.h>
int main()
{
    char s[1000],p[1000];
    int j=0;
    printf("Enter the string: \n");
    gets(s);
    for(int i=0;s[i]!='\0';i++)
    {
        if(s[i] == 'a' || s[i] == 'e'|| s[i] == 'i'||
            s[i] == 'o'|| s[i] == 'u'|| s[i] == 'A'||
            s[i] == 'E'|| s[i] == 'I'|| s[i] == 'O'|| s[i] == 'U' )
        {
            p[j] = s[i];
            j++;
        }
    }
    for(int i=j-1;i>=0;i--)
    {
        printf("%c",p[i]);
    }
    return 0;
}
```

Output:

```
Enter the string:
EDUCATION
OIAUE
Process returned 0 (0x0)
Press any key to continue.
```

Question – 9:

You should accept a string value and prints the last occurring vowel.

C-program:

```c
#include<stdio.h>
void main()
{
    char a[1000],*p,r;
    gets(a);
    p=a;
    while(*p != '\0')
    {
        if(*p == 'a' ||*p == 'e' ||*p == 'i'
           ||*p == 'o' ||*p == 'u' ||*p == 'A'
           ||*p == 'E' ||*p == 'I' ||*p == 'O'
           ||*p == 'U'  )
        {
            r = *p;
        }
        *p++;
    }
    printf("%c",r);
}
```

Output:

```
Jaswanthsai
i
Process returned 105 (0x69)
Press any key to continue.
```

Question – 10:

Sort a Word.

C-program:

```c
#include <stdio.h>
#include <string.h>

int main (void) {
    char s[1000],t;
    gets(s);
    int n = strlen(s);
    for (int i = 0; i < n-1; i++) {
        for (int j = i+1; j < n; j++) {
            if (s[i] > s[j]) {
                t = s[i];
                s[i] = s[j];
                s[j] = t;
            }
        }
    }
    printf("%s",s);
    return 0;
}
```

Output:

```
education
acdeinotu
Process returned 0 (0x0)
Press any key to continue.
```

Question – 11:

Given a list of numbers L, write a program to prepare a new list L1 from L such that the ith element in L1 = ith element in L+5.

C-program:

```c
#include<stdio.h>
void main()
{
    int *p,n;
    printf("enter the size of list :");
    scanf("%d",&n);
    int a[n];
    printf("enter values of the list :\n ");
    for(int i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }
    p = a;
    printf("New list :\n");
    for(int i=0;i<n;i++)
    {
        printf("%d\n",*p+5);
        *p++;
    }
}
```

Output:

```
enter the size of list :5
enter values of the list :
 9 10 5 2 18
New list :
14
15
10
7
23

Process returned 5 (0x5)   execution
Press any key to continue.
```

Question – 12:

Print the array of string.

C-program:

```c
#include<stdio.h>
int main()
{
    int i = 1, *ip = &i;
    char *sports[] = {
                        "golf",
                        "hockey",
                        "football",
                        "cricket",
                        "shooting"
                    };
    for(i = 0; i < 5; i++)
    {
        printf("%s\n", sports[i]);
    }
    return 0;
}
```

Output:

```
golf
hockey
football
cricket
shooting

Process returned 0 (0x0)
Press any key to continue.
```

Question – 13:

Get the name ,roll no, marks of 5 subjects of a student and print Total Average and grade using structures.

C-program:

```c
#include<stdio.h>
char gra(int average)
{
    if (average >= 90)  return 'A';
    else if (average >= 80) return 'B';
    else if (average >= 70) return 'C';
    else if (average >= 60) return 'D';
    else return 'F';
}
struct Student{int Roll;
               char Name[25];
               int Marks[5];               //Statement 1 : array of marks
               int Total;
               float Avg;
               char grade ;};
void main(){
               int j,n;
               printf("No .of students : ");
               scanf("%d",&n);
               struct Student S[5];
               for(int i=0;i<n;i++){
               printf("Enter Student Roll %d: ",i+1);
               scanf("%d",&S[i].Roll);
               printf("Enter Student Name : ");
               scanf("%s",&S[i].Name);
               S[i].Total = 0;
               for(j=0;j<5;j++){
                      printf("Enter Marks %d : ",j+1);
                      scanf("%d",&S[i].Marks[j]);
                      S[i].Total = S[i].Total + S[i].Marks[j];}
               S[i].Avg = S[i].Total / 5;
               S[i].grade = gra(S[i].Avg);}
              for(int i=0;i<n;i++){
               printf("\nName : %s\tRoll : %d\tTotal : %d\tAverage : %f\tGrade : %c\n"
                      ,S[i].Name,S[i].Roll,S[i].Total,S[i].Avg,S[i].grade);
              }}
```

Output:

```
No .of students : 2
Enter Student Roll 1: 2348
Enter Student Name : king
Enter Marks 1 : 98
Enter Marks 2 : 63
Enter Marks 3 : 89
Enter Marks 4 : 92
Enter Marks 5 : 99
Enter Student Roll 2: 249
Enter Student Name : queen
Enter Marks 1 : 98
Enter Marks 2 : 89
Enter Marks 3 : 86
Enter Marks 4 : 94
Enter Marks 5 : 95

Name : king     Roll : 2348     Total : 441     Average : 88.000000     Grade : B

Name : queen    Roll : 249      Total : 462     Average : 92.000000     Grade : A
```