

Laboratory 3

1. Questions

1. Write a program to find biggest among three numbers using pointer.
2. Write a program to find the sum of all the elements of an array using pointers
3. Write a program to sort a list of string words using an array of pointers.

2. Algorithm

Q1:-

Step1:- start

Step2:- define function "greatest" with inputs as a, b and c of type pointer:-

2.1) if value in pointer a is greater than value in pointer b and c then:-

2.1.1:- print("%d is greatest", *a);

2.2) if value in pointer b is greater than value in pointer a and c then:-

2.2.1:- print("%d is greatest", *b);

2.3)else:

2.2.1:- print("%d is greatest", *c);

Step3:- initialize a=10,b=20,c=49 of type integer.

Step4:- call the function greatest as follows:-

greatest(&a,&b,&c);

Step5:- stop

Q2:-

Step1:- start

Step2:-initialize array (ar[]={1,10,20,30,50}) of type integer.

Step3:- take pointer p of type integer

Step4:- p=&ar[0];

Step5:- take int variable 'L'

Step6:- L=sizeof(ar)/sizeof(ar[0]);

Step7:- take int variable 'i' and sum=0;

Step8:- run a loop from (i=0 to i=L-1) incrementing i.

7.a) `sum=sum+*(p+i);`

Step9:- `print("sum=%d",sum);`

Step10:- stop

Q3:-

Step1:- start

Step2:- take char pointer p, take variable l,j,k;

Step3:- initialize array (`*ARRAY[5]={"VIJAY","RAMESH","TILAK","PANDEY","ROHAN"};`) of type char.

Step4:- run a loop from (i=0 to i=L-1) incrementing i.

4.1) run a loop from (j=0 to j=4-i) incrementing j.

4.1.1) `K=strcmp(ARRAY[j],ARRAY[j+1]);`

4.1.2) if (k>0) then

4.1.2.1) `p=ARRAY[j];`

`ARRAY[j]=ARRAY[j+1];`

`ARRAY[j+1]=p;`

Step5:- `print("sorted array is :-");`

Step6:- run a loop from (i=0 to i<5) incrementing i.

6.1) `print("%s \t",ARRAY[i]);`

Step7:- stop

3. Program

1)

```
1  #include <stdio.h>
2  #include <stdlib.h>
3  void greatest(int *a,int *b,int *c) {
4      if(((*a>*b) && (*a>*c))
5      {
6          printf("%d is greatest", *a);
7      }
8      else if(((*b>*a) && (*b>*c))
9      {
10         printf("%d is greatest", *b);
11     }
12     else
13         printf("%d is greatest", *c);
14 }
15 int main()
16 {
17     int a=10,b=20,c=49;
18     greatest(&a, &b, &c);
19 }
```

2)

```
1  #include <stdio.h>
2  #include <stdlib.h>
3  int main()
4  {
5      int ar[]={1,10,20,30,50};
6      int *p;
7      p=&ar[0];
8      int l;
9      l=sizeof(ar)/sizeof(ar[0]);
10     int i,sum=0;
11     for(i=0;i<l;i++){
12         sum=sum+*(p+i);
13     }
14     printf("sum=%d", sum);
15 }
```

3)

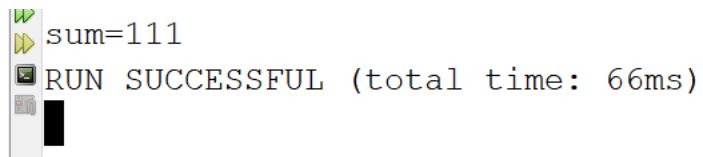
```
1  #include <stdio.h>
2  #include <stdlib.h>
3  #include <stdio.h>
4  void main()
5  {
6      char *p;
7      int I, J, K;
8      char *ARRAY[5] = {"VIJAY", "RAMESH", "TILAK", "PANDEY", "ROHAN"};
9      for (I=0; I<4; I++)
10     {
11         for (J=0; J<4-I; J++)
12         {
13             K = strcmp(ARRAY[J], ARRAY[J+1]);
14             if (K > 0)
15             {
16                 p = ARRAY[J];
17                 ARRAY[J] = ARRAY[J+1];
18                 ARRAY[J+1] = p;
19             }
20         }
21     }
22     printf("sorted array is :- \n");
23     for (I=0; I<5; I++)
24     {
25         printf("%s \t", ARRAY[I]);
26     }
27 }
```

4. Presentation of Results

1)

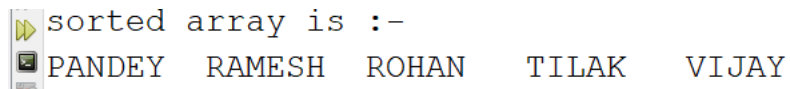
```
49 is greatest
RUN SUCCESSFUL (total time: 56ms)
```

2)

A screenshot of a code editor window. The first line of code is `sum=111`. Below it, a status bar indicates `RUN SUCCESSFUL (total time: 66ms)`. There is a small black rectangular icon below the status bar.

```
sum=111
RUN SUCCESSFUL (total time: 66ms)
```

3)

A screenshot of a code editor window. The first line of code is `sorted array is :-`. The second line shows a list of names: `PANDEY RAMESH ROHAN TILAK VIJAY`.

```
sorted array is :-
PANDEY RAMESH ROHAN TILAK VIJAY
```

5. Conclusions :-

All the programs have been executed successfully without any error.