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  while (!stackEmpty(first)) {
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    if (a < b) {
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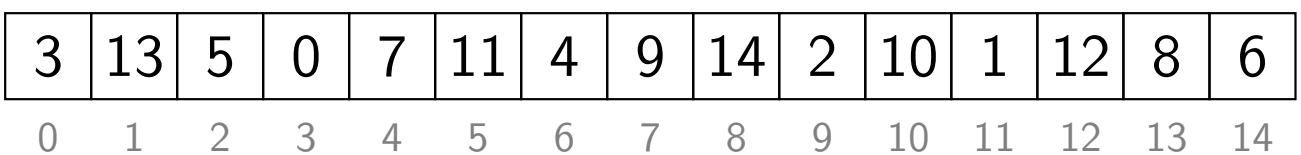


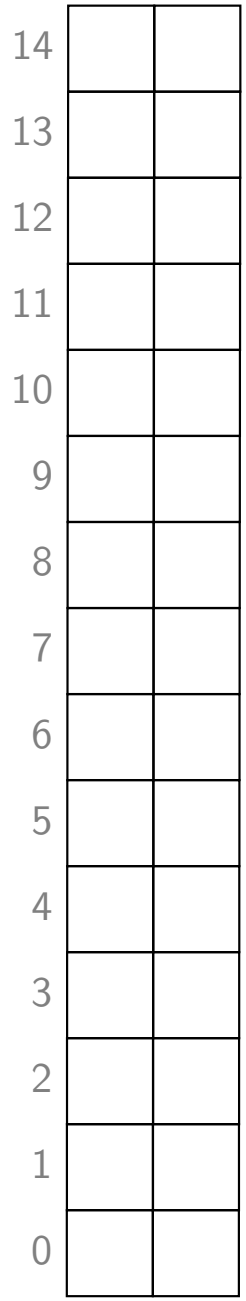

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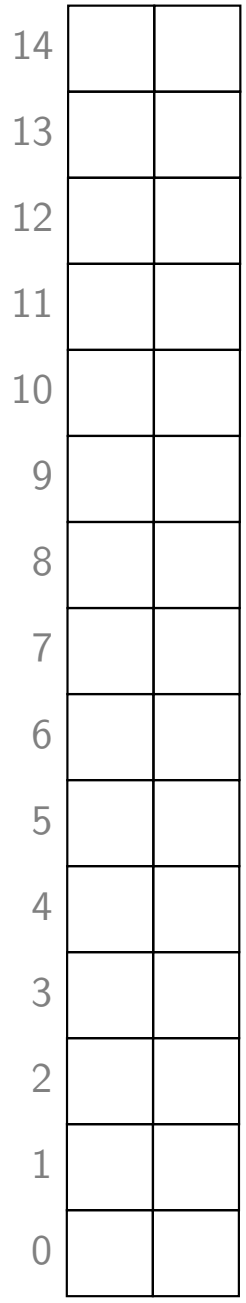
| 3 | 13 | 5 | 0 | 7 | 11 | 4 | 9 | 14 | 2 | 10 | 1 | 12 | 8 | 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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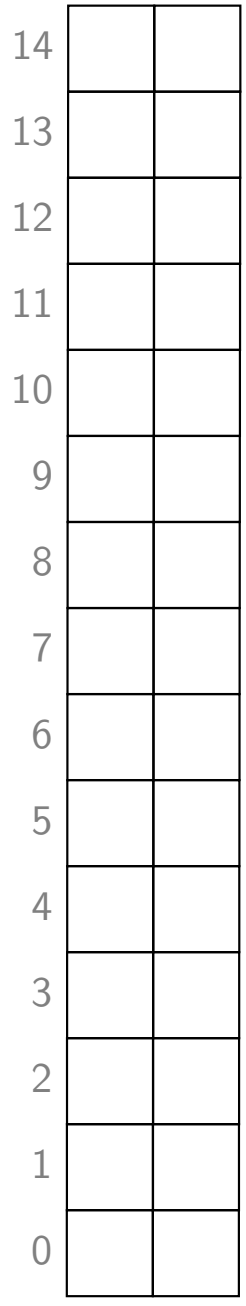

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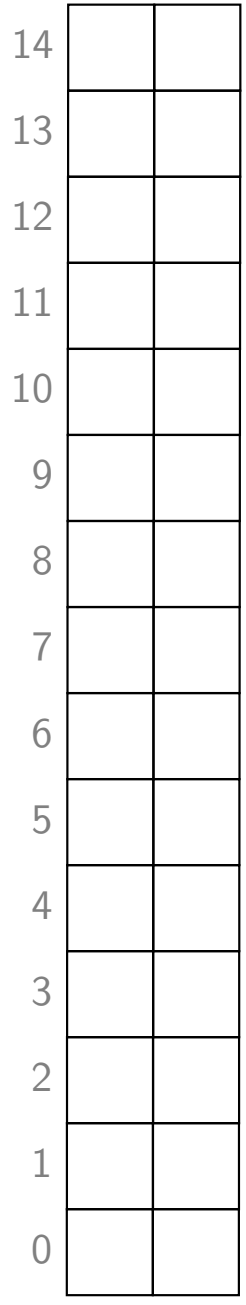

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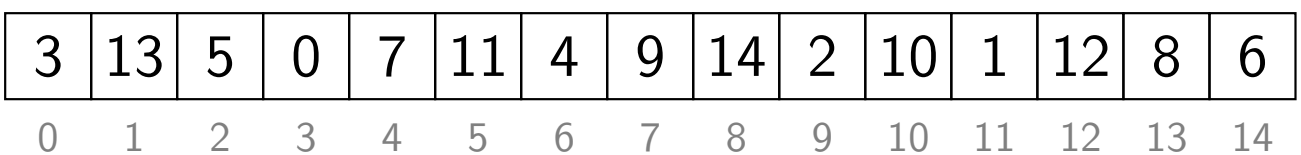


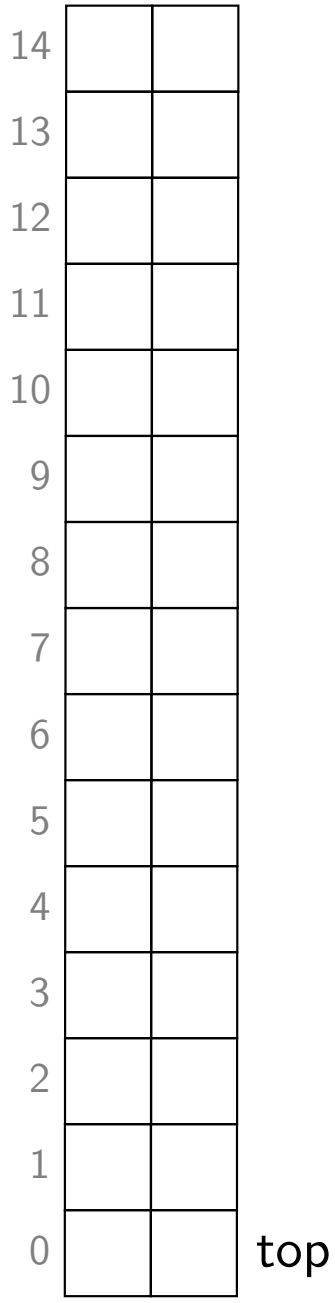

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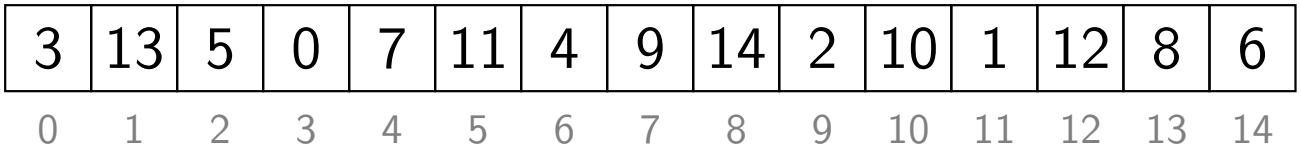


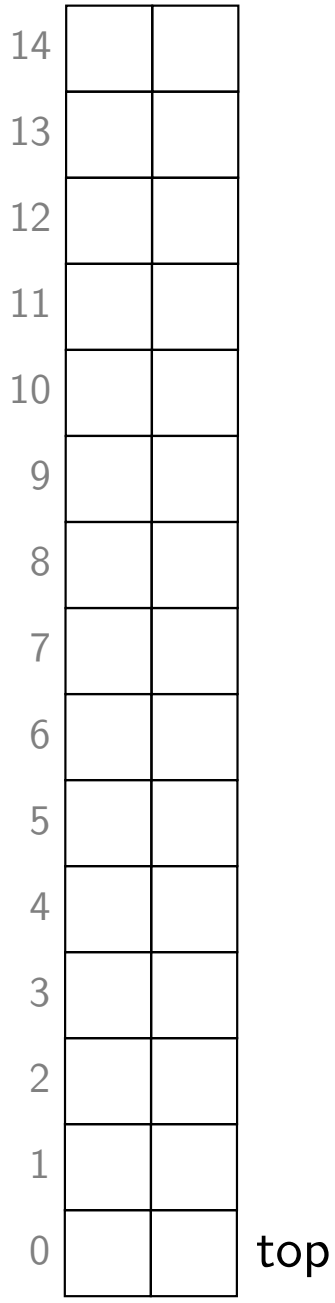

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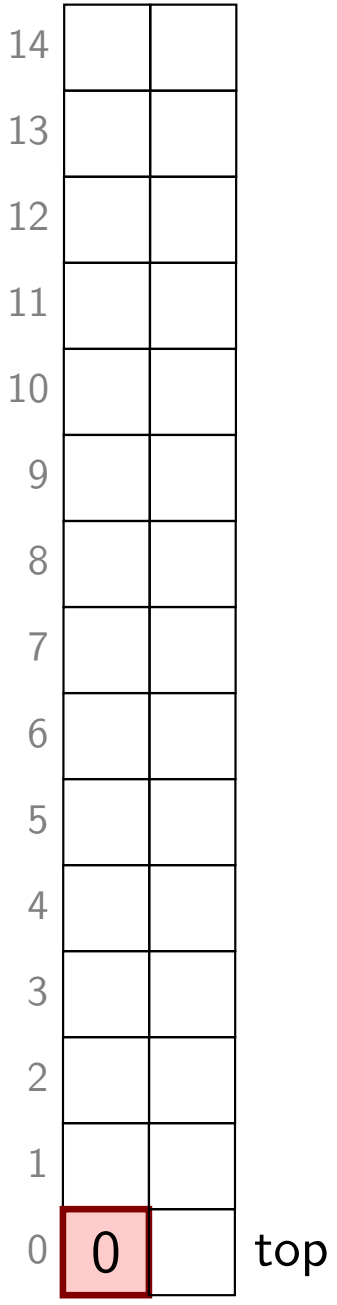

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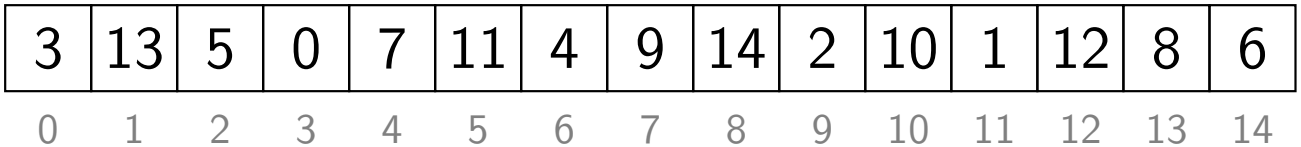


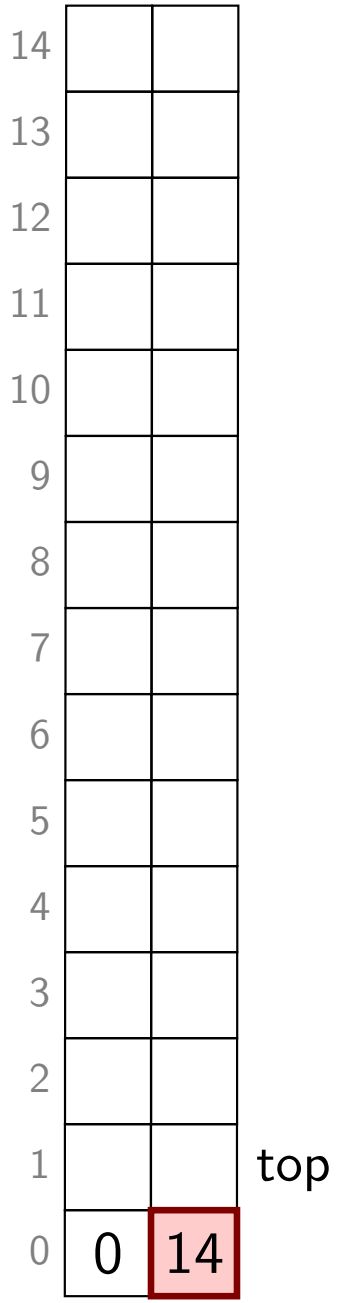

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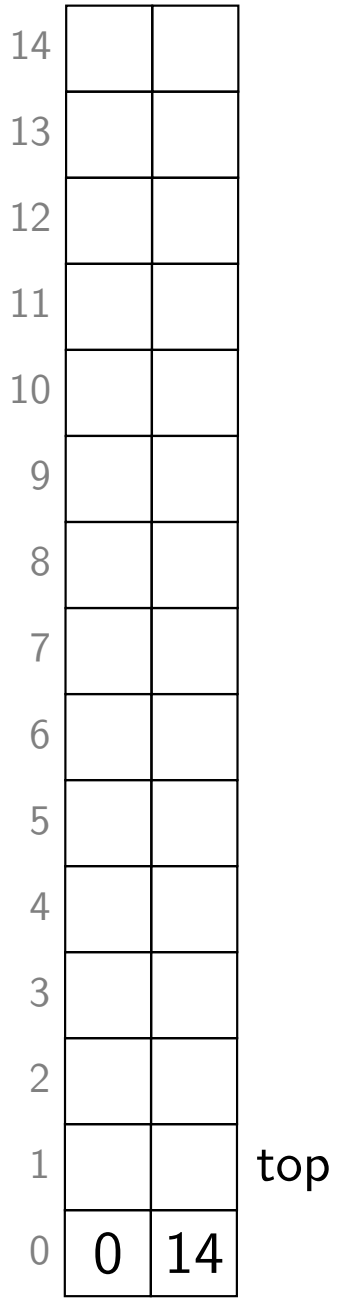

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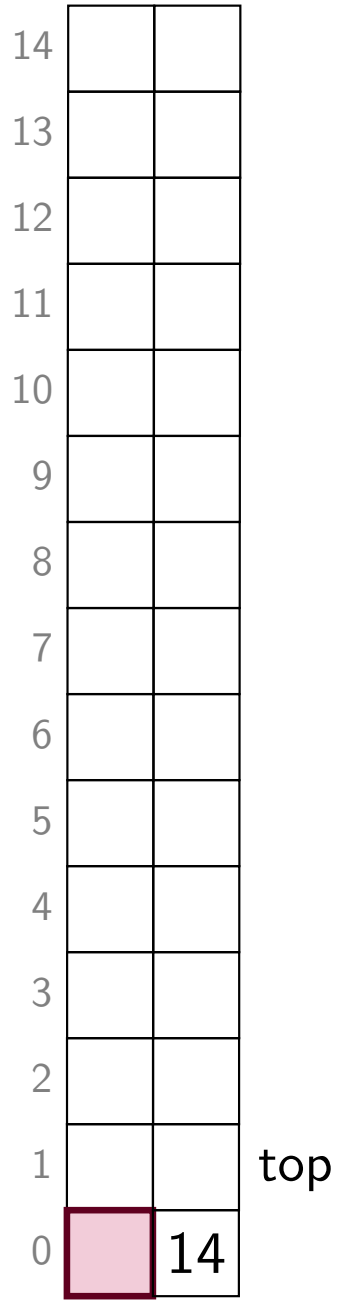

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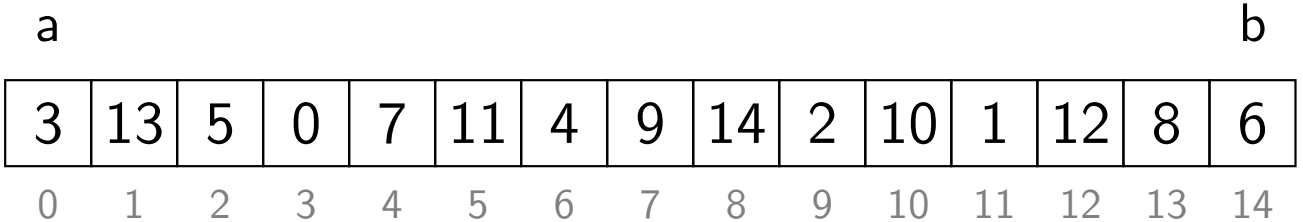


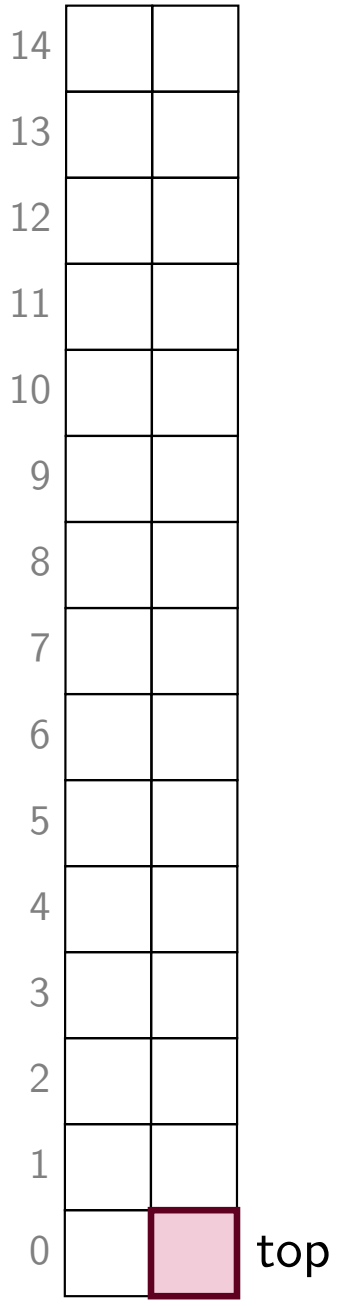

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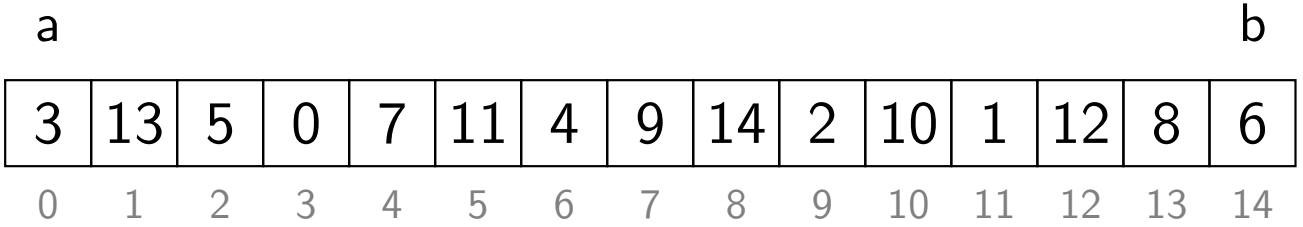


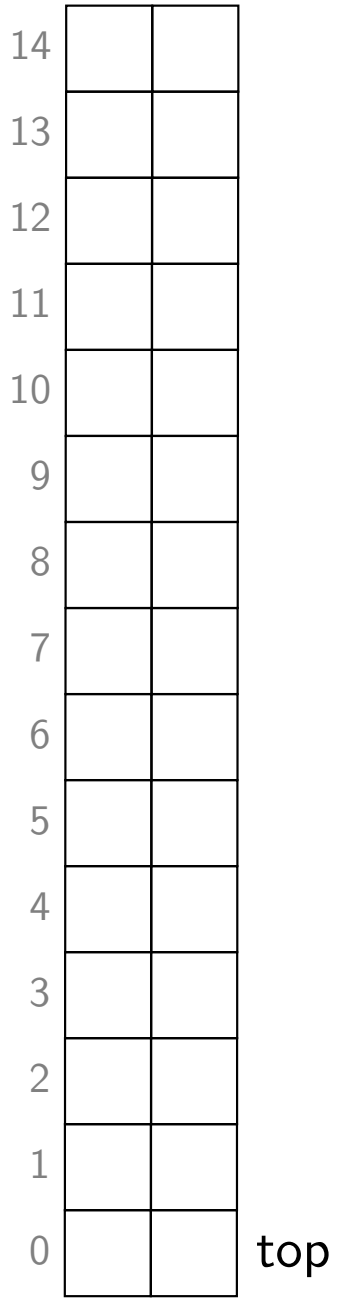

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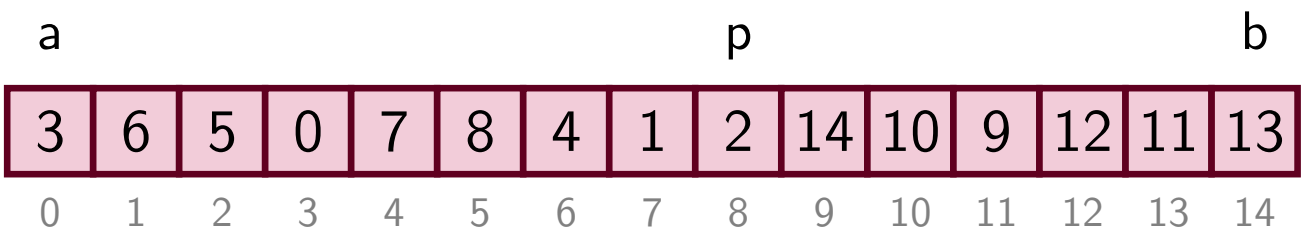


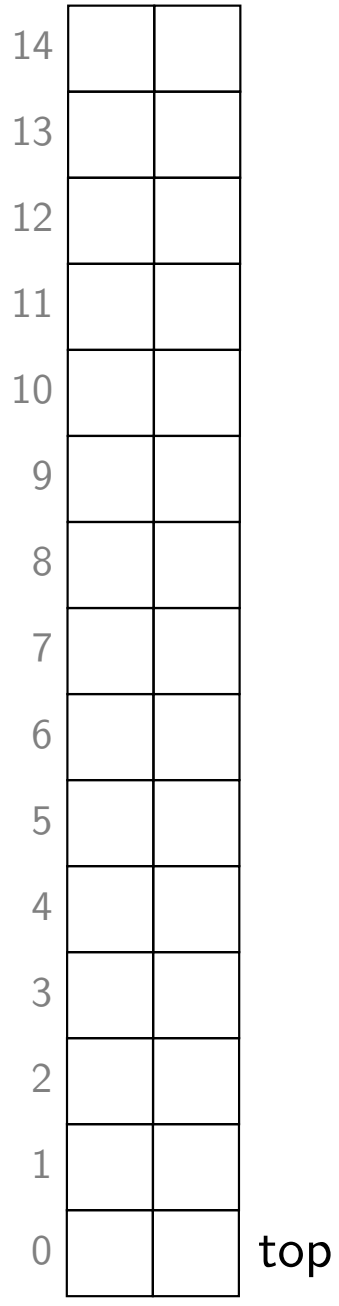

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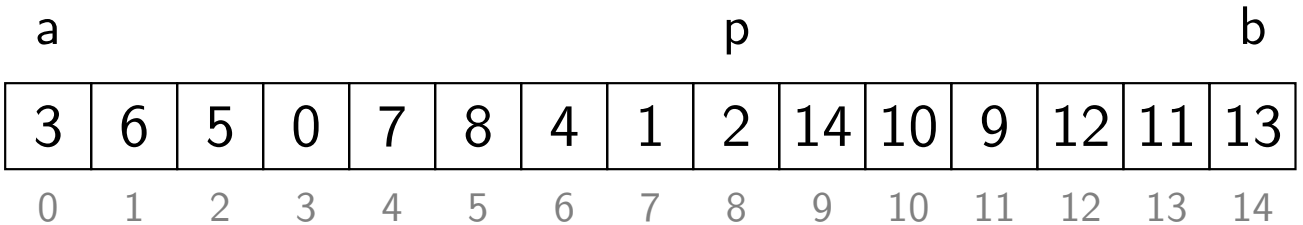


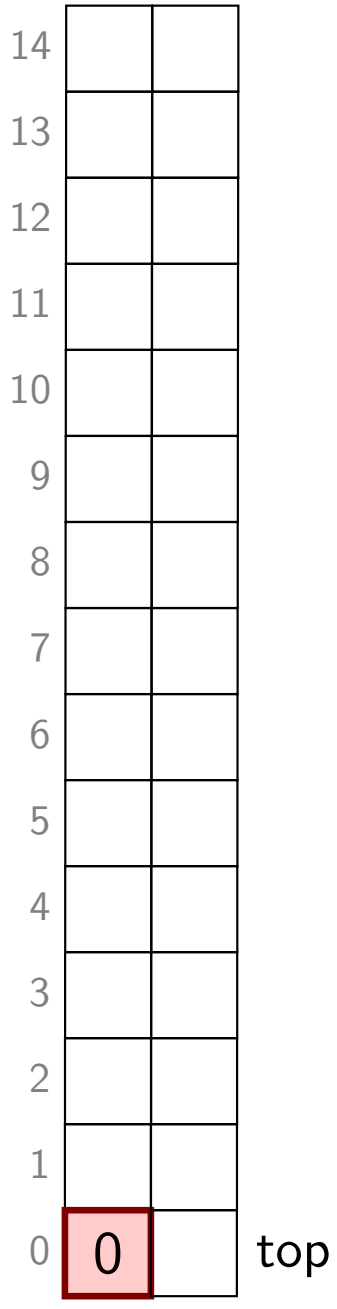

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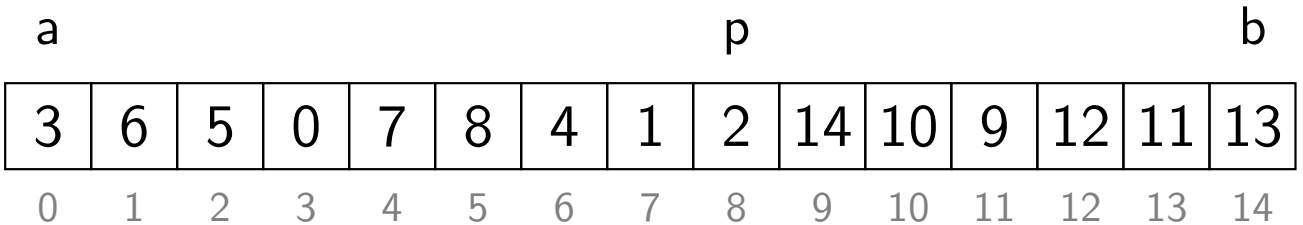


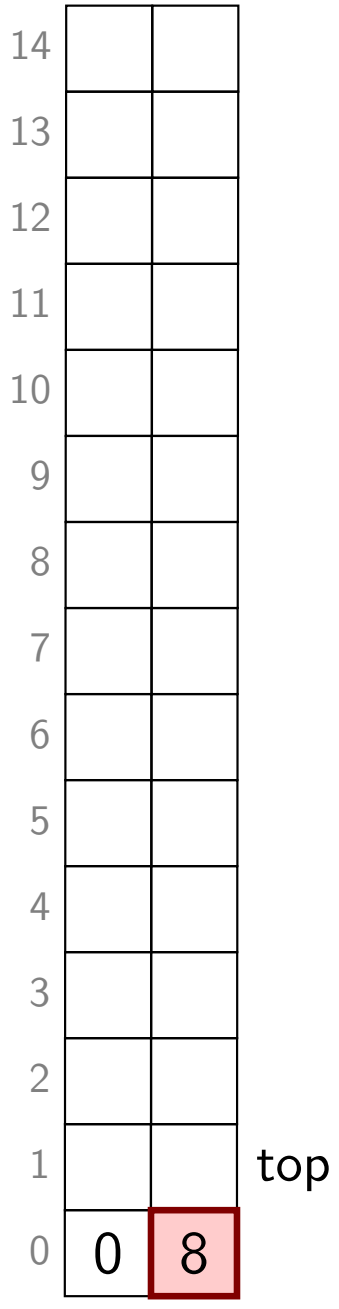

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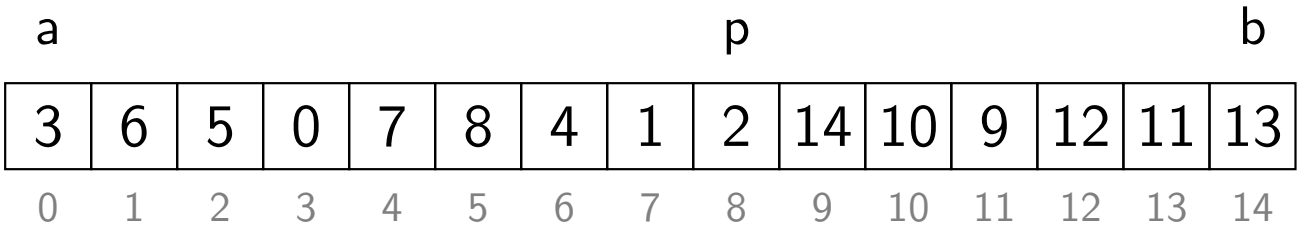


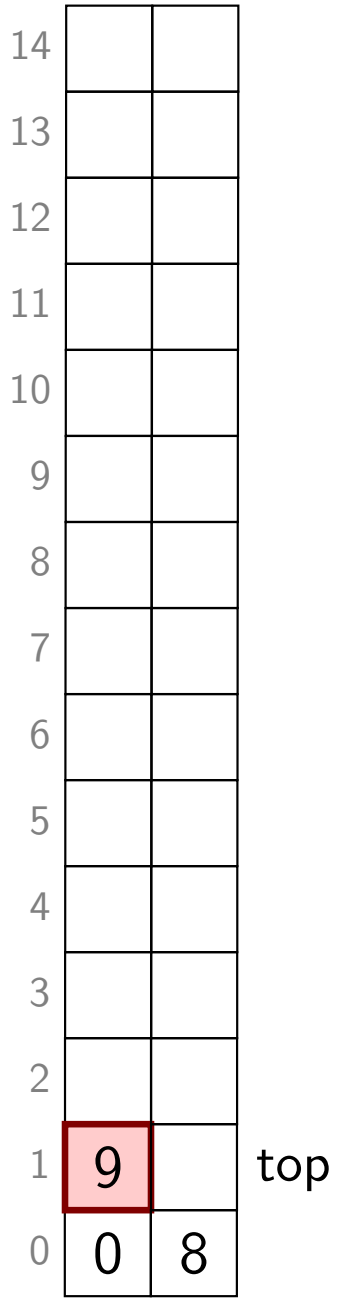

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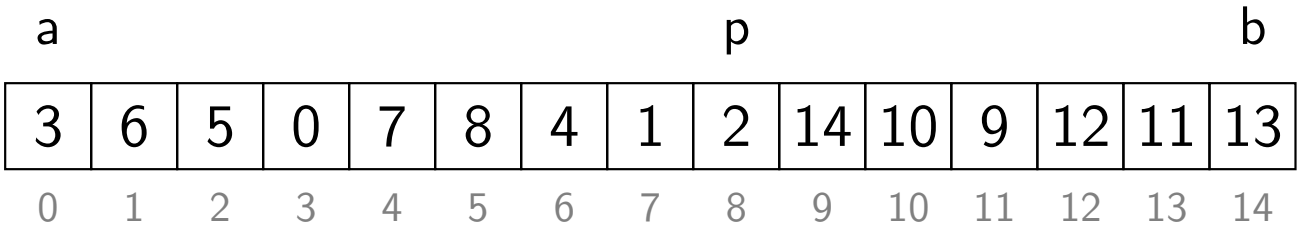


