Assignment

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Section: BAI
Subject: Programming Fundamentals

Problem 1:

Write a program to declare an array of size 10 and initialise the array with the user provided values.
Answer the following:
1. Find the minimum value in the array.
2. Find the maximum value in the array.
3. Find the sum of array.
4. Find the average/mean value of the array.
5. Display the last element of array.
6. Display the value at index 2.
7. Print numbers in reverse order.
8. Count Even and Odd Elements in array.
9. Print the sum of odd indices elements.

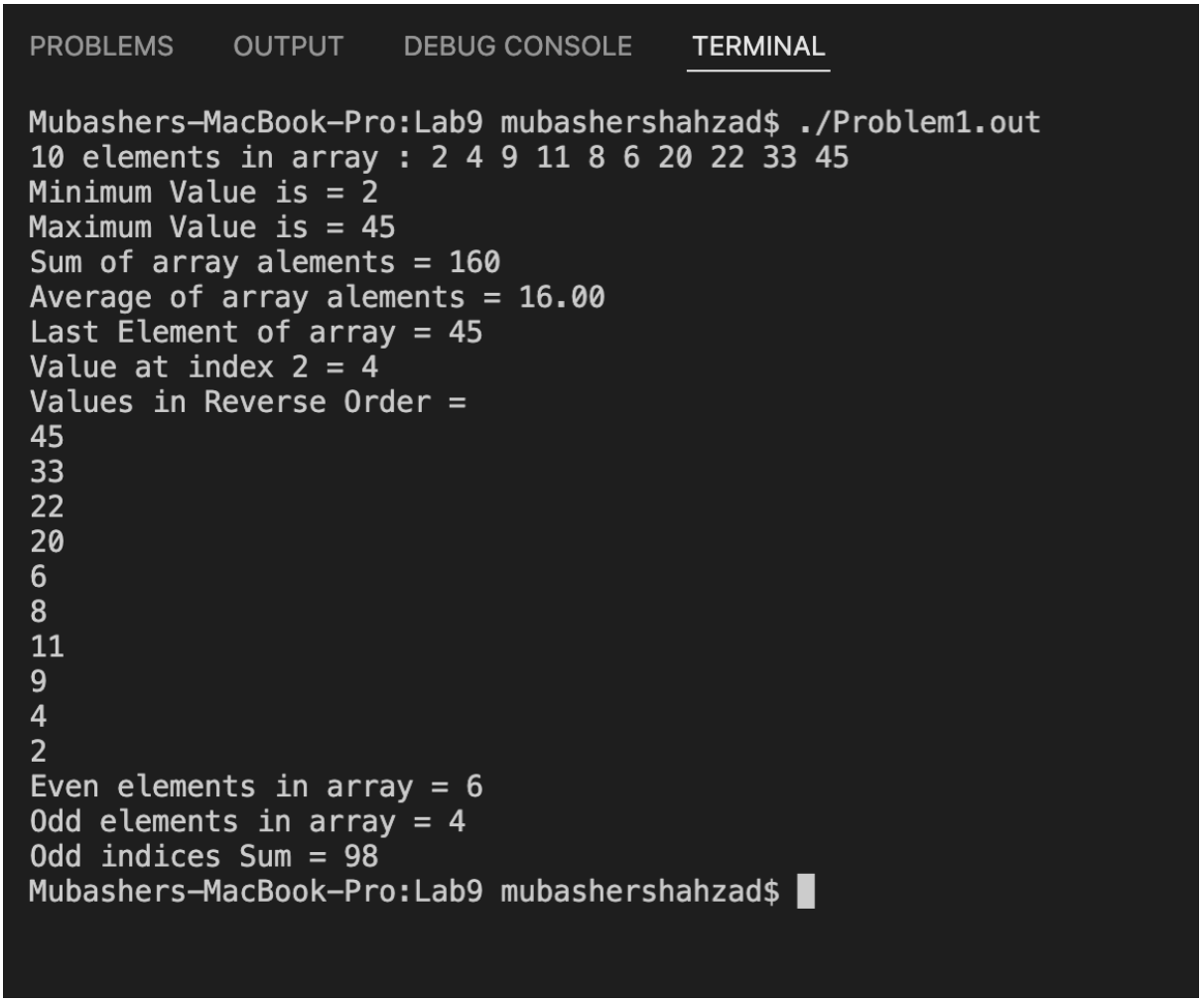
Code:

```
#include <stdio.h>
int main()
{
    int values[10] = {2, 4, 9, 11, 8, 6, 20, 22, 33, 45};
    int sum = 0, min, max, even = 0, odd = 0, odd_indices = 0;
    float avg = 0;
    // Printing 10 elements of array
    printf("10 elements in array :");
    for (int i = 0; i < 10; i++)
    {
        printf(" %d", values[i]);
    }
    // for finding minimum value in array
    min = values[0];
    for (int i = 0; i < 10; i++)
    {
        if (min > values[i])
        {
            min = values[i];
        }
    }
    printf("\nMinimum Value is = %d", min);

    // for finding maximum value in array
    max = values[0];
    for (int i = 0; i < 10; i++)
```

```
{
   if (max < values[i])
   {
      max = values[i];
   }
}
printf("\nMaximum Value is = %d", max);
// for finding sum of values in array
for (int i = 0; i < 10; ++i)
{
   sum = sum + values[i];
}
printf("\nSum of array alements = %d", sum);

// for finding average of values in array
for (int i = 0; i < 10; ++i)
{
   avg = sum / 10;
}
printf("\nAverage of array alements = %.2f", avg);

// Displaying the last elemnt of array
printf("\nLast Element of array = %d", values[9]);

// Displaying value at index 2
printf("\nValue at index 2 = %d", values[1]);

// Displaying values in reverse order

printf("\nValues in Reverse Order = ");

for (int i = 9; i >= 0; i--)
{
   printf("\n%d", values[i]);
}

// For finding even elements in array
for (int i = 0; i < 10; i++)
{
   if (values[i] % 2 == 0)
   {
      even++;
   }
}
printf("\nEven elements in array = %d", even);

// For finding odd elements in array
for (int i = 0; i < 10; i++)
```

```
    {
        if (values[i] % 2 != 0)
        {
            odd++;
        }
    }
    printf("\nOdd elements in array = %d", odd);

    // For finding sum of odd indices
    for (int i = 0; i < 10; i++)
    {
        if (values[i] % 2 != 0)
        {
            odd_indices = odd_indices + values[i];
        }
    }
    printf("\nOdd indices Sum = %d\n", odd_indices);

    return 0;
}
```

