

AP COMPUTER SCIENCE A – BUBBLE SORT II

The file `roster.txt`, listed here, is a roster for a class at East High.

```

1,Adriana Aguire      11F,200002,
2,Artimus Anaya      11M,209055,
3,Joe Anthony        09M,219425,
4,Tony Bolonos       11M,199242,
5,Josephine Campos  11F,199466,
6,Nemisis M Chavana  10M,408210,
7,Nerely Delacruz    10F,219485,
8,Luz Garcia         11F,205042,
9,Josue Guzman       12M,209314,
10,Jaqueline Hernandez 12F,209556,
11,Americus Y Herrera 12F,205551,
12,Rodolfo Jimenez   11M,209371,
13,Andy Juarez       11F,209348,
14,Marcos Luna       11M,202007,
15,Felipe Marquez    12M,201025,
16,Jhennifer Marquez 11F,204532,
17,Raul Medina       12F,202577,
18,Evelyn Montes     11F,209017,
19,Christian Morales 12M,209352,
20,Eduardo Moreno    11M,199307,
21,Abigail Nevarez   11F,203377,
22,Danny Padilla     12M,204528,
23,Josephine Pina    12F,200564,
24,Arel Ramos        12F,200616,
25,Alejandro Rivas   11M,209206,
26,Thelma Sanchez    12F,409562,
27,Jamahl Tate       12M,407986,
28,Wilson Taylor     12F,199277,
29,Ivan Villanueva   10M,407363,
30,Tamera Wilson     12F,200019,

```

We want to write a program `SortRoster` which will read in `roster.txt` and then output a file where the roster is sorted according to the ID number, as shown below.

```

1,Tony Bolonos       11M,199242,
2,Wilson Taylor      12F,199277,
3,Eduardo Moreno     11M,199307,
4,Josephine Campos  11F,199466,
5,Adriana Aguire     11F,200002,
6,Tamera Wilson      12F,200019,
7,Josephine Pina    12F,200564,
8,Arel Ramos         12F,200616,
9,Felipe Marquez     12M,201025,
10,Marcos Luna       11M,202007,
11,Raul Medina       12F,202577,
12,Abigail Nevarez   11F,203377,
13,Danny Padilla     12M,204528,
14,Jhennifer Marquez 11F,204532,
15,Luz Garcia        11F,205042,
16,Americus Y Herrera 12F,205551,
17,Evelyn Montes     11F,209017,
18,Artimus Anaya     11M,209055,
19,Alejandro Rivas   11M,209206,
20,Josue Guzman      12M,209314,
21,Andy Juarez       11F,209348,
22,Christian Morales 12M,209352,
23,Rodolfo Jimenez   11M,209371,
24,Jaqueline Hernandez 12F,209556,
25,Joe Anthony       09M,219425,
26,Nerely Delacruz   10F,219485,
27,Ivan Villanueva   10M,407363,
28,Jamahl Tate       12M,407986,
29,Nemisis M Chavana 10M,408210,
30,Thelma Sanchez    12F,409562,

```

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Starting with program `BubbleSort`, write the program `SortRoster`. You should, among other things:

- 1) Change the private field `list` to a `String []`. You will have to make changes to method `initList` accordingly.
- 2) Modify method `sort ()` to sort `list` according to the ID number. You will need to change the variable `temp` to a `String`. A good way to proceed is to write a method `private boolean lessThan (int i, int j)` which determines if `list[i]` is less than `list[j]` according to the ID number. Then, replace the line

```
if ( list[i+1] < list[i] ) {
```

in `sort` with

```
if ( lessThan(i+1,i) ) {
```

Your method `lessThan` should extract the IDs from the `Strings list[i]` and `list[j]`, and then compare them as `ints`.

- 3) Finally, modify the method `printList` to print the sorted roster in the format shown on page 1.