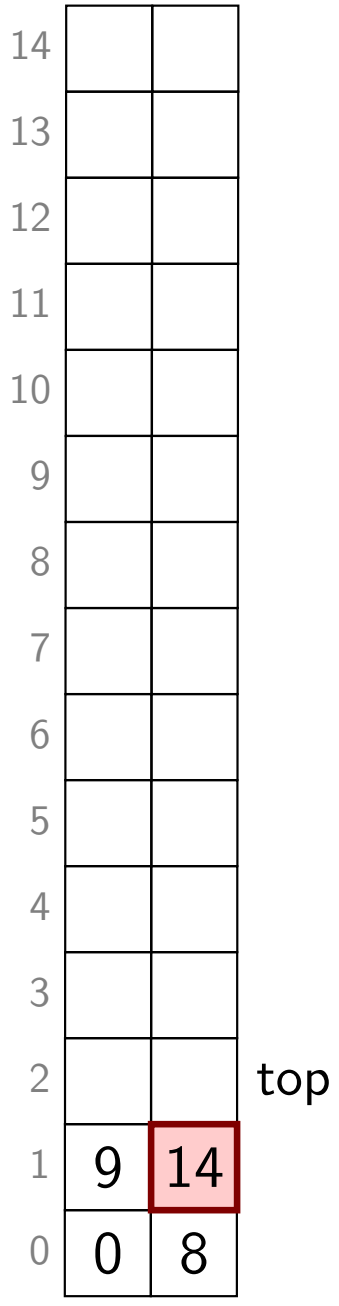

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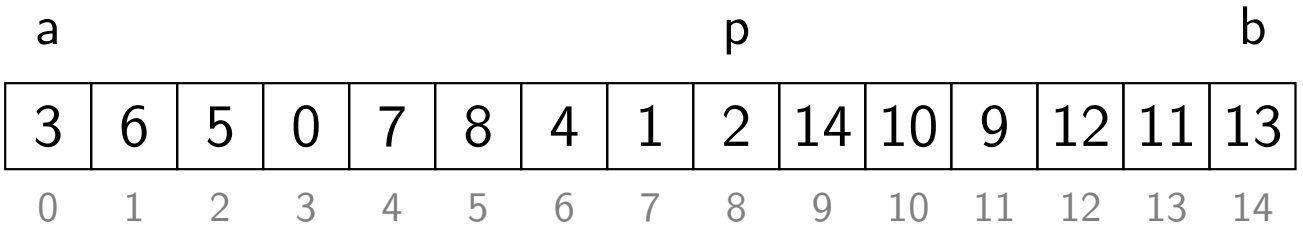


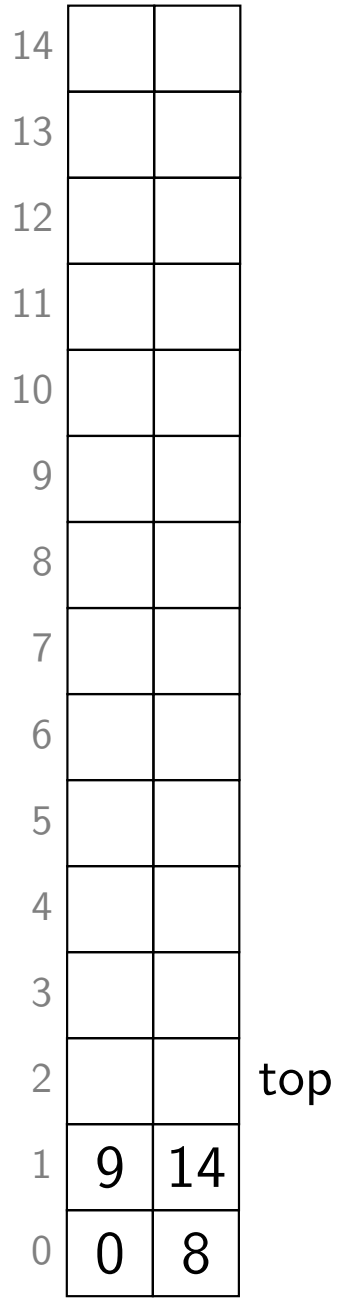

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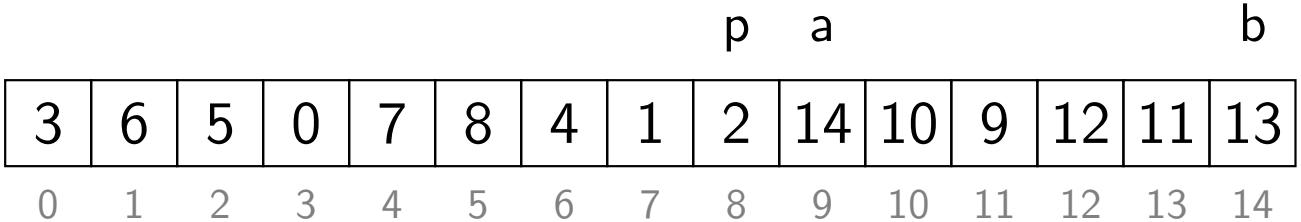


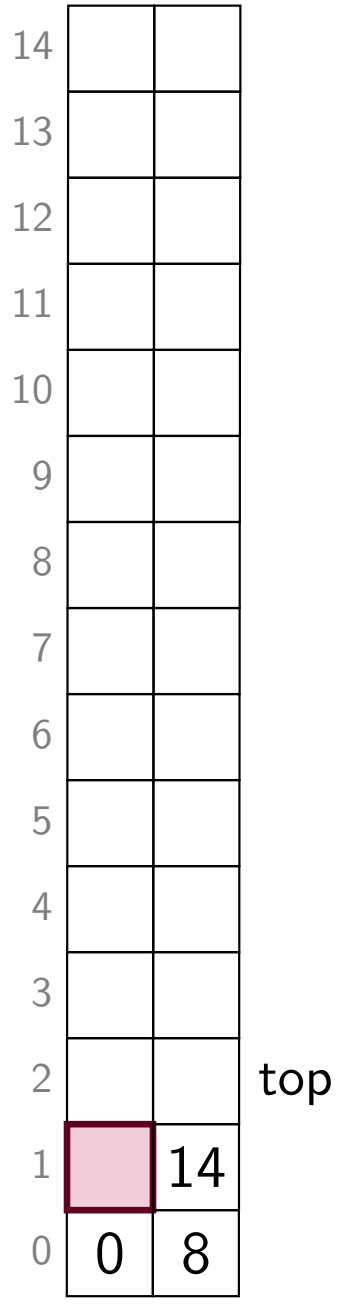

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  stackPush(&last, t.len-1);
  while (!stackEmpty(first)) {
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    b = stackPop(&last);
    if (a < b) {
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      stackPush(&last, b);
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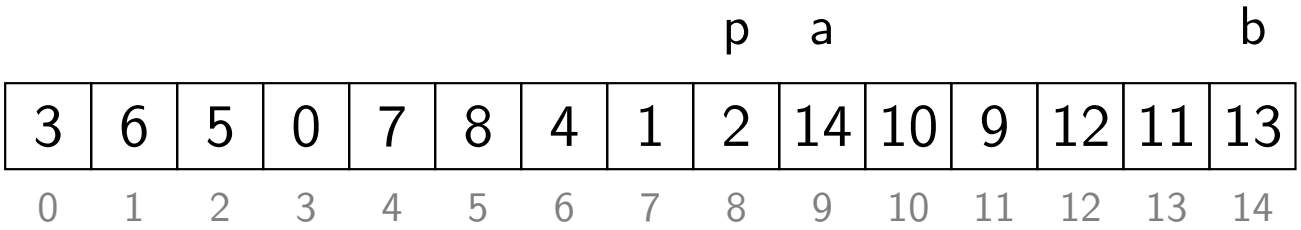


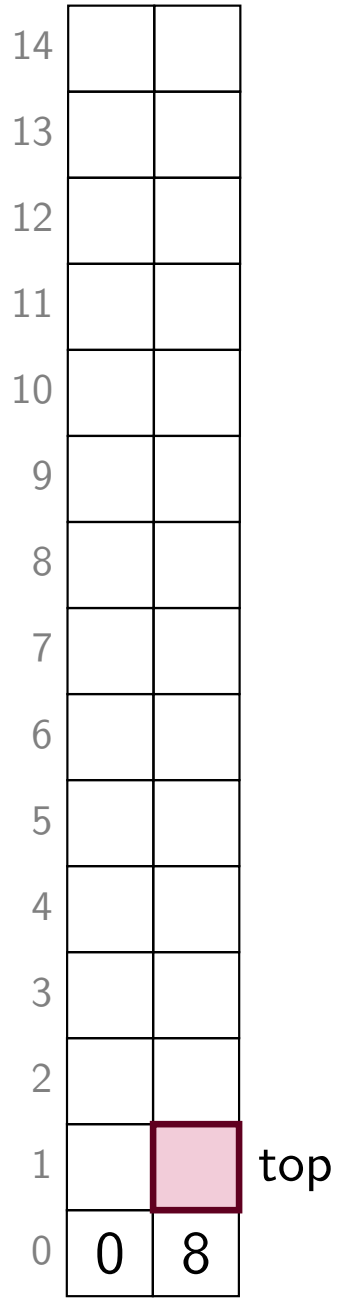

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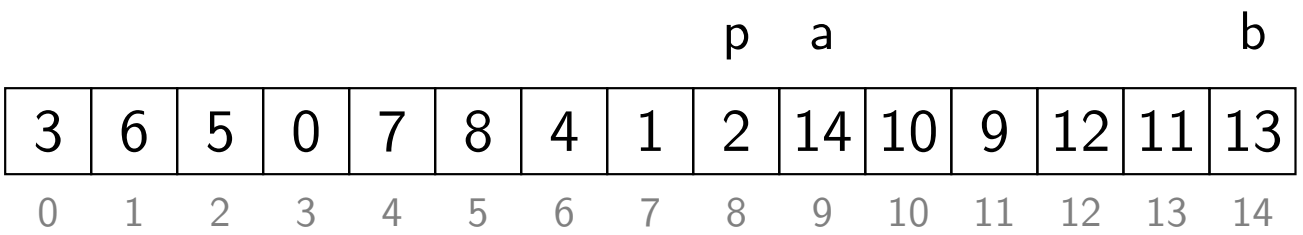


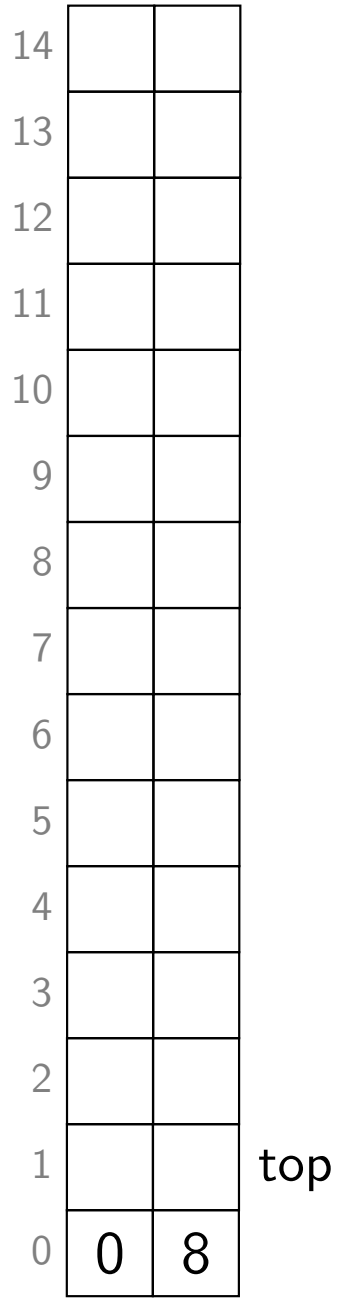

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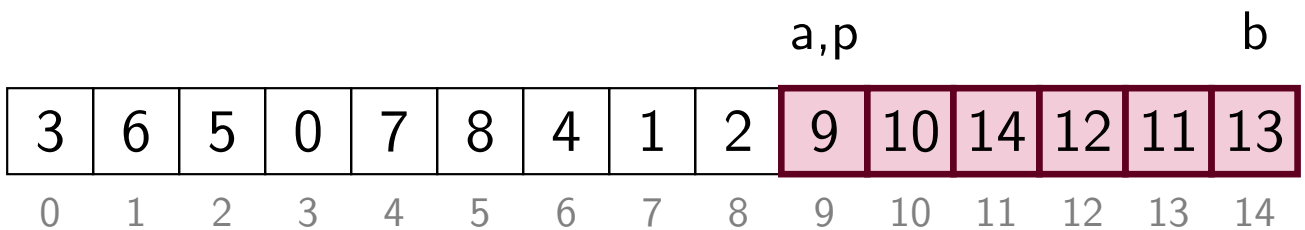


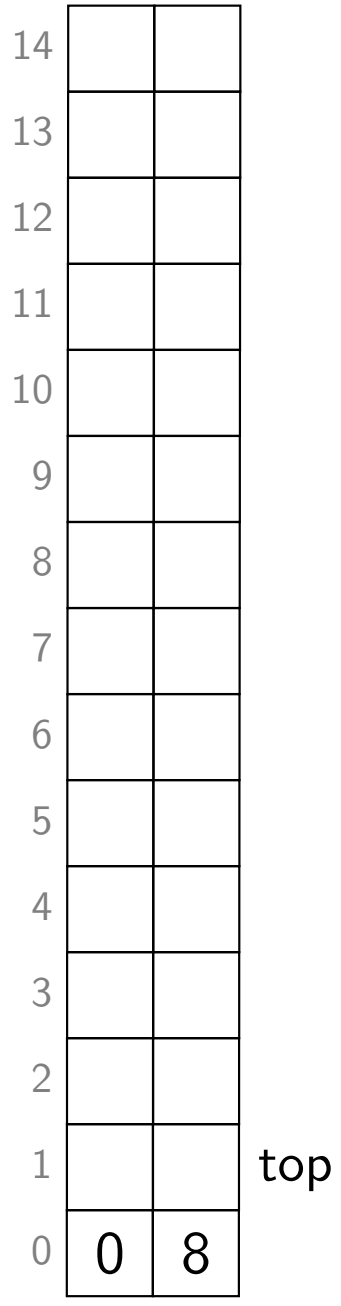

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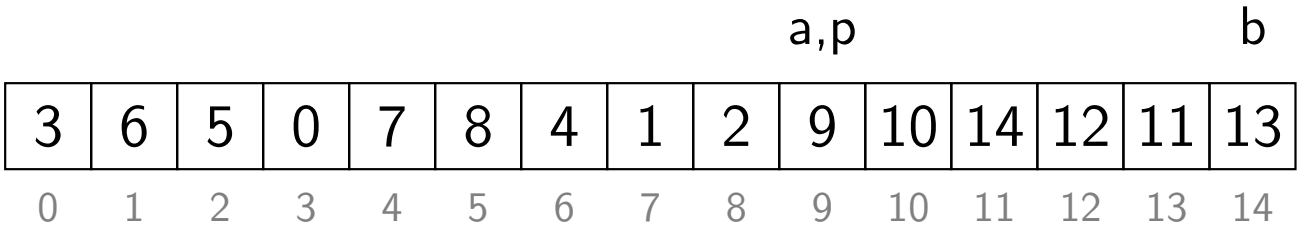


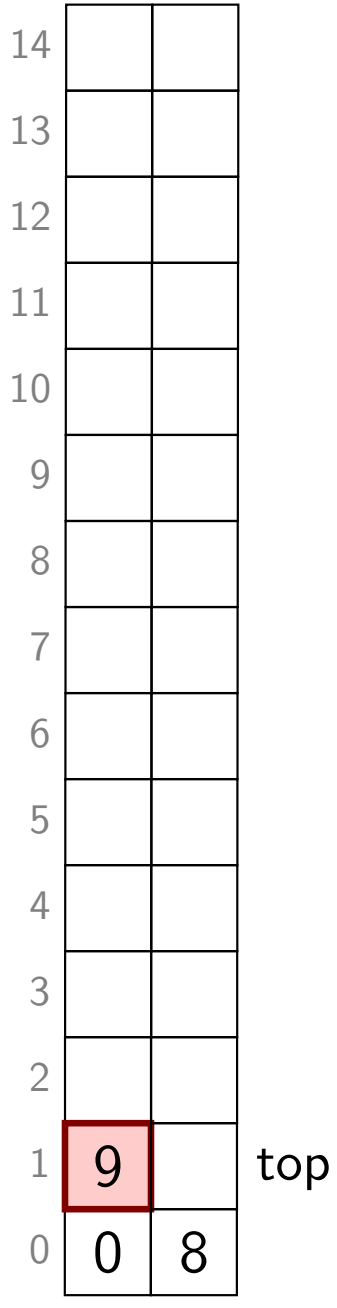

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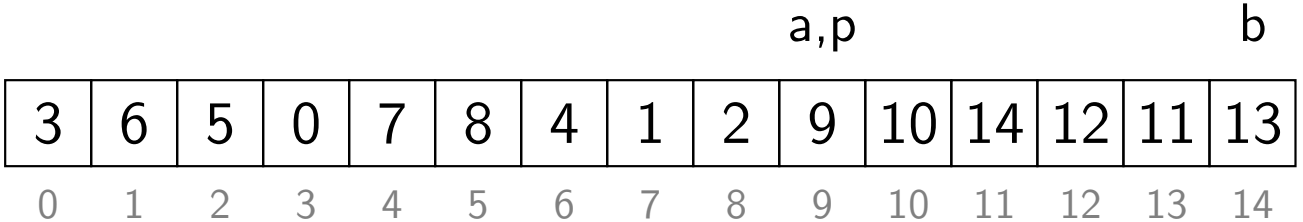


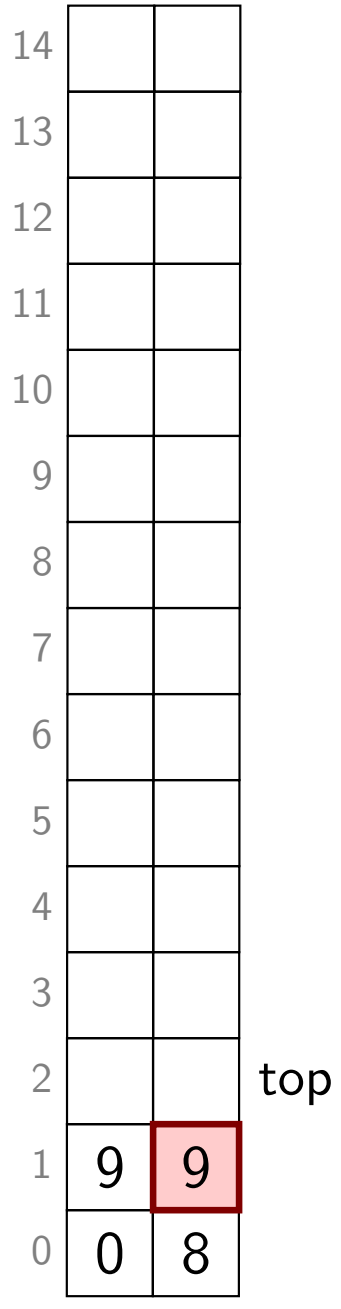

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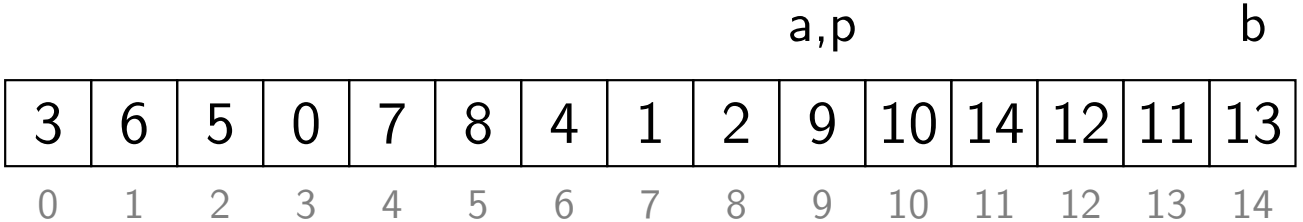


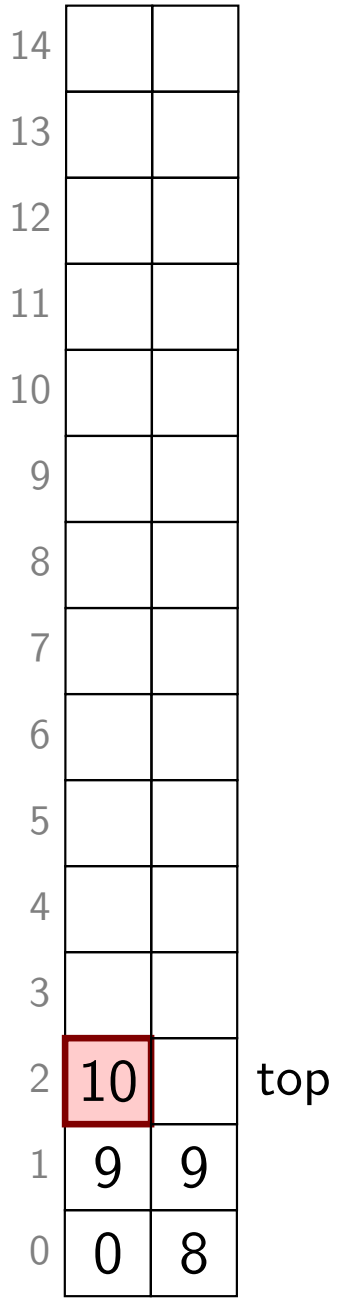

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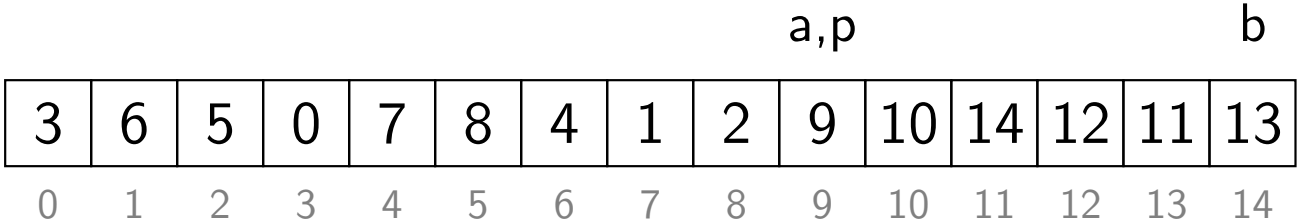


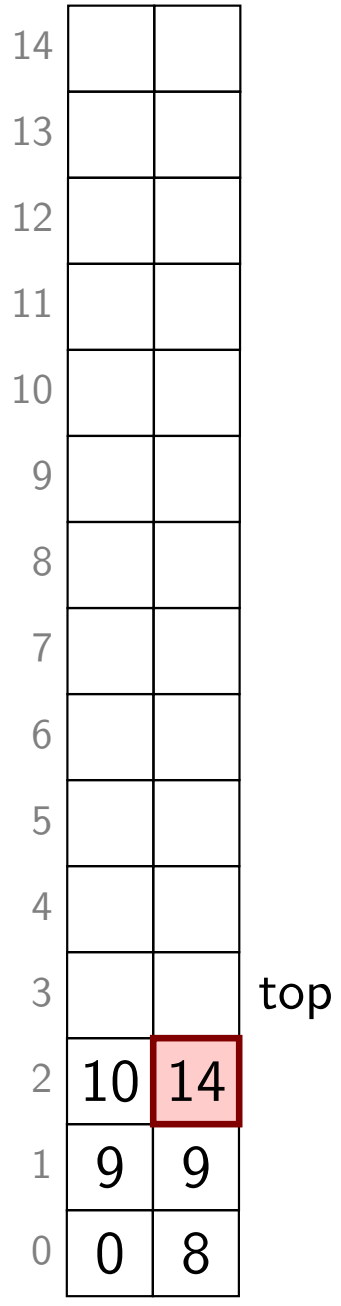

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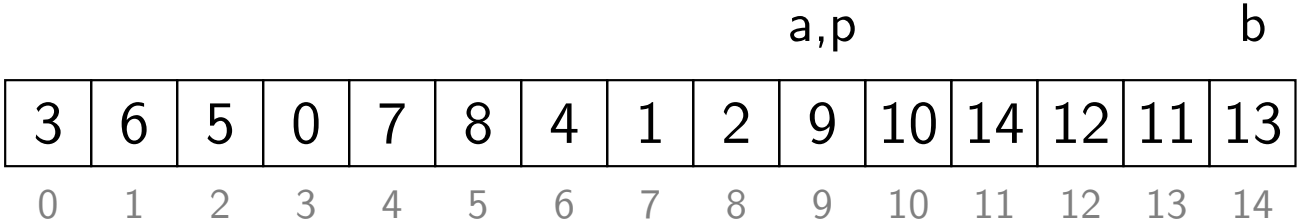


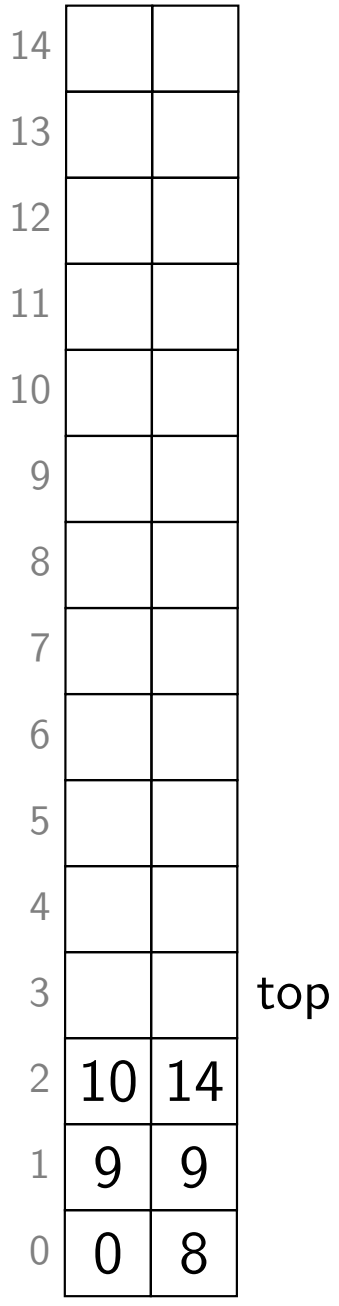

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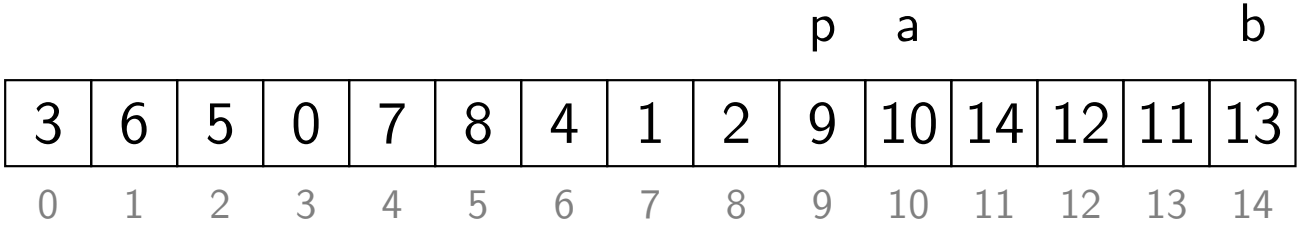


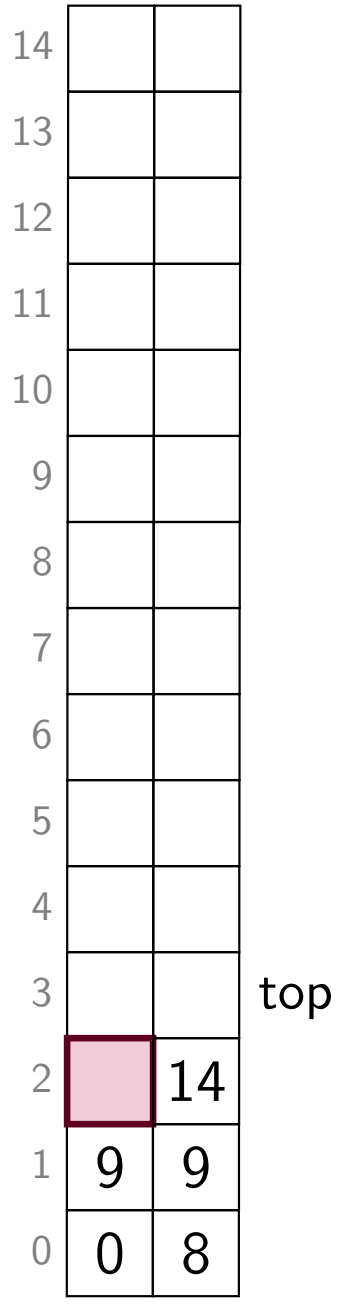

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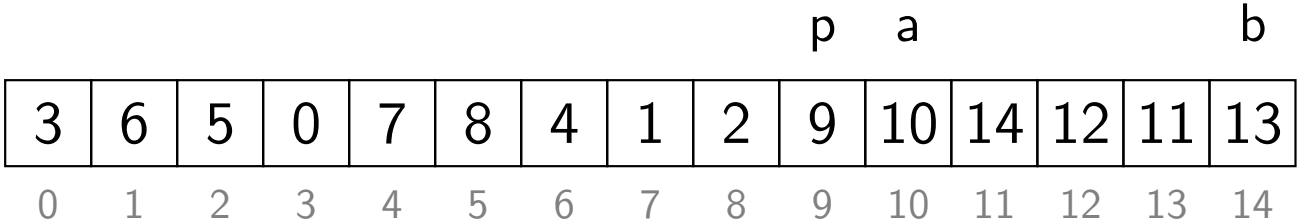


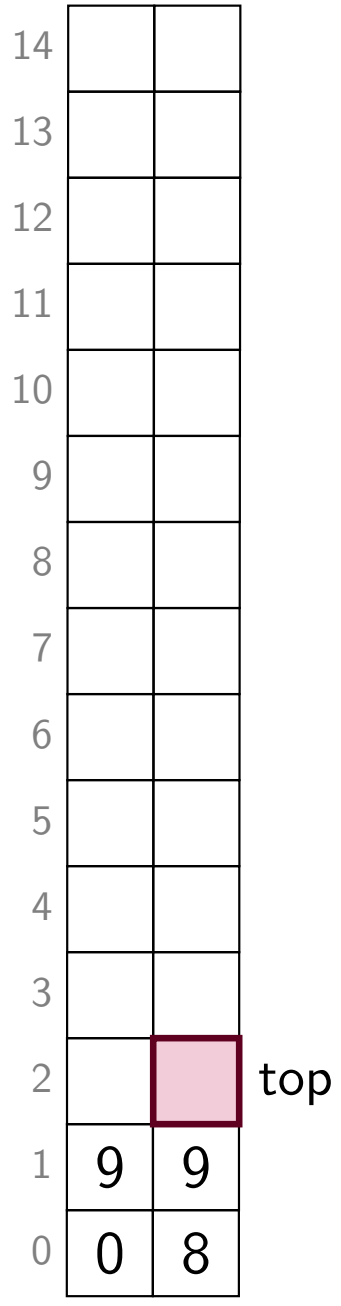

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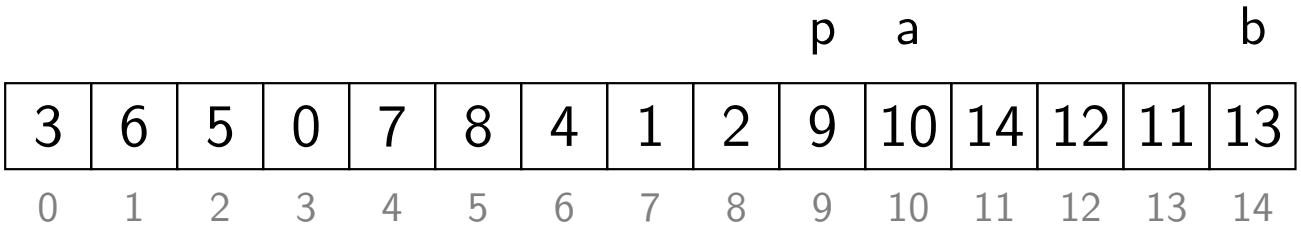


