SE 1105 PROGRAMMING & PROBLEM SOLVING I FINAL	A	Grading				
		Q1	Q2	Q3	Q4	Σ

Instructors	ID #	Name-Surname	Time allowed	Date/Room #
Dr. Dindar ÖZ Dr. Anas Kademi			80 mins.	11.01.2022

Notes: If you believe that necessary data or assumptions are missing from the problem statement make your own assumption(s) and write them clearly.

QUESTIONS

1. **(20 pts.)** Write a function that takes 10x10 2-D **double** array as parameter. The function must return the sum of all elements whose row index is smaller than the column index.

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2. **(25 pts.)** Write a function that takes a **word** as a string parameter. You can assume that all characters are small letters. The function must return the length of the longest alphabetic sequence in the word (i.e. the sequence of letters taking place in alphabetic order.)

   Example: If the word is *"encyclopedia"* then the longest alphabetic sequence is "*clop*". So the function returns 4

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3. **(25 pts.)** Define a new data type for representing **Time** information A time has three integer fields namely hour, minute, and second. Write a function that takes two Time parameters **t1** and **t2**. The function must return the number of seconds between **t1** and **t2** assuming that both times belong to the same day.
   Example: If t1: 14:30:00 and t2: 15:20:00 then the difference is 50 minutes (3000 seconds). So the function returns 3000

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4. (30 pts.) Write the outputs of the following programs.

```
#include "stdio.h"

void func(int a, int b ,int *c)
{
   if (a > 3)
       return;

   a++;
   func(a, b, c);
   b++;
   (*c)++;

   printf("%d %d %d\n", a, b, *c);
}

void main()
{
   int a = 0;
   func(a, a, &a);
}
```

```
#include <stdbool.h>
#include "stdio.h"

#define SIZE 7

void traverse(char map[SIZE][SIZE])
{
   int r = 3, c = 3;
   int delta[] = { 0,-1,0,1 };

   bool isInside = true;
   for (int d = 2; isInside ; d++)
   {
       for (int j = 0; j < d / 2; j++)
       {
          r = r + delta[d % 4];
          c = c + delta[(d + 1) % 4];

          isInside = (r >= 0 && c >= 0 &&
                      r < SIZE  && c < SIZE);

          if (isInside && (r + c) % 2 == 1)
             printf("%c", map[r][c]);
       }
   }
}

void main()
{
   char map[][SIZE] =
             {{ 'G','!','A','!','M','!','E' },
              { 'R','O','X','F','T','M',' ' },
              { 'E','E','M',' ','Y','Y','İ' },
              { 'E','?','E','H','S','F','S' },
              { 'N','N','G','E','T','O','T' },
              { 'T','O',' ','C','U','R','E' },
              { '.','S','B','E','L','M','K' }
            };
   traverse(map);
   return;
}
```

Good luck…