

Question 1

This function reverses the order
of the linked list.

Question 2

Insertion Sort

Question 3

A) Shell Sort $l_{gap} = 9, 2, 1$

Input = 3812, 1600, 4012, 3934, 1234, 2724, 3333, 5432

1	1st	1234	1600	4012	3934	3812	2724	3333	5432
2	2nd	1234	1600	3333	3934	3812	2724	4012	5432
2	3rd	1234	1600	3333	2724	3812	3934	4012	5432
1	4th	1234	1600	2724	3333	3812	3934	4012	5432

B) Radix Sort

Same Input

3812	1600	4012	3934	1234	2724	3333	5432
1600	3812	4012	5432	3333	3934	1234	2724
1600	3812	4012	2724	5432	3333	3934	1234
4012	1234	3333	5432	1600	2724	3812	3934
1234	1600	2724	3333	3812	3934	4012	5432

Question 4 Hash Table

Index Row

$$0 \rightarrow \boxed{14}$$

1

$$1 \rightarrow \boxed{8} \quad \boxed{15}$$

2

$$3 \rightarrow \boxed{10} \rightarrow \boxed{24} \rightarrow \boxed{17} \rightarrow \boxed{38}$$

$$4 \rightarrow \boxed{32}$$

$$5 \rightarrow \boxed{5} \rightarrow \boxed{19}$$

6

7

Row

Question 6

Adjacency Matrix

	a	b	c	d	e	f	g	h	i
a	0	1	1	0	0	0	0	0	0
b	0	0	0	1	0	0	0	1	0
c	0	0	0	1	1	0	0	0	0
d	0	0	0	0	0	0	0	1	0
e	0	0	0	0	0	0	1	0	0
f	0	0	0	0	0	0	1	0	1
g	0	0	1	0	0	0	0	0	0
h	0	0	0	0	0	0	1	0	0
i	0	0	1	0	0	0	0	0	0

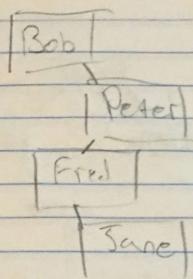
Adjacency List

- a { b, c }
- b { d, h }
- c { d, e }
- d { h }
- e { g }
- f { g, i }
- g { c }
- h { g }
- i { c }

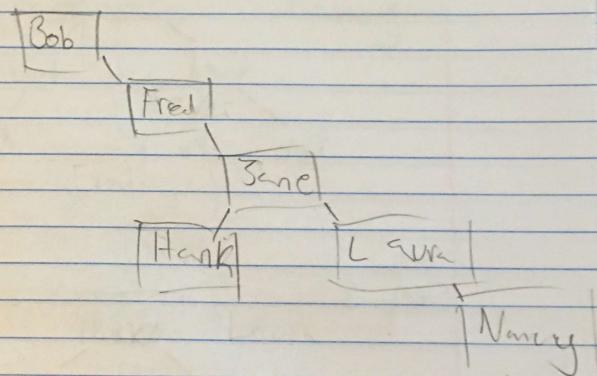
Question 7

BST

Step 1



Step 2



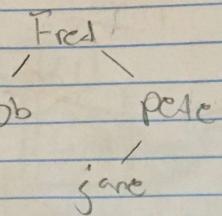
Step 3



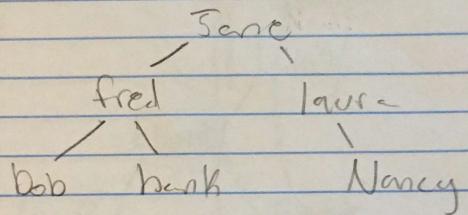
Question 7

AVL Tree

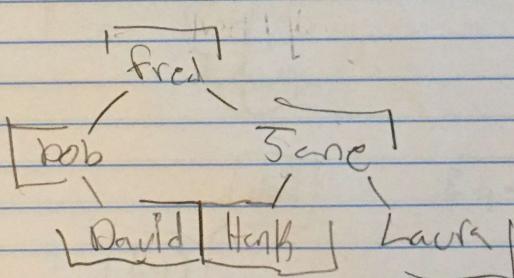
Step 1



Step 2



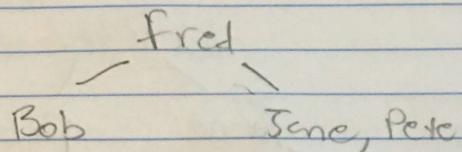
Step 3



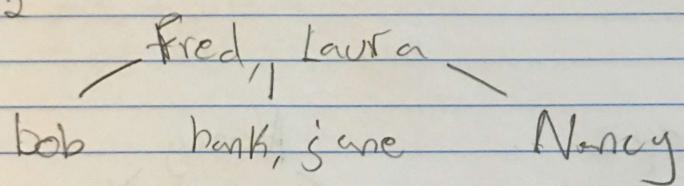
Question 7

2-3 Tree

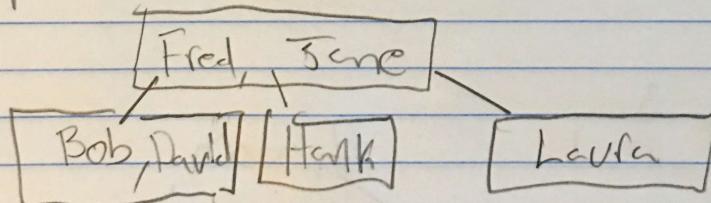
Step 1



Step 2



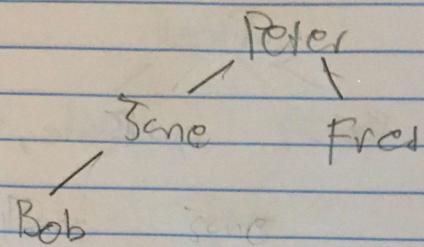
Step 3



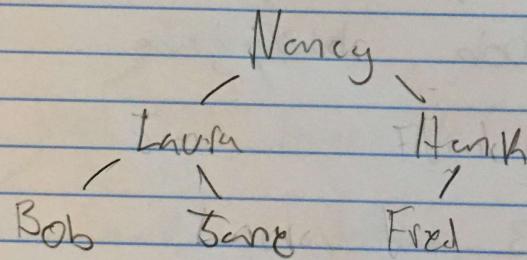
Question 7

Max Heap

Step 1



Step 2



Step 3

