

Section number:

First two letters of the last name:

<input type="text"/>	<input type="text"/>
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**University of Waterloo**

**CS348**

**Fall 2015**

**Assignment Cover Sheet**

Assignment Number:	
First Name:	
Last Name:	
Student ID:	

## Question 1

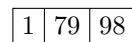
Insert 1



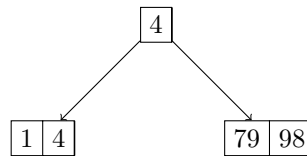
Insert 79



Insert 98

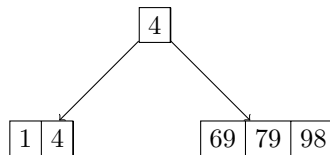


Insert 4

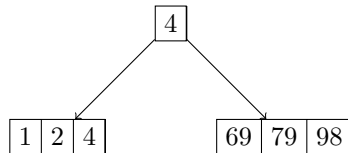


Overflow happens resulting in a split.

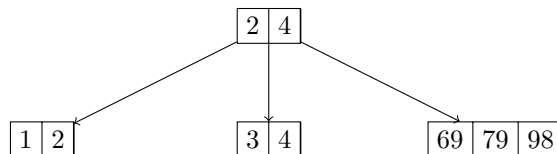
Insert 69



Insert 2

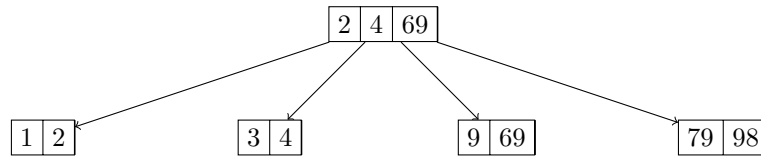


Insert 3



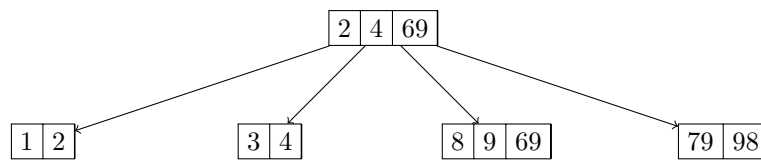
Inserting three results in overflow causing a split and sending two up.

### Insert 9

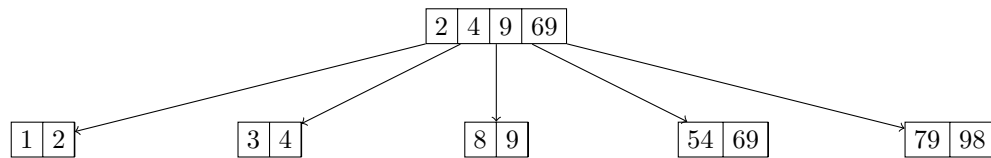


Inserting nine causes overflow resulting in a split sending sixty nine up.

### Insert 8

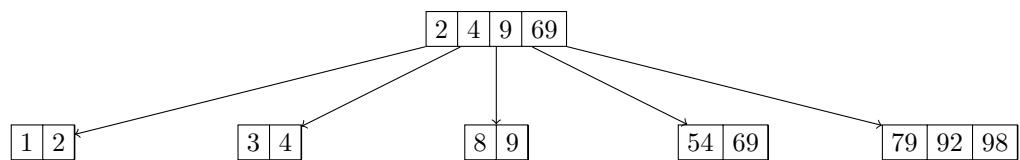


### Insert 54

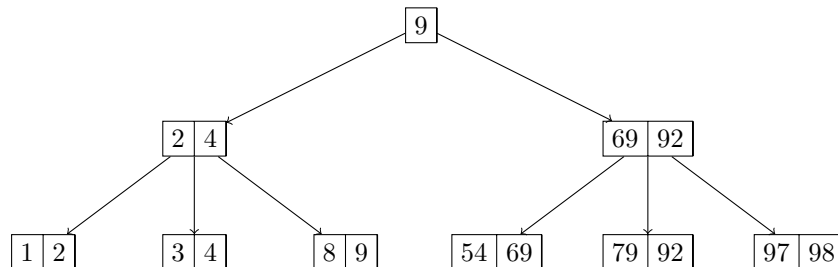


Insertion causes overflow resulting in a split.

### Insert 92

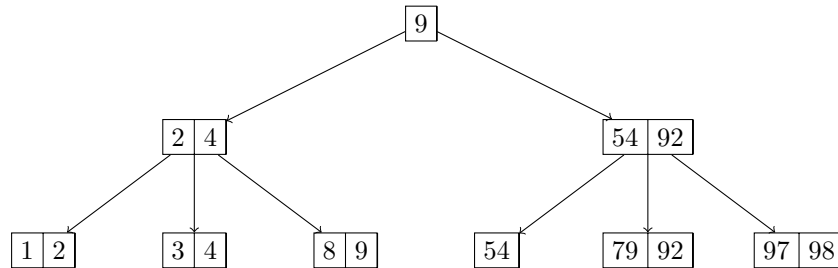


### Insert 97

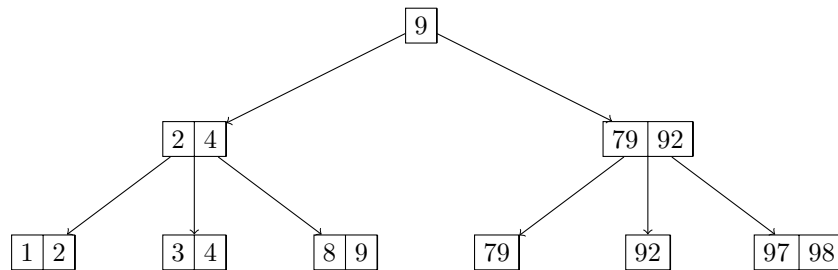


Insertion causes a split which sends up 92 which causes overflow in the parent node causing a split and sending 9 up to the root node.

### Delete 69

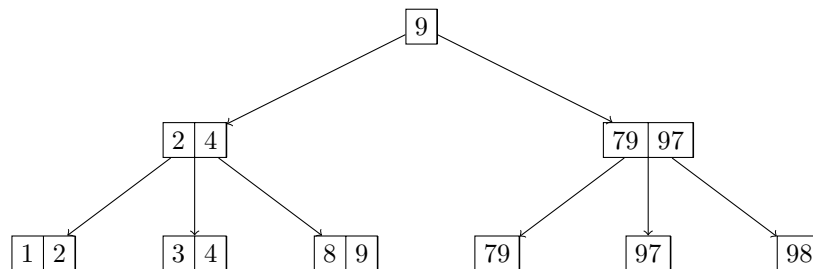


### Delete 54



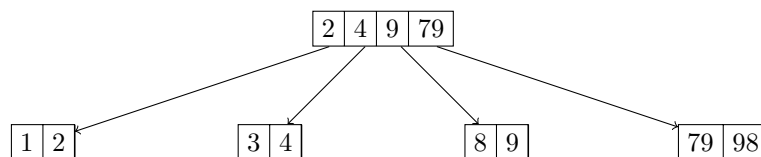
Merge 79 with empty node.

### Delete 92



Redistribute 97 from sibling.

### Delete 97



Merge 79 and 98 resulting in underflow of parent node leading to a merge of parents.

## **Question 2**