Output:



Problem 2:

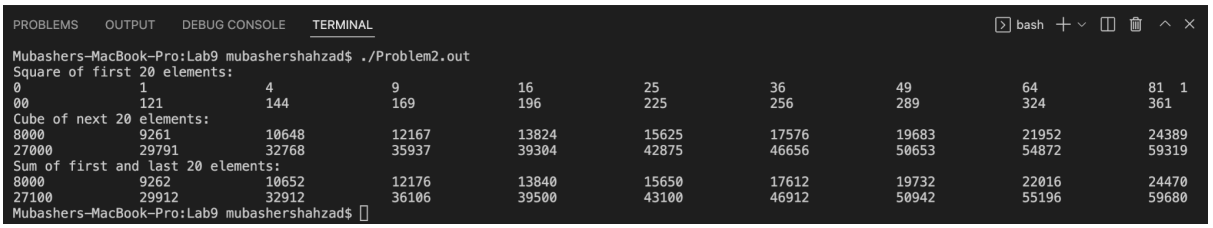
Write a C program that declares an array alpha of 60 components of type int. Initialize the array so that
the first 20 components are equal to the square of the index variable, and the next 20 components are
equal to three times the index variable. Last 20 elements are the sum of first 20 and last 20 indices.
Output the array so that 10 elements per line are printed.

Code:

```
#include <stdio.h>
int main()
{
   int alpha[60];
   int i, j, k;
   printf("Square of first 20 elements:\n");
   for (i = 0; i < 20; i++)
   {
```

```
        alpha[i] = i * i;
        printf("%d\t\t", alpha[i]);
    }
    printf("\nCube of next 20 elements:\n");
    for (j = 20; j < 40; j++)
    {
        alpha[j] = j * j * j;
        printf("%d\t\t", alpha[j]);
    }
    printf("\nSum of first and last 20 elements:\n");
    for (k = 40, i = 0, j = 20; k < 60, j < 40, i < 20; i++, j++, k++)
    {
        alpha[k] = alpha[i] + alpha[j];
        printf("%d\t\t", alpha[k]);
    }
    return 0;
}
```

Output:



Problem 3:

Write a C program to find an element from an array. Each element will be checked. If searched element exists multiple time, then its count will also be shown.

Code:

```
#include<stdio.h>
int find(int a,int arr[]);

int main()
{
    int arr[10]={2, 4, 9, 4, 8, 6, 20, 4, 20, 45};
    int element;

    printf("Enter element to search in array\n[2 4 9 4 8 6 20 4 20 45]:");
    scanf("%d",&element);

    int flag=find(element,arr);

    if(flag==0)
```

```
    printf("Element  not found.%d",element);
    else
    printf("Element %d found %d times.",element,flag);

    return 0;
}

int find(int a,int arr[])
{
    int count=0;
    for (int i = 0; i < 10; i++)
    {
        if(arr[i]==a)
        count++;
    }
   return count;
}
```

Output: