

به نام خدا

امیرحسین زمانی-۹۴۲۳۸۰۲
۱۳۹۷/۱۲/۱۸

برنامه نویسی پیشرفته (AP)
گزارش تمرین سری دوم

سوال ۱:

توابع گفته شده در سوال دقیقاً پیاده سازی شدند و نتایج به صورت زیر است:

(الف)

```
ahz@AHZ:~/Desktop/AP-HW2-9423802/AP-HW2/Q1$ ./main
Please enter the dimension of map:
8
The random map is:
61 72 89 46 80 60 54 4
17 82 31 67 40 86 67 82
8 30 67 38 74 95 85 17
6 26 60 18 69 11 84 30
84 74 29 16 34 35 21 4
17 4 71 10 90 39 92 51
69 11 89 95 58 26 64 64
53 25 34 74 88 19 56 72

The path with right && down movement:
Distance: 287
* * - - - - -
- * * * * - - -
- - - - * - - -
- - - - * - - -
- - - - * * - -
- - - - - * - -
- - - - - * - -
- - - - - * * *
```

(ب)

```
The path with right && down && diagonal movement:
Distance: 293
* * - - - - -
- * - - - - -
- - * - - - -
- - * - - - -
- - * * - - -
- - - * - - -
- - - - * - -
- - - - * * * *

All paths are:
61 17 8 6 84 17 69 53 25 34 74 88 19 56 72
61 17 8 6 84 17 69 11 25 34 74 88 19 56 72
61 17 8 6 84 17 69 11 89 34 74 88 19 56 72
61 17 8 6 84 17 69 11 89 95 74 88 19 56 72
61 17 8 6 84 17 69 11 89 95 58 88 19 56 72
61 17 8 6 84 17 69 11 89 95 58 26 19 56 72
61 17 8 6 84 17 69 11 89 95 58 26 64 56 72
61 17 8 6 84 17 69 11 89 95 58 26 64 64 72
61 17 8 6 84 17 4 11 25 34 74 88 19 56 72
61 17 8 6 84 17 4 11 89 34 74 88 19 56 72
61 17 8 6 84 17 4 11 89 95 74 88 19 56 72
61 17 8 6 84 17 4 11 89 95 58 88 19 56 72
61 17 8 6 84 17 4 11 89 95 58 26 19 56 72
61 17 8 6 84 17 4 11 89 95 58 26 64 56 72
61 17 8 6 84 17 4 11 89 95 58 26 64 64 72
61 17 8 6 84 17 4 71 89 34 74 88 19 56 72
61 17 8 6 84 17 4 71 89 95 74 88 19 56 72
61 17 8 6 84 17 4 71 89 95 58 88 19 56 72
61 17 8 6 84 17 4 71 89 95 58 26 19 56 72
61 17 8 6 84 17 4 71 89 95 58 26 64 56 72
61 17 8 6 84 17 4 71 89 95 58 26 64 64 72
61 17 8 6 84 17 4 71 10 95 74 88 19 56 72
```

