Student Information

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- **Batch :- B1**
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Lab Assignment 1: Basic Array Operations

```c
#include <stdio.h>

void findLargestSmallest(int arr[], int n, int *largest, int *smallest)
{
    *largest = arr[0];
    *smallest = arr[0];

    for (int i = 1; i < n; i++)
    {
        if (arr[i] > *largest)
        {
            *largest = arr[i];
        }
        if (arr[i] < *smallest)
        {
            *smallest = arr[i];
        }
    }
}
void sortArray(int arr[], int n)
{
    for (int i = 0; i < n - 1; i++)
    {
        for (int j = 0; j < n - i - 1; j++)
        {
            if (arr[j] > arr[j + 1])
            {
                int temp = arr[j];
                arr[j] = arr[j + 1];
                arr[j + 1] = temp;
            }
        }
    }
}

int main()
{
    int n;
```

```c
    printf("Enter the number of elements: ");
    scanf("%d", &n);

    int arr[n];
    printf("Enter %d elements:\n", n);
    for (int i = 0; i < n; i++)
    {
        scanf("%d", &arr[i]);
    }

    int largest, smallest;
    findLargestSmallest(arr, n, &largest, &smallest);

    printf("Largest element: %d\n", largest);
    printf("Smallest element: %d\n", smallest);

    // Corrected function call to include the size of the array
    sortArray(arr, n);

    printf("Sorted array: ");
    for (int i = 0; i < n; i++)
    {
        printf("%d ", arr[i]);
    }
    printf("\n");

    int sum = 0;
    for (int i = 0; i < n; i++)
    {
        sum += arr[i];
    }

    float average = (float)sum / n;
    printf("Sum of elements: %d\n", sum);
    printf("Average of elements: %.2f\n", average);

    return 0;
}
```
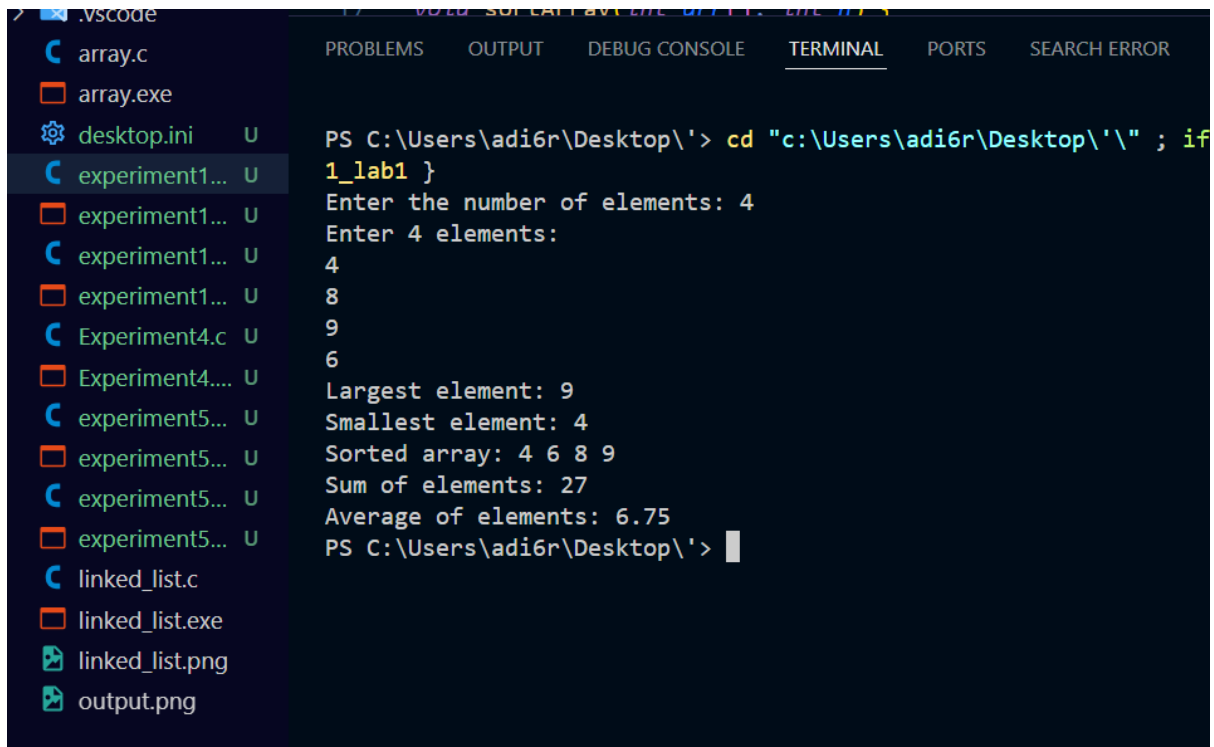
Lab Assignment 2: Array of Structures

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

struct Student {
    char name[50];
    int age;
    int marks;
};

void inputDetails(struct Student students[], int n) {
    for (int i = 0; i < n; i++) {
        printf("Enter details for student %d:\n", i + 1);
        printf("Name: ");
        scanf("%s", students[i].name);
        printf("Age: ");
        scanf("%d", &students[i].age);
        printf("Marks: ");
        scanf("%d", &students[i].marks);
    }
}
```

```c
    }

    void displayDetails(struct Student students[], int n) {
        printf("\nStudent Details:\n");
        for (int i = 0; i < n; i++) {
            printf("Name: %s\n", students[i].name);
            printf("Age: %d\n", students[i].age); // Corrected this line
            printf("Marks: %d\n\n", students[i].marks);
        }
    }

    void sortStudents(struct Student students[], int n) {
        for (int i = 0; i < n - 1; i++) {
            for (int j = 0; j < n - i - 1; j++) {
                if (students[j].marks < students[j + 1].marks) {
                    struct Student temp = students[j];
                    students[j] = students[j + 1];
                    students[j + 1] = temp;
                }
            }
        }
    }

    struct Student findTopStudent(struct Student students[], int n) {
        struct Student topStudent = students[0];
        for (int i = 1; i < n; i++) {
            if (students[i].marks > topStudent.marks) {
                topStudent = students[i];
            }
        }
        return topStudent;
    }

    int main() {
        int n;
        printf("Enter the number of students: ");
        scanf("%d", &n);

        struct Student students[n];
        inputDetails(students, n);
        displayDetails(students, n);
        sortStudents(students, n);
        printf("\nStudents sorted by marks (descending order):\n");
        displayDetails(students, n);

        struct Student topStudent = findTopStudent(students, n);
        printf("\nTop Student:\n");
        printf("Name: %s\n", topStudent.name);
        printf("Age: %d\n", topStudent.age);
        printf("Marks: %d\n", topStudent.marks);
```

return 0;
}

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS    SEARCH ERROR

PS C:\Users\adi6r\Desktop\'> cd "c:\Users\adi6r\Desktop\'\" ; if ($?) { gcc experiment1__lab2
Enter the number of students: 2
Enter details for student 1:
Name: Aditya
Age: 23
Marks: 70
Enter details for student 2:
Name: aditi
Age: 20
Marks: 90

Student Details:
Name: Aditya
Age: 23
Marks: 70

Name: aditi
Age: 20
Marks: 90


Students sorted by marks (descending order):

Student Details:
Name: aditi
Age: 20
Marks: 90

Name: Aditya
Age: 23
Marks: 70


Top Student:
Name: aditi
Age: 20
Marks: 90
PS C:\Users\adi6r\Desktop\'>
```