**CONTROL STATEMENT**

**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

**CODE:**

#include <stdio.h>

#include <math.h>

int main() {

char shape;

float size;

printf("Enter the shape ('S' for Square, 'C' for Circle): ");

scanf("%c", &shape);

if (shape != 'S' && shape != 'C') {

printf("Invalid shape input.\n");

return 1;

}

printf("Enter the size: ");

scanf("%f", &size);

if (shape == 'S') {

float area\_square = size \* size;

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

} else {

float area\_circle = M\_PI \* size \* size; // Using M\_PI for pi

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

}

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

**CODE:**

#include <stdio.h>

void printFrequency(int arr[], int n) {

if (n <= 0) {

return;

}

int currentElement = arr[0];

int currentFrequency = 1;

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

if (arr[i] == currentElement) {

currentFrequency++;

} else {

if (currentFrequency > 1) {

printf("%d->%d\n", currentElement, currentFrequency);

}

currentElement = arr[i];

currentFrequency = 1;

}

}

if (currentFrequency > 1) {

printf("%d->%d", currentElement, currentFrequency);

}

}

int main() {

int n;

printf("Enter the size of the array: ");

scanf("%d", &n);

int arr[n];

printf("Enter the sorted array elements:\n");

for (int i = 0; i < n; ++i) {

scanf("%d", &arr[i]);

}

printf("Sample Output:\n");

printFrequency(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

**CODE:**

#include <stdio.h>

#include <string.h>

void justifySentence(char sentence[], int screenLength) {

int len = strlen(sentence);

int spaceCount = 0;

for (int i = 0; i < len; i++) {

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

spaceCount++;

}

}

int extraSpaces = screenLength - len + spaceCount;

int spacesBetweenWords = extraSpaces / spaceCount;

int remainingSpaces = extraSpaces % spaceCount;

for (int i = 0; i < len; i++) {

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

for (int j = 0; j < spacesBetweenWords; j++) {

printf("\*");

}

if (remainingSpaces > 0) {

printf("\*");

remainingSpaces--;

}

} else {

printf("%c", sentence[i]);

}

}

printf("\n");

}

int main() {

char sentence[100];

int screenLength;

printf("Enter the sentence: ");

fgets(sentence, sizeof(sentence), stdin);

sentence[strcspn(sentence, "\n")] = '\0';

printf("Enter the screen length: ");

scanf("%d", &screenLength);

justifySentence(sentence, screenLength);

return 0;

}