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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

2.1 a program to find biggest among three numbers using pointer.

```
Step1: start

Step2: input the numbers

Step3: void max(int *n,int l){

       int max_num = *n,i=0;

Step4: while (i<l) {

     if (*n>max_num) {

       max_num = *n;

     }

     n++;

     i++;

   }

Step5:   print max_num

Step6: stop
```

2.2 a program to find the sum of all the elements of an array using pointers

```
Step1: start

Step2: input no. of element

Step3: input elements

Step4: int add=0;
```

```
      for ( int i = 0; i < k; i++){
      add+=(*p);
      p++;
  }
```

Step5: print add

Step6: stop

2.3 a program to sort a list of string words using an array of pointers.

Step1: start

Step2: input string

Step3:

```
char temp[10];
  strcpy(temp," ");
```

Step4:

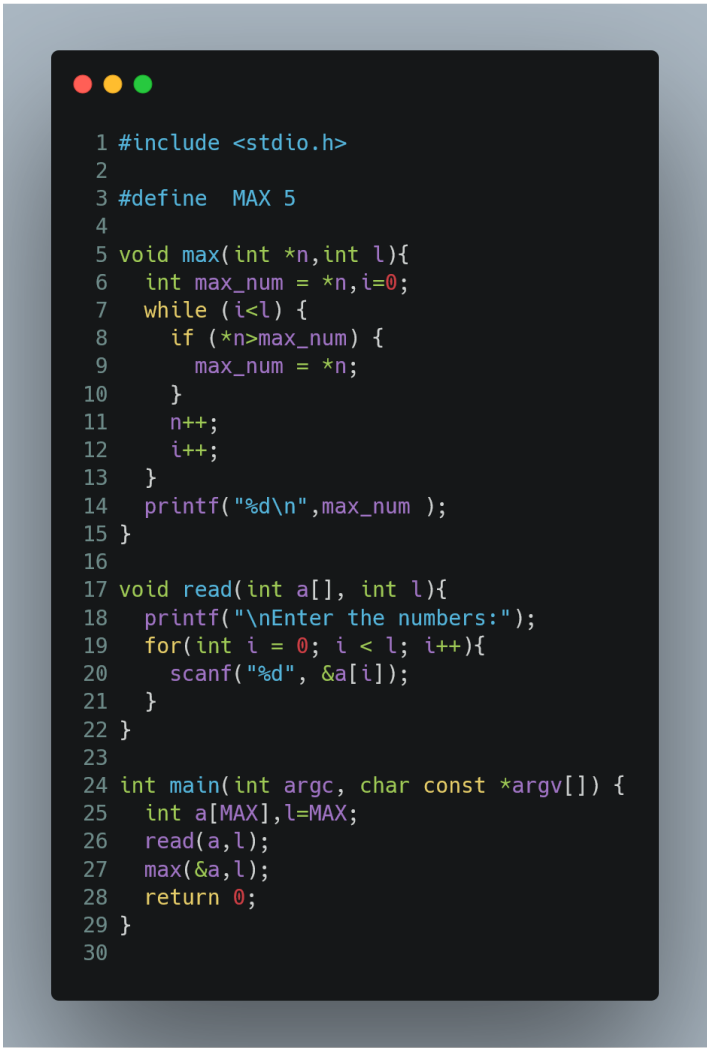
```
for (int i = 0; i < 5; i++) {
    for (int j = i+1; j < 5; j++) {
      if (strcmp(c[i],c[j])>0) {
        strcpy(temp,c[j]);
        strcpy(c[j],c[i]);
        strcpy(c[i],temp);
      }
    }
  }
```

Step5: print string

```
      for (int i = 0; i <5; i++) {
      printf("%s\n",c[i]);
```

