ET-575 – Arrays I – Algorithms

1. Create an integer array of size 20. Populate the array with random values between 0 and 100 inclusive. Locate and print the largest element in the array.

Output Example

```
88 62 28 18 71 86 79 15 42 46 55 63 44 9 80 77 4 82 84 92
Max = 92
```

2. Create an integer array of size 10. Populate the array with random values between 0 and 20 inclusive. Locate and print the largest difference between two consecutive elements in the array.

Hint: Think of a[i] as current, a[i-1] as previous, a[i+1] as next.
In this problem you iteratively compute the difference between current and next or current and previous, only storing the result if it is larger than any previous result.

Output Example

```
8 19 6 18 12 10 9 5 12 11
Max diff = 13
```

3. Create a 3x3 two-dimensional integer array. Populate the array with random single-digit values (0 to 9). Compute and print the sum of all even values in the array.

Output Example

```
5 2 9
7 6 2
0 4 6

Sum of evens = 20
```

4. Create a 5x5 two-dimensional integer array. Populate the array with random double-digit values (10 to 99). Request an integer value *row* from the console. Compute and print the sum of all values in the specified *row*.

Output Example

```
43 63 78 52 61
72 85 51 53 28
56 21 15 41 76
29 70 45 12 60
13 31 65 89 59

Select a row: 2
Sum of row 2 = 209
```

5. Create a 3x3 two-dimensional integer array and a one-dimensional array of size 3. Populate the two-dimensional array with random single-digit values (0 to 9). Request an integer value *column* from the console. Copy all values from the specified column of the two-dimensional array to the one-dimensional array. Print both arrays.

Output Example

```
4 8 9
6 0 9
7 9 6

Select a column: 2
9 9 6
```