

1. Calculate the area of square or circle based on the shape 'S' for Square and 'C' for Circle.

Code

```
#include<stdio.h>

int main()
{
    char Shape;

    int size;

    float area;

    const float pi = 3.14;

    printf("Enter 'S' for square 'C' for circle:");

    scanf("%c",&Shape);

    printf("Enter the size:");

    scanf("%d",&size);

    switch(Shape)
    {
        case 'S':

            area = size*size;

            printf("Area of Square: %.0f",area);

            break;

        case 'C':

            area = pi*size*size;

            printf("Area of Circle : %.2f",area);

            break;

        default:

            printf("Invalid input");

            break;

    }

    return 0;
```

```
}
```

```
Enter 'S' for square 'C' for circle:C
Enter the size:4
Area of Circle : 50.24
-----
Process exited after 4.456 seconds with return value 0
Press any key to continue . . .
```

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

Code

```
#include<stdio.h>

void findDuplicate(int n,int arr[])
{
    int element=0,i,j,count;
    for(i=0;i<n;i++)
    {
        count = 0;
        if(element!=arr[i])
        {
            element = arr[i];
            for(j=i;j<n;j++)
            {
                if(arr[j]==element)
                {
                    count++;
                }
            }
            if(count>1)
            {
                printf("%d->%d ",element,count);
            }
        }
    }
}
```

```

}

int main()
{
    int n,i;

    printf("Enter the value of n:");

    scanf("%d",&n);

    int arr[n];

    printf("Enter the %d array elements:\n",n);

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

    findDuplicate(n,arr);

    return 0;
}

```

Output

```

Enter the value of n:12
Enter the 12 array elements:
1
1
1
2
4
4
4
4
5
6
9
9
1->3   4->4   9->2
-----
Process exited after 17.35 seconds with return value 0
Press any key to continue . . .

```

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

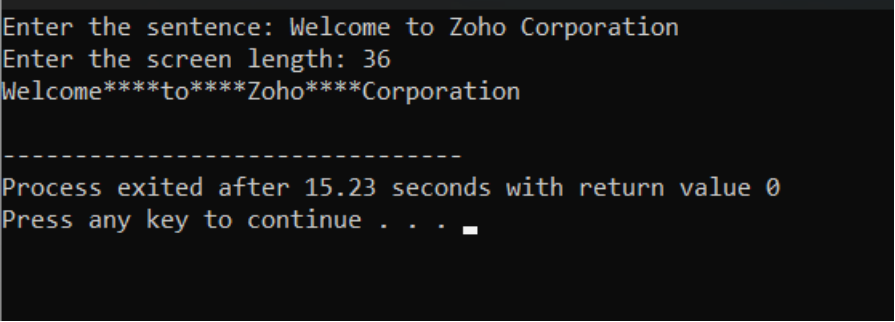
Code

```
#include <stdio.h>

void justifySentence(char sentence[], int screenLength) {
    int length = 0;
    int i,j;
    int spaceCount = 0;
    for ( i = 0; sentence[i] != '\0'; i++) {
        if (sentence[i] == ' ') {
            spaceCount++;
        }
        length++;
    }
    int extraSpaces = screenLength - length;
    int spacesBetweenWords = spaceCount > 0 ? extraSpaces / spaceCount : 0;
    int remainingSpaces = spaceCount > 0 ? extraSpaces % spaceCount : 0;
    for (i = 0; sentence[i] != '\0'; i++) {
        if (sentence[i] == ' ') {
            for (j = 0; j < spacesBetweenWords+1; j++) {
                printf("*");
            }
            if (remainingSpaces > 0) {
                printf("*");
                remainingSpaces--;
            }
        } else {
            printf("%c", sentence[i]);
        }
    }
    printf("\n");
}
```

```
int main() {  
    char sentence[30];  
    int screenLength;  
    printf("Enter the sentence: ");  
    gets(sentence);  
    printf("Enter the screen length: ");  
    scanf("%d", &screenLength);  
    justifySentence(sentence, screenLength);  
    return 0;  
}
```

Output

A terminal window with a dark background and light gray text. The output of the program is displayed line by line. The first line is "Enter the sentence: Welcome to Zoho Corporation". The second line is "Enter the screen length: 36". The third line is "Welcome****to****Zoho****Corporation". The fourth line is a separator consisting of 20 dashes. The fifth line is "Process exited after 15.23 seconds with return value 0". The sixth line is "Press any key to continue . . . " followed by a small white square cursor.

```
Enter the sentence: Welcome to Zoho Corporation  
Enter the screen length: 36  
Welcome****to****Zoho****Corporation  
-----  
Process exited after 15.23 seconds with return value 0  
Press any key to continue . . . ■
```