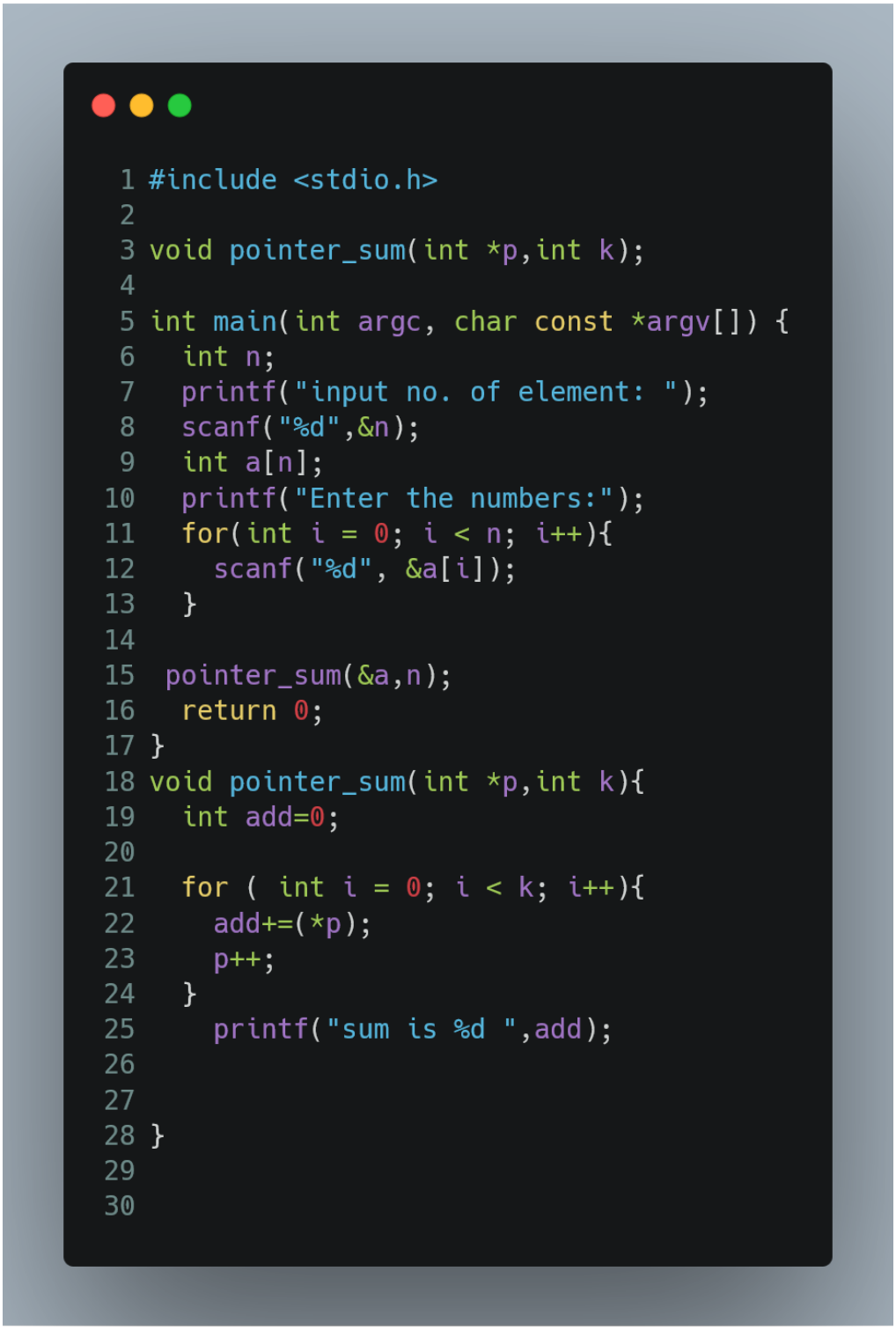
Step6: stop

3. Program



```c
#include <stdio.h>

#define  MAX 5

void max(int *n,int l){
  int max_num = *n,i=0;
  while (i<l) {
    if (*n>max_num) {
      max_num = *n;
    }
    n++;
    i++;
  }
  printf("%d\n",max_num );
}

void read(int a[], int l){
  printf("\nEnter the numbers:");
  for(int i = 0; i < l; i++){
    scanf("%d", &a[i]);
  }
}

int main(int argc, char const *argv[]) {
  int a[MAX],l=MAX;
  read(a,l);
  max(&a,l);
  return 0;
}

