



Course Name : Introduction to Computer Science

Course Group : Group 1

Instructor Name : Assist. Prof. M. Amaç GÜVENSAN

Assignment Number : Assignment 2

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Student Name and Surname : Duygu Erduran

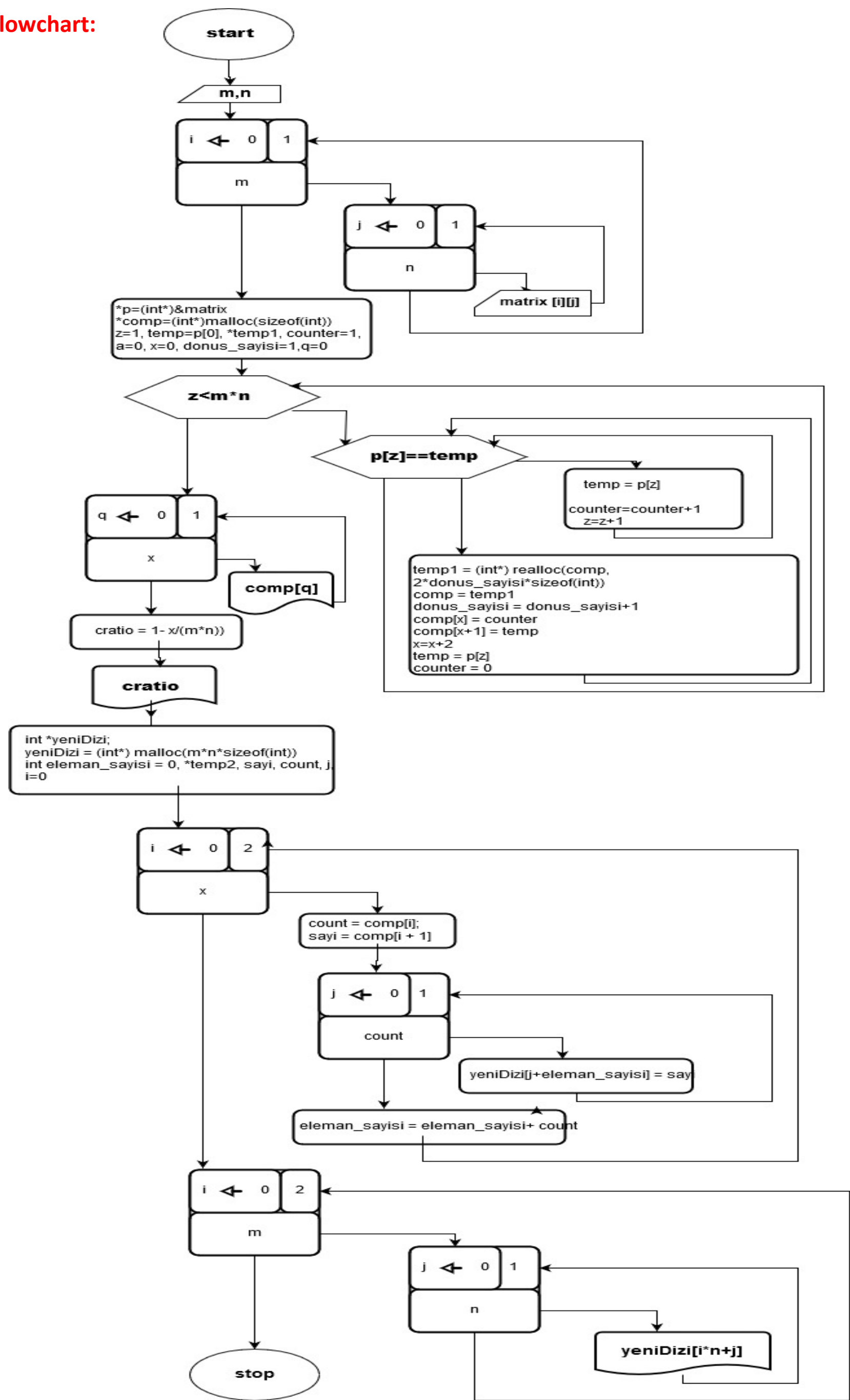
Question :

Design an algorithm which compresses a given matrix with N rows and M columns using the Run Length Encoding compression method and then decompresses the obtained array again into a new matrix. Your algorithm should also find the compression ratio. You should draw the flowchart and write its program in C.

Solution:

- Diziyi Pointer yaparak kullanıldı.
- Counter ve Temp değişkenlerinden yararlanıldı.
- While ve For Döngüleri kullanıldı.
- Bellekte ne kadar yer tutacağı belli olmadığı ve fazla yer ayrılmasını önlemek için Malloc yapıldı.
- Malloc u Realloc yaparak her döngü dönüşünde bellekte yer artırılması sağlandı.

Flowchart:



Analysis:

- Ödev Pdf in deki örnek:

```
Select C:\Users\DUYGU ERDURAN\Desktop\16011706\16011706.exe
Matris satir: 5
Matris sutun: 5
1
1
1
0
0
0
1
1
2
2
2
2
2
2
2
2
1
3
3
3
0
0
3
3
1
3 1 3 0 2 1 8 2 1 1 3 3 2 0 2 3 1 1
0.280000
1 1 1 0 0
0 1 1 2 2
2 2 2 2 2
2 1 3 3 3
0 0 3 3 1

-----
Process exited after 45.57 seconds with return value 0
Press any key to continue . . .
```

- 3*3 lük bir matris girdisi:

```
C:\Users\DUYGU ERDURAN\Desktop\16011706\16011706.exe
Matris satir: 3
Matris sutun: 3
4
4
4
4
5
5
5
6
8
4 4 3 5 1 6 1 8
0.111111
4 4 4
4 5 5
5 6 8

-----
Process exited after 12.14 seconds with return value 0
Press any key to continue . . .
```

- 5*4'lük bir matris girdisi:

```
Select C:\Users\DUYGU ERDURAN\Desktop\16011706\16011706.exe
Matris satir: 5
Matris sutun: 4
4
4
4
5
5
6
6
7
0
0
0
2
2
2
2
3
3
4
4
5
3 4 2 5 2 6 1 7 3 0 4 2 2 3 2 4 1 5
0.100000
4 4 4 5
5 6 6 7
0 0 0 2
2 2 2 3
3 4 4 5

-----
Process exited after 21.74 seconds with return value 0
Press any key to continue . . .
```