Buổi3

III. Bài tập thực hành trên lớp.

Bài 1.1

```
Nhap so dong m: 4
Nhap so cot n: 5
Nhap gia tri nho nhat min: 5
Nhap gia tri lon nhat max: 20

Menu:
1. Tao va xuat ma tran
2. Tinh va xuat tong gia tri tung dong
3. Xuat phan tu lon nhat tren tung cot
4. Xuat cac phan tu duong bien
5. Xuat cac phan tu cuc dai
6. Xuat dong chi chua so chan
7. Sap xep mang tang theo tung dong
8. Thoat
Chon chuc nang: 1
Ma tran ngau nhien:
    7  16  10  10  14
    9  19  19   9   5
   13  13  18  16  18
   10   5  15  20   7
```

Bài 1.2

```
Menu:
1. Tao va xuat ma tran
2. Tinh va xuat tong gia tri tung dong
3. Xuat phan tu lon nhat tren tung cot
4. Xuat cac phan tu duong bien
5. Xuat cac phan tu cuc dai
6. Xuat dong chi chua so chan
7. Sap xep mang tang theo tung dong
8. Thoat
Chon chuc nang: 2
Tong gia tri tung dong:
Tong gia tri dong 1: 57
Tong gia tri dong 2: 61
Tong gia tri dong 3: 78
Tong gia tri dong 4: 57
```

Bài 1.3

```
Menu:
1. Tao va xuat ma tran
2. Tinh va xuat tong gia tri tung dong
3. Xuat phan tu lon nhat tren tung cot
4. Xuat cac phan tu duong bien
5. Xuat cac phan tu cuc dai
6. Xuat dong chi chua so chan
7. Sap xep mang tang theo tung dong
8. Thoat
Chon chuc nang: 3
Phan tu lon nhat tren tung cot:
Phan tu lon nhat tren cot 1: 13
Phan tu lon nhat tren cot 2: 19
Phan tu lon nhat tren cot 3: 19
Phan tu lon nhat tren cot 4: 20
Phan tu lon nhat tren cot 5: 18

Menu:
```

Bài 1.4

```
Menu:
1. Tao va xuat ma tran
2. Tinh va xuat tong gia tri tung dong
3. Xuat phan tu lon nhat tren tung cot
4. Xuat cac phan tu duong bien
5. Xuat cac phan tu cuc dai
6. Xuat dong chi chua so chan
7. Sap xep mang tang theo tung dong
8. Thoat
Chon chuc nang: 4
Phan tu duong bien:
Phan tu duong bien:    7  16  10  10  14   5  18   7  20  15   5  10  13   9
```

