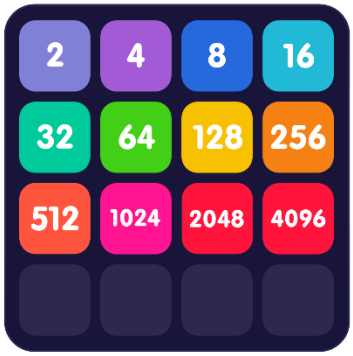
Sorting



1. Sort this array using selection sort. (first print it, then sort it, then print it again).

   ```
   int sun[]={50, 100, 150, 50, 25, 175, 150, 200, 0, 25, 50, 325, 25, 125};
   ```

   Note this has already been completed in the starter code. The steps are highlighted below in this picture.

```
public sorting ()
{
    System.out.println ("Question #1: Integer Selection Sort");
    int sun[] = {50, 100, 150, 50, 25, 175, 150, 200, 0, 25, 50, 325, 25, 125};
    print (sun);
    selectionSort (sun);
}
```

1 Title
2 Declare Array
3 Print
4 Sort

Before you complete the other questions, you will need to add print methods and selectionSort methods for the other data types. Java allows methods of the same name as long as the PARAMETERS ARE DIFFERENT TYPES. It figures out which code to run using the parameters. This has a fancy name: **method overloading**.

```
public void print (int a[])
{
    for (int i = 0 ; i < a.length ; i++)
        System.out.print (a [i] + " ");
    System.out.println ();
}
```

```
public void print (char a[])
{
    for (int i = 0 ; i < a.length ; i++)
        System.out.print (a [i] + " ");
    System.out.println ();
}
```

Also recall that when you are sorting, there are a few more changes required.
And further, that Strings sort using compareTo.

2. Sort this array using selection sort. (first print it, then sort it).

```
String months[]={"January", "February", "March", "April", "May", "June",
"July", "August", "September", "October", "November", "December"};
```

3. Sort this array using selection sort (first print it, then sort it)

```
char alpha[]={'k', 'i', 'h', 'g', 'f', 'e', 'd', 'c', 'b', 'a'};
```

4. Sort this array using selection sort. (first print it, then sort it).

```
double evenmoreNums[] ={3.45, 6.54, 7.89, 9.87, 2.34, 1.23, 5.78, 4.32, 6.45,
8.96, 9.07, 3.67, 0.34, 1.46, 1.47};
```

5. Sort this array using bubble sort. (first print it, then sort it).

```
String names []={"Sunflower", "Peashooter", "Cherry Bomb", "Wall-nut",
"Potato Mine", "Snow Pea", "Chomper", "Repeater", "Puff-Shroom", "Lily-Pad",
"Squash", "Threepeater", "Tangle Kelp", "Jalapeno"};
```

6. Sort this array using bubble sort. (first print it, then sort it).

```
int num[]={16, 1, 516, 2048, 2, 64, 128, 256, 1024, 32, 4, 8};
```

7. Sort this array using bubble sort. (first print it, then sort it).

```
double moreNums[] ={2.2, 0.3, 4.4, 1.5, 8.6, 7.7, 1.8};
```

8. Sort this array using bubble sort. (first print it, then sort it).

```
char letters[]={'q', 'w', 'e', 'r', 't', 'y', 'u', 'i', 'o', 'p', 'a', 's',
'd', 'f', 'g', 'h', 'j', 'k', 'l', 'z', 'x', 'c', 'v', 'b', 'n', 'm'};
```

Code follows on the next page.

Starter:

```
public class sorting
{
    public static void main (String args[]){
        new sorting ();
    }

    public sorting (){
        System.out.println ("Question #1: Integer Selection Sort");
        int sun[] = {50, 100, 150, 50, 25, 175, 150, 200, 0, 25, 50, 325, 25, 125};
        print (sun);
        selectionSort (sun);
    }

    public void print (int a[]){
        for (int i = 0 ; i < a.length ; i++)
            System.out.print (a [i] + " ");
        System.out.println ();
    }

    public void selectionSort (int a[]){
        for (int left = a.length - 1 ; left > 0 ; left--){
            int max = 0;
            for (int i = 1 ; i <= left ; i++){
                if (a [max] < a [i])
                    max = i;
            }
            int temp = a [max];
            a [max] = a [left];
            a [left] = temp;
            print (a);
        }
    } //end of integer selection sort

    public void BubbleSort (int a[]){
        for (int i = 0 ; i < a.length - 1 ; i++){
            for (int j = 0 ; j < a.length - 1 - i ; j++){
                if (a [j + 1] < a [j]){
                    int temp = a [j];
                    a [j] = a [j + 1];
                    a [j + 1] = temp;
                    print (a);
                }
            }
        }
    } //end of integer bubble sort
} //end of class
```