

# ASSIGNMENT TASK

Name: Ibrahim Khalil Tushar

Roll: 2252081187

## Problem 1:

Write a C program that takes a string as input and calculates its length without using the built-in `strlen()` function.

```
#include <stdio.h>

int main() {
    char str[100];
    int i, length = 0;

    printf("Enter a string: ");
    fgets(str, sizeof(str), stdin);

    // Calculating length manually
    for (i = 0; str[i] != '\0'; i++) {
        length++;
    }

    if (str[length - 1] == '\n') {
        length--;
    }

    printf("Length of the string = %d\n", length);

    return 0;
}
```

## Problem 2:

Write a C program that takes a string and checks whether it is a palindrome, ignoring spaces and case differences.

```

#include <stdio.h>
#include <string.h>
#include <ctype.h>

int main() {
    char str[200], cleaned[200];
    int i, j = 0, len, isPalindrome = 1;

    printf("Enter a string: ");
    fgets(str, sizeof(str), stdin);

    for (i = 0; str[i] != '\0'; i++) {
        if (str[i] != ' ' && str[i] != '\n') {
            cleaned[j++] = tolower(str[i]);
        }
    }
    cleaned[j] = '\0';

    len = j;
    for (i = 0; i < len / 2; i++) {
        if (cleaned[i] != cleaned[len - i - 1]) {
            isPalindrome = 0;
            break;
        }
    }

    if (isPalindrome) {
        printf("The string is a palindrome.\n");
    } else {
        printf("The string is NOT a palindrome.\n");
    }

    return 0;
}

```

**Problem 3:**

Write a C program that reads n integers into an array and uses a function to calculate and return the sum of all even numbers in the array. Display the result in main().

```
#include <stdio.h>

// Function to calculate sum of even numbers
int sumOfEven(int arr[], int n) {
    int sum = 0;
    for (int i = 0; i < n; i++) {
        if (arr[i] % 2 == 0) {
            sum += arr[i];
        }
    }
    return sum;
}

int main() {
    int n, i;
    int arr[100];

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

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

    int result = sumOfEven(arr, n);
    printf("Sum of even numbers = %d\n", result);

    return 0;
}
```