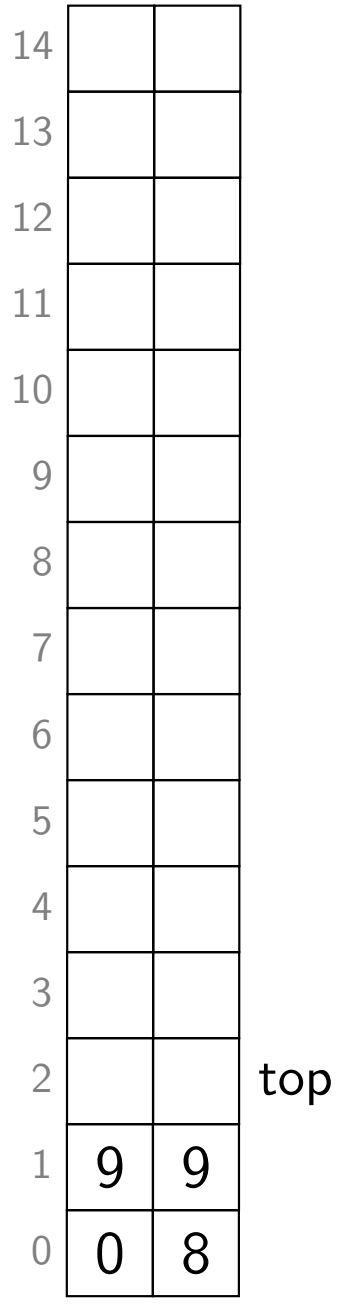

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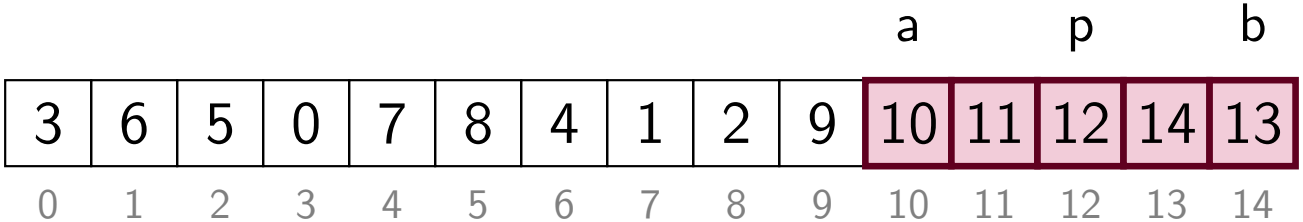


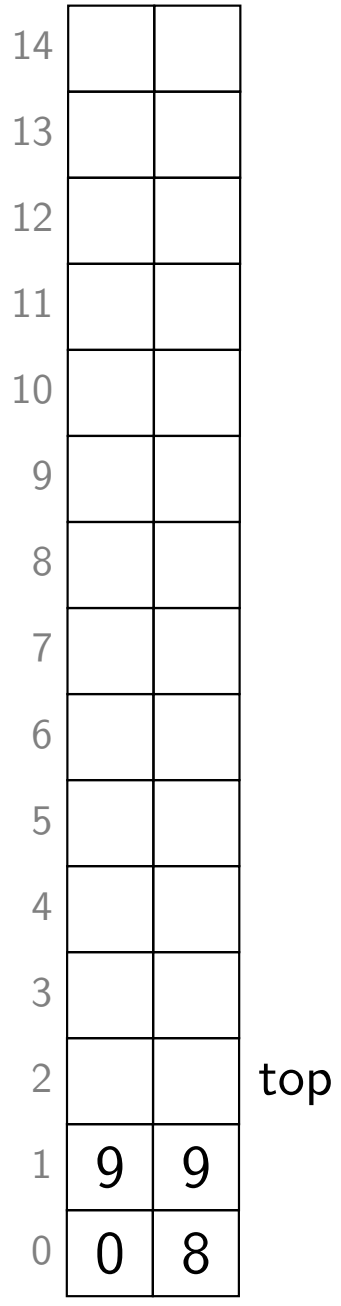

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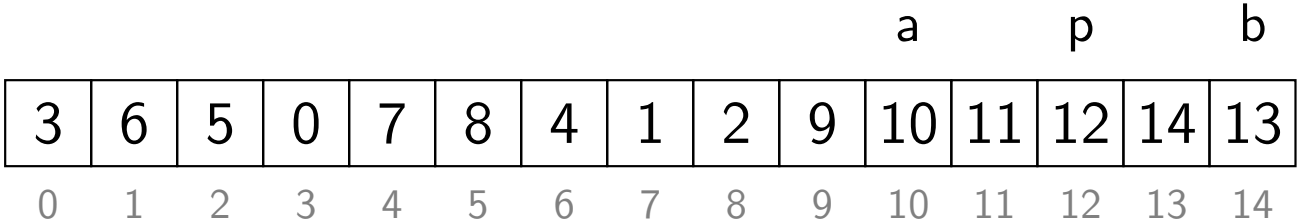


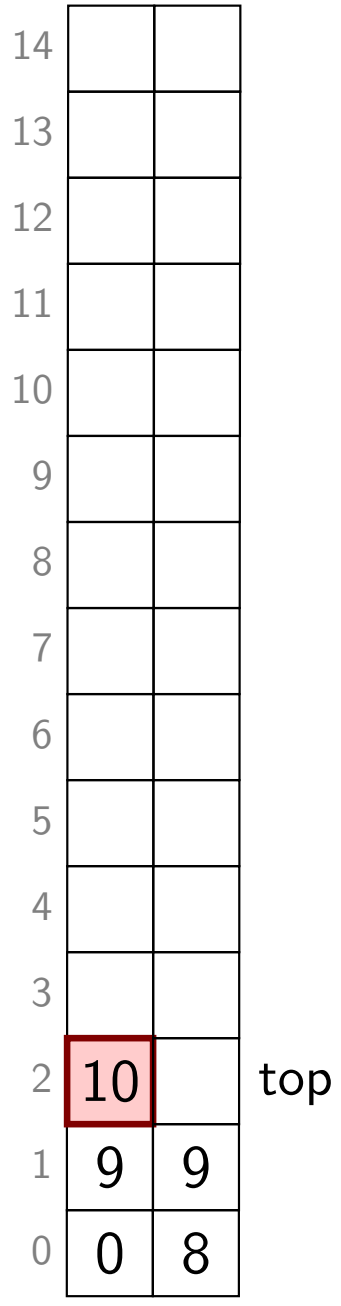

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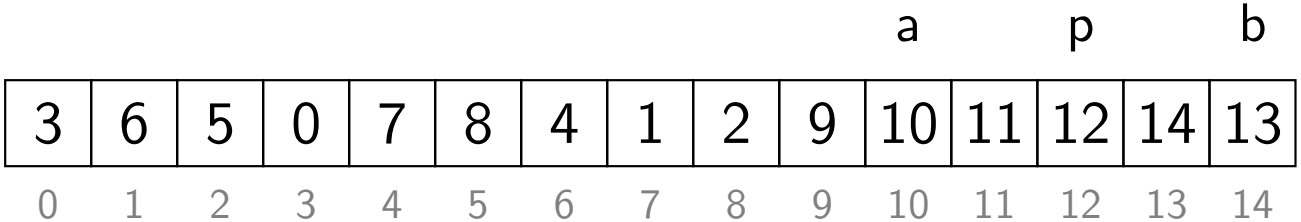


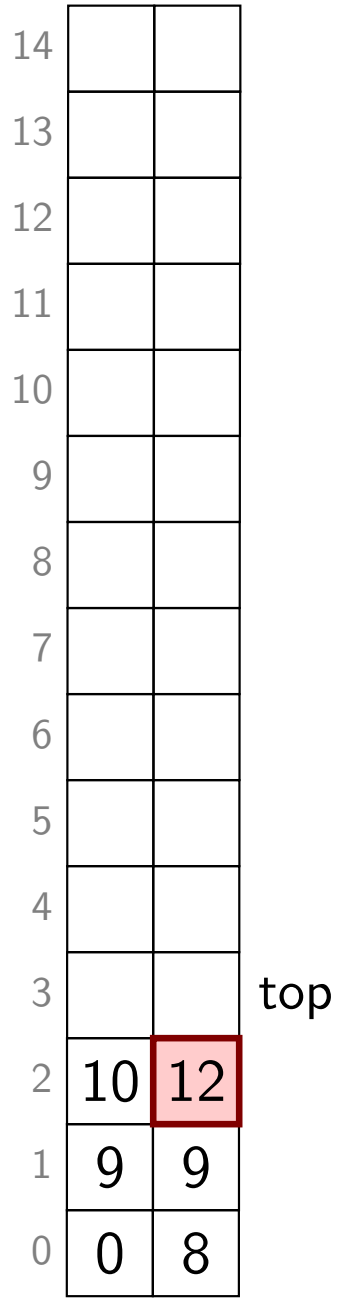

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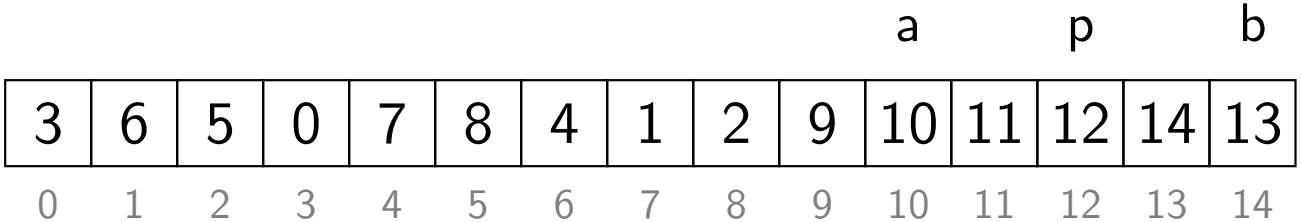


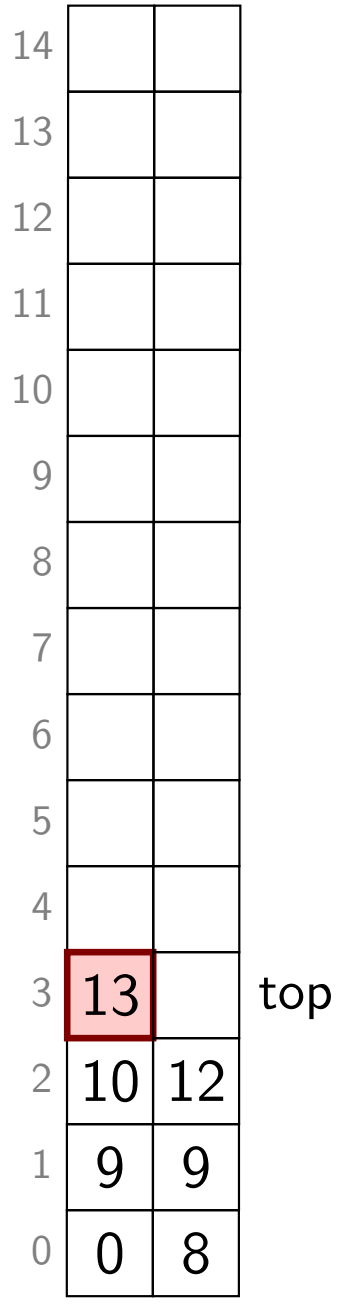

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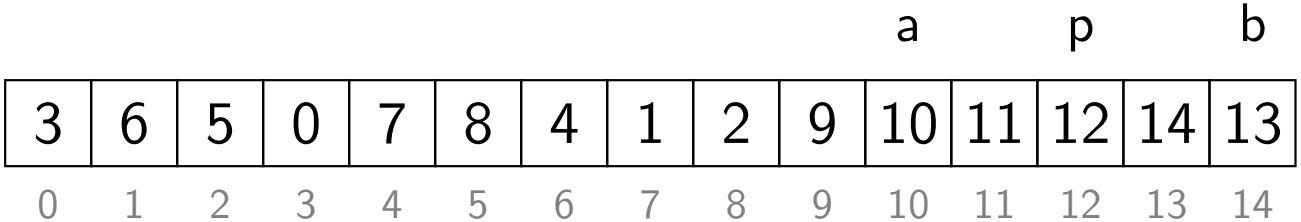


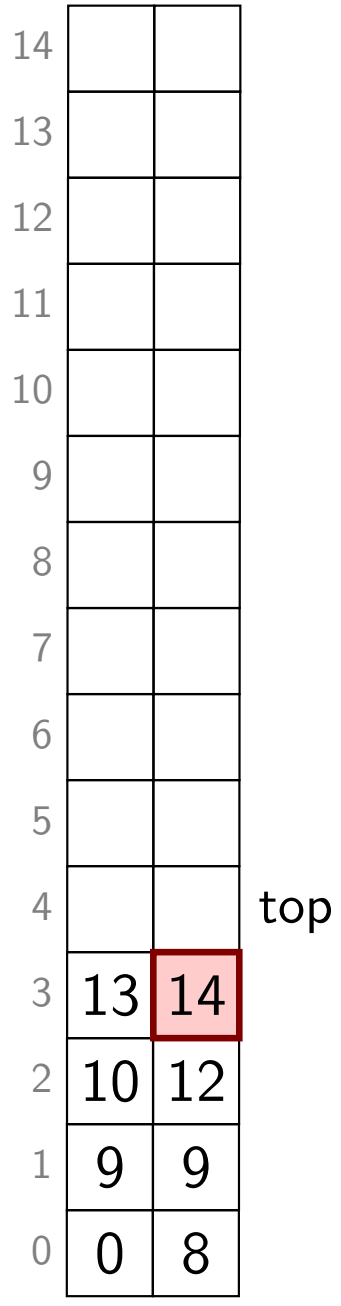

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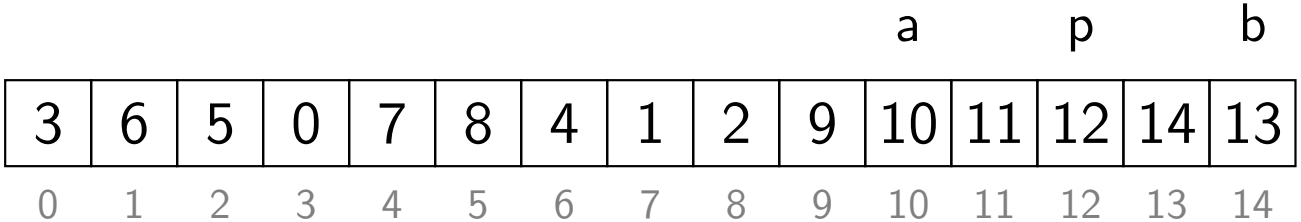


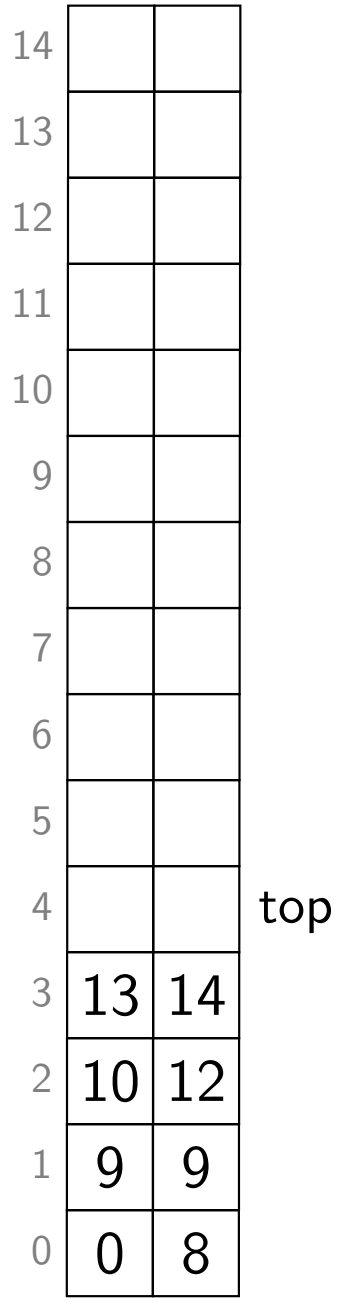

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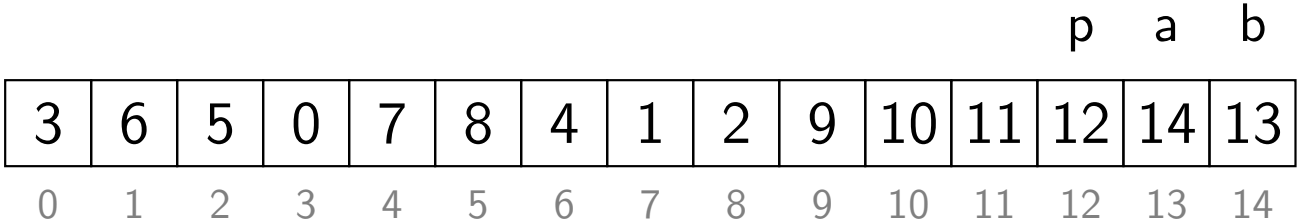
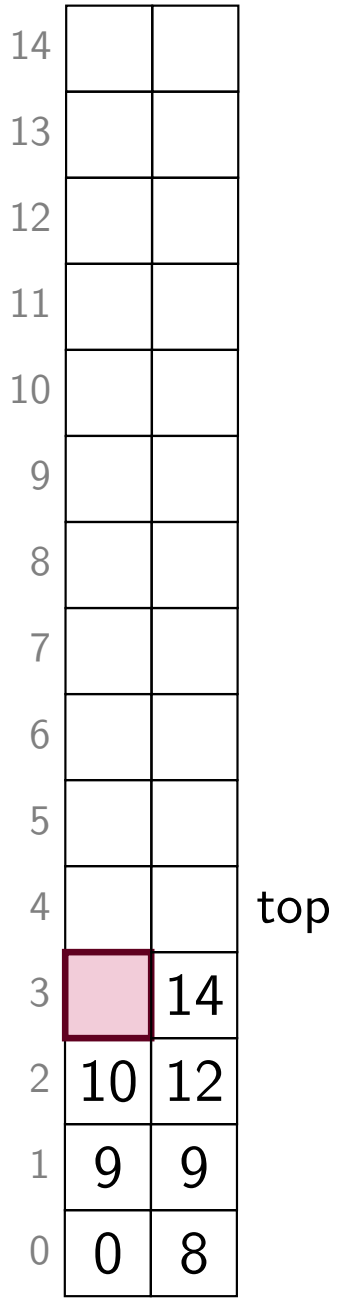
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```



```
void sort (Tab t) {
  uint p, a, b;
  Stack first = stackNew(t.len);
  Stack last = stackNew(t.len);
  stackPush(&first, 0);
  stackPush(&last, t.len-1);
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    b = stackPop(&last);
    if (a < b) {
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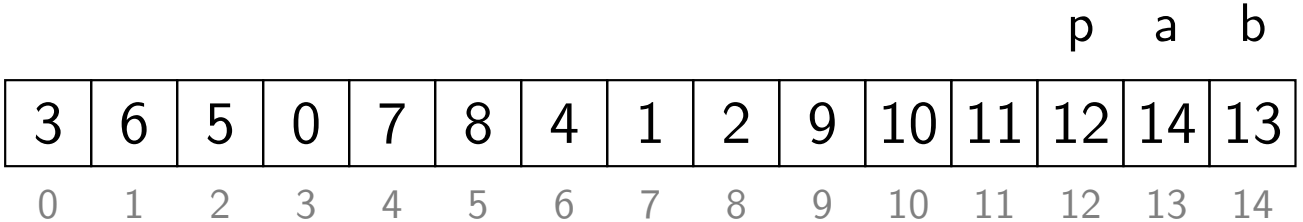
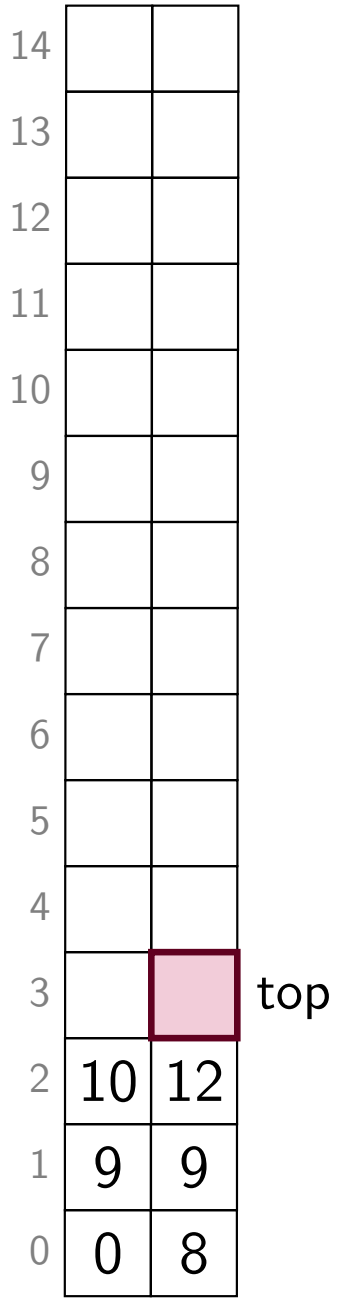
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```



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      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```

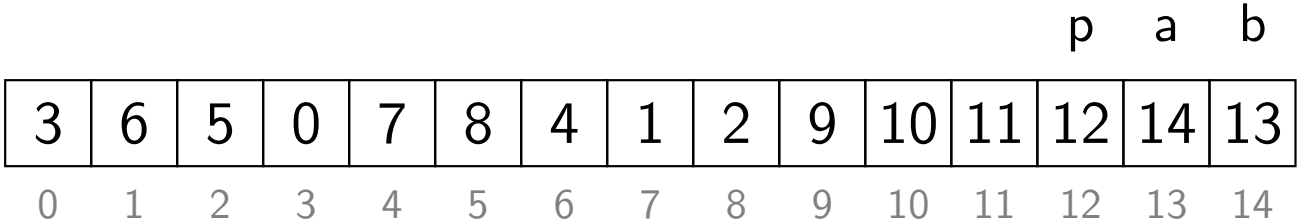


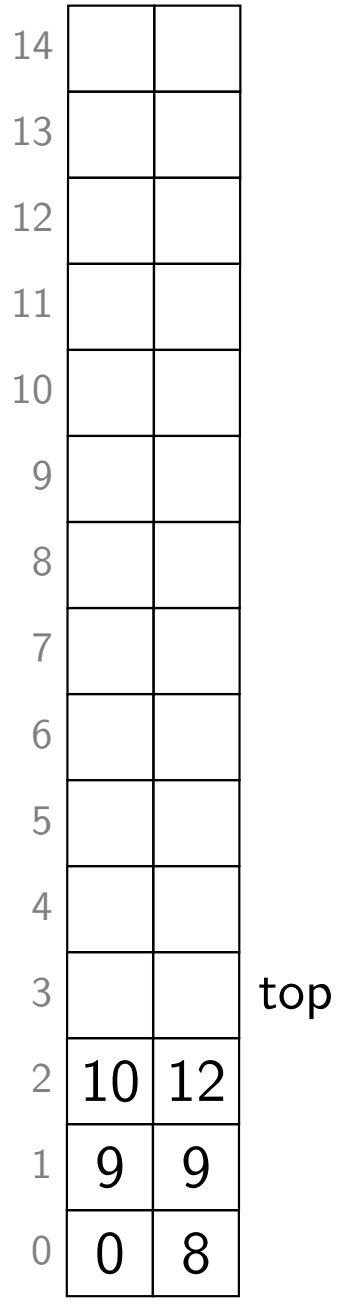

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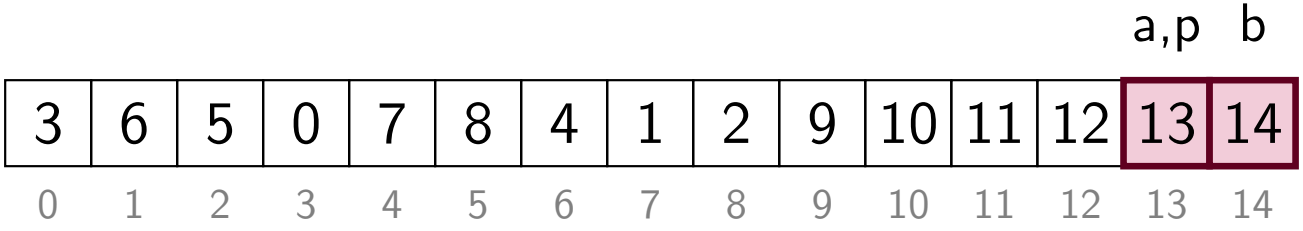
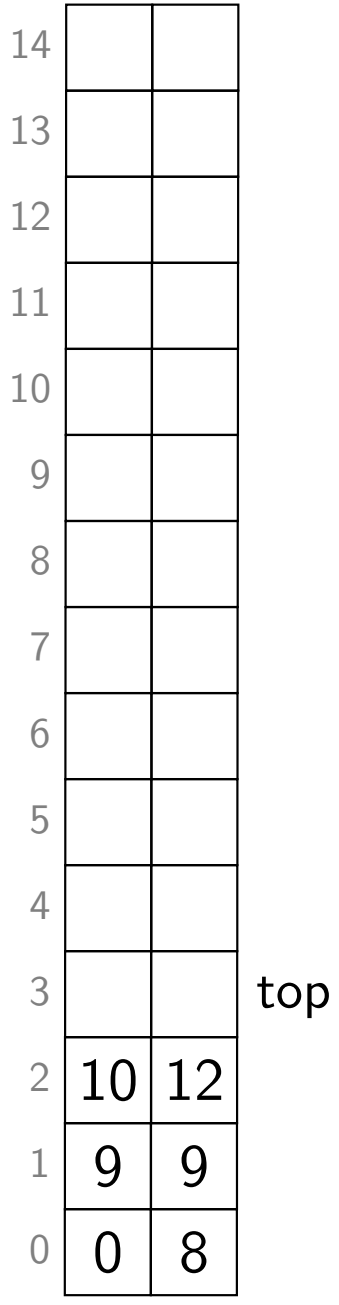
      stackPush(&first, a);
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```



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      stackPush(&first, a);
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```

a,p b

| 3 | 6 | 5 | 0 | 7 | 8 | 4 | 1 | 2 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

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|---|---|---|---|
| 14 | | | |
| 13 | | | |
| 12 | | | |
| 11 | | | |
| 10 | | | |
| 9 | | | |
| 8 | | | |
| 7 | | | |
| 6 | | | |
| 5 | | | |
| 4 | | | |
| 3 | 13 | | top |
| 2 | 10 | 12 | |
| 1 | 9 | 9 | |
| 0 | 0 | 8 | |

```
void sort (Tab t) {
  uint p, a, b;
  Stack first = stackNew(t.len);
  Stack last = stackNew(t.len);
  stackPush(&first, 0);
  stackPush(&last, t.len-1);
  while (!stackEmpty(first)) {
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      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```

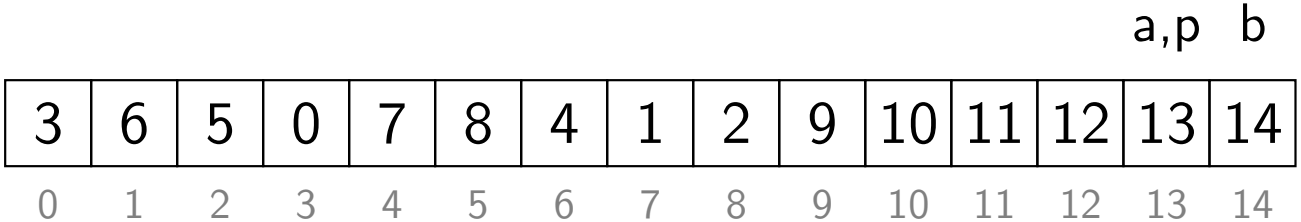


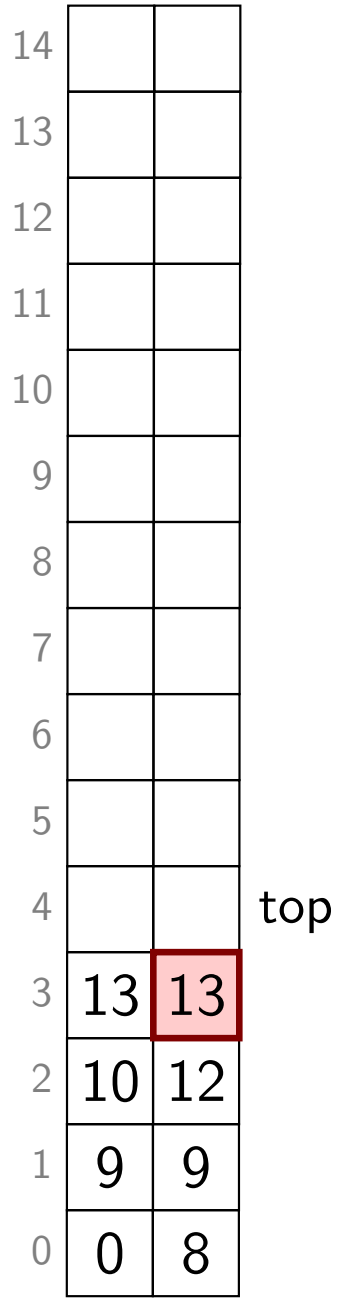

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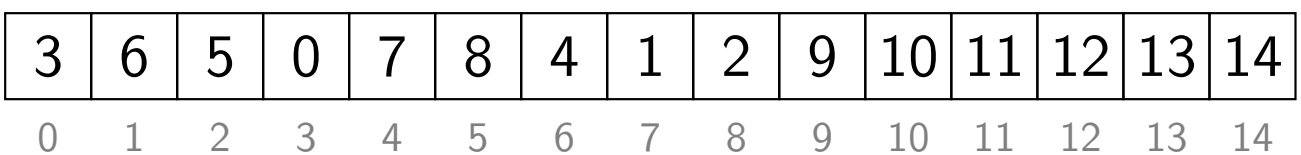
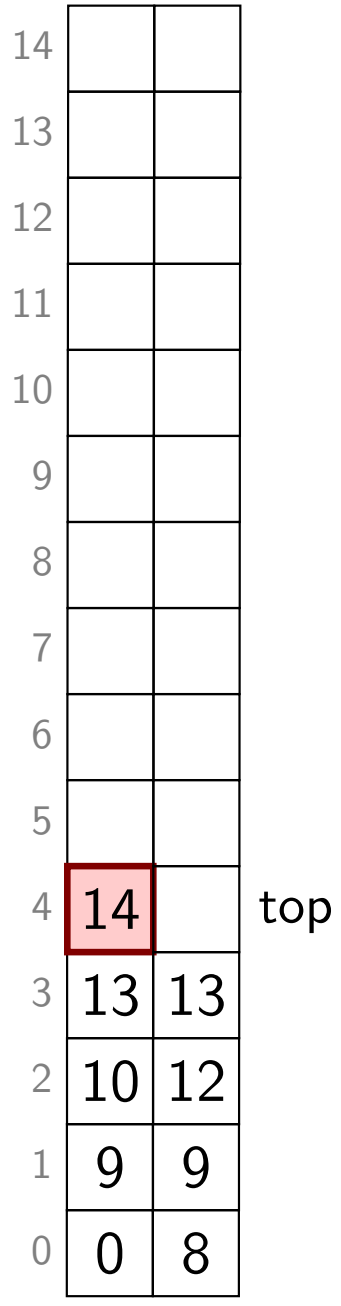
      stackPush(&first, a);
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```



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      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```

