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Lab Sheet:- 02

Q3. Write a program of a menu-driven interface to offer the user four options as follows: Enter a choice:

0 Print the array of grades

1 Find the minimum grade

2 Find the maximum grade

3 Print the average on all tests for each student
4 End program Functions should be implemented using pass by reference method.

The memory for the array should be allocated dynamically.

Program:-

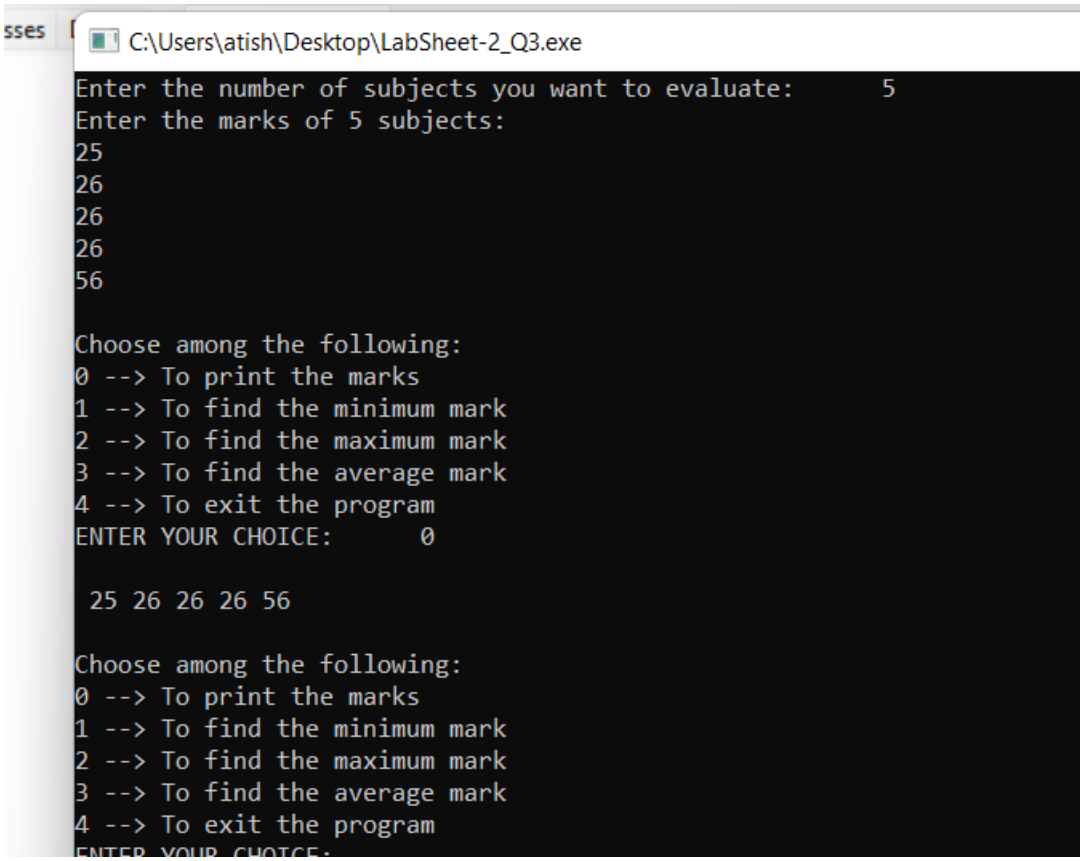
```
#include <stdio.h>
#include <stdlib.h>

void display(int[]);
int max(int[]);
int min(int[]);
float avg(int[]);
int num;

int main()
{
   int j;
   int ch;
   printf("Enter the number of subjects you want to evaluate:\t");
   scanf("%d", &num);
   int x[num];
   printf("Enter the marks of %d subjects:\n", num);
   for (j=0; j<num; j++)
```

