Experiment No. - 1.2

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Branch: 20BCC1 **Section/Group: A**
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Subject Name: ADVANCED PROGRAMMING LAB
Subject Code: 20CSP-334

1. **Aim/Overview of the practical:**

   A left rotation operation on the array of size "n" , shift each of the array elements by one unit to the left, given array of "n" integers and a number "d" , perform "d" left rotations on the array , then print the updated array as a single line of "n" space separated integers denoting the final state of array after performing the left rotations.

2. **Task to be done:**

   A left rotation operation on the array of size "n" , shift each of the array elements by one unit to the left, given array of "n" integers and a number "d" , perform "d" left rotations on the array , then print the updated array as a single line of "n" space separated integers denoting the final state of array after performing the left rotations.

3. **Steps for practical**:
   1. Include the header files.
   2. Take the size of an array, array elements, and d.
   3. Call the left_rotation_by_d () function.

4. Now in left_rotation_by_d function, we call reverse_elements() function and we reverse the first “0” to “d-1” elements of the array, then we again reverse “d” to “n-1” elements, and then finally we will reverse the “0” to “n-1” elements of the array.

5. Finally, we will get the “d” times left rotated, we will print it by “n” space separated integers.

4 . Code:

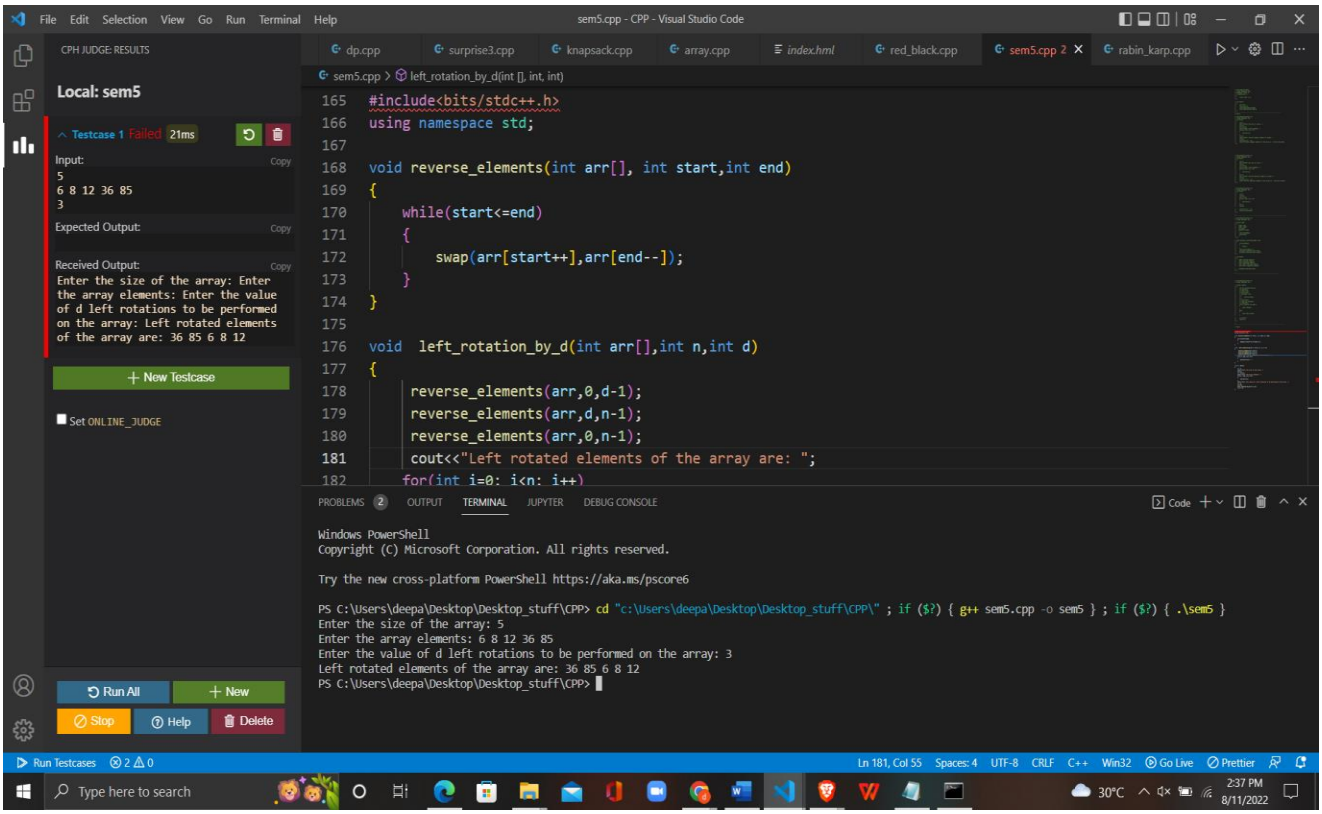
```
#include<bits/stdc++.h>
using namespace std;

void reverse_elements(int arr[], int start,int end)
{
 while(start<=end)
{
   swap(arr[start++],arr[end--]);
}
}

void  left_rotation_by_d(int arr[],int n,int d)
{
    reverse_elements(arr,0,d-1);
    reverse_elements(arr,d,n-1);
    reverse_elements(arr,0,n-1);
    cout<<"Left rotated elements of the array are: ";
   for(int i=0; i<n; i++)
   {
      cout<<arr[i]<<" ";
   }
}
```

```
int32_t main()
{
    int n;
    cout<<"Enter the size of the array: ";
    cin>>n;
    int arr[n];
    cout<<"Enter the array elements: ";
    for(int i=0; i<n; i++)
    {
        cin>>arr[i];
    }
    cout<<"Enter the value of d left rotations to be performed on the array: ";
    int d;
    cin>>d;
    left_rotation_by_d(arr,n,d);
    return 0;
}
```