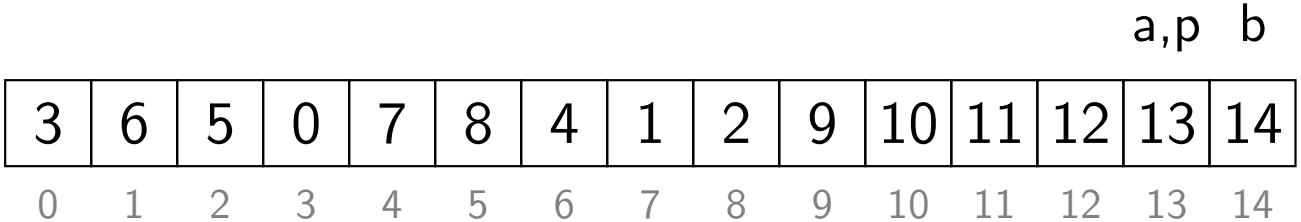
a,p b

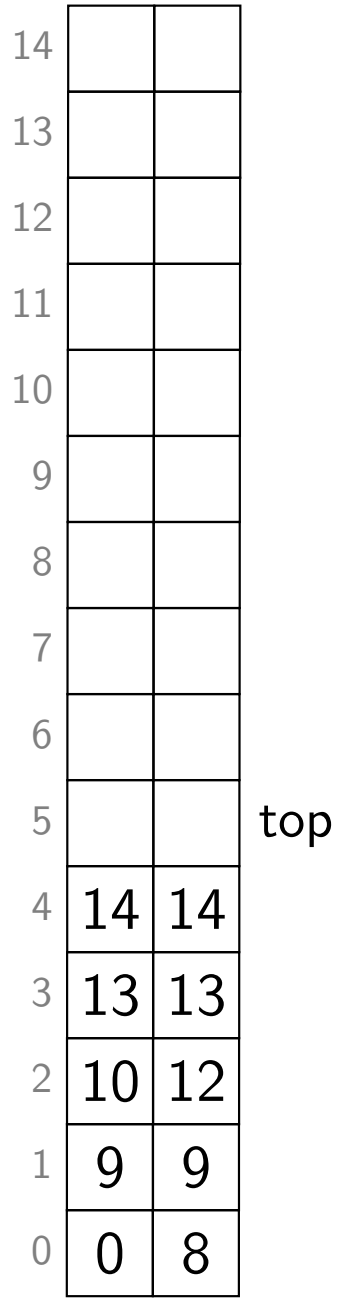
| 3 | 6 | 5 | 0 | 7 | 8 | 4 | 1 | 2 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

| | | |
|---|---|---|
| 14 | | |
| 13 | | |
| 12 | | |
| 11 | | |
| 10 | | |
| 9 | | |
| 8 | | |
| 7 | | |
| 6 | | |
| 5 | | |
| 4 | 14 | 14 |
| 3 | 13 | 13 |
| 2 | 10 | 12 |
| 1 | 9 | 9 |
| 0 | 0 | 8 |

top

```
void sort (Tab t) {
  uint p, a, b;
  Stack first = stackNew(t.len);
  Stack last = stackNew(t.len);
  stackPush(&first, 0);
  stackPush(&last, t.len-1);
  while (!stackEmpty(first)) {
    a = stackPop(&first);
    b = stackPop(&last);
    if (a < b) {
      p = a + partition(slice(t, a, b));
      stackPush(&first, a);
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```



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      stackPush(&last, p);
      stackPush(&first, p+1);
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  }
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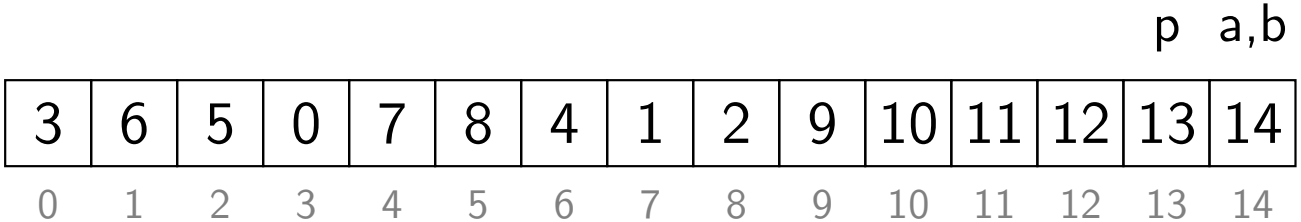
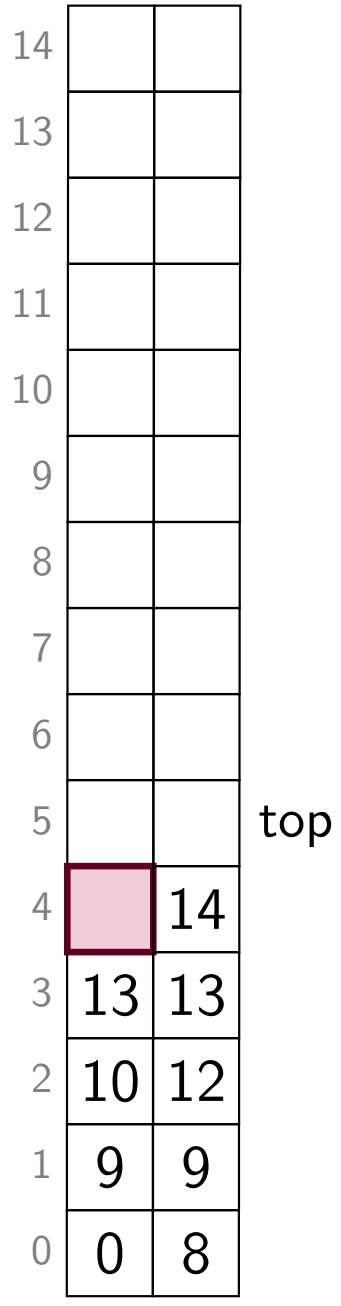
```



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    }
  }
}
```

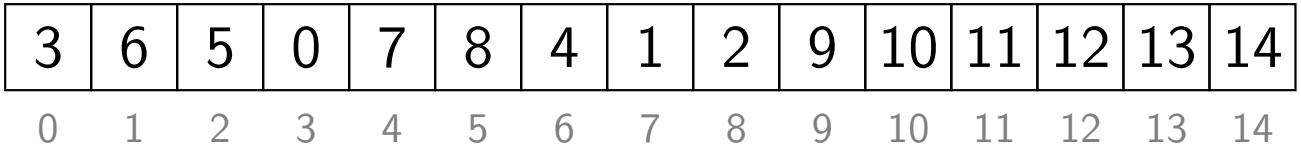


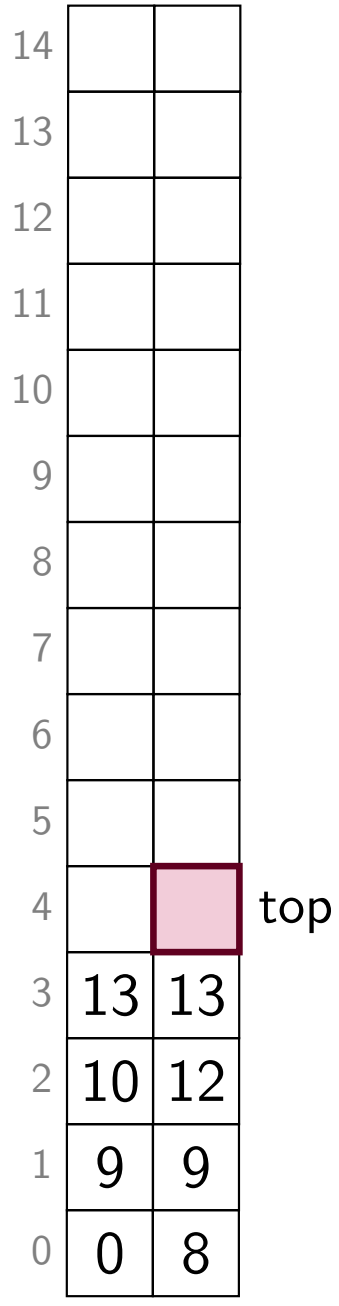

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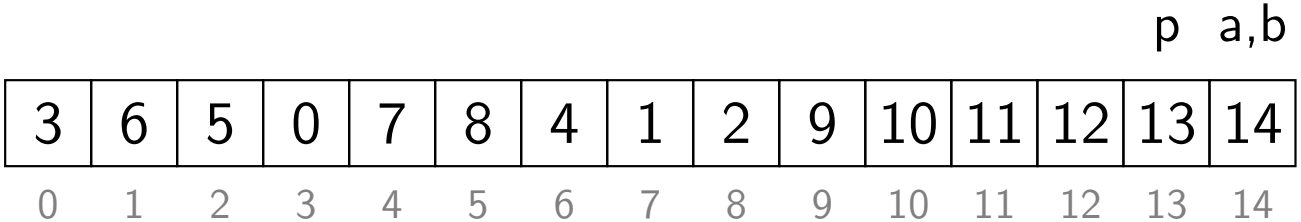


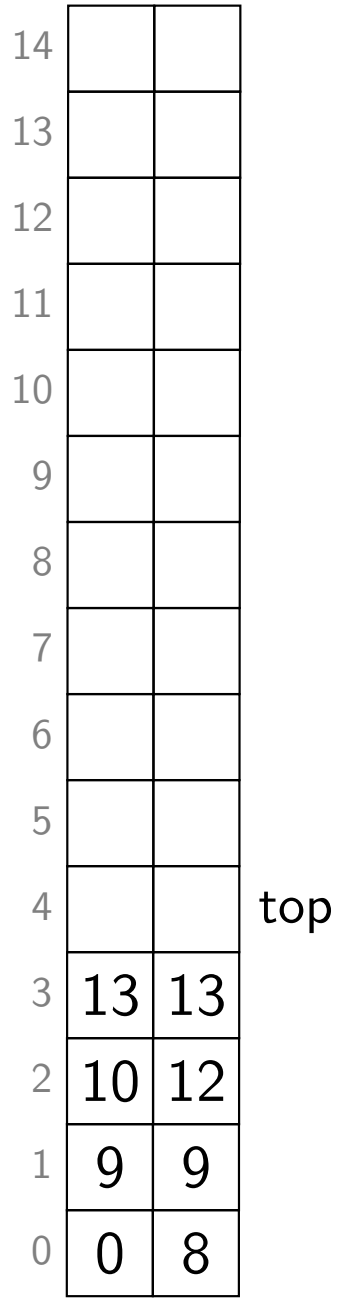

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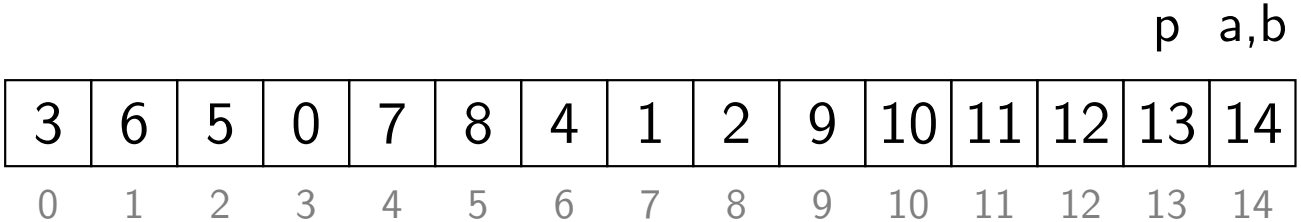


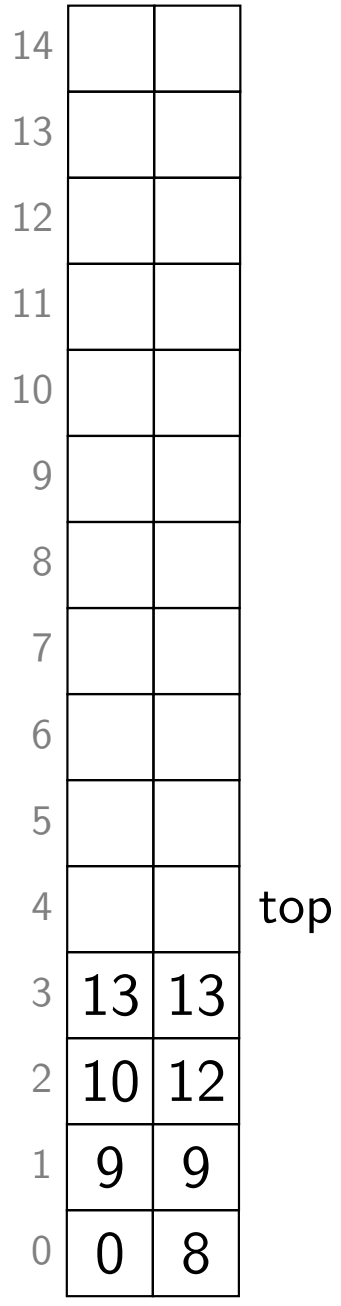

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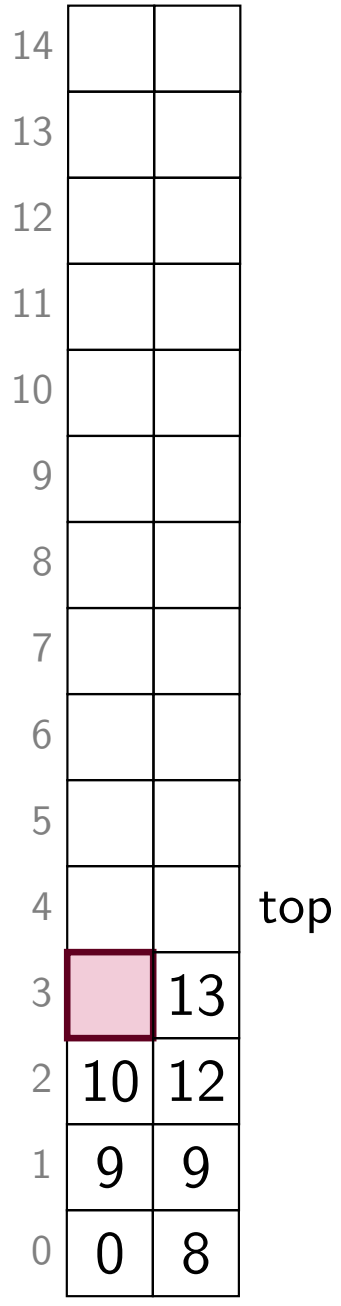
      stackPush(&last, b);
    }
  }
}
```

a,p b

| 3 | 6 | 5 | 0 | 7 | 8 | 4 | 1 | 2 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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}
```
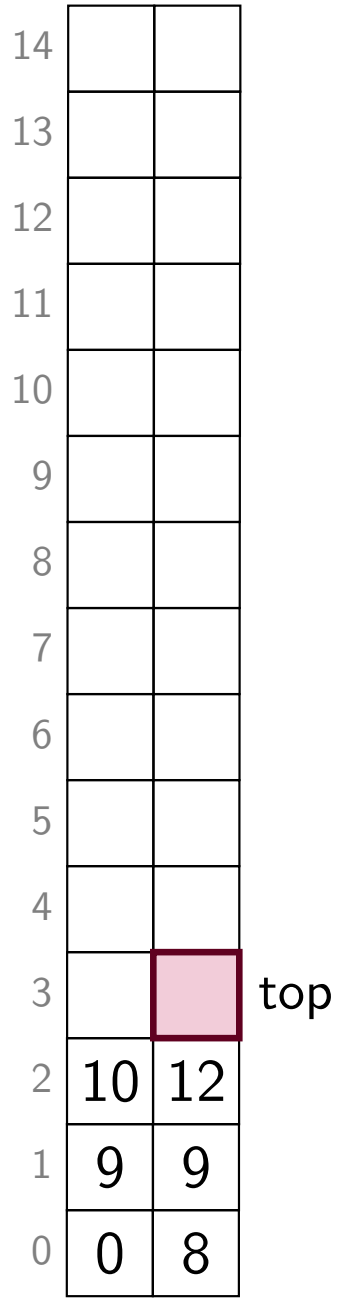

a,b,p

| 3 | 6 | 5 | 0 | 7 | 8 | 4 | 1 | 2 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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```

a,b,p

| 3 | 6 | 5 | 0 | 7 | 8 | 4 | 1 | 2 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

| | | |
|---|---|---|
| 14 | | |
| 13 | | |
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| 11 | | |
| 10 | | |
| 9 | | |
| 8 | | |
| 7 | | |
| 6 | | |
| 5 | | |
| 4 | | |
| 3 | | | top |
| 2 | 10 | 12 | |
| 1 | 9 | 9 | |
| 0 | 0 | 8 | |

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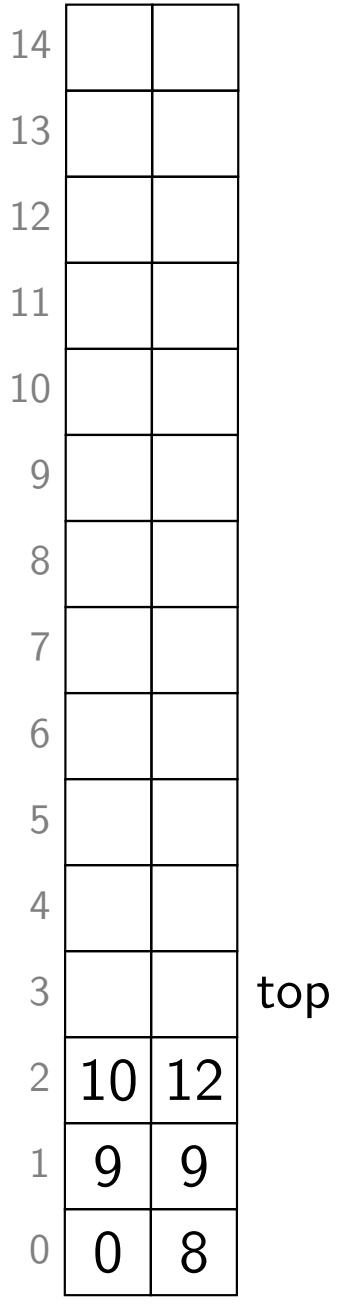
a,b,p

| 3 | 6 | 5 | 0 | 7 | 8 | 4 | 1 | 2 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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      stackPush(&first, a);
      stackPush(&last, p);
      stackPush(&first, p+1);
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```

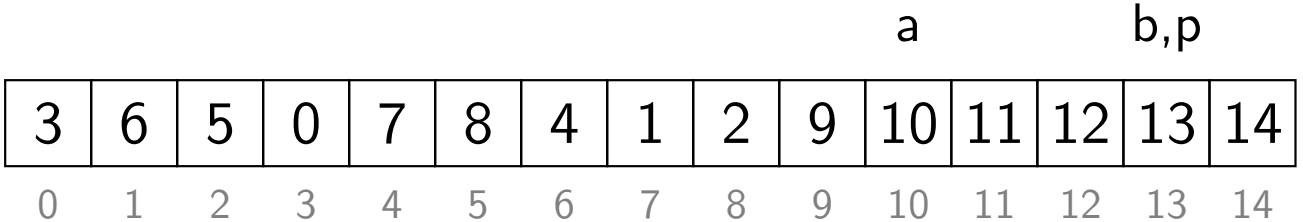


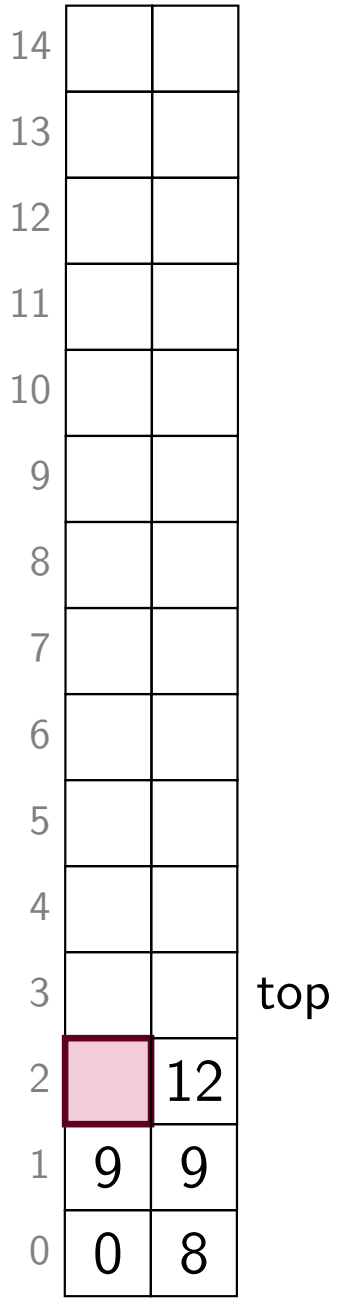

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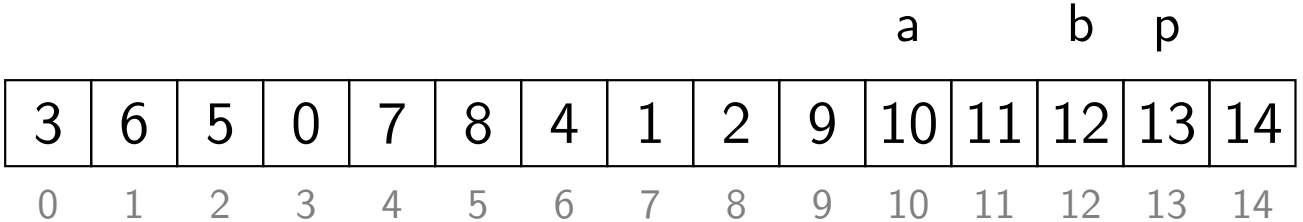
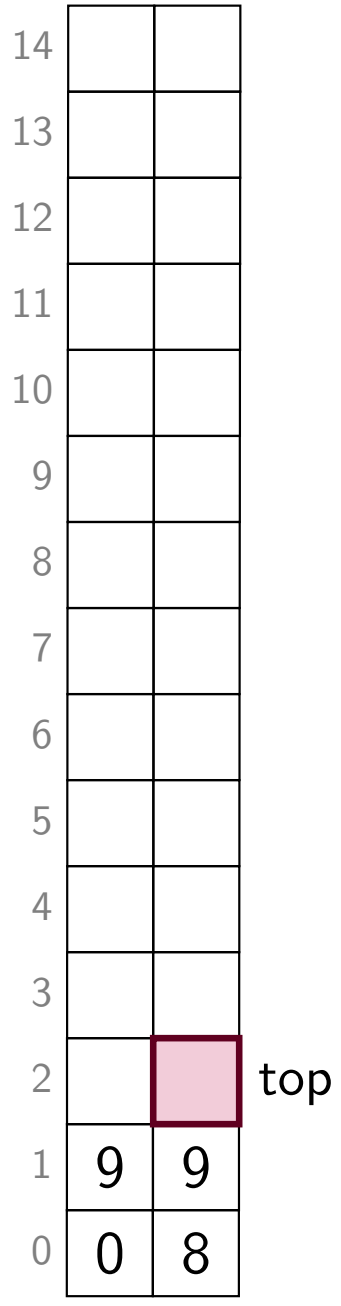
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```



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      stackPush(&first, p+1);
      stackPush(&last, b);
    }
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}
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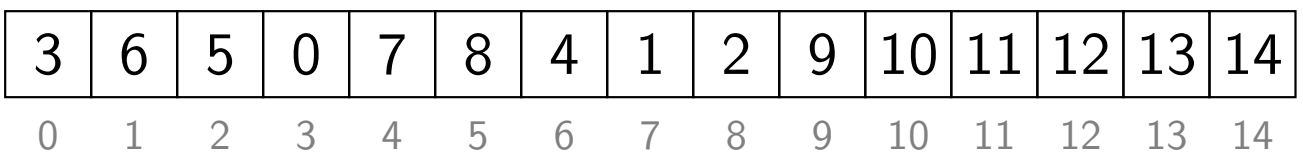


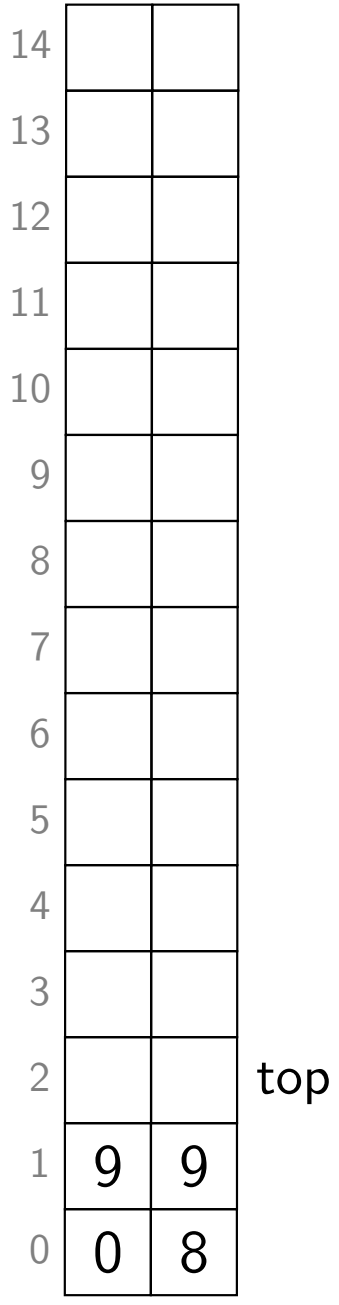

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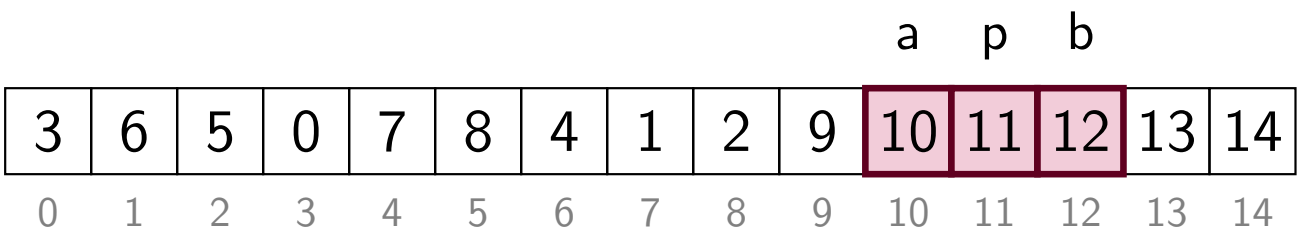


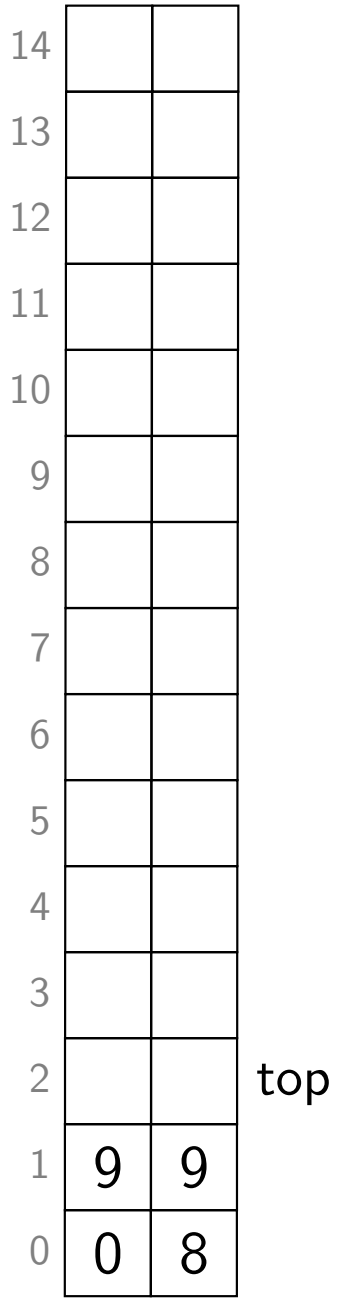

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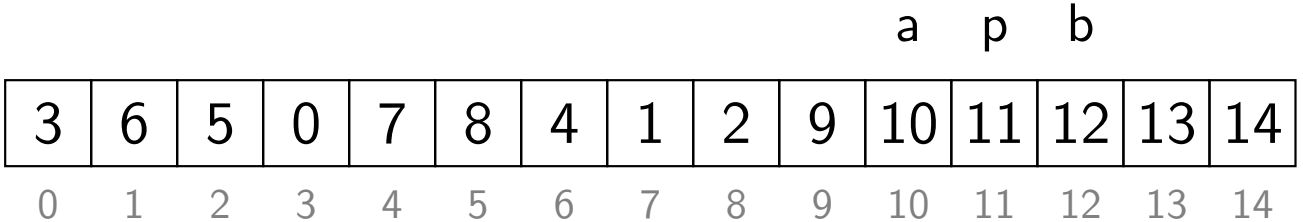


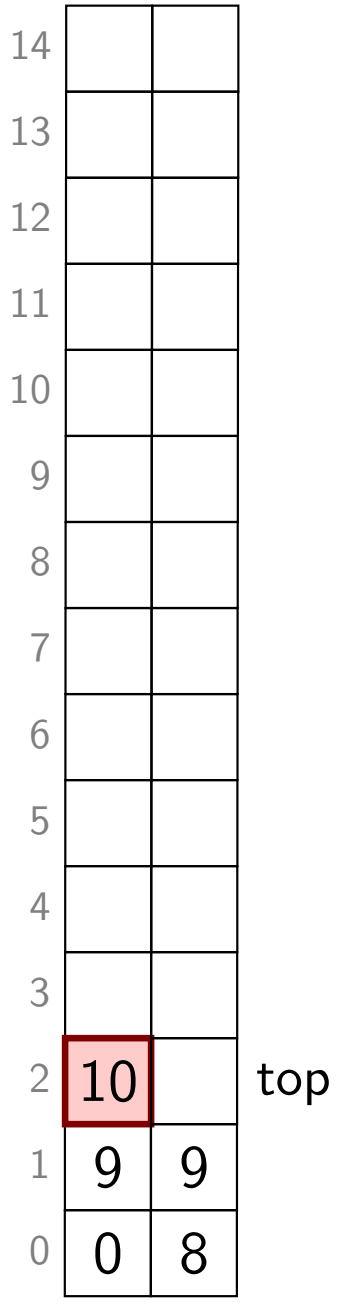

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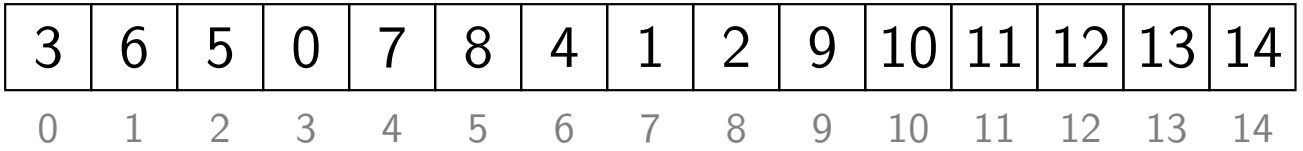


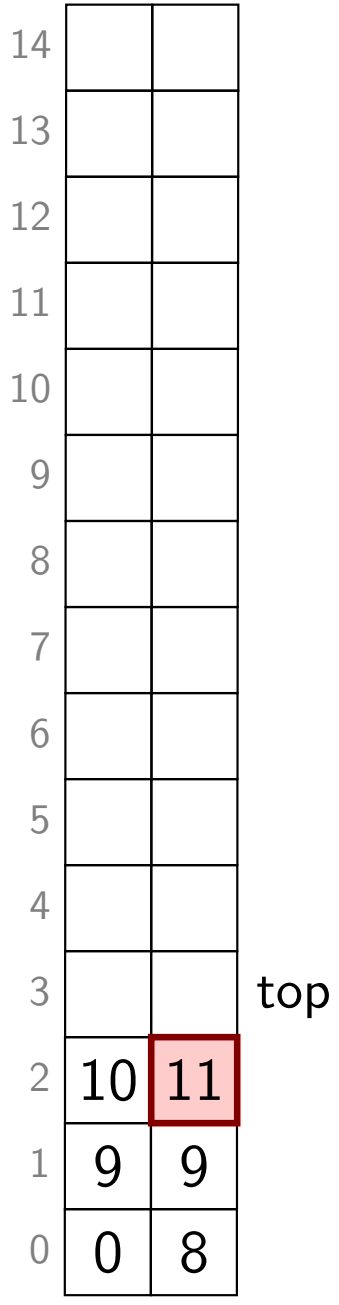

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      stackPush(&first, p+1);
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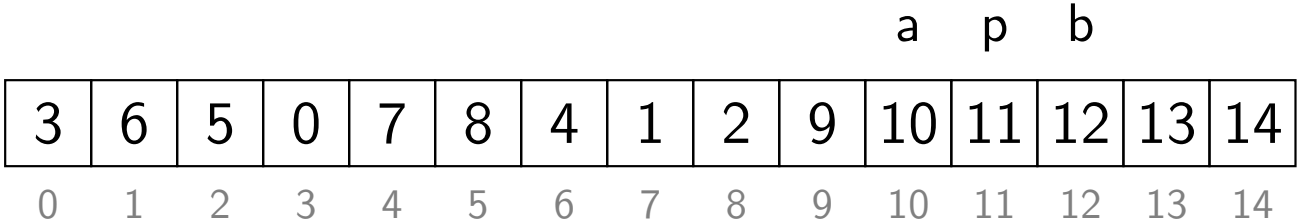


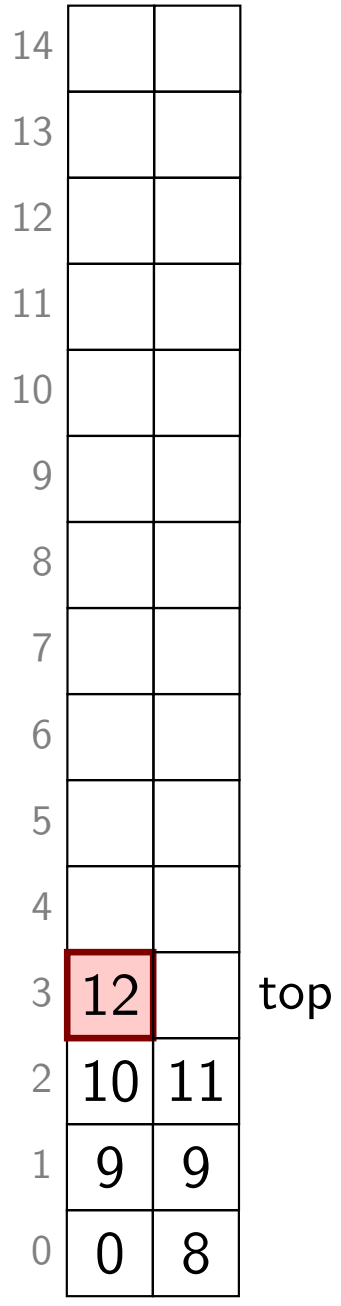

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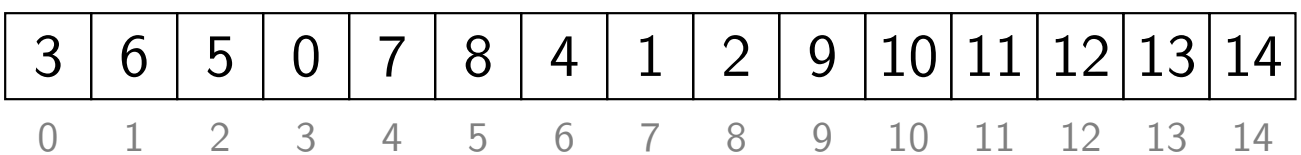


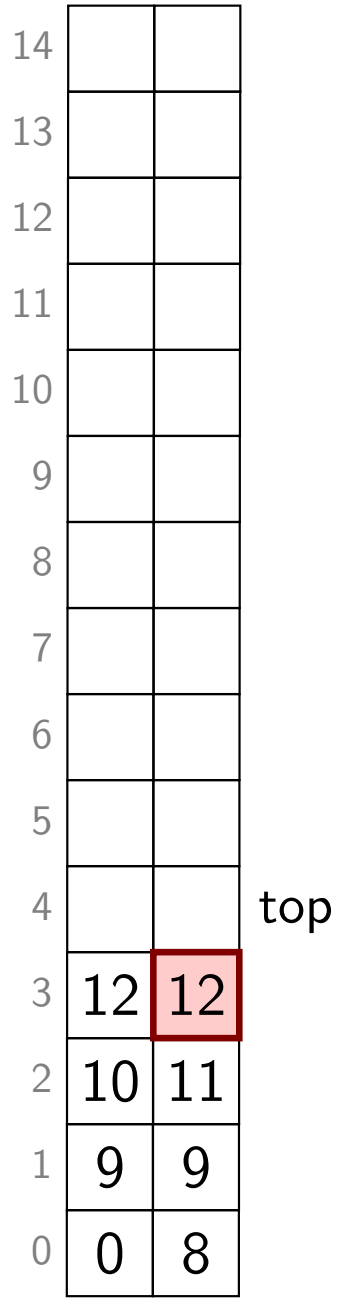

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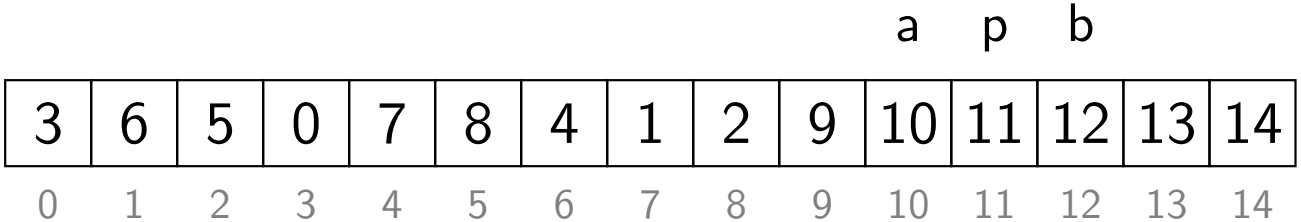


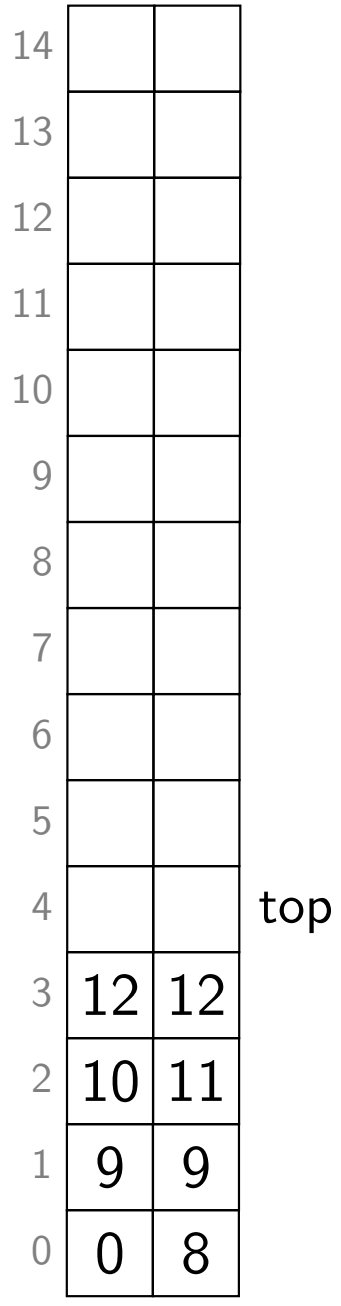

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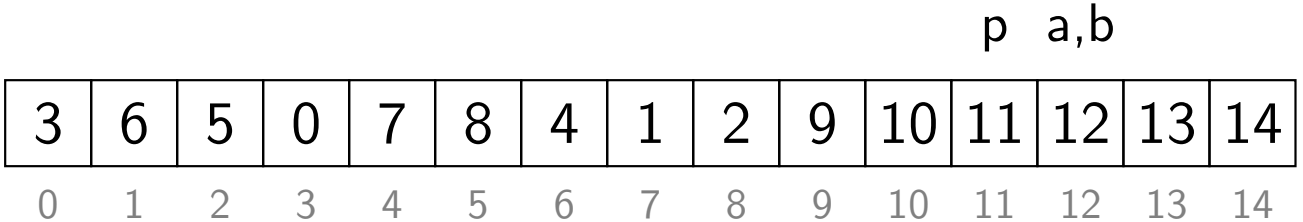


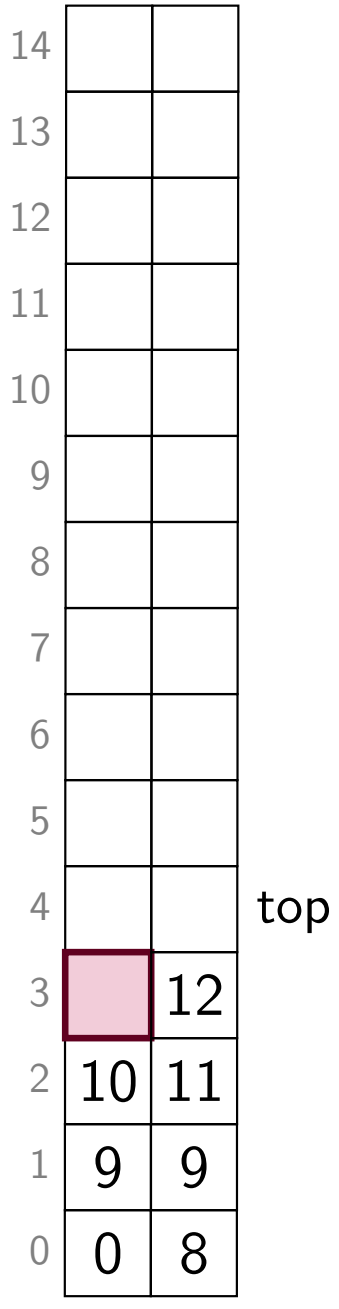

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      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
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```

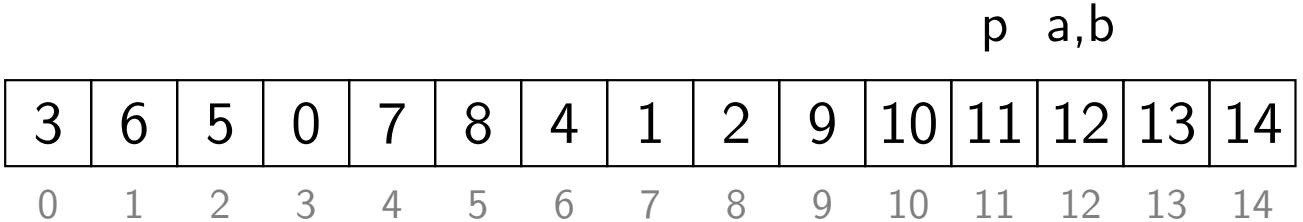


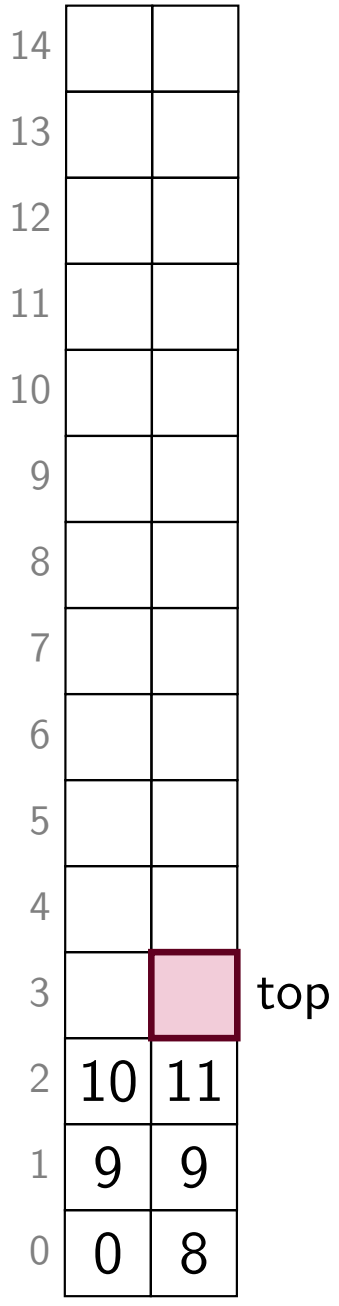

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      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```

p a,b

| 3 | 6 | 5 | 0 | 7 | 8 | 4 | 1 | 2 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

| | | |
|---|---|---|
| 14 | | |
| 13 | | |
| 12 | | |
| 11 | | |
| 10 | | |
| 9 | | |
| 8 | | |
| 7 | | |
| 6 | | |
| 5 | | |
| 4 | | |
| 3 | | | top |
| 2 | 10 | 11 | |
| 1 | 9 | 9 | |
| 0 | 0 | 8 | |