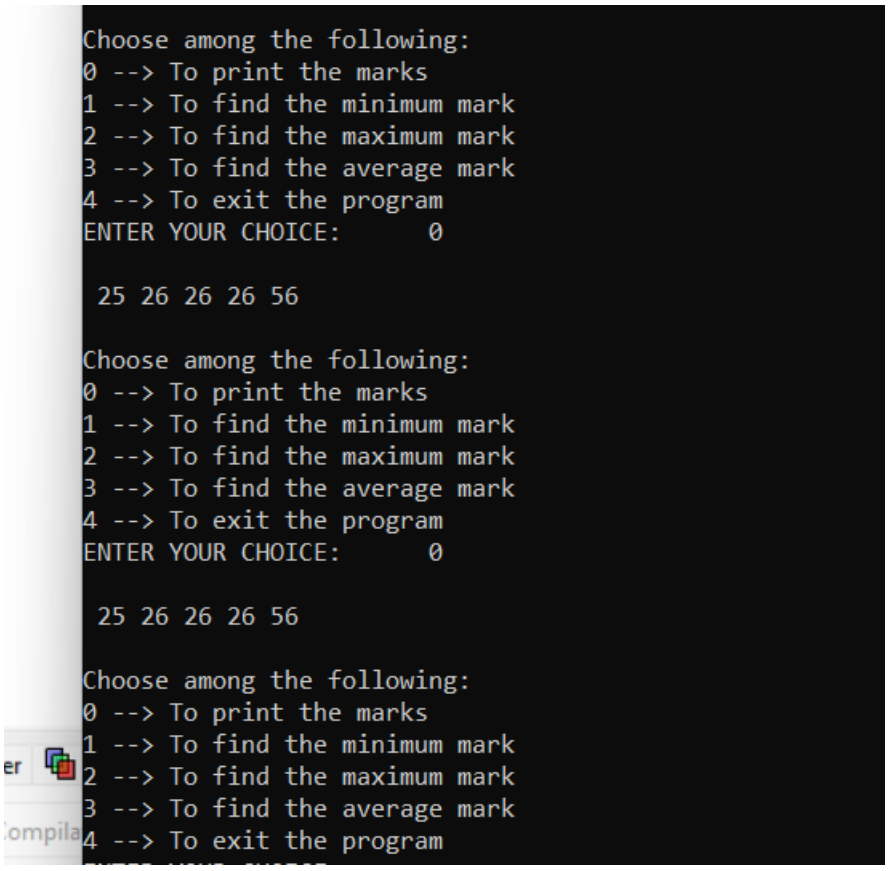
```
{
        scanf("%d", &x[j]);
         }
while (1)
{
        printf("\nChoose among the following:\n");
        printf("0 --> To print the marks\n");
        printf("1 --> To find the minimum mark\n");
        printf("2 --> To find the maximum mark\n");
        printf("3 --> To find the average mark\n");
        printf("4 --> To exit the program\n");
                printf("ENTER YOUR CHOICE:\t");
        scanf("%d", &ch);
        switch (ch)
        {
        case 0:
                printf("\n");
        display(x);
        printf("\n");
        break;
        case 1:
        printf("\nMinimum mark = %d\n", min(x));
        break;
        case 2:
         printf("\nMaximum mark = %d\n",max(x));
        break;
        case 3:
        printf("\nAverage mark = %f\n", avg(x));
        break;
        case 4:
      exit(0);
```