Bài 1.5

```
Menu:
1. Tao va xuat ma tran
2. Tinh va xuat tong gia tri tung dong
3. Xuat phan tu lon nhat tren tung cot
4. Xuat cac phan tu duong bien
5. Xuat cac phan tu cuc dai
6. Xuat dong chi chua so chan
7. Sap xep mang tang theo tung dong
8. Thoat
Chon chuc nang: 5
Phan tu cuc dai:
Phan tu cuc dai:   14  20
```
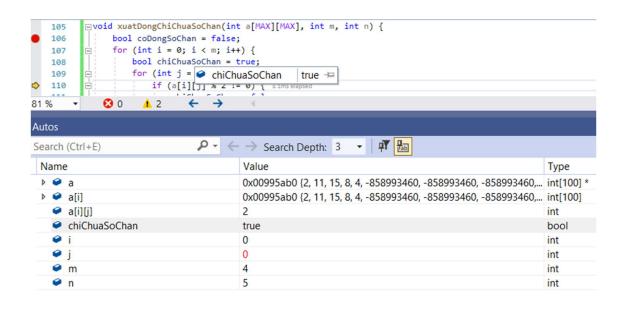
Bài 1.6

```
Ma tran ngau nhien:
    5    4    9    9    2
    2   10    2   11    7
    2    4    8   15    4
   14    8    2   14    6

Menu:
1. Tao va xuat ma tran
2. Tinh va xuat tong gia tri tung dong
3. Xuat phan tu lon nhat tren tung cot
4. Xuat cac phan tu duong bien
5. Xuat cac phan tu cuc dai
6. Xuat dong chi chua so chan
7. Sap xep mang tang theo tung dong
8. Thoat
Chon chuc nang: 6
Dong chi chua so chan:
Dong 4 chi chua so chan:   14    8    2   14    6
```

```
Ma tran ngau nhien:
    9   14    6    5    5
   13    6    6   11    8
    4   10    5    4   13
   14    2   10   14    5

Menu:
1. Tao va xuat ma tran
2. Tinh va xuat tong gia tri tung dong
3. Xuat phan tu lon nhat tren tung cot
4. Xuat cac phan tu duong bien
5. Xuat cac phan tu cuc dai
6. Xuat dong chi chua so chan
7. Sap xep mang tang theo tung dong
8. Thoat
Chon chuc nang: 6
Dong chi chua so chan:
Khong co dong chi chua so chan.
```
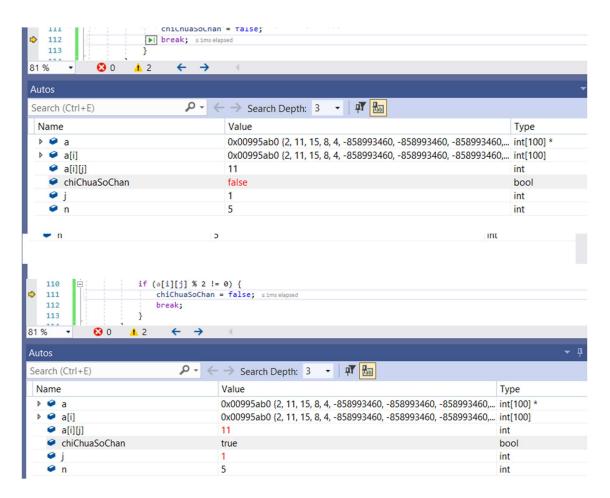
Bài 1.7

```
Menu:
1. Tao va xuat ma tran
2. Tinh va xuat tong gia tri tung dong
3. Xuat phan tu lon nhat tren tung cot
4. Xuat cac phan tu duong bien
5. Xuat cac phan tu cuc dai
6. Xuat dong chi chua so chan
7. Sap xep mang tang theo tung dong
8. Thoat
Chon chuc nang: 7
Sap xep mang tang theo tung dong:
     7   10   10   14   16
     5    9    9   19   19
    13   13   16   18   18
     5    7   10   15   20
```

Debug:

```
104    // Ham xuat dong chi chua so chan
105    ⊟void xuatDongChiChuaSoChan(int a[MAX][MAX], int m, int n) { ▶|
106        bool co⊕ xuatDongChiChuaSoChan    0x00d522f0 {Buoi3_2001210470_DangVanPhong.exe!xuatDongChiChua
107        for (int i = 0; i < m; i++) {
108            bool chiChuaSoChan = true;
109            for (int j = 0; j < n; j++) {
110                if (a[i][j] % 2 != 0) {
111                    chiChuaSoChan = false;
112                    break;
113                }
114            }
115            if (chiChuaSoChan) {
116                coDongSoChan = true;
117                printf("Dong %d chi chua so chan: ", i + 1);
118                for (int j = 0; j < n; j++) {
119                    printf("%4d", a[i][j]);
120                }
121                printf("\n");
122            }
123        }
124        if (!coDongSoChan) {
125            printf("Khong co dong chi chua so chan.\n");
126        }
```

81 %   ❌ 0   ⚠ 2   ←   →   ◁

Autos

Search (Ctrl+E)   🔍 ▾   ←   →   Search Depth: 3   ▾

Name	Value	Type
▷ 📦 a	0x00b85dd0 {8, 8, 9, 3, 11, -858993460, -858993460, -858993460, ...	int[100] *
📦 coDongSoChan	true (204)	bool
📦 m	4	int
📦 n	5	int

```
105    ⊟void xuatDongChiChuaSoChan(int a[MAX][MAX], int m, int n) {
106        bool coDongSoChan = false;
107        for (int i = 0; i < m; i++) {    ≤ 1ms elapsed
```

81 %   ❌ 0   ⚠ 2   ←   →   ◁

Autos   ▾ 📌 ×

Search (Ctrl+E)   🔍 ▾   ←   →   Search Depth: 3   ▾

Name	Value	Type
▷ 📦 a	0x00af619c {10, 13, 10, 15, 15, -858993460, -858993460, -8589934...	int[100] *
📦 coDongSoChan	false	bool
📦 i	-858993460	int
📦 m	4	int
📦 n	5	int

```
105  void xuatDongChiChuaSoChan(int a[MAX][MAX], int m, int n) {
106      bool coDongSoChan = false;
107      for (int i = 0; i < m; i++) {
108          bool chiChuaSoChan = true;
109          for (int j =    chiChuaSoChan    true
110              if (a[i][j] % 2 != 0) {          ≤ 1ms elapsed
```