```
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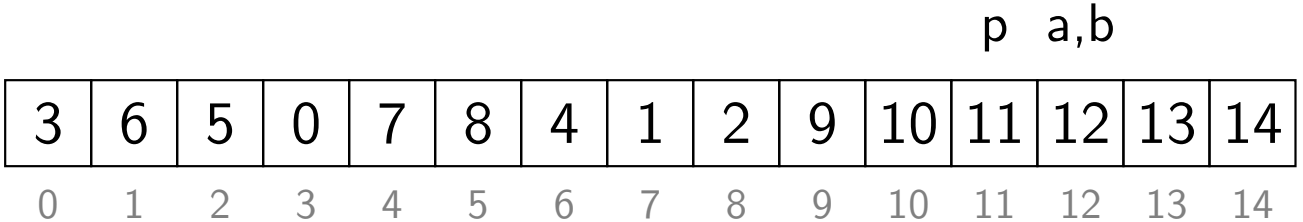


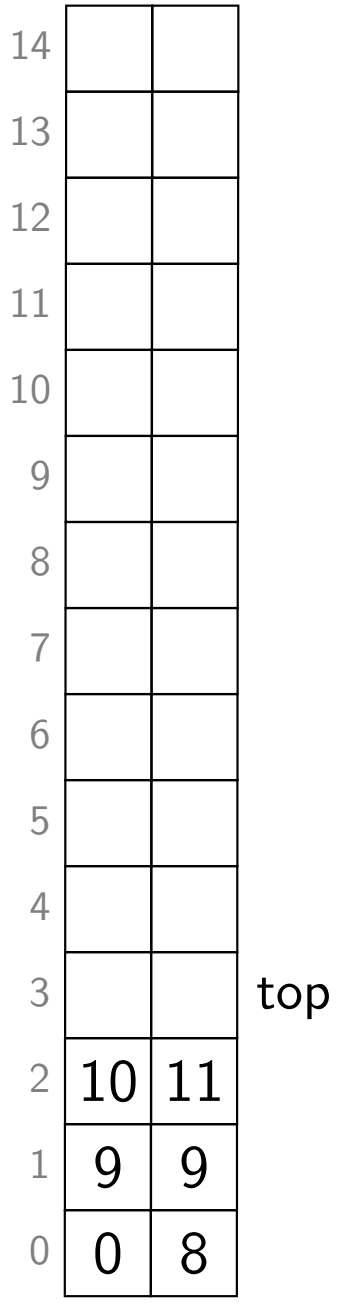

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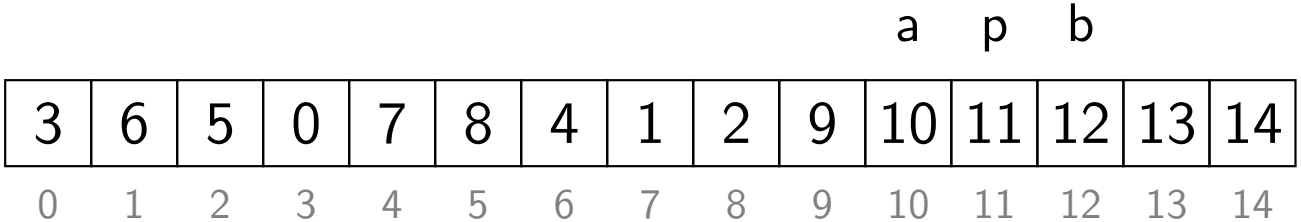


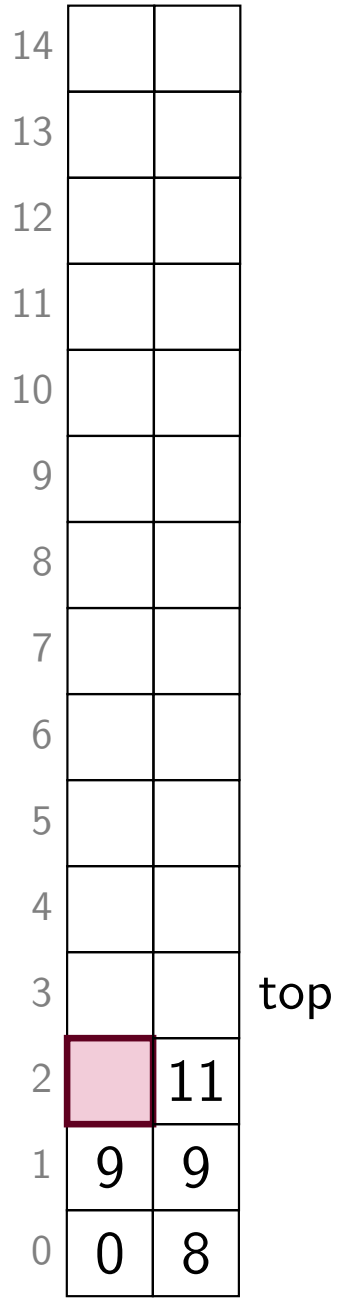

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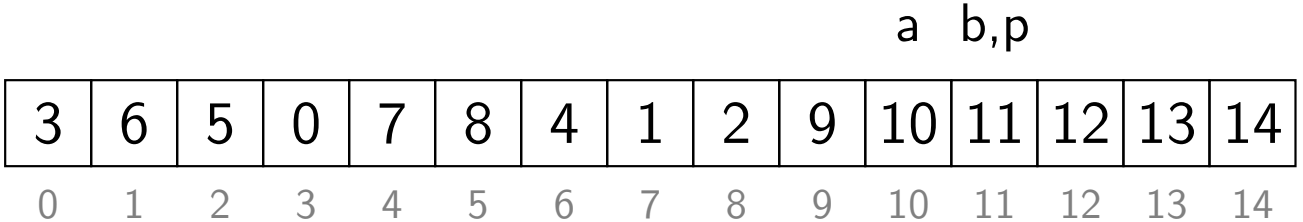


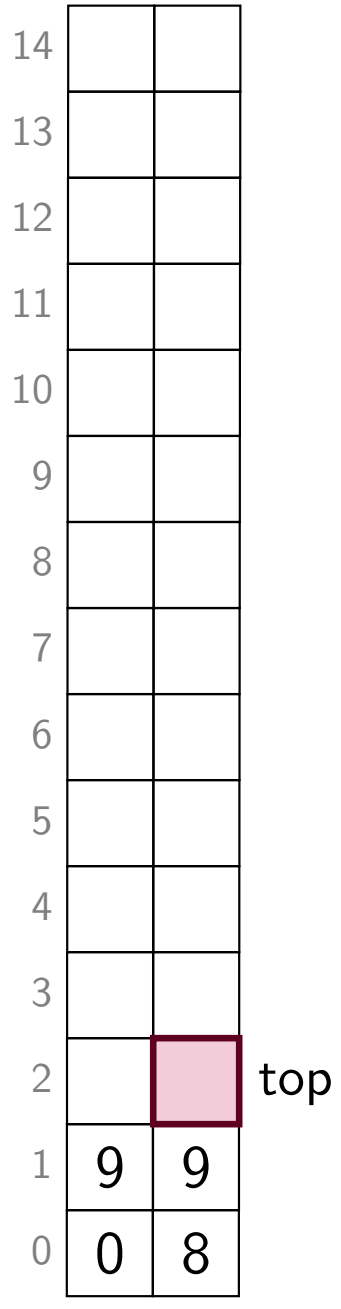

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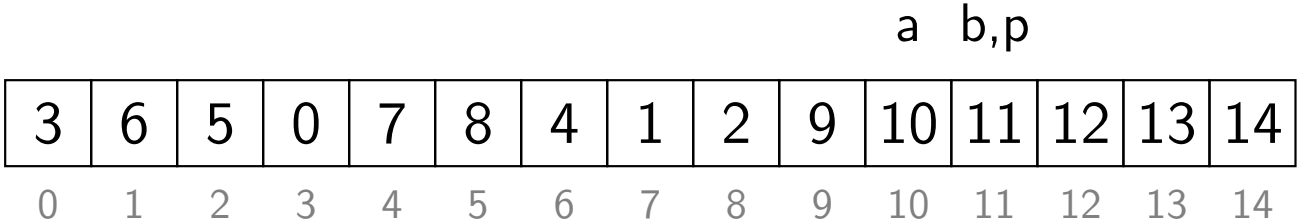


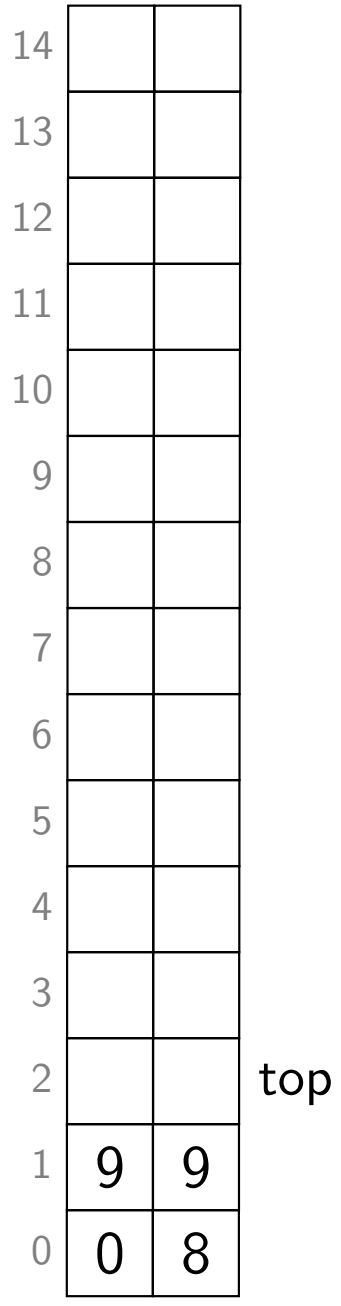

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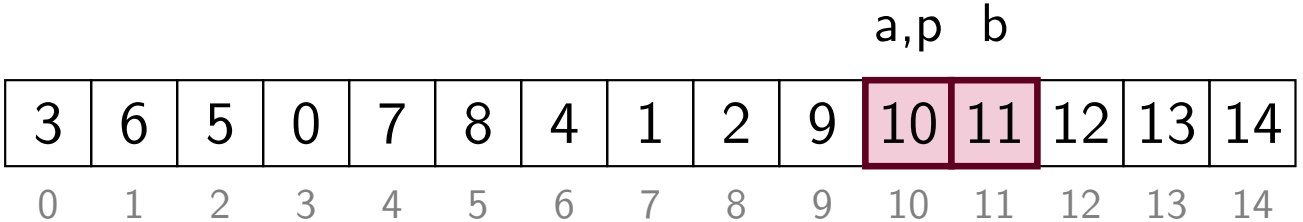