ج

```
61 72 89 46 80 60 86 95 11 35 21 92 64 56 72
61 72 89 46 80 60 86 95 11 35 21 92 64 64 72
61 72 89 46 80 60 86 95 11 35 21 92 51 64 72
61 72 89 46 80 60 86 95 11 35 21 4 51 64 72
61 72 89 46 80 60 86 95 11 84 21 92 64 56 72
61 72 89 46 80 60 86 95 11 84 21 92 64 64 72
61 72 89 46 80 60 86 95 11 84 21 92 51 64 72
61 72 89 46 80 60 86 95 11 84 21 4 51 64 72
61 72 89 46 80 60 86 95 11 84 30 4 51 64 72
61 72 89 46 80 60 86 95 85 84 21 92 64 56 72
61 72 89 46 80 60 86 95 85 84 21 92 64 64 72
61 72 89 46 80 60 86 95 85 84 21 92 51 64 72
61 72 89 46 80 60 86 95 85 84 21 4 51 64 72
61 72 89 46 80 60 86 95 85 84 30 4 51 64 72
61 72 89 46 80 60 86 95 85 17 30 4 51 64 72
61 72 89 46 80 60 86 67 85 84 21 92 64 56 72
61 72 89 46 80 60 86 67 85 84 21 92 64 64 72
61 72 89 46 80 60 86 67 85 84 21 92 51 64 72
61 72 89 46 80 60 86 67 85 84 21 4 51 64 72
61 72 89 46 80 60 86 67 85 84 30 4 51 64 72
61 72 89 46 80 60 86 67 85 17 30 4 51 64 72
61 72 89 46 80 60 86 67 82 17 30 4 51 64 72
61 72 89 46 80 60 54 67 85 84 21 92 64 56 72
61 72 89 46 80 60 54 67 85 84 21 92 64 64 72
61 72 89 46 80 60 54 67 85 84 21 92 51 64 72
61 72 89 46 80 60 54 67 85 84 21 4 51 64 72
61 72 89 46 80 60 54 67 85 84 30 4 51 64 72
61 72 89 46 80 60 54 67 85 17 30 4 51 64 72
61 72 89 46 80 60 54 67 82 17 30 4 51 64 72
61 72 89 46 80 60 54 4 82 17 30 4 51 64 72

The minimum path is:(With right && down movement)
61 72 89 46 67 38 18 16 34 35 39 26 64 64 72
The minimum distance is: 225
```

سوال ۲:

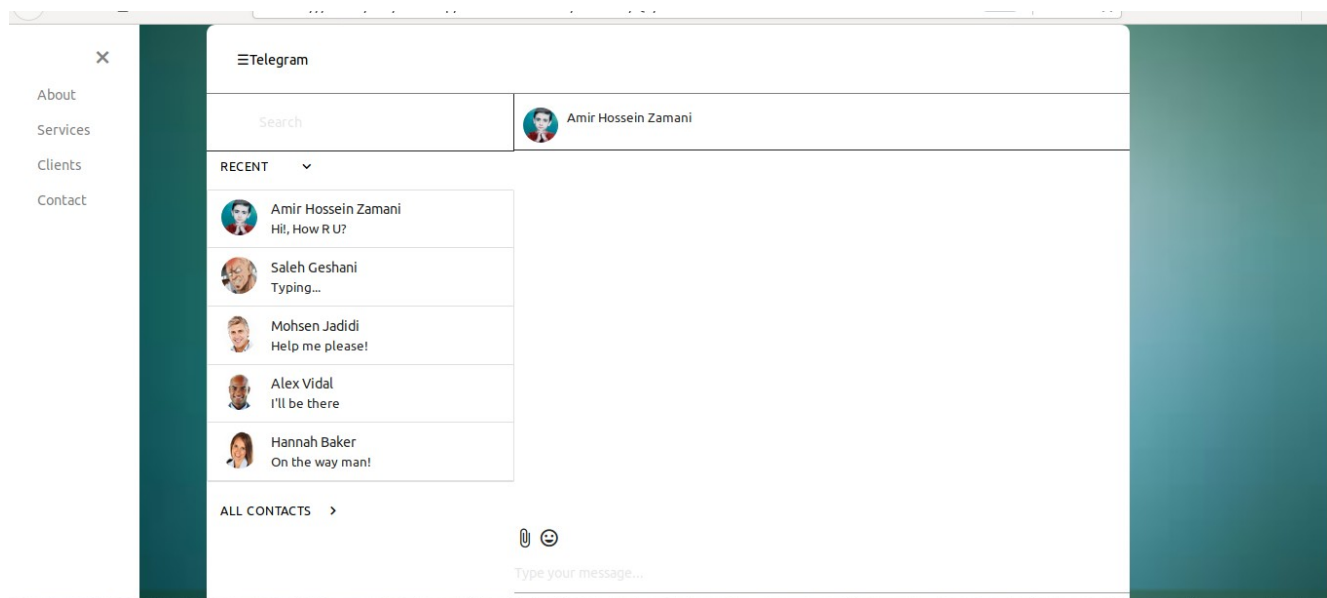
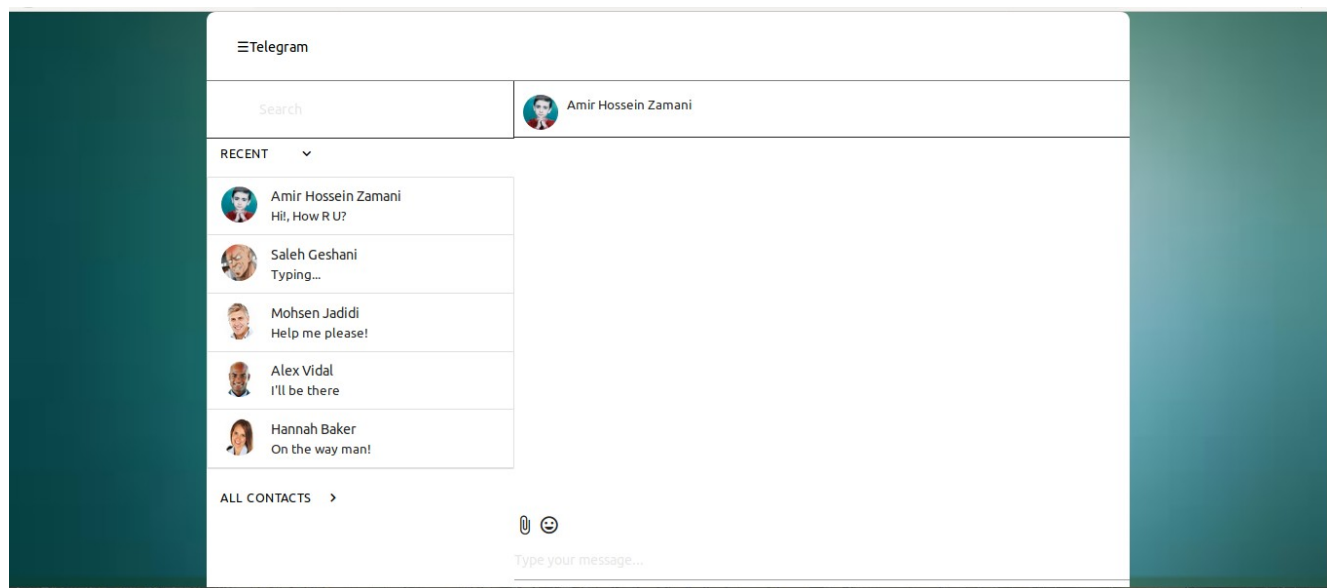
```
ahz@AHZ:~/Desktop/AP-HW2-9423802/AP-HW2/Q2$ ./main
Please enter the n: 100000
The time of Vector is: 4ms
The time of Array is: 0ms
```

```
ahz@AHZ:~/Desktop/AP-HW2-9423802/AP-HW2/Q2$ ./main
Please enter the n: 900000
The time of Vector is: 27ms
The time of Array is: 5ms
```

```
ahz@AHZ:~/Desktop/AP-HW2-9423802/AP-HW2/Q2$ ./main
Please enter the n: 99999999
The time of Vector is: 1984ms
The time of Array is: 420ms
```

