

Bronx Community College
Department of Mathematics and Computer Science
CSI33 Fall 2019
Programming Assignment 3: worth 20 points
Assigned on October 16, 2019
Due on October 23, 2019

Assignment 3

Write a recursive function `powerset` that computes the subsets of a set.

The argument should be a Python set object. The constructor for set objects takes an iterable argument, so you can construct a set based on a list, as in `set([1, 2, 3])`. You might also need the union method for a set object. You might also need the method `pop` for sets. If `s` is a non-empty set, then `s.pop()` removes from `s` a randomly chosen element of `s`. This function can be used in the recursion.

The method can return a list of the subsets or a set of the subsets, whichever you choose.

Submit the program file to me by email at sharon.persinger@bcc.cuny.edu by the end of the day on 10/23/2019. You should test your function by finding the power set of these four sets: the empty set, the set $\{1\}$, the set $\{1, 2, 3\}$ and the set $\{1, 2, 3, 4\}$. Send the shell output file that shows that your function finds the correct powerset for each of those sets. Include CSI33 in the subject line of your email.