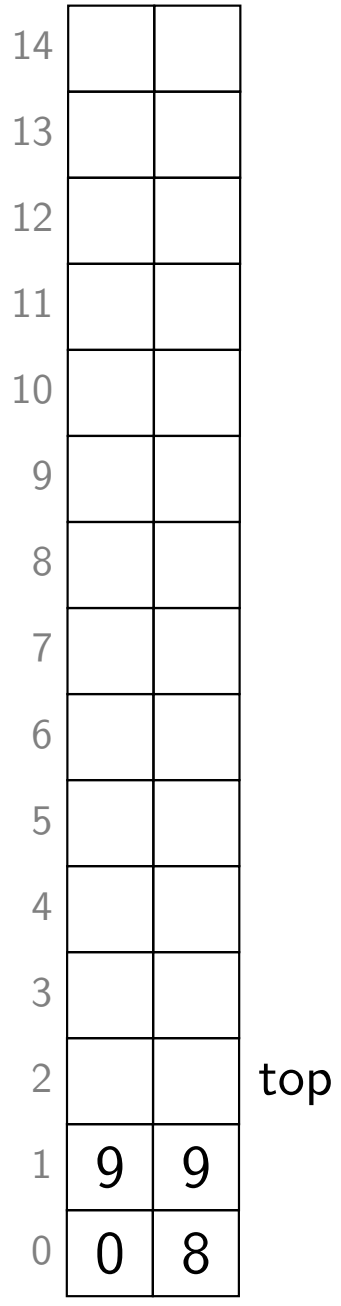

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    }
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}
```

a,p b

| 3 | 6 | 5 | 0 | 7 | 8 | 4 | 1 | 2 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

| | | | |
|---|---|---|---|
| 14 | | | |
| 13 | | | |
| 12 | | | |
| 11 | | | |
| 10 | | | |
| 9 | | | |
| 8 | | | |
| 7 | | | |
| 6 | | | |
| 5 | | | |
| 4 | | | |
| 3 | | | |
| 2 | 10 | | top |
| 1 | 9 | 9 | |
| 0 | 0 | 8 | |

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```
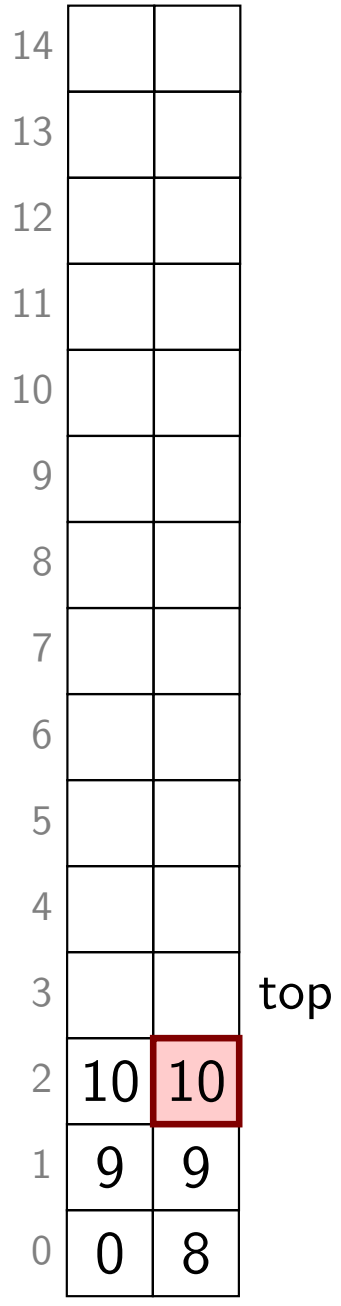

a,p b

| 3 | 6 | 5 | 0 | 7 | 8 | 4 | 1 | 2 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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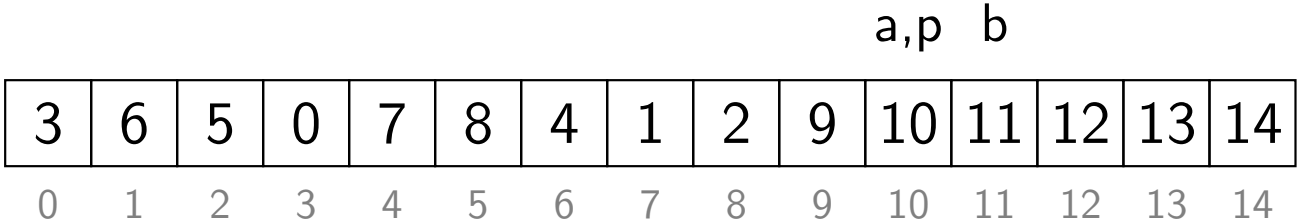


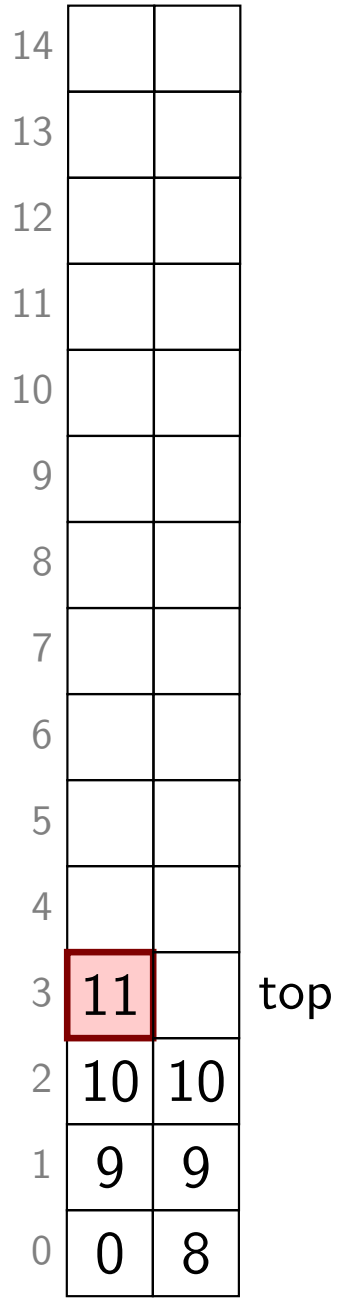

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      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
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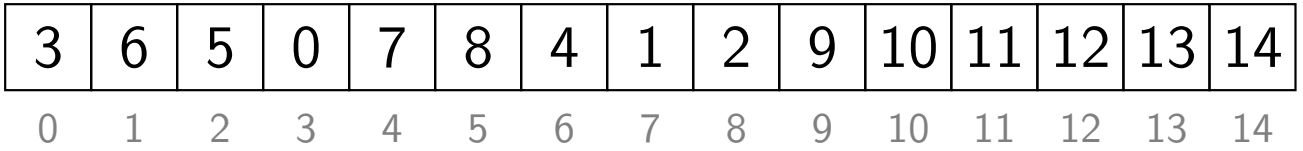


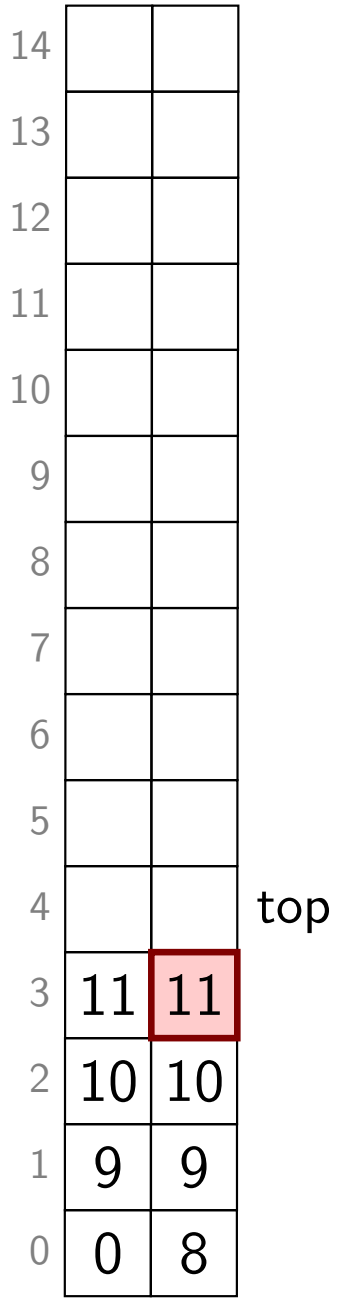

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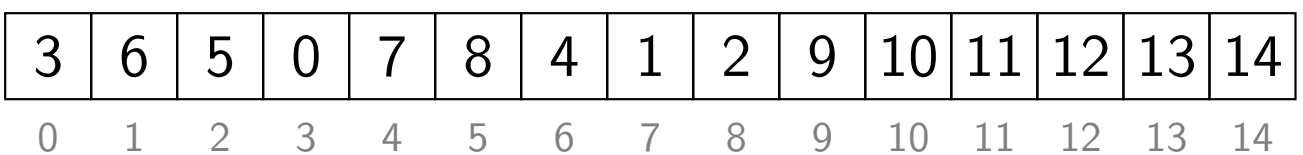


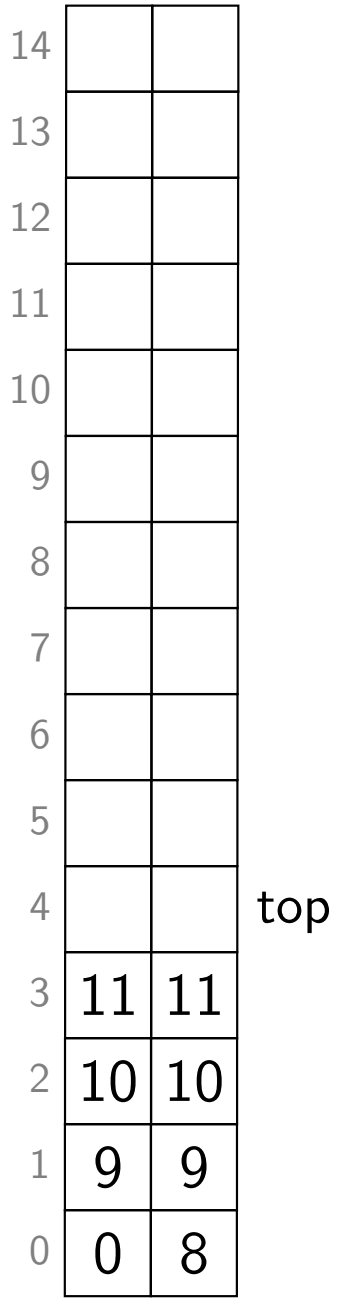

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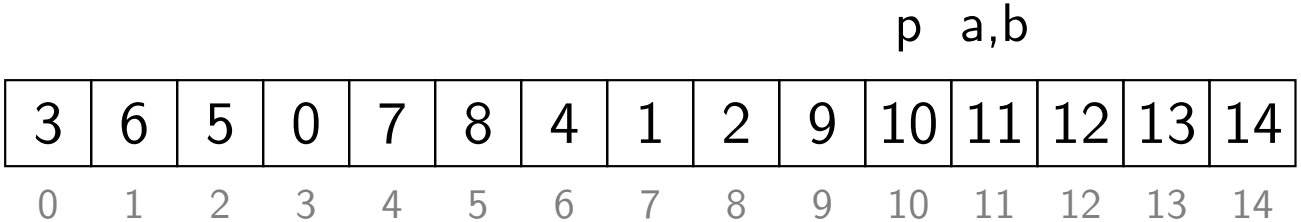


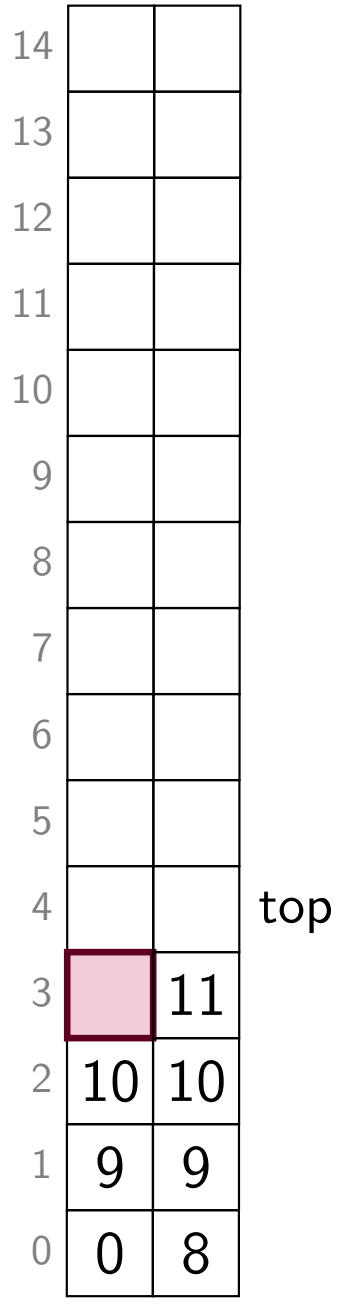

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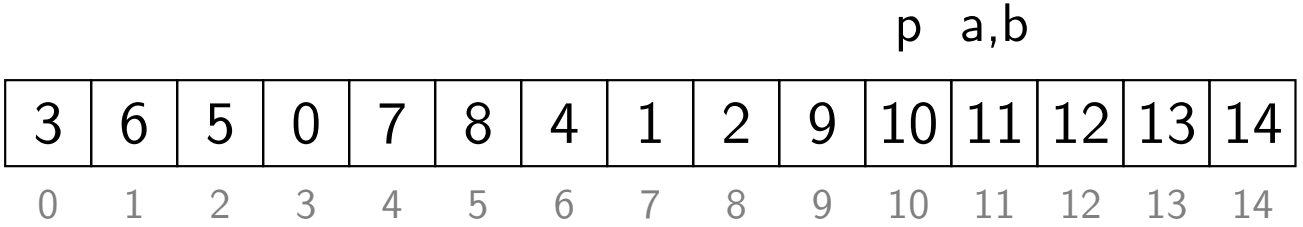


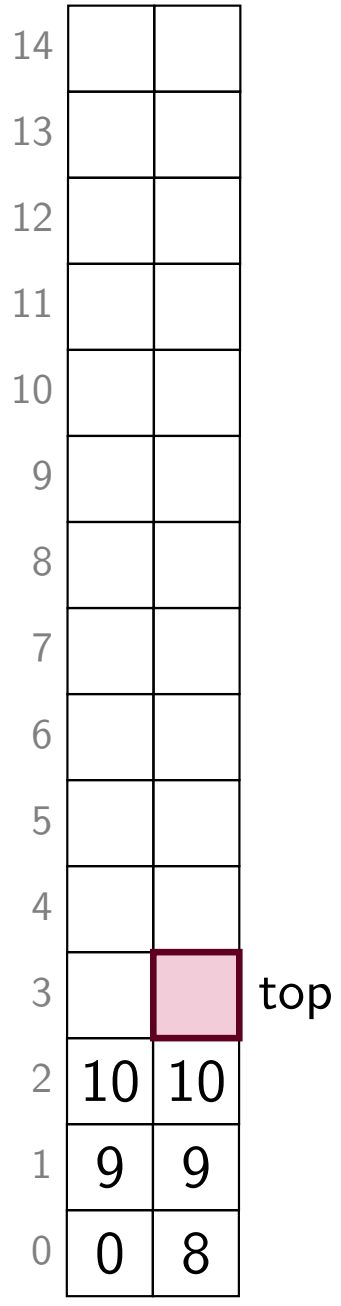

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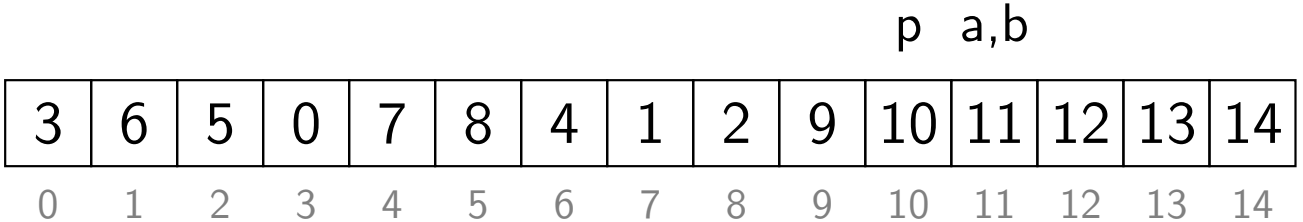


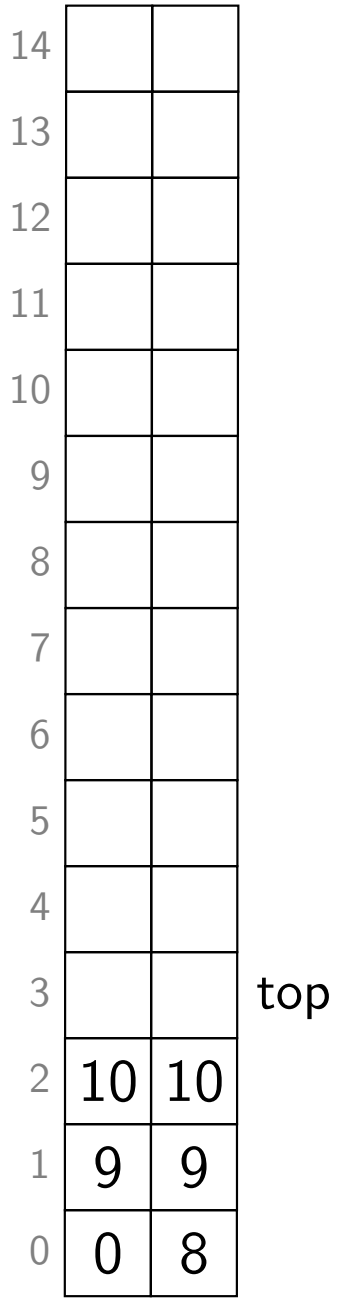

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    }
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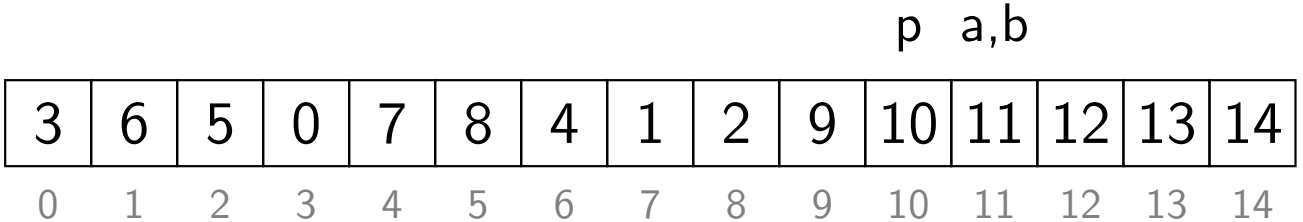


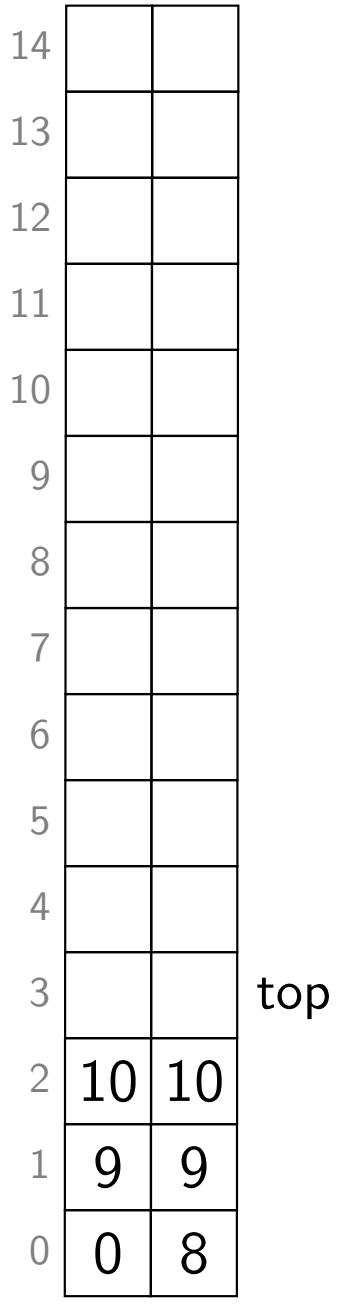

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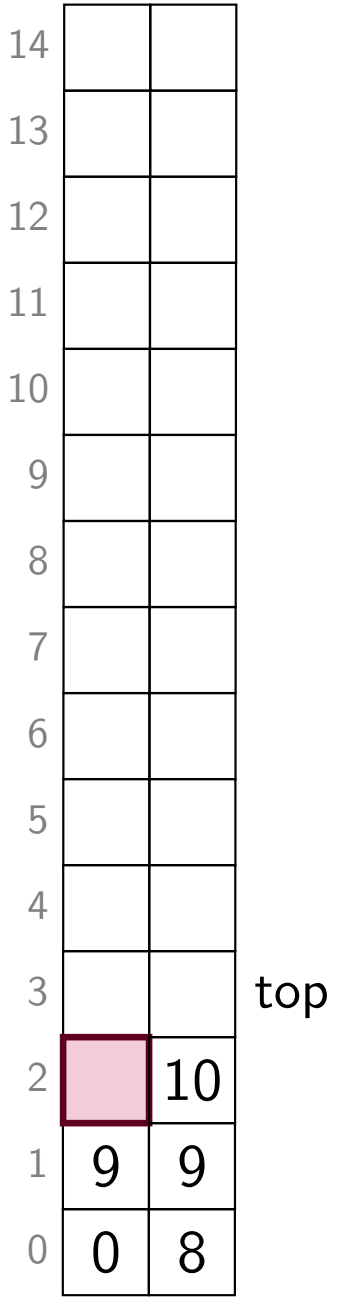
    }
  }
}
```

a,p b

| 3 | 6 | 5 | 0 | 7 | 8 | 4 | 1 | 2 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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```

a,b,p

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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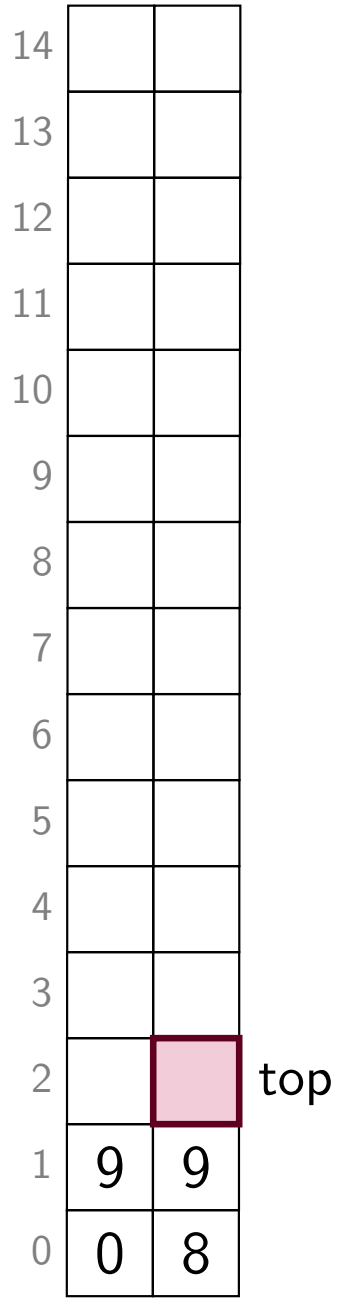

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a,b,p

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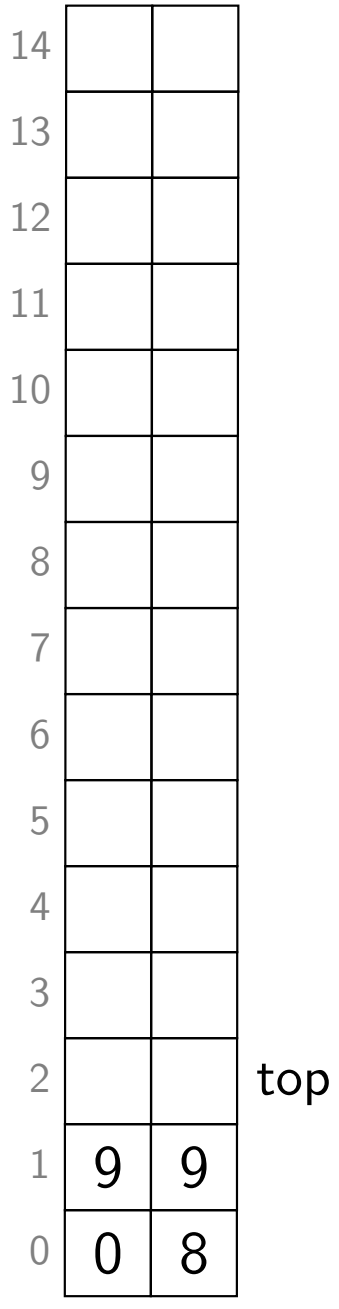

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a,b,p

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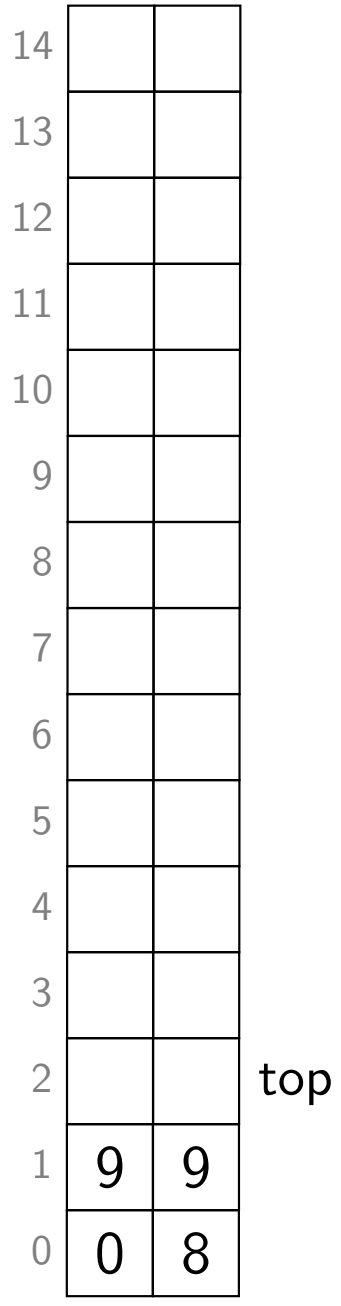

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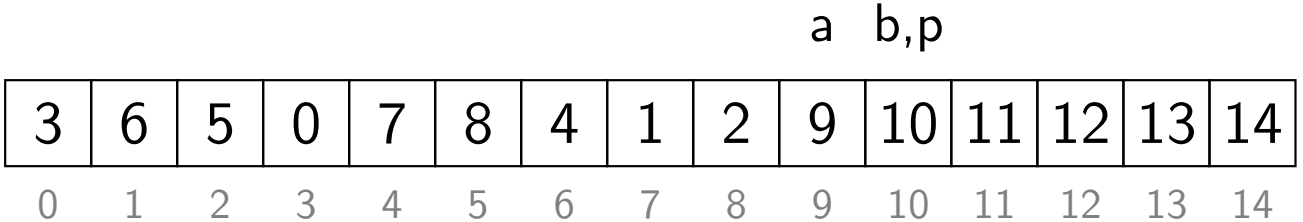


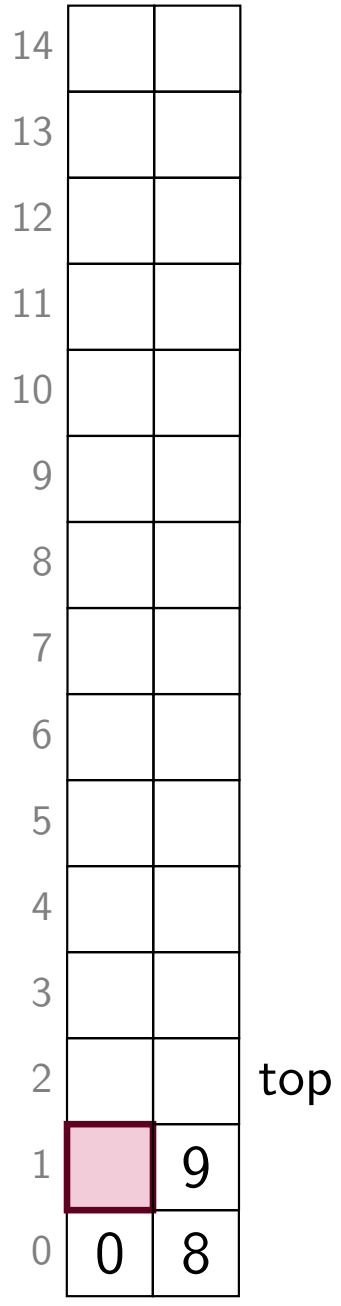

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a,b p

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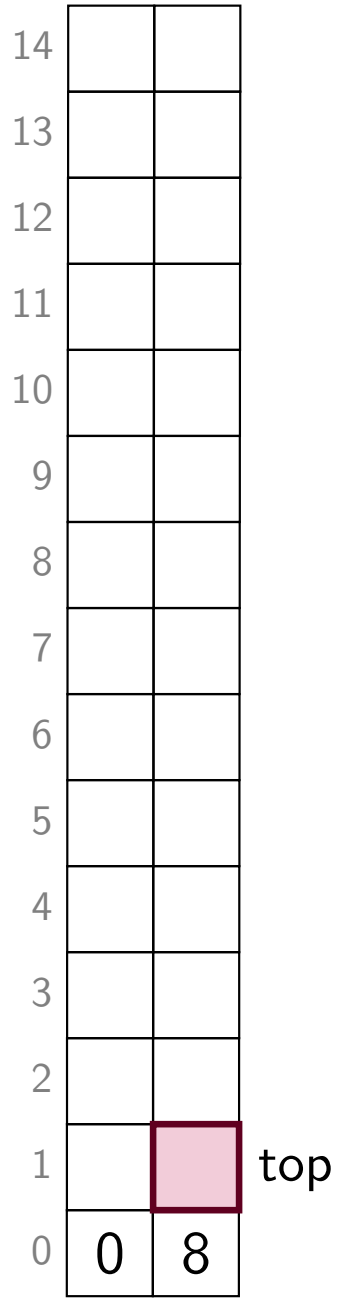

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a,b p

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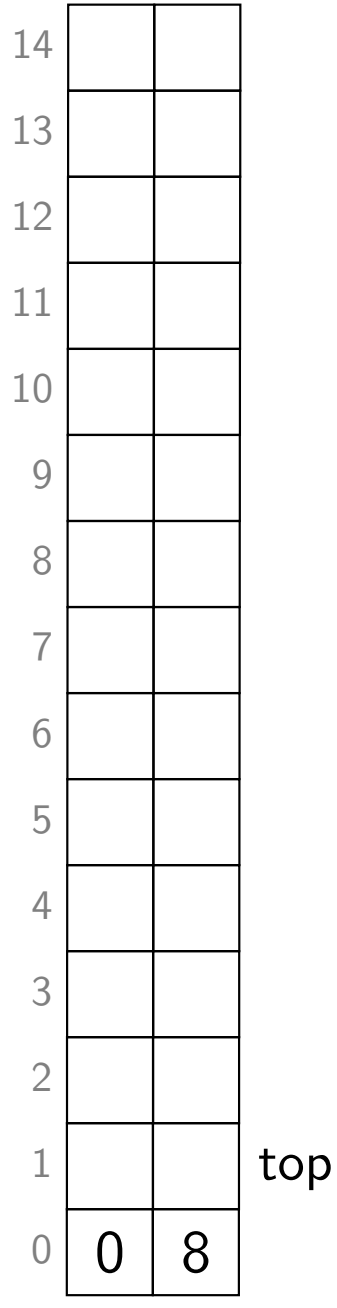

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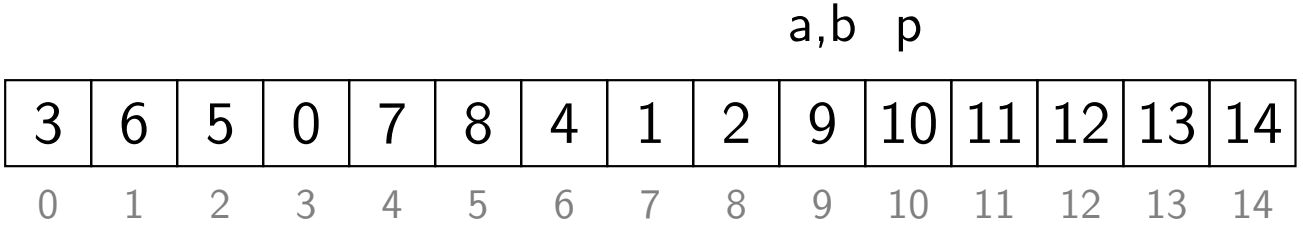


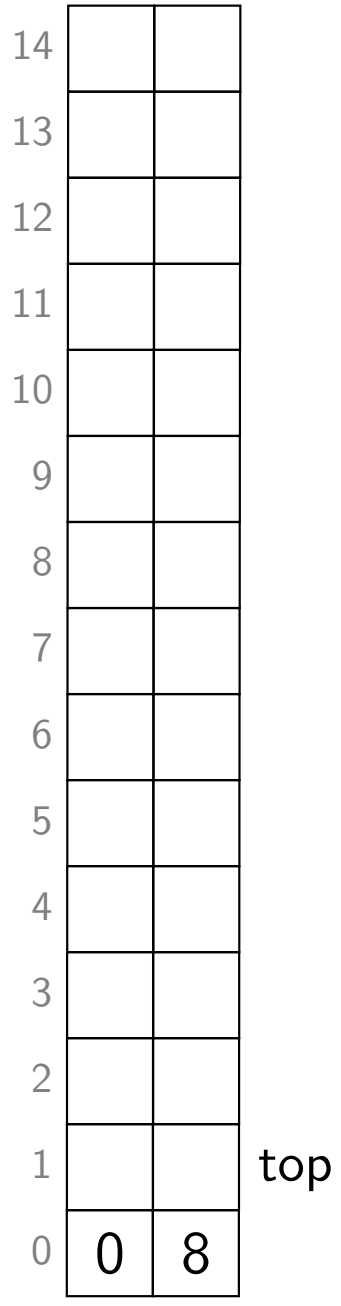

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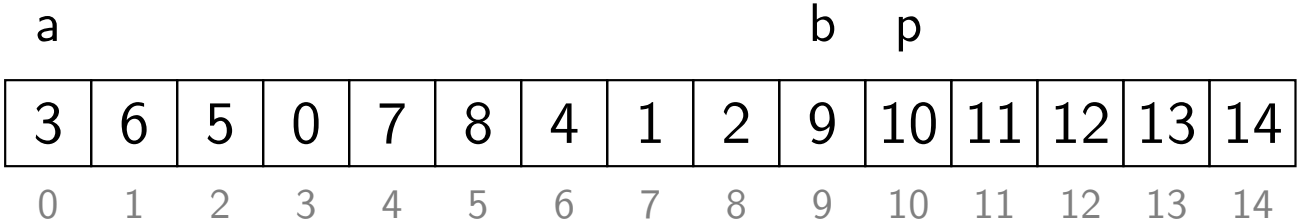


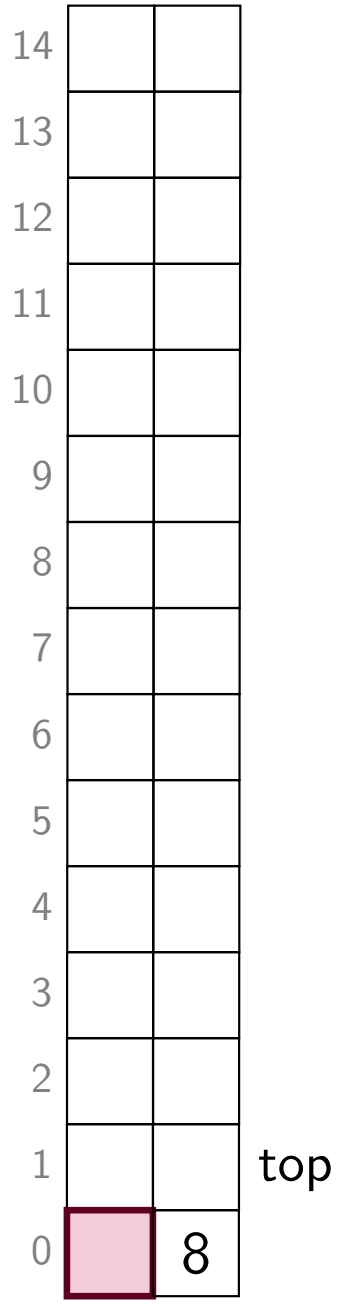

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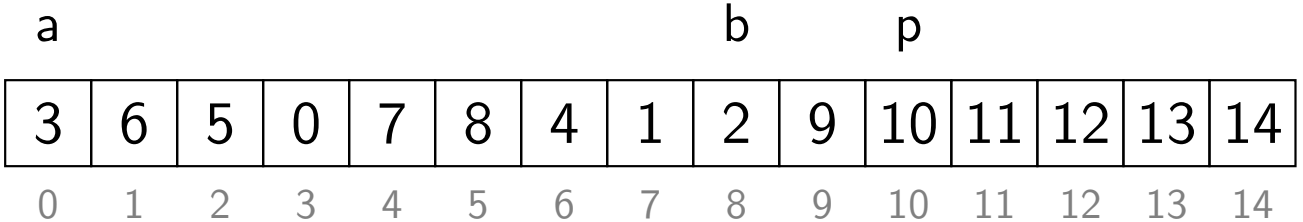


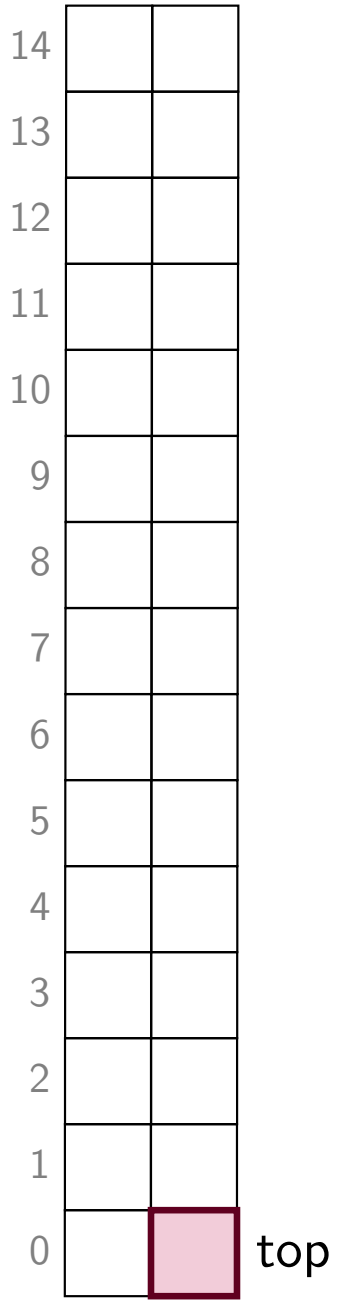

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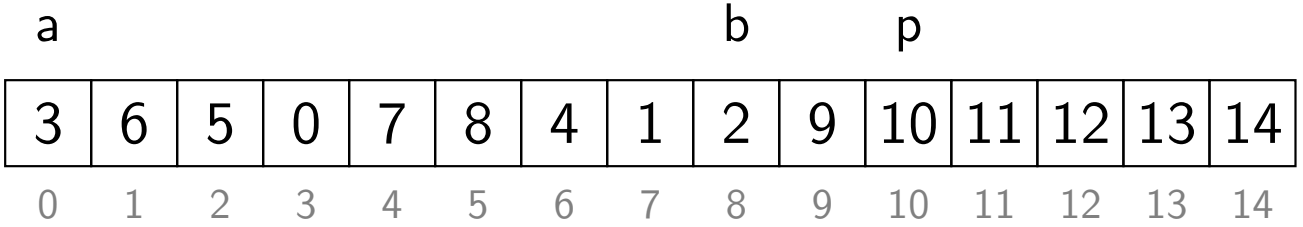


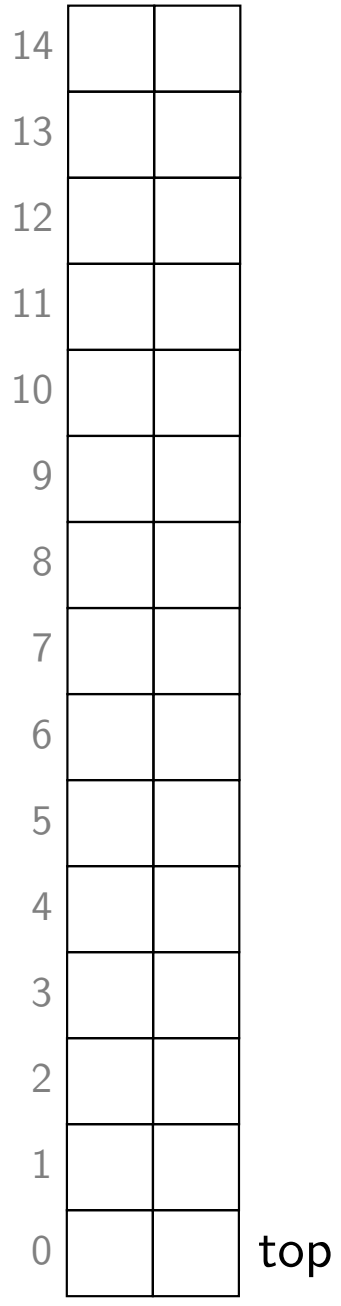

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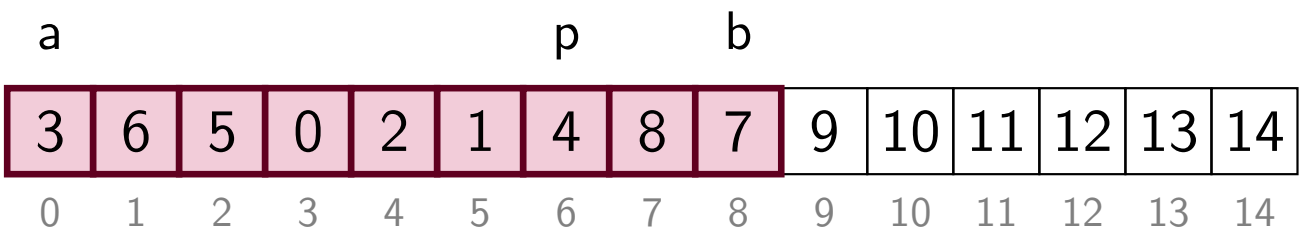


