**QUIZ 3**

**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>

#include <math.h>

double calculate\_square\_area(double size) {

return size \* size;

}

double calculate\_circle\_area(double size) {

return M\_PI \* size \* size;

}

int main() {

char shape;

double size;

shape = 'S';

size = 4;

if (shape == 'S') {

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

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

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

} else {

printf("Invalid shape.\n");

}

shape = 'C';

size = 4;

if (shape == 'S') {

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

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

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

} else {

printf("Invalid shape.\n");

}

return 0;

}

OUTPUT:

Area of Square = 16.00

Area of Circle = 50.27

**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\_duplicate\_frequency(int arr[], int n) {

int i = 0;

while (i < n) {

int count = 1;

while ((i < n - 1) && (arr[i] == arr[i + 1])) {

count++;

i++;

}

if (count > 1) {

printf("%d->%d", arr[i], count);

if (i < n - 1) {

printf(",");

}

}

i++;

}

printf("\n");

}

int main() {

int n = 12;

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

print\_duplicate\_frequency(arr, n);

return 0;

}

OUTPUT:

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

**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 format\_sentence(char sentence[], int screen\_length) {

int words = 0, i, j, base\_spaces, extra\_spaces;

for (i = 0; i < strlen(sentence); i++) {

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

words++;

}

}

int spaces\_needed = screen\_length - strlen(sentence) + words;

base\_spaces = spaces\_needed / words;

extra\_spaces = spaces\_needed % words;

for (i = 0; i < strlen(sentence); i++) {

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

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

} else {

for (j = 0; j < base\_spaces; j++) {

printf("\*");

}

if (extra\_spaces > 0) {

printf("\*");

extra\_spaces--;

}

}

}

printf("\n");

}

int main() {

char sentence1[] = "Welcome to Zoho Corporation";

int screen\_length1 = 34;

format\_sentence(sentence1, screen\_length1);

char sentence2[] = "Welcome to Zoho Corporation";

int screen\_length2 = 36;

format\_sentence(sentence2, screen\_length2);

return 0;

}

OUTPUT:

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

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