

Lab 1

1. ~~Student~~ ~~Student~~

¹⁶
~~Student~~ 16

took 16 as student name

Peter Parker 16
student

~~Peter Parker~~ 16

Name: Peter Parker

Age: 16

Courses: ~~Q~~ ~~Q~~

Name: Peter Parker

Age: 16

Courses: Algebra, Chemistry

Course Not Found: Spanish

Algebra, Physics, Economics

Algebra, Physics, Economics

~~Holland~~
~~Peter Parker~~ 16

~~Peter Parker~~ 16

Peter Parker

2. a. T

b. T

c. T

3. a. ~~T~~ ($n^{2.6}$ always under n^3)

b. F

c. T

Explain why:

$$c(n^3) \geq 8n^2(\sqrt{n})$$

a. $8n^{2.5}$ has n^3 as upper bound; for $n_0 = 0$, $c = 9$.

b. n^3 is upper bound of $8n^2(\sqrt{n})$, but $8n^2(\sqrt{n})$ is not upper bound of n^3 . hence ~~it's~~ false by definition of ^{big Theta}.

c. $16 \log(n^2) = 32 \log n$. $32 \log n$ is $O(\log(n))$ for $n_0 = 0$, $c = 33$, $32 \log n \leq c \log n$.

4. a. $O(n)$ there's only one for loop

b. $O(n)$ there's only one for loop

c. $O(n^2)$ there are 2 for loops and they're nested

d. $O(n^{1.5})$ there's a for loop within range \sqrt{n} , and one of range n nested within.

e. $O(n \log n)$ there's a for loop of $\log(n)$ iterations, ~~because~~ and a n ranged for loop nested inside.

Explain why:

a.

d.

b.

e.

c.