```

Figure 1 program to find biggest among three numbers using pointer.



```c
#include <stdio.h>

void pointer_sum(int *p,int k);

int main(int argc, char const *argv[]) {
  int n;
  printf("input no. of element: ");
  scanf("%d",&n);
  int a[n];
  printf("Enter the numbers:");
  for(int i = 0; i < n; i++){
    scanf("%d", &a[i]);
  }

 pointer_sum(&a,n);
  return 0;
}
void pointer_sum(int *p,int k){
  int add=0;

  for ( int i = 0; i < k; i++){
    add+=(*p);
    p++;
  }
    printf("sum is %d ",add);


}
```

Figure 2 program to find the sum of all the elements of an array using pointers

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

int main(int argc, char const *argv[]) {
  char c[10][10];
  for ( i = 0; i < 5; i++) {
    printf("enter strings :");
    scanf("%s",&c[i]);
  }
  char temp[10];
  strcpy(temp," ");
  for (int i = 0; i < 5; i++) {
    for (int j = i+1; j < 5; j++) {
      if (strcmp(c[i],c[j])>0) {
        strcpy(temp,c[j]);
        strcpy(c[j],c[i]);
        strcpy(c[i],temp);
      }
    }
  }
  printf("\n\nsorted strings: ");
    for ( i = 0; i <5; i++) {
      printf("%s\n",c[i]);
    }
  return 0;
}

```

Figure 3 program to sort a list of string words using an array of pointers.

4. Presentation of Results

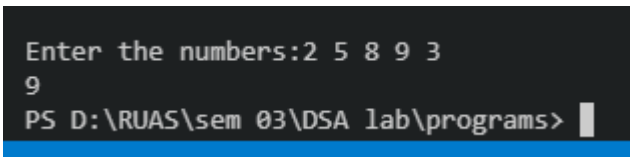


Figure 4 output of program to find biggest among three numbers using pointer

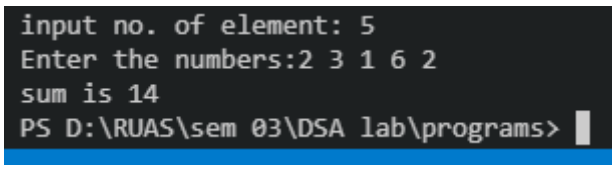


Figure 5 output of program to find the sum of all the elements of an array using pointers

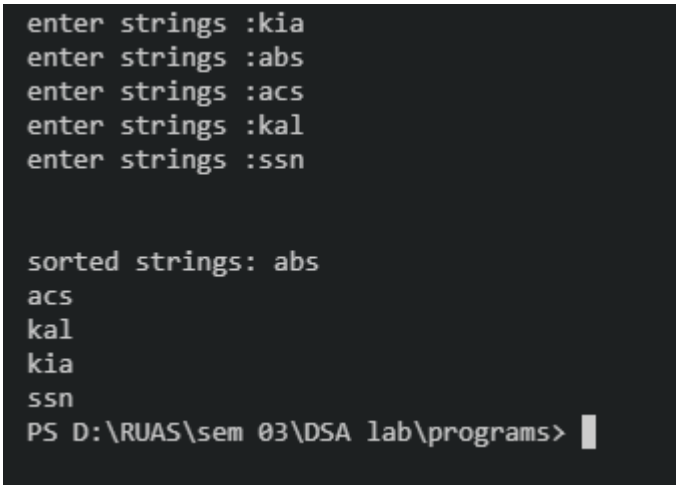


Figure 6 output of program to sort a list of string words using an array of pointers

5. Conclusions

Learning happened:

- To access address of a variable to a pointer, we use the unary operator **&** (ampersand) that returns the address of that variable. For example &x gives us address of variable x.
- To declare a pointer variable: When a pointer variable is declared in C, there must a * before its name.
- To access the value stored in the address we use the unary operator (*) that returns the value of the variable located at the address specified by its operand.

Hence we can see the programs are compiled successfully without any error.