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LAB ASSESSMENT-2

AIM:

Write a simple OpenMP program to demonstrate the use of 'for' clause.

- Print *'n'* array elements
- Sum of *'n'* array elements
- Product of *'n'* array elements

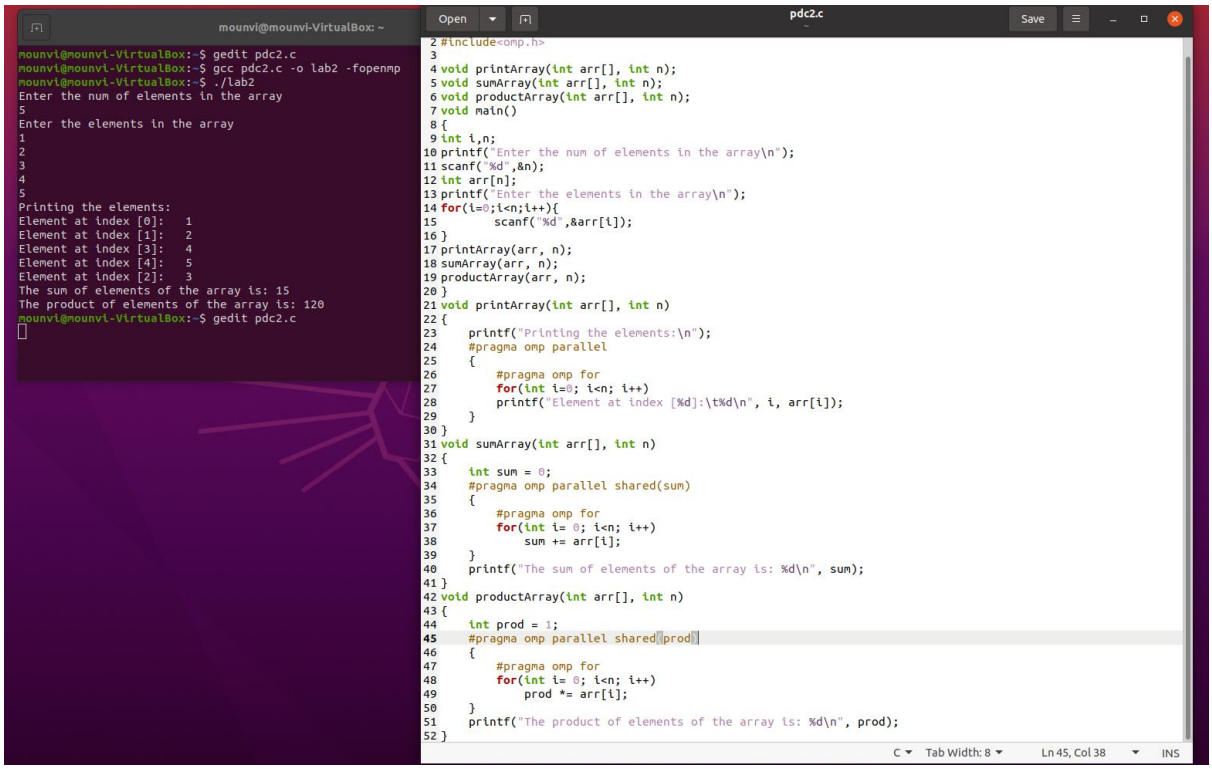
SOURCE CODE:

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

void printArray(int arr[], int n);
void sumArray(int arr[], int n);
void productArray(int arr[], int n);
void main()
{
int i,n;
printf("Enter the num of elements in the array\n");
scanf("%d",&n);
int arr[n];
printf("Enter the elements in the array\n");
for(i=0;i<n;i++){
        scanf("%d",&arr[i]);
}
printArray(arr, n);
sumArray(arr, n);
productArray(arr, n);
}
void printArray(int arr[], int n)
{
   printf("Printing the elements:\n");
   #pragma omp parallel
   {
      #pragma omp for
      for(int i=0; i<n; i++)
      printf("Element at index [%d]:\t%d\n", i, arr[i]);
   }
}
void sumArray(int arr[], int n)
{
   int sum = 0;
   #pragma omp parallel shared(sum)
   {
      #pragma omp for
```

```
    for(int i= 0; i<n; i++)
        sum += arr[i];
    }
    printf("The sum of elements of the array is: %d\n", sum);
}
void productArray(int arr[], int n)
{
    int prod = 1;
    #pragma omp parallel shared(prod)
    {
        #pragma omp for
        for(int i= 0; i<n; i++)
            prod *= arr[i];
    }
    printf("The product of elements of the array is: %d\n", prod);
}
```

EXECUTION:



REMARKS:

Basic concepts of “for” clause parallel programming has been explored by printing, summing up and finding the products of elements in an array.

Key terms:-

- #pragma omp parallel: The code under this syntax is forked into subprocesses which is handled by multiple threads of the processor.
- #pragma omp for: This syntax is used to invoke parallelized approach to *for* loop.