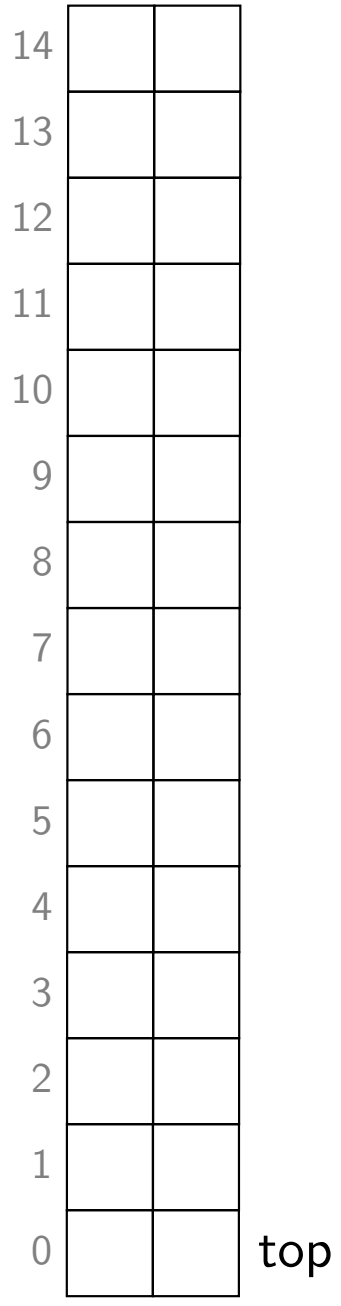

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  Stack last = stackNew(t.len);
  stackPush(&first, 0);
  stackPush(&last, t.len-1);
  while (!stackEmpty(first)) {
    a = stackPop(&first);
    b = stackPop(&last);
    if (a < b) {
      p = a + partition(slice(t, a, b));
      stackPush(&first, a);
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
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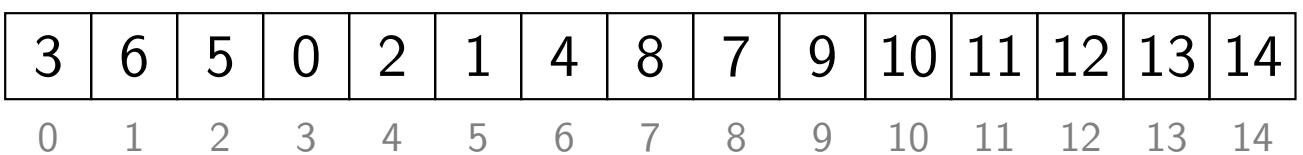


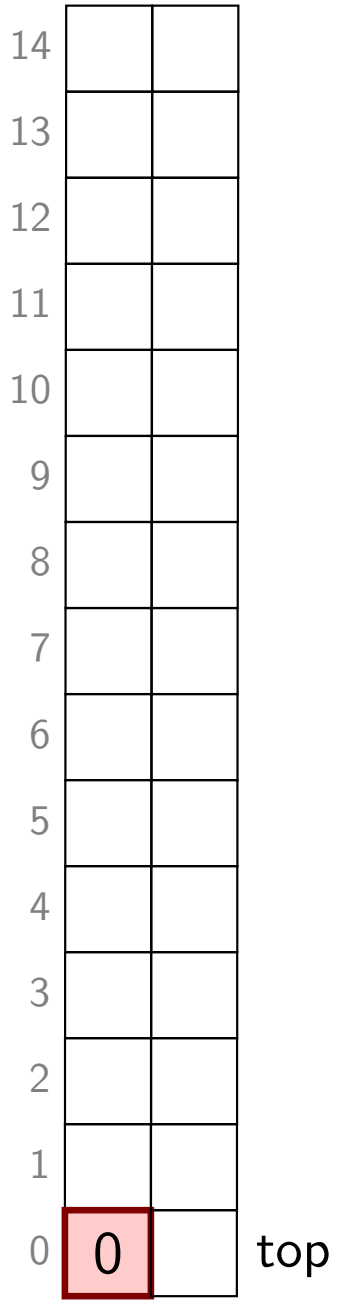

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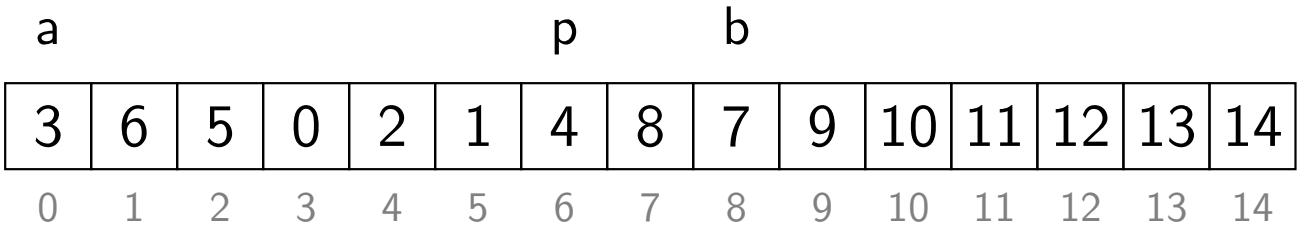


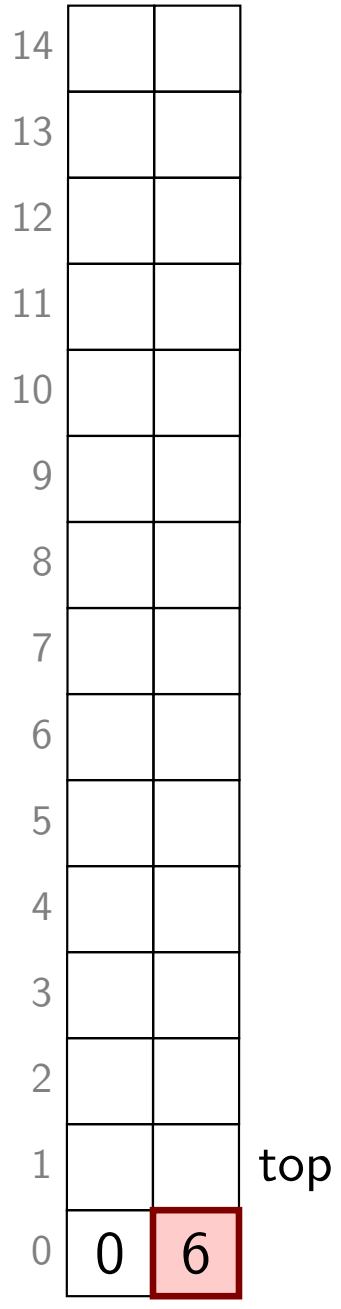

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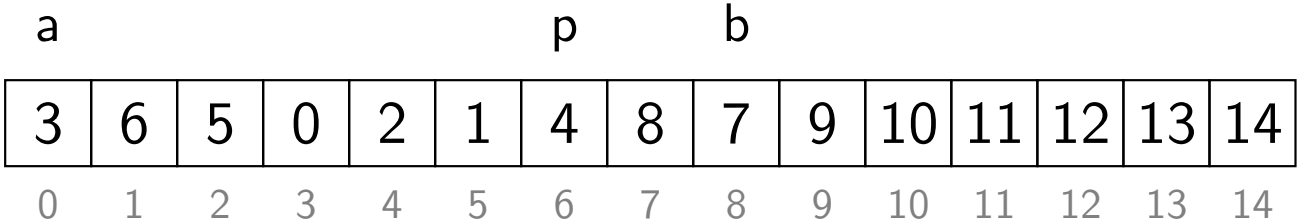


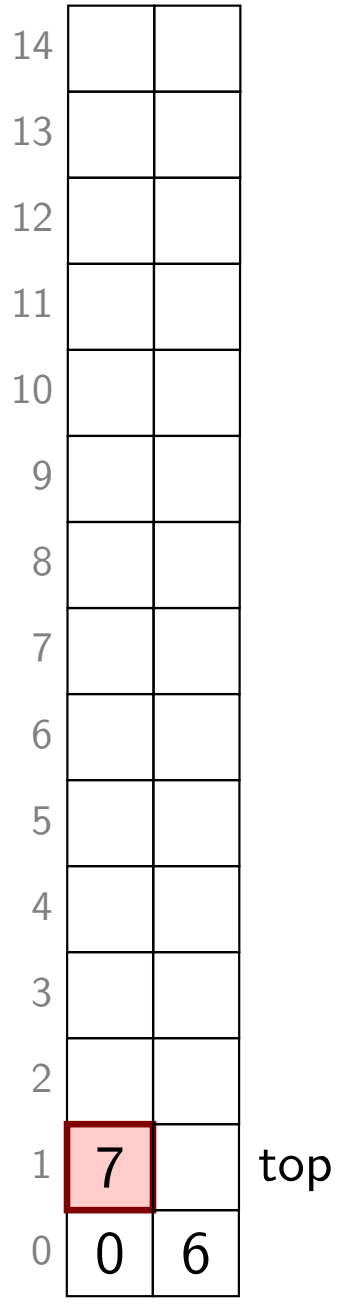

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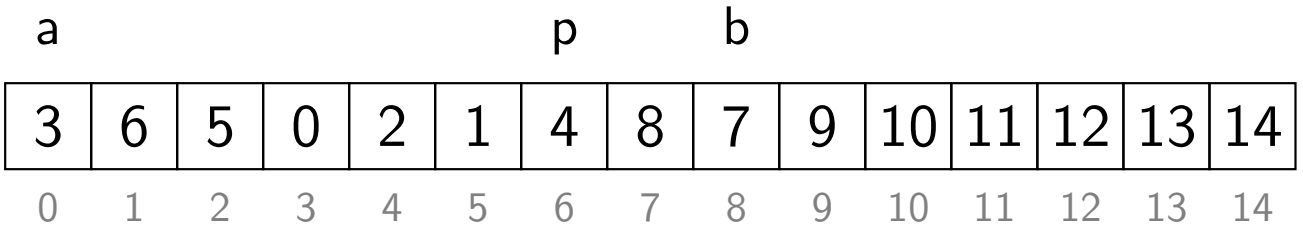


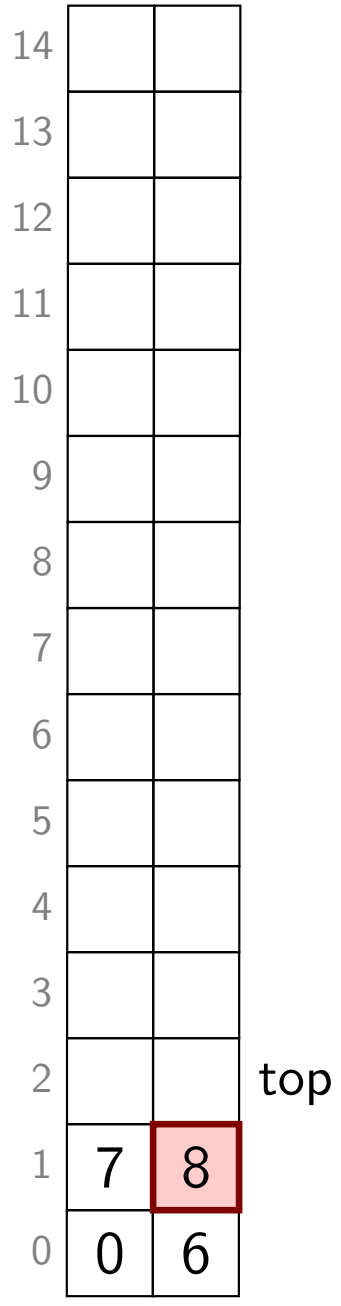

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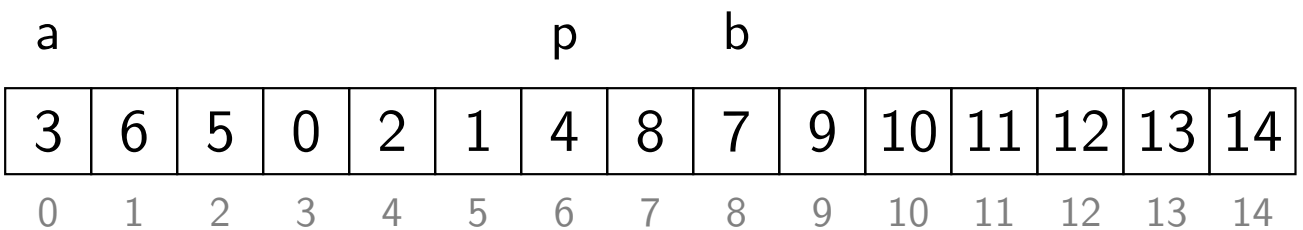


