Informatics II, Spring 2023, Exercise 1 Solution

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Task 1

1.1 (SC): 1638.4 m

1.2 (MC): F T T F

1.3 (SC) A = (0,3,4,7,7,5,5,8,8)

Task 2

```c
/*

gcc matrix.c -o matrix; ./matrix 1 3 2 2 # Linux
gcc matrix.c -o matrix; ./matrix 1 3 2 2 # Windows (UCRT64)
gcc matrix.c -o matrix; ./matrix 1 3 2 2 # Mac

*/

#include <stdio.h>

#define N 2

int m[N][N];
int o[N][N];

int main(int argc, char **argv) {
  int i, j, k;

  /* input handling */
  sscanf(argv[1], "%d", &m[0][0]);
  sscanf(argv[2], "%d", &m[0][1]);
  sscanf(argv[3], "%d", &m[1][0]);
  sscanf(argv[4], "%d", &m[1][1]);

  /* matrix multiplication */
  for (i = 0; i < N; i++) {
    for (j = 0; j < N; j++) {
      o[i][j] = 0;
      for (k = 0; k < N; k++) {
```

```
30            o[i][j] = o[i][j] + m[i][k] * m[k][j];
31          }
32        }
33    }
34
35    /* printing output to terminal */
36    printf("␣input␣␣␣␣output\n");
37    for (i = 0; i < N; i++) {
38      for (j = 0; j < N; j++) {
39        printf("%3d", m[i][j]);
40      }
41      printf("␣␣␣␣");
42      for (j = 0; j < N; j++) {
43        printf("%3d", o[i][j]);
44      }
45      printf("\n");
46    }
47
48  }
```

Task 3

```
1  //-----------------------------------------------------------
2
3  bool pairSum() {
4    for (i = 0; i < n; i++) {
5      for (j = i+1; j < n; j++) {
6        if (A[i] + A[j] == c) { return true; }
7      }
8    }
9    return false;
10 }
11
12 //-----------------------------------------------------------
13
14 bool pairSumSorted() {
15   i = 0; j = n - 1;
16   while (i < j) {
17     if (A[i] + A[j] == c) { return true; }
18     else if (A[i] + A[j] < c) { i++; }
19     else { j--; }
20   }
21   return false;
22 }
23
24 //-----------------------------------------------------------
```