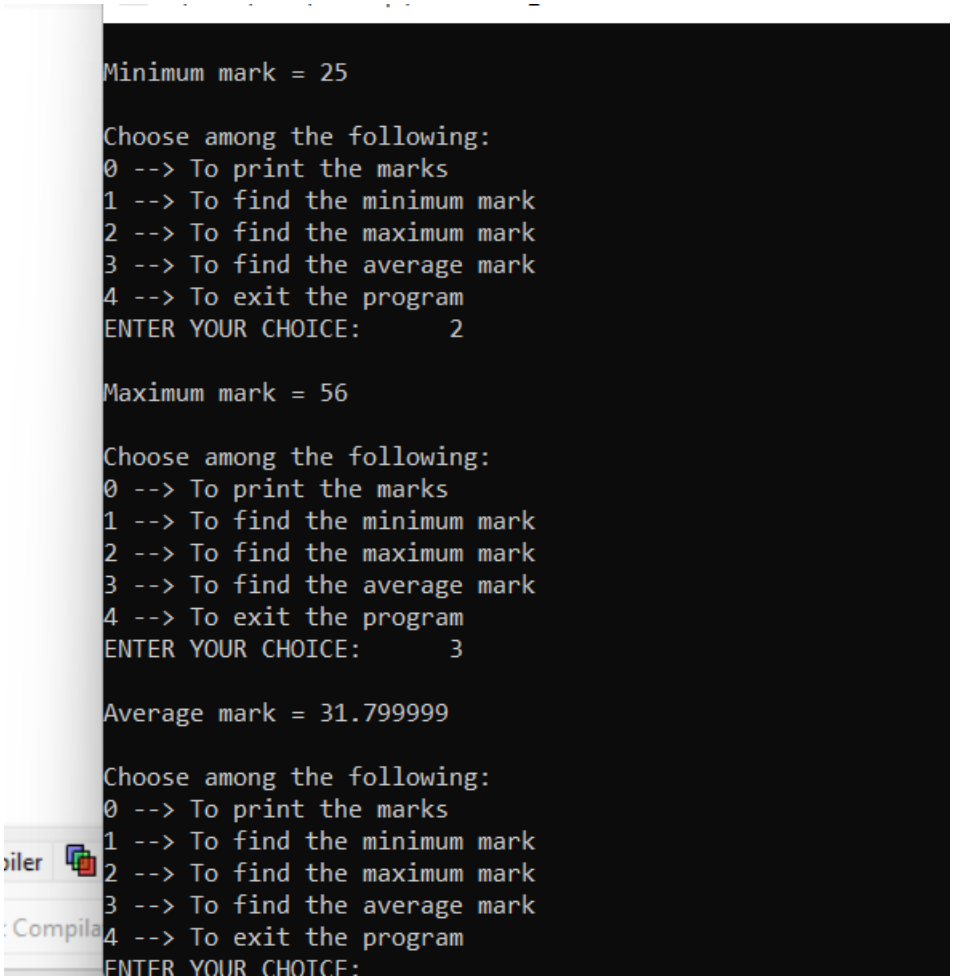
```
    }
   }
   return 0;
}

void display(int x[])
{
   int i;
   for (i=0; i<num; i++)
   {
      printf(" %d", x[i]);
   }
}
int max(int x[])
{
  int i=0, j;
  for (j=i+1; j<num; j++)
  {
     if(x[i] < x[j])
     {
        i = j;
     }
  }
 return x[i];
}

int min(int x[])
{
  int i=0, j;
  for (j=i+1; j<num; j++)
  {
```

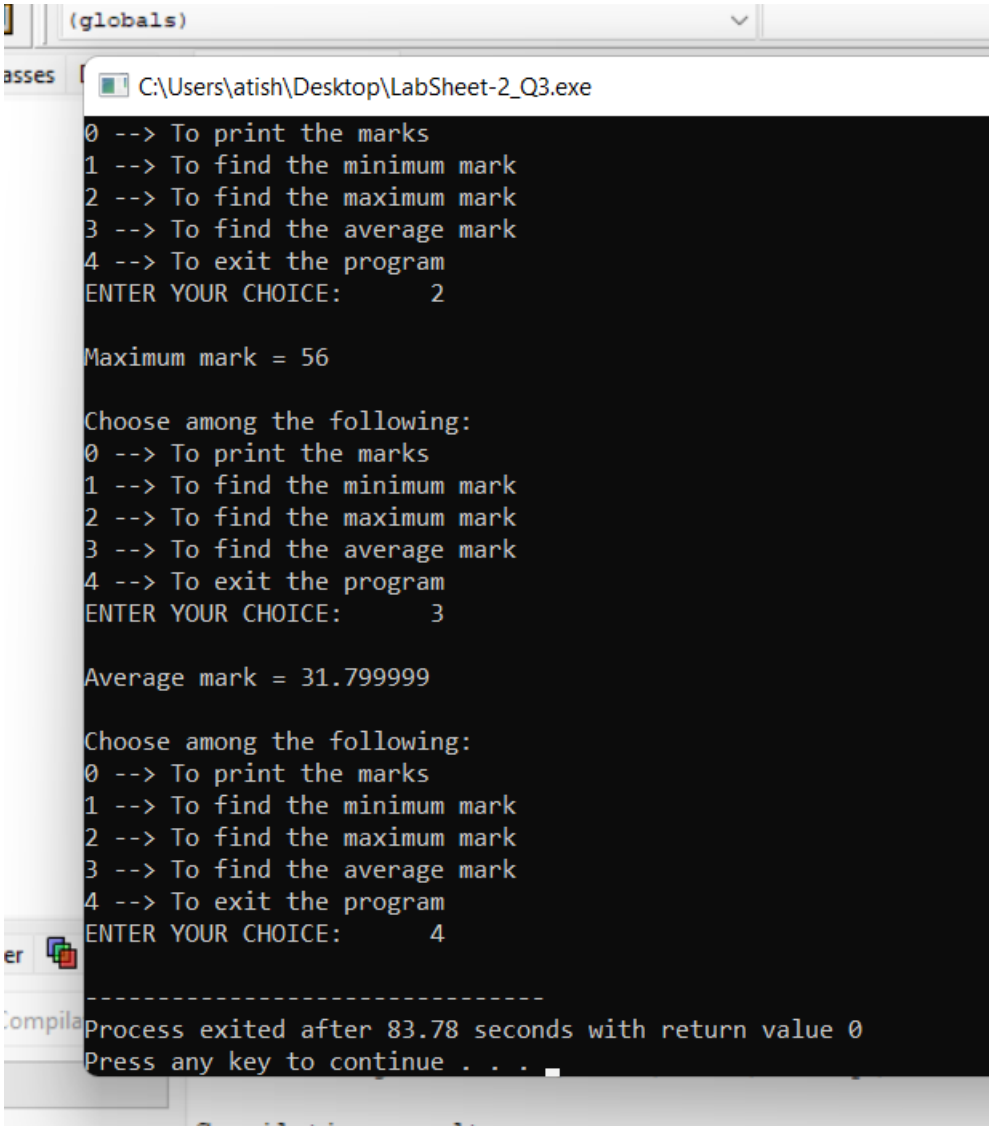
```
      if(x[i]>x[j])
      {
         i = j;
      }
   }
   return x[i];
}

float avg(int x[])
{
   int i, sum=0;
   float avg;
   for (i=0; i<num; i++)
   {
      sum += x[i];
   }
   avg = (float)sum/num;
   return avg;
}
```

