

LAB – 6/3/25 : Example programs

1. Write a program in C to find the second smallest element in an array.

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

int findSecondSmallest(int arr[], int n) {
    int smallest = INT_MAX, secondSmallest = INT_MAX;

    for (int i = 0; i < n; i++) {
        if (arr[i] < smallest) {
            secondSmallest = smallest;
            smallest = arr[i];
        } else if (arr[i] < secondSmallest && arr[i] != smallest) {
            secondSmallest = arr[i];
        }
    }

    return secondSmallest;
}

int main() {
    int arr[] = {12, 13, 100, 10, 34, 30};
    int n = sizeof(arr) / sizeof(arr[0]);

    int secondSmallest = findSecondSmallest(arr, n);

    if (secondSmallest == INT_MAX) {
        printf("There is no second smallest element.\n");
    } else {
        printf("The second smallest element is %d\n", secondSmallest);
    }

    return 0;
}
```

OUTPUT:

```
PS C:\Users\Admin\Documents\23cs310\os lab 4thsem> gcc egp1.c
PS C:\Users\Admin\Documents\23cs310\os lab 4thsem> .\a.exe
The second smallest element is 12
```

2. Write a program in C to find the sum of the left diagonals of a matrix.

```
#include <stdio.h>

#define SIZE 3

int main() {
    int matrix[SIZE][SIZE];
    int i, j, sum = 0;
```

```

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

for (i = 0; i < SIZE; i++) {
    sum += matrix[i][i];
}

printf("The sum of the left diagonal is %d\n", sum);

return 0;
}

```

OUTPUT:

```

Enter the elements of the matrix:
23
45
67
23
12
2
56
78
65
The sum of the left diagonal is 100

```

3. Write a program in C to find the sum of rows and columns of a matrix.

```

#include <stdio.h>

#define ROWS 3
#define COLS 3

int main() {
    int matrix[ROWS][COLS];
    int rowSum[ROWS] = {0};
    int colSum[COLS] = {0};
    int i, j;

    printf("Enter the elements of the matrix:\n");
    for (i = 0; i < ROWS; i++) {
        for (j = 0; j < COLS; j++) {
            scanf("%d", &matrix[i][j]);
        }
    }

    for (i = 0; i < ROWS; i++) {
        for (j = 0; j < COLS; j++) {
            rowSum[i] += matrix[i][j];

```

```

        colSum[j] += matrix[i][j];
    }
}

printf("Sum of rows:\n");
for (i = 0; i < ROWS; i++) {
    printf("Row %d: %d\n", i + 1, rowSum[i]);
}

printf("Sum of columns:\n");
for (j = 0; j < COLS; j++) {
    printf("Column %d: %d\n", j + 1, colSum[j]);
}

return 0;
}

```

OUTPUT:

```

Enter the elements of the matrix:
12
45
67
4
3
9
22
12
8
Sum of rows:
Row 1: 124
Row 2: 16
Row 3: 42
Sum of columns:
Column 1: 38
Column 2: 60
Column 3: 84

```