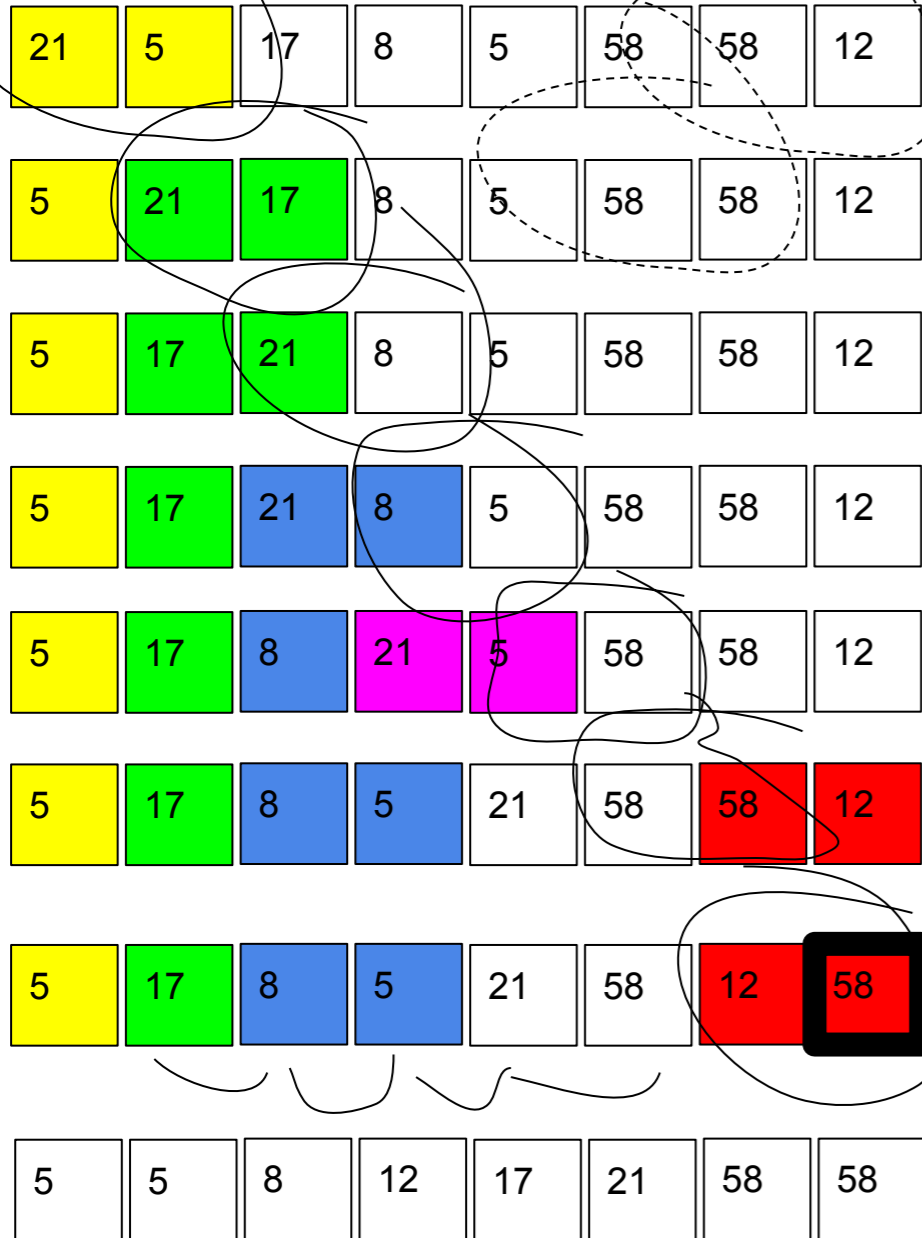


bubble sort



can create alternate versions:

- bubble sort increasing from start*
- bubble sort decreasing from start*
- bubble sort increasing from finish*
- bubble sort decreasing from start*

```
void bubbleSort(int arr[], int length) {
    int temp;
    int j;
    for (int j = 0; j < length; j++) {
        for (int i = 0; i < length - 1 - j; i++) {
            if (arr[i] > arr[i + 1]) {
                temp = arr[i + 1]; // temp --> 5
                arr[i + 1] = arr[i]; // 5 --> 21
                arr[i] = temp; // 21 --> 5
            }
        }
        printArray(arr, length);
    }
}
```

MAX - >

```
void bubbleSort(int arr[], int length) {
    int temp;
    int j;
    for (int j = 0; j < length; j++) {
        for (int i = length - 1 - 1; i >= j; i--) {
            if (arr[i] < arr[i + 1]) {
                temp = arr[i + 1]; // temp --> 5
                arr[i + 1] = arr[i]; // 5 --> 21
                arr[i] = temp;
            }
        }
        printArray(arr, length);
    }
}
```

MAX <-

```
void bubbleSort(int arr[], int length) {
    int temp;
    int j;
    for (int j = 0; j < length; j++) {
        for (int i = 0; i < length - 1 - j; i++) {
            if (arr[i] < arr[i + 1]) {
                temp = arr[i + 1]; // temp --> 5
                arr[i + 1] = arr[i]; // 5 --> 21
                arr[i] = temp;
            }
        }
        printArray(arr, length);
    }
}
```

MIN - >

```
void bubbleSort(int arr[], int length) {
    int temp;
    int j;
    for (int j = 0; j < length; j++) {
        for (int i = length - 1 - 1; i >= j; i--) {
            if (arr[i] > arr[i + 1]) {
                temp = arr[i + 1]; // temp --> 5
                arr[i + 1] = arr[i]; // 5 --> 21
                arr[i] = temp;
            }
        }
        printArray(arr, length);
    }
}
```

MIN <-