81 %   ⊗ 0   ⚠ 2   ←   →

Autos

Search (Ctrl+E)   🔍▾   ← →   Search Depth: 3 ▾   ▦

Name	Value	Type
▷ 🔹 a	0x00995ab0 {2, 11, 15, 8, 4, -858993460, -858993460, -858993460,...	int[100] *
▷ 🔹 a[i]	0x00995ab0 {2, 11, 15, 8, 4, -858993460, -858993460, -858993460,...	int[100]
🔹 a[i][j]	2	int
🔹 chiChuaSoChan	true	bool
🔹 i	0	int
🔹 j	0	int
🔹 m	4	int
🔹 n	5	int

```
111                  chiChuaSoChan = false;
112          ▶ break;   ≤ 1ms elapsed
113              }
```

81 %   ⊗ 0   ⚠ 2   ←   →

Autos

Search (Ctrl+E)   🔍▾   ← →   Search Depth: 3 ▾   ▦

Name	Value	Type
▷ 🔹 a	0x00995ab0 {2, 11, 15, 8, 4, -858993460, -858993460, -858993460,...	int[100] *
▷ 🔹 a[i]	0x00995ab0 {2, 11, 15, 8, 4, -858993460, -858993460, -858993460,...	int[100]
🔹 a[i][j]	11	int
🔹 chiChuaSoChan	false	bool
🔹 j	1	int
🔹 n	5	int
🔹 n	5	int

```
110          if (a[i][j] % 2 != 0) {
111              chiChuaSoChan = false;   ≤ 1ms elapsed
112              break;
113          }
```

81 %   ⊗ 0   ⚠ 2   ←   →

Autos

Search (Ctrl+E)   🔍▾   ← →   Search Depth: 3 ▾   ▦

Name	Value	Type
▷ 🔹 a	0x00995ab0 {2, 11, 15, 8, 4, -858993460, -858993460, -858993460,...	int[100] *
▷ 🔹 a[i]	0x00995ab0 {2, 11, 15, 8, 4, -858993460, -858993460, -858993460,...	int[100]
🔹 a[i][j]	11	int
🔹 chiChuaSoChan	true	bool
🔹 j	1	int
🔹 n	5	int

Bài 2.1

```
Nhap cap cua ma tran vuong n (n >= 5): 6
Nhap gia tri nho nhat min: 4
Nhap gia tri lon nhat max: 20

Menu:
1. Tao/xuat ma tran vuong
2. Xuat cac phan tu tren duong cheo chinh
3. Xuat cac phan tu thuoc duong cheo song song voi duong cheo chinh
4. Tim phan tu max thuoc tam giac tren cua duong cheo chinh
5. Sap xep ma tran tang dan theo kieu zic-zac
6. Sap xep duong cheo chinh tang dan tu tren xuong duoi
0. Thoat
Nhap lua chon: 1
Ma tran ngau nhien:
    4  17  14  14  13  10
   13  15   6  18   8  11
   19  10  11  14  15  11
   15  19  14   4   8  18
    9  11  12  16   5   6
   10   8  10  19   5   9
```

Bài 2.2

```
Menu:
1. Tao/xuat ma tran vuong
2. Xuat cac phan tu tren duong cheo chinh
3. Xuat cac phan tu thuoc duong cheo song song voi duong cheo chinh
4. Tim phan tu max thuoc tam giac tren cua duong cheo chinh
5. Sap xep ma tran tang dan theo kieu zic-zac
6. Sap xep duong cheo chinh tang dan tu tren xuong duoi
0. Thoat
Nhap lua chon: 2
Cac phan tu tren duong cheo chinh:
Cac phan tu tren duong cheo chinh:    4  15  11   4   5   9
```

Bài 2.3

```
1. Tao/xuat ma tran vuong
2. Xuat cac phan tu tren duong cheo chinh
3. Xuat cac phan tu thuoc duong cheo song song voi duong cheo chinh
4. Tim phan tu max thuoc tam giac tren cua duong cheo chinh
5. Sap xep ma tran tang dan theo kieu zic-zac
6. Sap xep duong cheo chinh tang dan tu tren xuong duoi
0. Thoat
Nhap lua chon: 3
Cac phan tu thuoc duong cheo song song voi duong cheo chinh:
Cac phan tu thuoc duong cheo song song voi duong cheo chinh:
Duong cheo tren, lech 1:    17    6   14    8    6
Duong cheo tren, lech 2:    14   18   15   18
Duong cheo tren, lech 3:    14    8   11
Duong cheo tren, lech 4:    13   11
Duong cheo tren, lech 5:    10
Duong cheo duoi, lech 1:    13   10   14   16    5
Duong cheo duoi, lech 2:    19   19   12   19
Duong cheo duoi, lech 3:    15   11   10
Duong cheo duoi, lech 4:     9    8
Duong cheo duoi, lech 5:    10
```

