

# project[8]: strings

Due Thursday, 4/14/2016, 12:59:59pm

## Project Goals

The goals of this project are to explore the use of strings and command line arguments.

### Important Notes:

1. **Comments:** Header comments are required on all files and recommended for the rest of the program. Points will be deducted if no header comments are included.

## Problem 1

For this project you will write a program that uses a pre-defined array of strings (the `planets` array discussed in class) and sorts the names of the planets in either alphabetical or reverse alphabetical order. The program will use command line arguments to read in the order in which the strings should be printed: `"-o a"` for alphabetical and `"-o r"` for reverse alphabetical order. Your program should follow the constraints below:

- Implement a function `string_compare`, which takes as parameters two strings (`str1` and `str2`) and returns 0 if `str1` is prior to `str2` alphabetically, 1 if `str2` is prior to `str1` alphabetically and -1 if `str1` is identical to `str2`. The function should compare the two strings one character at a time and return the appropriate value as soon as a difference is noticed between the strings.
- Use the above function to "sort" the names of the planets by using the following strategy:

```
for i = 0 to size of planets array - 1
for j = size of planets array - 1 downto i + 1
    if planets[j] is prior to planets[j - 1] alphabetically
        then exchange planets[j] with planets[j - 1]
```

The exchange in the last line above will exchange the pointers stored in `planets[j]` and `planets[j - 1]`. For strings that are identical (assuming that the names of the planets would be changed), there should be no exchange needed.

Note: the algorithm above sorts in alphabetical order. For reverse alphabetical order, the "if" test should be change accordingly.

Your program should function as follows:

```
./planets -o a
The planets in alphabetical order are: Earth, Jupiter, Mars,
Mercury, Neptune, Pluto, Saturn, Uranus, Venus
```

Alternatively, for reverse alphabetical order:

```
./planets -o r
The planets in reverse alphabetical order are: Venus, Uranus,
Saturn, Pluto, Neptune, Mercury, Mars, Jupiter, Earth
```

Your program should be saved in a file called `planets_sort.c`.

**Challenge:** TBD

## Submission details

**The project needs to be submitted by Thursday, 4/14/2016, 12:59:59pm.**

To submit your project, you will have to save your project files to an ECC machine using the Linux VM or the nomachine client:

- create a directory called “project8”
- save your \*.c files in that directory
- save your description file into that directory
- DO THIS ONCE: Install the submission script (*don't type the '>' symbols*)
  - > cd ~
  - > wget <http://www.cse.unr.edu/~newellz2/submit>
  - > chmod +x ./submit
- TO Submit:
  - > cd project8
  - > ~/submit

The submission script copies all files in the current directory to our directory. You may submit as many times as you like before the deadline, we only keep the last submission.

## Academic Honesty

Academic dishonesty is against university as well as the system community standards. Academic dishonesty includes, but is not limited to, the following:

Plagiarism: defined as submitting the language, ideas, thoughts or work of another as one's own; or assisting in the act of plagiarism by allowing one's work to be used in this fashion.

Cheating: defined as (1) obtaining or providing unauthorized information during an examination through verbal, visual or unauthorized use of books, notes, text and other materials; (2) obtaining

or providing information concerning all or part of an examination prior to that examination; (3) taking an examination for another student, or arranging for another person to take an exam in one's place; (4) altering or changing test answers after submittal for grading, grades after grades have been awarded, or other academic records once these are official.

Cheating, plagiarism or otherwise obtaining grades under false pretenses” constitute academic dishonesty according to the code of this university. Academic dishonesty will not be tolerated and penalties can include canceling a student’s enrollment without a grade, giving an F for the course, or for the assignment. For more details, see the University of Nevada, Reno General Catalog.