Bangladesh University of Business and Technology (BUBT)

Lab Report 02(Array)

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Question 01: Write a C program to read and print elements of array. – using recursion..

Source Code :

```c
#include <stdio.h>

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

    int arr[n];

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

    printf("The elements of the array are:\n");
    for(i = 0; i < n; i++) {
        printf("%d ", arr[i]);
    }
    printf("\n");

    return 0;
}
```

Output

```
Enter the number of elements: 3
Enter 3 elements:
3 4 5
The elements of the array are:
3 4 5
```

Question 02: Write a C program to print all negative elements in an array.

Source Code :

```c
#include <stdio.h>

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

    int arr[n];

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

    printf("Negative elements in the array are:\n");
    int found = 0;
    for(i = 0; i < n; i++) {
        if(arr[i] < 0) {
            printf("%d ", arr[i]);
            found = 1;
        }
    }

    if(!found) {
        printf("No negative elements found.");
    }
    printf("\n");

    return 0;
}
```

Output

```
Enter the number of elements: 5
Enter 5 elements:
5 -8 8 9 0
Negative elements in the array are:
-8
```

Question 03 : Write a C program to find sum of all array elements. – using recursion.

Source Code :

```c
#include <stdio.h>

int sumArray(int arr[], int n) {
    if (n == 0) {
        return 0;
    }
    return arr[n - 1] + sumArray(arr, n - 1);
}

int main() {
    int n, i;

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

    int arr[n];

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

    int sum = sumArray(arr, n);
    printf("Sum of all elements = %d\n", sum);

    return 0;
}
```

Output

```
Enter the number of elements: 3
Enter 3 elements:
3 3 3
Sum of all elements = 9
```

Question 04 : Write a C program to find maximum and minimum element in an array. – using recursion.

Source Code :

```c
#include <stdio.h>

int main() {
    int n, i;
    int max, min;

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

    int arr[n];

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

    max = arr[0];
    min = arr[0];

    for(i = 1; i < n; i++) {
        if(arr[i] > max) {
            max = arr[i];
        }
        if(arr[i] < min) {
            min = arr[i];
        }
    }

    printf("Maximum element = %d\n", max);
    printf("Minimum element = %d\n", min);

    return 0;
}
```

Output

```
Enter the number of elements: 5
Enter 5 elements:
2 4 5 6 7
Maximum element = 7
Minimum element = 2
```