Bài 2.4

```
Menu:
1. Tao/xuat ma tran vuong
2. Xuat cac phan tu tren duong cheo chinh
3. Xuat cac phan tu thuoc duong cheo song song voi duong cheo chinh
4. Tim phan tu max thuoc tam giac tren cua duong cheo chinh
5. Sap xep ma tran tang dan theo kieu zic-zac
6. Sap xep duong cheo chinh tang dan tu tren xuong duoi
0. Thoat
Nhap lua chon: 4
Phan tu max thuoc tam giac tren cua duong cheo chinh: 18
```

Bài 2.5

```
Menu:
1. Tao/xuat ma tran vuong
2. Xuat cac phan tu tren duong cheo chinh
3. Xuat cac phan tu thuoc duong cheo song song voi duong cheo chinh
4. Tim phan tu max thuoc tam giac tren cua duong cheo chinh
5. Sap xep ma tran tang dan theo kieu zic-zac
6. Sap xep duong cheo chinh tang dan tu tren xuong duoi
0. Thoat
Nhap lua chon: 5
Sap xep ma tran tang dan theo kieu zic-zac:
    4   4   5   5   6   6
   10   9   9   8   8   8
   10  10  10  11  11  11
   14  14  13  13  12  11
   14  14  15  15  15  16
   19  19  19  18  18  17
```

Bài 2.6

```
Menu:
1. Tao/xuat ma tran vuong
2. Xuat cac phan tu tren duong cheo chinh
3. Xuat cac phan tu thuoc duong cheo song song voi duong cheo chinh
4. Tim phan tu max thuoc tam giac tren cua duong cheo chinh
5. Sap xep ma tran tang dan theo kieu zic-zac
6. Sap xep duong cheo chinh tang dan tu tren xuong duoi
0. Thoat
Nhap lua chon: 6
Sap xep duong cheo chinh tang dan tu tren xuong duoi:
    4   4   5   5   6   6
   10   9   9   8   8   8
   10  10  10  11  11  11
   14  14  13  13  12  11
   14  14  15  15  15  16
   19  19  19  18  18  17
```

Debug:


```
37      void xuatDuongCheoSongSong(int a[MAX][MAX], int n) {
```
Location: Bai2.cpp, line 37 ('xuatDuongCheoSongSong(int[100] *, int)')

Name	Value	Type
a	0x007a5d54 {19, 7, 7, 17, 6, 9, -858993460, -858993460, -8589934...	int[100] *
n	6	int

```
36      // Hàm xuất các phần tử thuộc các đường chéo song song với đường chéo chính
37      void xuatDuongCheoSongSong(int a[MAX][MAX], int n) {
38          printf("Cac phan tu thuoc duong cheo song song voi duong cheo chinh:\n");  ≤1ms elapsed
```

Autos

Name	Value	Type
a	0x007a5d54 {19, 7, 7, 17, 6, 9, -858993460, -858993460, -8589934...	int[100] *
n	6	int

```
37      void xuatDuongCheoSongSong(int a[MAX][MAX], int n) {
38          printf("Cac phan tu thuoc duong cheo song song voi duong cheo chinh:\n");
39          for (int k = 1; k < n; k++) {  ≤1ms elapsed
```

Autos

Name	Value	Type
printf returned	61	int
a	0x007a5d54 {19, 7, 7, 17, 6, 9, -858993460, -858993460, -8589934...	int[100] *
k	-858993460	int
n	6	int

```
38          printf("Cac phan tu thuoc duong cheo song song voi duong cheo chinh:\n");
39          for (int k = 1; k < n; k++) {
40              printf("Duong cheo tren, lech %d: ", k);  ≤1ms elapsed
41              for (int i = 0; i < n - k; i++) {
```

Autos

Name	Value	Type
a	0x007a5d54 {19, 7, 7, 17, 6, 9, -858993460, -858993460, -8589934...	int[100] *
k	1	int
n	6	int