

Assignment 3

Instructions

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- Answer the questions individually. Group effort is not allowed.
- Solutions must be committed to your respective repositories on github.
- Ensure that your code runs on `remote.cs.binghamton.edu`.
- Prototypes must be provided for all functions within the header file `define.h`. Definitions for all functions must be in `impl.c`.
- You may use `main.c` for your own testing. If you use output to standard output or standard error for debugging, ensure it is suppressed or removed by the time you submit.
- Do complete the `all` and `main` rules in `Makefile`. Do not modify or remove the `test`, `test-run`, or `really-clean` rules in `Makefile`.
- Code must be appropriately commented.
- Useful resources:
 - Common Linux Commands
 - <http://c-faq.com/>
 - <https://cdecl.org>

Questions

1. Within a file `define.h` define a structure “point” that contains a point in space with x, y and z coordinates as floating point numbers. In a file `impl.c`, implement a function `float distance(struct point p1, struct point p2)` that returns the euclidean distance between points `p1` and `p2`. (30 points)
2. In `impl.c` write a function `int strrindex(char s[], char t[])`, which returns the position of the *rightmost* occurrence of `t` in `s`, or `-1` if there is none. (40 points)

3. In `impl.c` write a function `int is_int(char str[])` that accepts a character array and returns 1 if the character array represents a valid integer, 0 otherwise. A valid integer is with an optional negative '-' character followed by 1 or more characters between 0-9 inclusive. (30 points)