OutPut:-


C:\Users\atish\Desktop\LabSheet-2_Q3.exe
Enter the number of subjects you want to evaluate: 5
Enter the marks of 5 subjects:
25
26
26
26
56
Choose among the following:
0 --> To print the marks
1 --> To find the minimum mark
2 --> To find the maximum mark
3 --> To find the average mark
4 --> To exit the program
ENTER YOUR CHOICE: 0
25 26 26 26 56
Choose among the following:
0 --> To print the marks
1 --> To find the minimum mark
2 --> To find the maximum mark
3 --> To find the average mark
4 --> To exit the program


Choose among the following:
0 --> To print the marks
1 --> To find the minimum mark
2 --> To find the maximum mark
3 --> To find the average mark
4 --> To exit the program
ENTER YOUR CHOICE: 0
25 26 26 26 56
Choose among the following:
0 --> To print the marks
1 --> To find the minimum mark
2 --> To find the maximum mark
3 --> To find the average mark
4 --> To exit the program
ENTER YOUR CHOICE: 0
25 26 26 26 56
Choose among the following:
0 --> To print the marks
1 --> To find the minimum mark
2 --> To find the maximum mark
3 --> To find the average mark
4 --> To exit the program


Minimum mark = 25
Choose among the following:
0 --> To print the marks
1 --> To find the minimum mark
2 --> To find the maximum mark
3 --> To find the average mark
4 --> To exit the program
ENTER YOUR CHOICE: 2
Maximum mark = 56
Choose among the following:
0 --> To print the marks
1 --> To find the minimum mark
2 --> To find the maximum mark
3 --> To find the average mark
4 --> To exit the program
ENTER YOUR CHOICE: 3
Average mark = 31.799999
Choose among the following:
0 --> To print the marks
1 --> To find the minimum mark
2 --> To find the maximum mark
3 --> To find the average mark
4 --> To exit the program
ENTER YOUR CHOICE:


(globals)
C:\Users\atish\Desktop\LabSheet-2_Q3.exe
0 --> To print the marks
1 --> To find the minimum mark
2 --> To find the maximum mark
3 --> To find the average mark
4 --> To exit the program
ENTER YOUR CHOICE: 2
Maximum mark = 56
Choose among the following:
0 --> To print the marks
1 --> To find the minimum mark
2 --> To find the maximum mark
3 --> To find the average mark
4 --> To exit the program
ENTER YOUR CHOICE: 3
Average mark = 31.799999
Choose among the following:
0 --> To print the marks
1 --> To find the minimum mark
2 --> To find the maximum mark
3 --> To find the average mark
4 --> To exit the program
ENTER YOUR CHOICE: 4
Process exited after 83.78 seconds with return value 0
Press any key to continue . . .