1. **Calculate the area of square or circle based on the shape ‘S’ for Square and ‘C’ for Circle. Sample Input 1: Shape = ‘S’ Size = 4 Sample Output 1: Area of Square = 16 Sample Input 2: Shape = ‘C’ Size = 4 Sample Output 2: Area of Circle = 50.24**

#include <stdio.h>

int main() {

char shape;

float size, area;

printf("Enter the shape (S for square, C for circle): ");

scanf("%c", &shape);

printf("Enter the size: ");

scanf("%f", &size);

if (shape == 'S') {

area = size \* size;

printf("Area of Square = %.2f\n", area);

} else if (shape == 'C') {

area = 3.14159 \* size \* size;

printf("Area of Circle = %.2f\n", area);

} else {

printf("Invalid shape. Please enter 'S' for square or 'C' for circle.\n");

}

return 0;

}

**2.Given a sorted array having duplicate elements. Print the elements with its frequency having more than one appearance.**

**Sample Input:**

**N = 12**

**Array = {1,1,1,2,4,4,4,4,5,6,9,9}**

**Sample Output:**

1. **>3,4->4,9->2**

#include <stdio.h>

void print\_frequent\_elements(int arr[], int n) {

int current\_element = arr[0], current\_count = 1;

for (int i = 1; i < n; i++) {

if (arr[i] == current\_element) {

current\_count++;

} else {

if (current\_count > 1) {

printf("%d -> %d\n", current\_element, current\_count);

}

current\_element = arr[i];

current\_count = 1;

}

}

// Check the last element

if (current\_count > 1) {

printf("%d -> %d\n", current\_element, current\_count);

}

}

int main() {

int arr[] = {1, 1, 1, 2, 4, 4, 4, 4, 5, 6, 9, 9};

int n = sizeof(arr) / sizeof(arr[0]);

print\_frequent\_elements(arr, n);

return 0;

}

**3.Given a sentence and screen length. Justify the sentence according to the screen length by replacing space with stars.**

**Sample Input 1:**

**Sentence = Welcome to Zoho Corporation**

**Screen length = 34**

**Sample Output 1:**

**Welcome\*\*\*\*to\*\*\*Zoho\*\*\*Corporation**

**Sample Input 2:**

**Sentence = Welcome to Zoho Corporation**

**Screen length = 36**

**Sample Output 2:**

**Welcome\*\*\*\*to\*\*\*\*Zoho\*\*\*\*Corporation**

#include <stdio.h>

#include <string.h>

void justify\_sentence(char sentence[], int screen\_length) {

int len = strlen(sentence);

int spaces = screen\_length - len; // Number of spaces to distribute

int words = 0;

// Count the number of words

for (int i = 0; sentence[i] != '\0'; i++) {

if (sentence[i] == ' ') {

words++;

}

}

// Distribute extra spaces evenly between words, if possible

if (words > 0) {

int extra\_spaces\_per\_word = spaces / words;

int extra\_spaces\_remaining = spaces % words;

int i = 0, word\_index = 0;

while (sentence[i] != '\0') {

if (sentence[i] == ' ') {

// Add basic spaces after the word

int j;

for (j = 0; j < extra\_spaces\_per\_word; j++) {

sentence[i + j + 1] = ' ';

}

// Add extra spaces from the remaining ones

if (extra\_spaces\_remaining > 0) {

sentence[i + j + 1] = ' ';

extra\_spaces\_remaining--;

}

// Replace spaces with stars

for (j = 0; j < extra\_spaces\_per\_word + (extra\_spaces\_remaining > 0); j++) {

sentence[i + j + 1] = '\*';

}

word\_index++;

}

i++;

}

}

printf("%s\n", sentence);

}

int main() {

char sentence[] = "Welcome to Zoho Corporation";

int screen\_length = 36;

justify\_sentence(sentence, screen\_length);

return 0;

}