5. Output:


sem5.cpp - CPP - Visual Studio Code
CPH JUDGE: RESULTS
Local: sem5
Testcase 1 Failed 21ms
Input:
5
6 8 12 36 85
3
Expected Output:
Received Output:
Enter the size of the array: Enter the array elements: Enter the value of d left rotations to be performed on the array: Left rotated elements of the array are: 36 85 6 8 12
New Testcase
Set ONLINE_JUDGE
Run All
New
Stop
Help
Delete
#include<bits/stdc++.h>
using namespace std;
void reverse_elements(int arr[], int start,int end)
{
while(start<=end)
{
swap(arr[start++],arr[end--]);
}
}
void left_rotation_by_d(int arr[],int n,int d)
{
reverse_elements(arr,0,d-1);
reverse_elements(arr,d,n-1);
reverse_elements(arr,0,n-1);
cout<<"Left rotated elements of the array are: ";
PROBLEMS 2 OUTPUT TERMINAL JUPYTER DEBUG CONSOLE
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6
PS C:\Users\deepa\Desktop\Desktop_stuff\CPP> cd "c:\Users\deepa\Desktop\Desktop_stuff\CPP\" ; if ($?) { g++ sem5.cpp -o sem5 } ; if ($?) { .\sem5 }
Enter the size of the array: 5
Enter the array elements: 6 8 12 36 85
Enter the value of d left rotations to be performed on the array: 3
Left rotated elements of the array are: 36 85 6 8 12
PS C:\Users\deepa\Desktop\Desktop_stuff\CPP>
Run Testcases
Ln 181, Col 55
Type here to search
30°C
2:37 PM
8/11/2022


PROBLEMS 2 OUTPUT TERMINAL JUPYTER DEBUG CONSOLE
Code
Windows PowerShell
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PS C:\Users\deepa\Desktop\Desktop_stuff\CPP> cd "c:\Users\deepa\Desktop\Desktop_stuff\CPP\" ; if ($?) { g++ sem5.cpp -o sem5 } ; if ($?) { .\sem5 }
Enter the size of the array: 5
Enter the array elements: 6 8 12 36 85
Enter the value of d left rotations to be performed on the array: 3
Left rotated elements of the array are: 36 85 6 8 12
PS C:\Users\deepa\Desktop\Desktop_stuff\CPP>