سوال ۳:

```
ahz@AHZ:~/Desktop/AP-HW2-9423802/AP-HW2/Q3$ ./main
////////// The input database is: //////////
[2018-2-18 21:18] 100 1234
[2018-2-18 22:58] 140 4567
[2018-2-18 23:30] 121 1234
[2018-2-19 00:01] 099 5320
[2018-2-19 07:50] 099 4567
[2018-2-19 07:50] 099 3565
[2018-2-20 07:50] 245 3593
[2018-2-20 07:50] 199 3552
[2018-2-20 07:50] 599 4552
[2018-2-20 07:50] 599 5522
[2018-2-21 07:50] 456 3488
[2018-2-21 07:50] 099 3453
[2018-2-21 07:50] 099 3478
[2018-2-22 07:50] 099 3421
[2018-2-22 07:50] 099 3490
[2018-2-23 07:50] 099 3446
[2018-2-23 07:50] 099 3497
[2018-2-23 07:50] 099 3435
[2018-2-24 07:50] 099 3435
////////// The ouput database is: //////////
[2018-2-18] 3 2
[2018-2-19] 1 3
[2018-2-20] 3 4
[2018-2-21] 2 3
[2018-2-22] 1 2
[2018-2-23] 1 3
[2018-2-24] 1 1
```



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