

Northern Michigan University (Marquette Co, MI)

CS 422-01-25W: Algorithms: Design And Analysis

Program 2

Due: Friday 14 February 2025 9:00 A.M. EST

Create a folder called “PG2” in the top level of your CS422-01-25W folder. Place all files pertaining to this assignment into the top level of your PG2 folder. Place a (possibly empty) file called “DONE” into this folder when you are ready to have your programs graded. The only files you need to turn in are the .java files. Please don't turn in any files other than these!!

Write the following program in Java:

Your program should ask the user for the size of an array.

You should then repeatedly ask the user for a comic book title and for the name of a character appearing in the comic book. The number of comic book/character combinations should match the array size the user entered earlier.

You should then sort and print out the information, sorting on comic book title. You must use the Shell Sort, and it must be stable, meaning that if a comic book title is entered twice, the character information, in the sorted array should be in the same relative order that it was in the original array.

For example,

```
Enter array size: 3
```

```
Enter comic book 1: Action Comics
Enter character 1: Superman
```

```
Enter comic book 2: Detective Comics
Enter character 2: Batman
```

```
Enter comic book 3: Action Comics
Enter character 3: Lois Lane
```

```
Title: Action Comics
Character: Superman
```

```
Title: Action Comics
Character: Lois Lane
```

```
Title: Detective Comics
Character: Batman
```

Since we are sorting by comic title, both Action Comics come before the Detective Comics. Since the sort is stable, the entry with Superman has to come before the entry with Lois Lane because Superman was entered first. The fact that Lois Lane comes before Superman alphabetically is irrelevant.

All data fields must be private, as always.