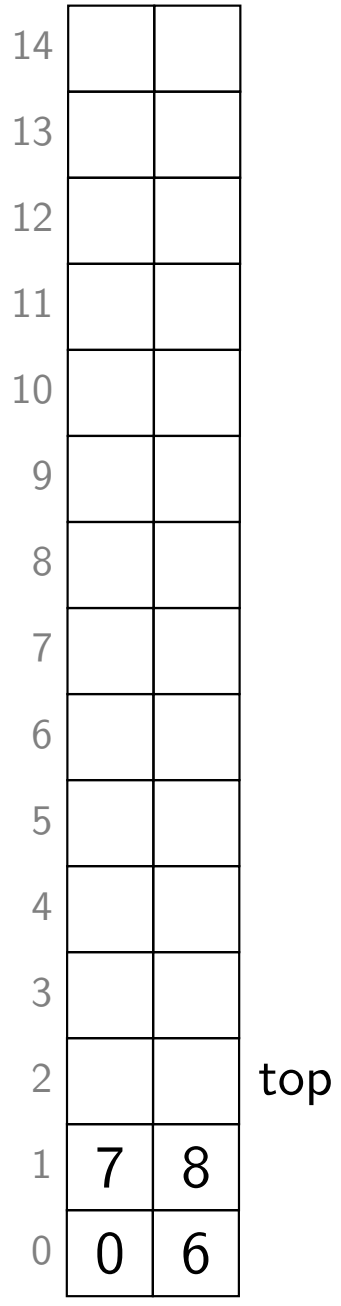

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      stackPush(&first, p+1);
      stackPush(&last, b);
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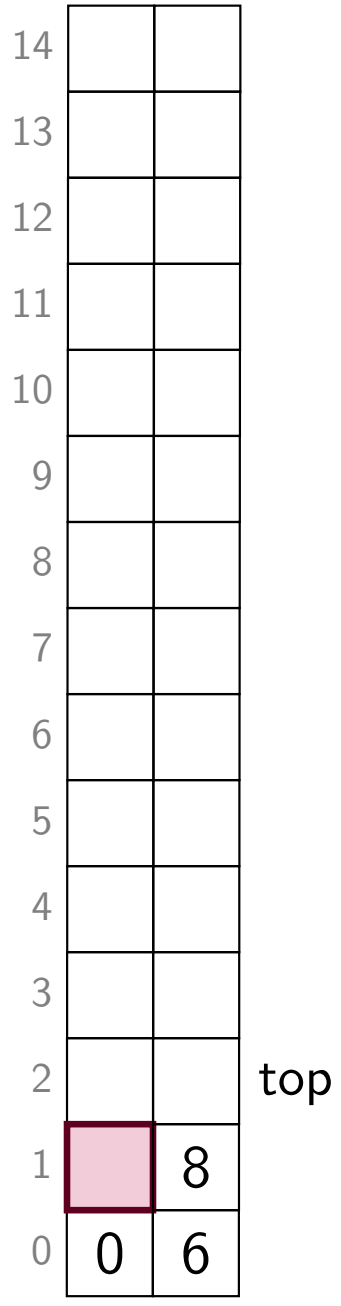
  }
}
```

p a b

| 3 | 6 | 5 | 0 | 2 | 1 | 4 | 8 | 7 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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p a b

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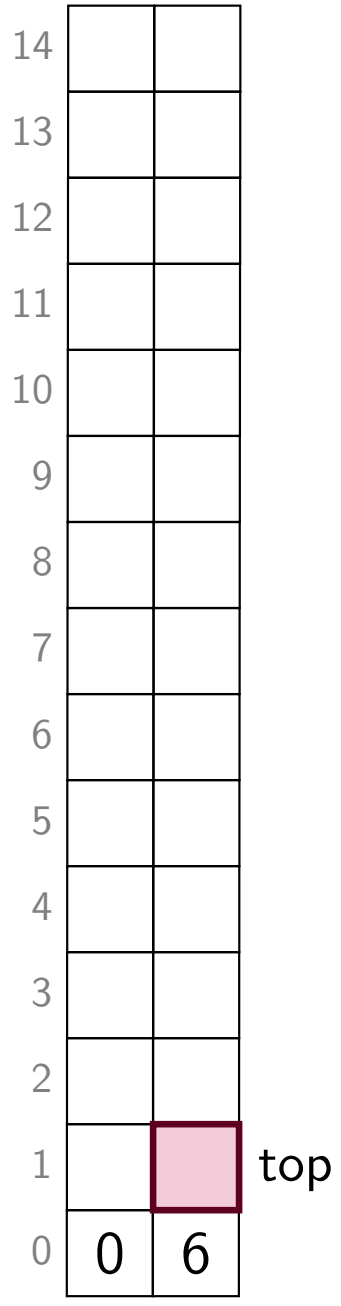

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p a b

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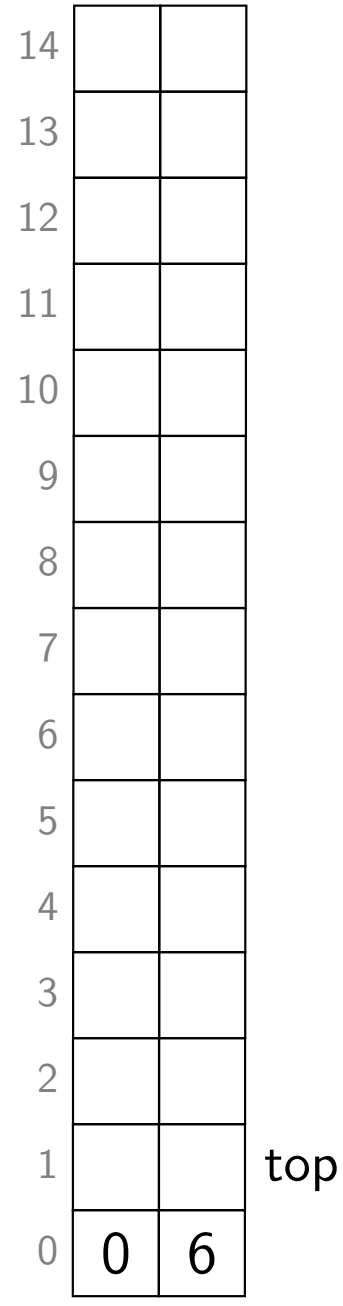

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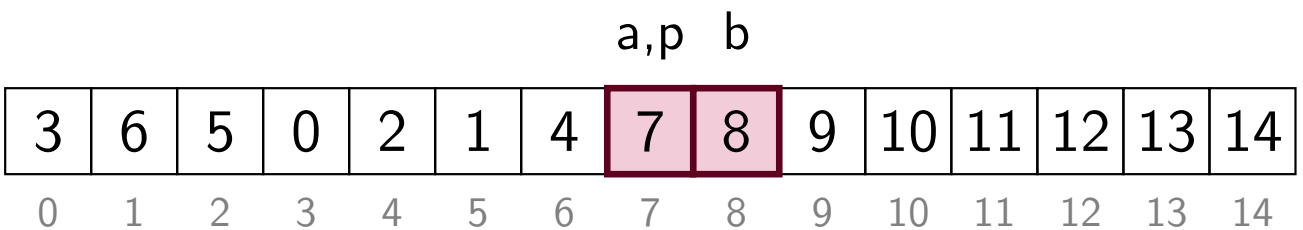


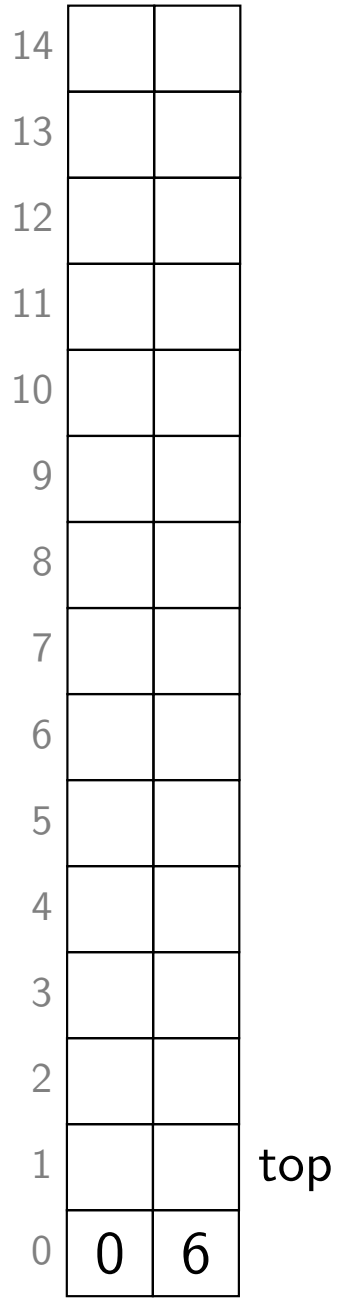

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a,p b

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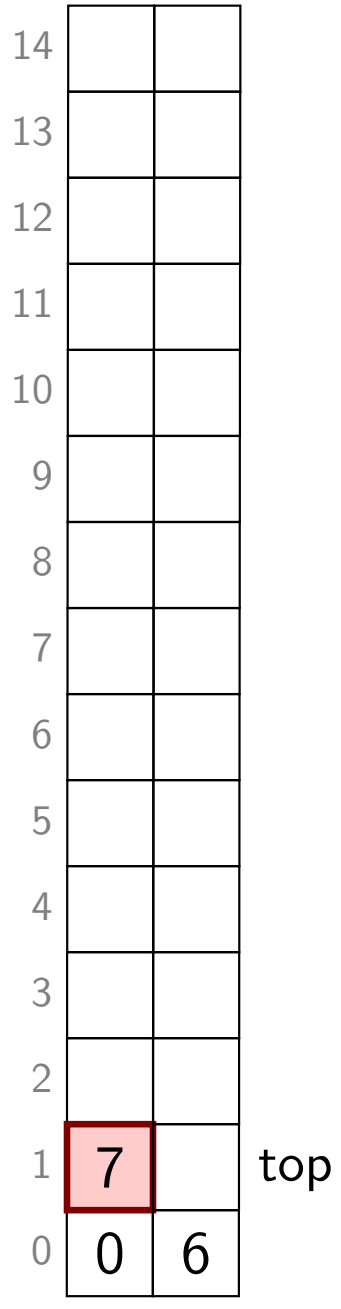
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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a,p b

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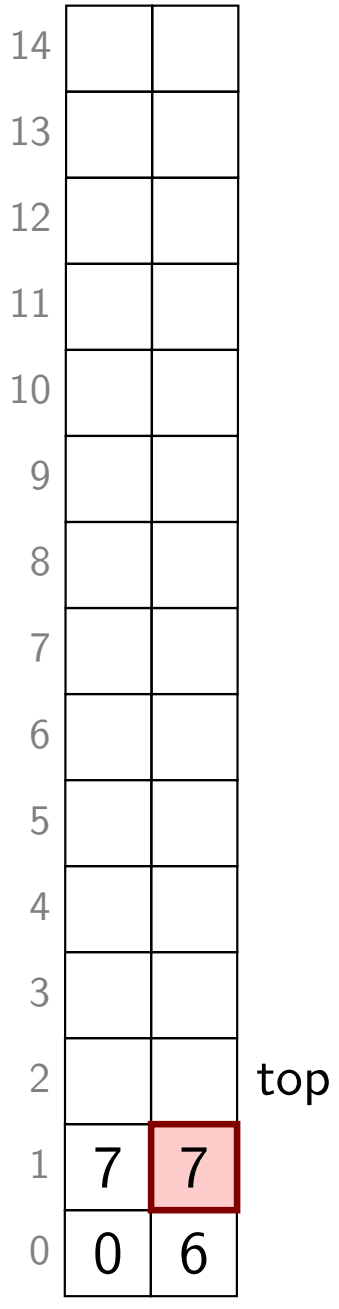

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a,p b

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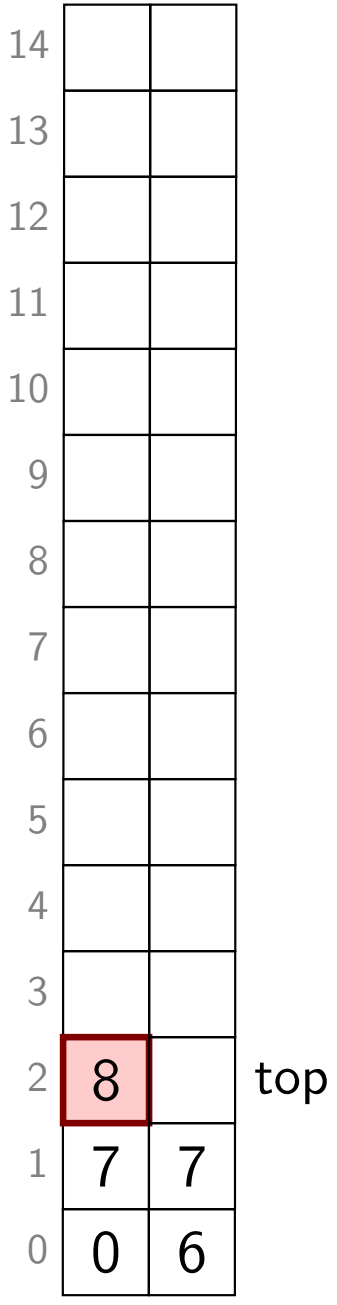

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a,p b

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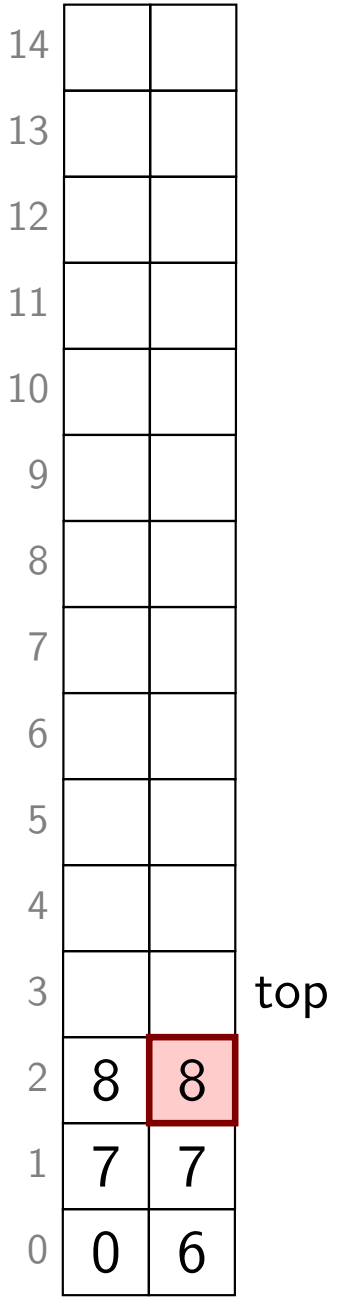

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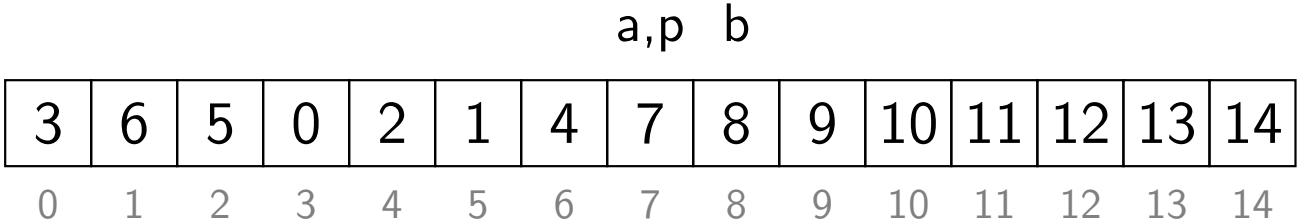


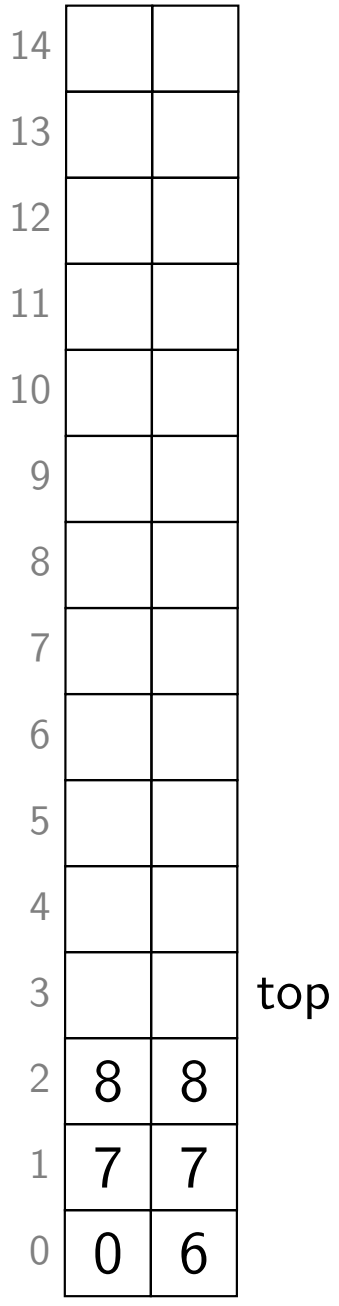

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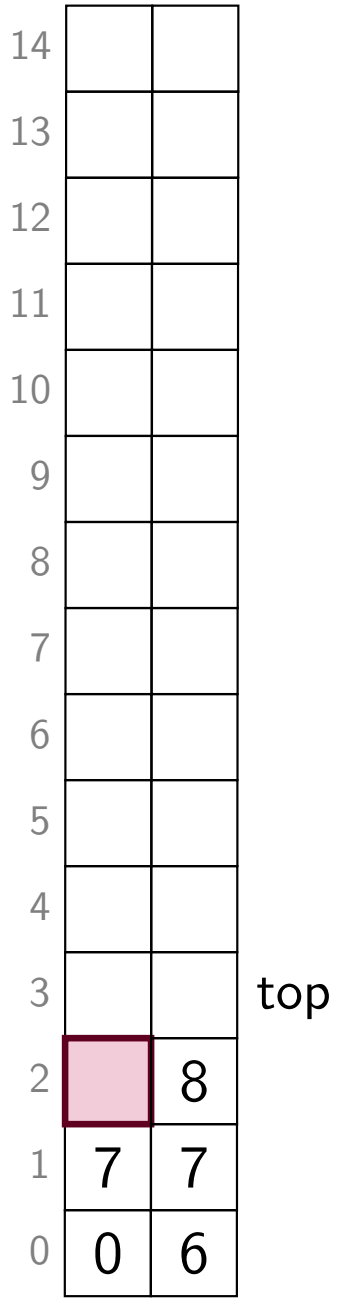
p a,b

| 3 | 6 | 5 | 0 | 2 | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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p a,b

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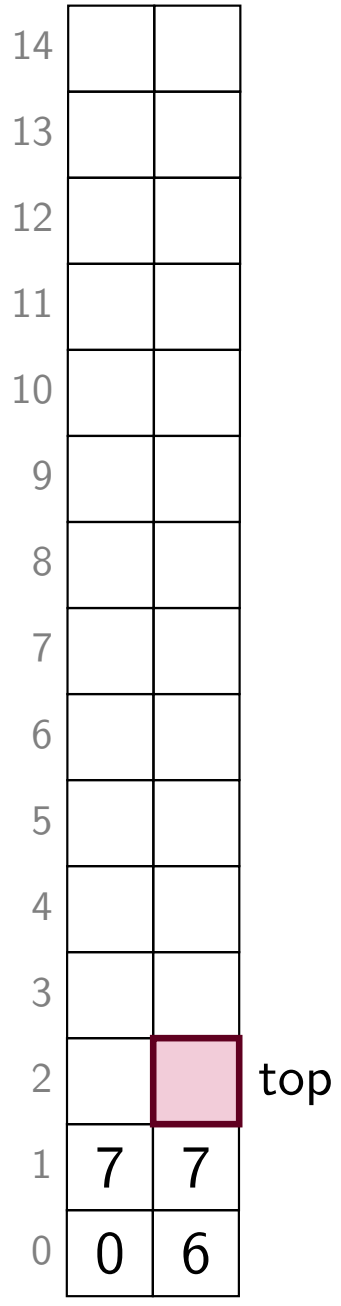
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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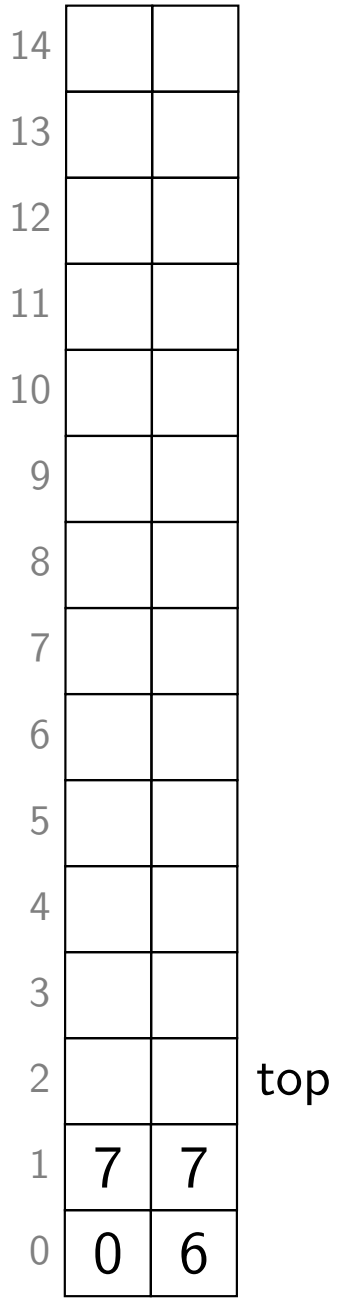
p a,b

| 3 | 6 | 5 | 0 | 2 | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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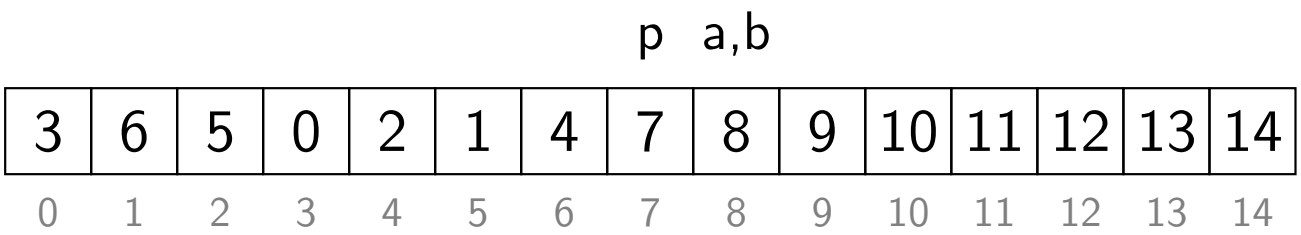


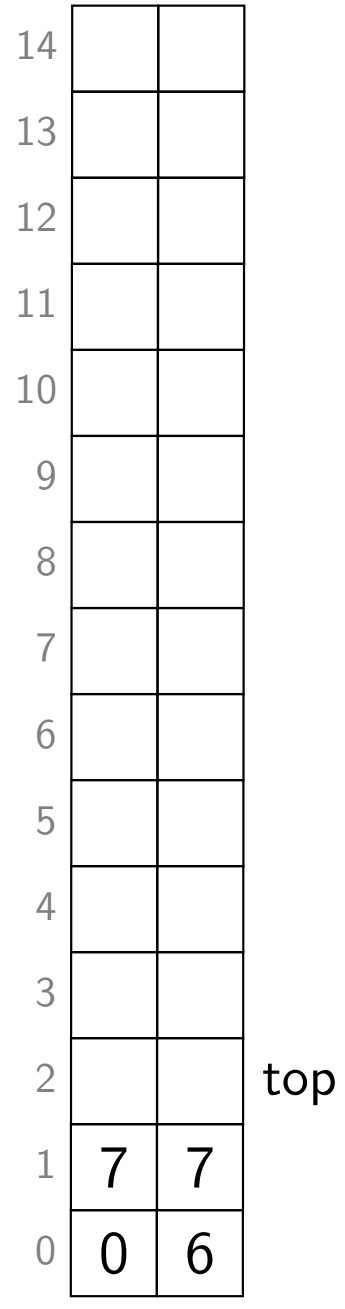

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      stackPush(&first, a);
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```
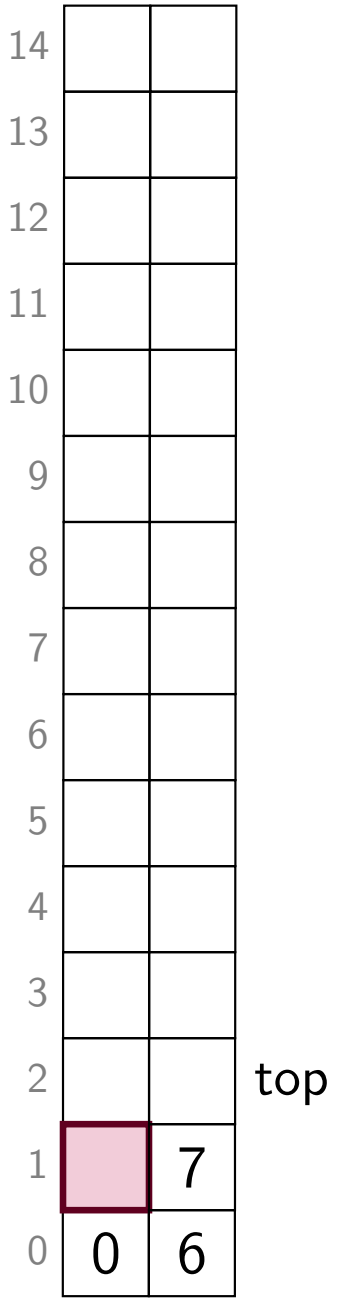

a,p b

| 3 | 6 | 5 | 0 | 2 | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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void sort (Tab t) {
  uint p, a, b;
  Stack first = stackNew(t.len);
  Stack last = stackNew(t.len);
  stackPush(&first, 0);
  stackPush(&last, t.len-1);
  while (!stackEmpty(first)) {
    a = stackPop(&first);
    b = stackPop(&last);
    if (a < b) {
      p = a + partition(slice(t, a, b));
      stackPush(&first, a);
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
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a,b,p

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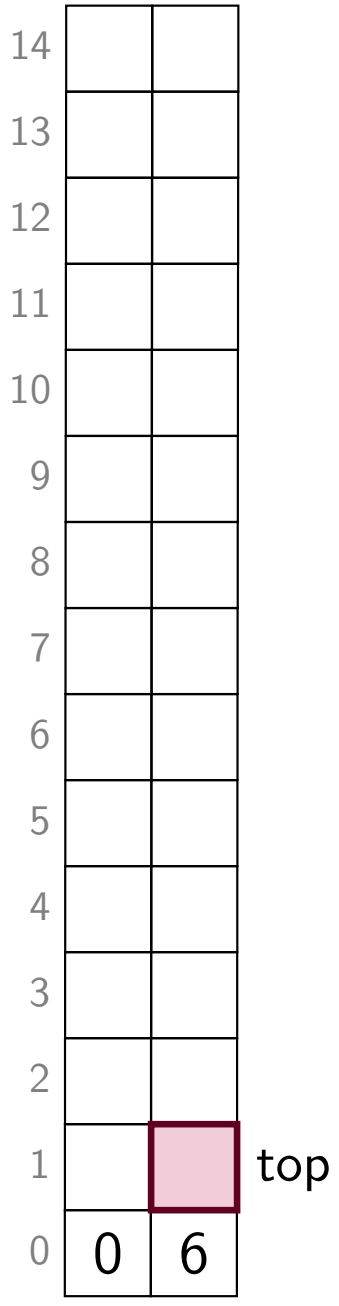
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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a,b,p

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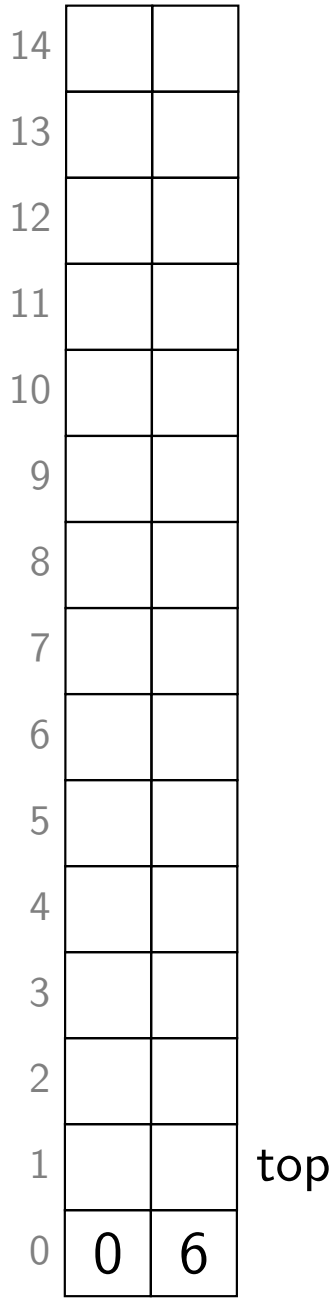
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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a,b,p

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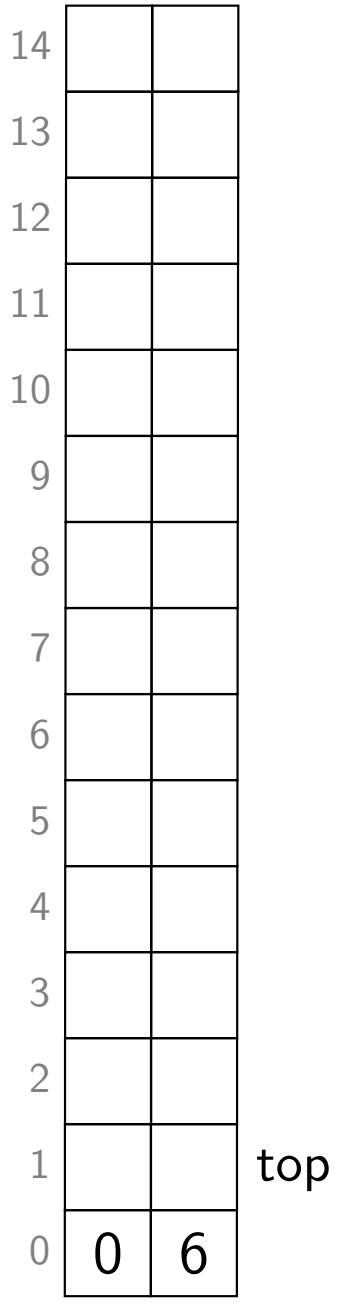
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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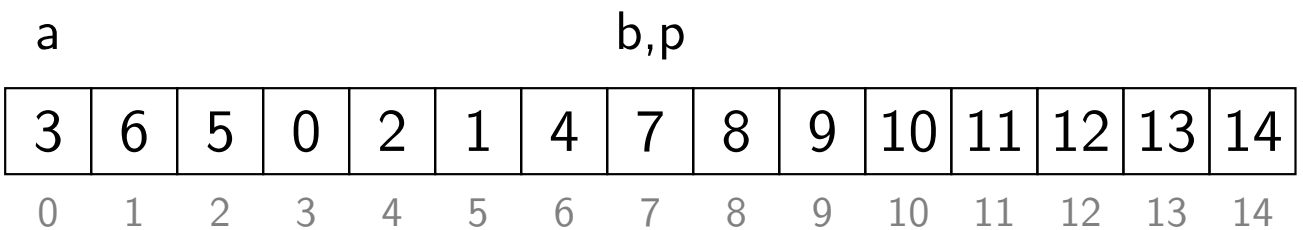


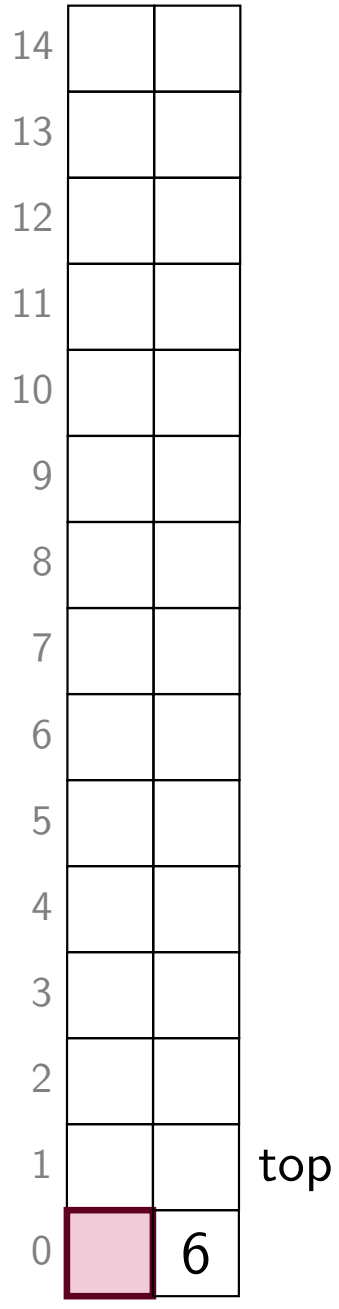

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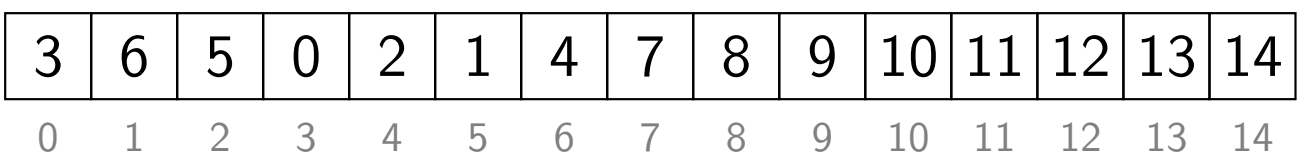


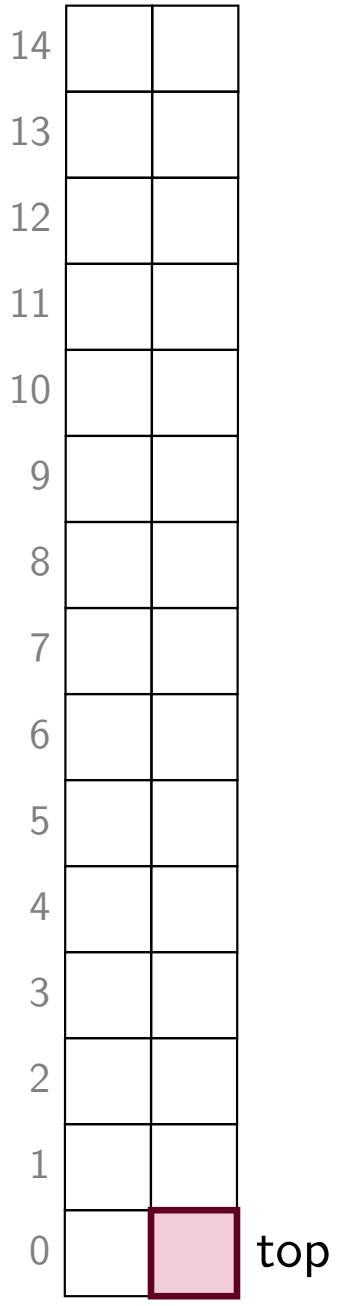

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```

a b p

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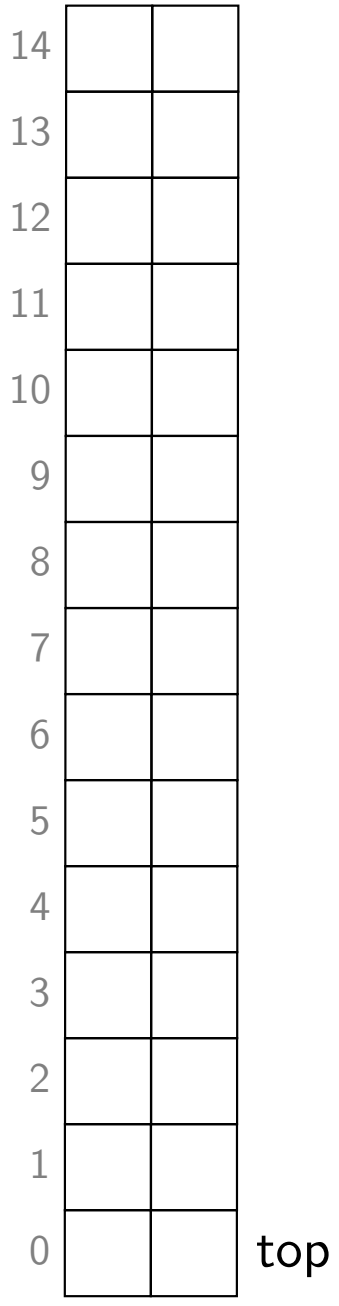
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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    }
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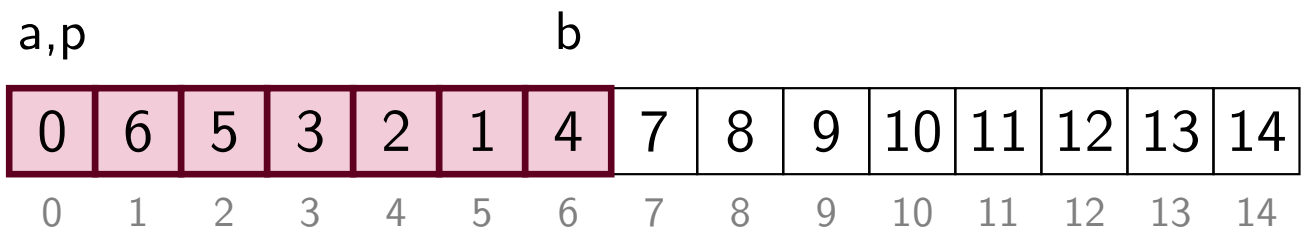


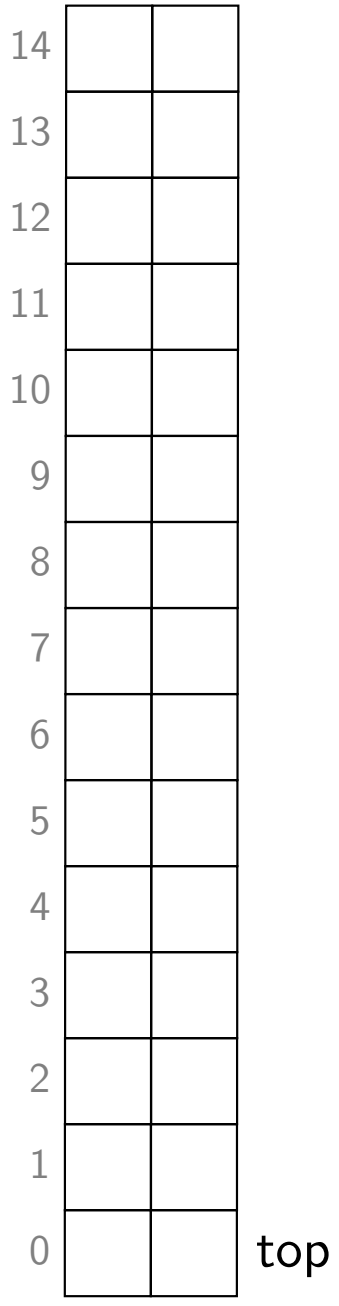

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a,p b

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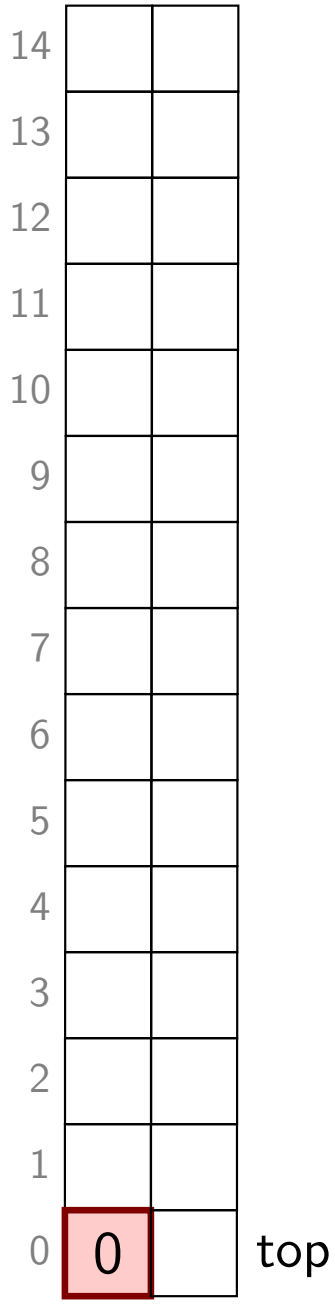
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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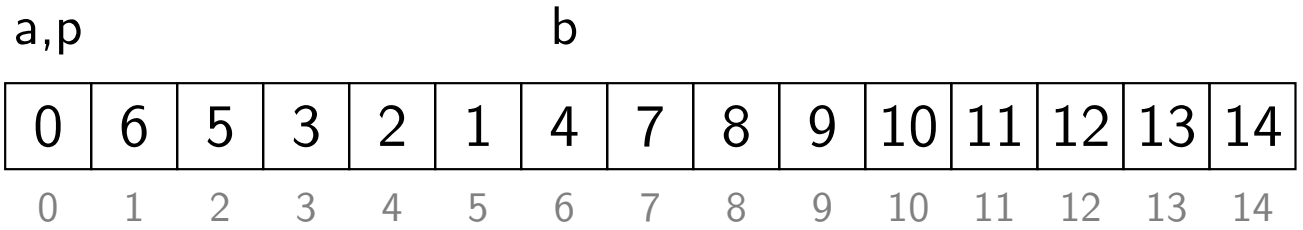


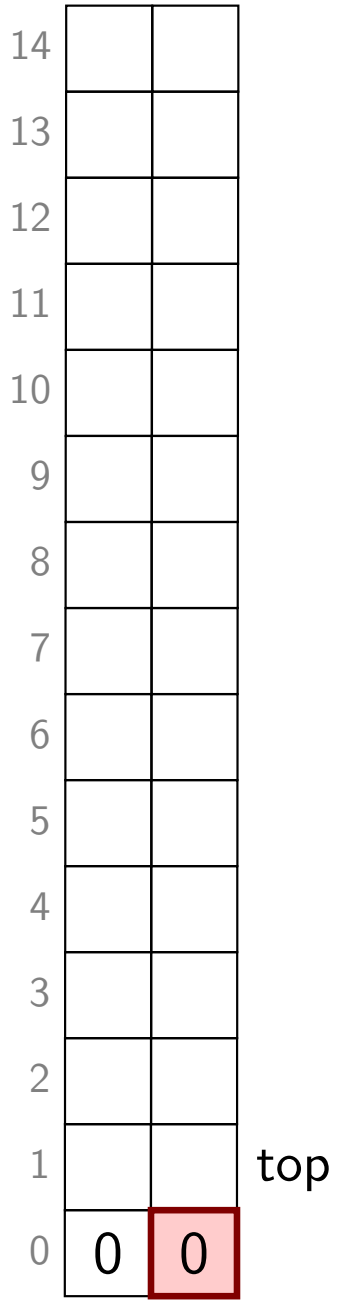

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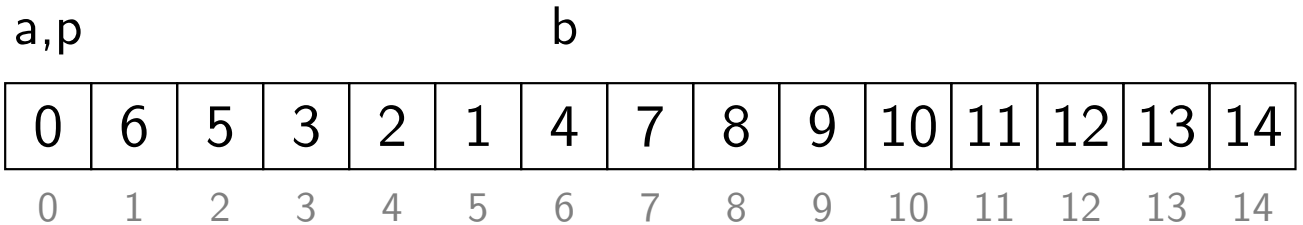


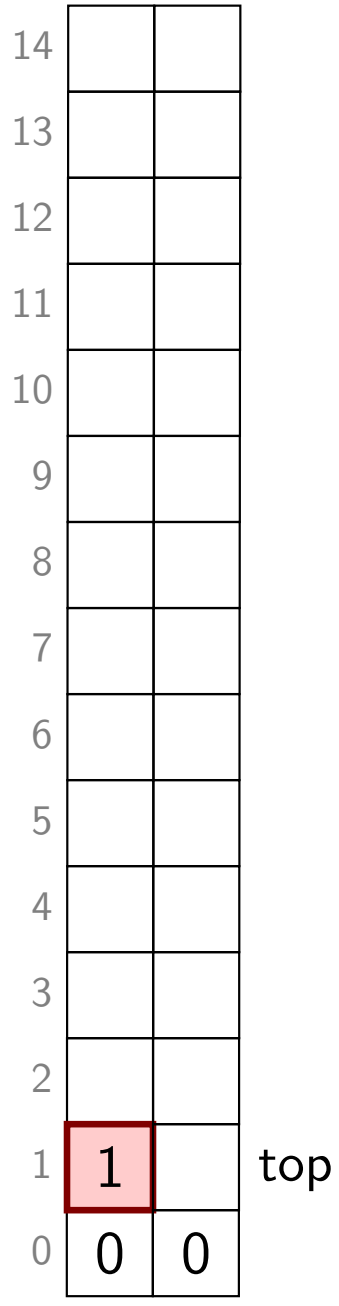

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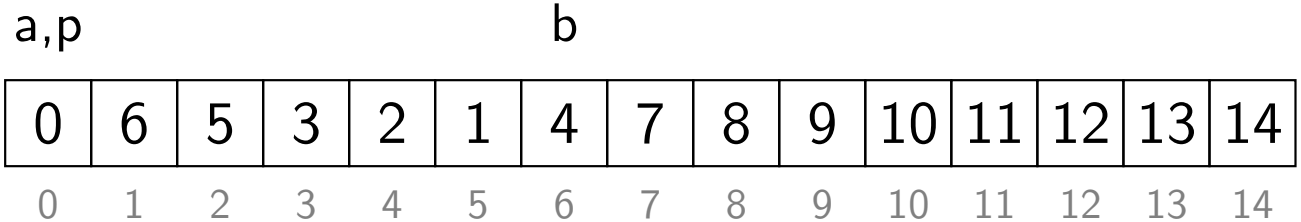


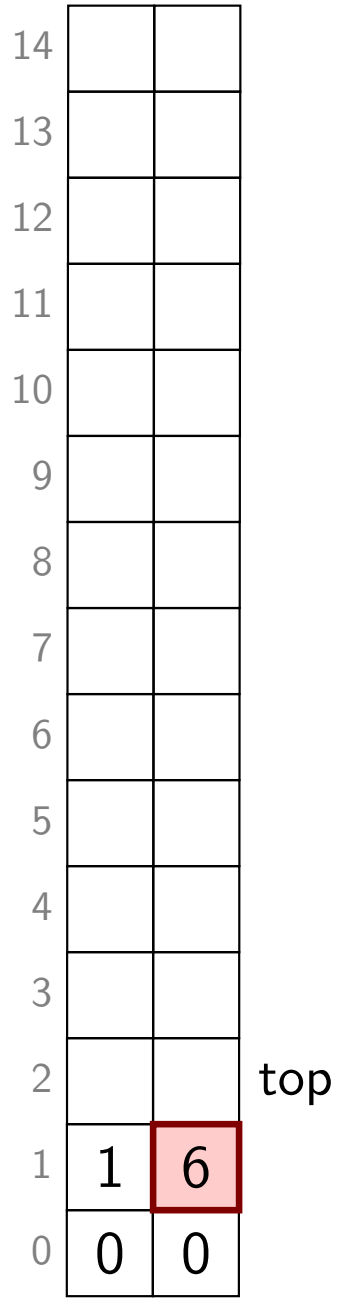

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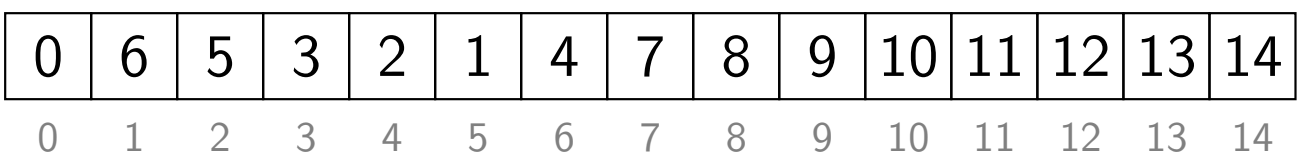


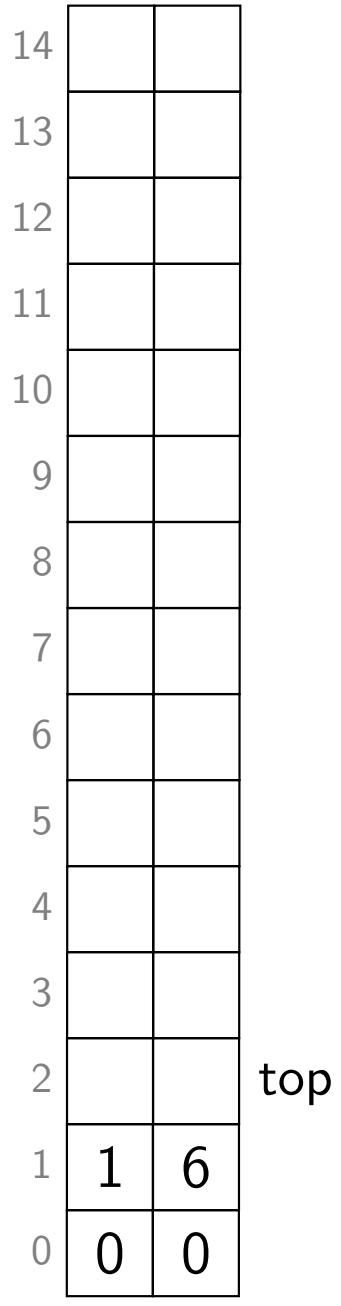

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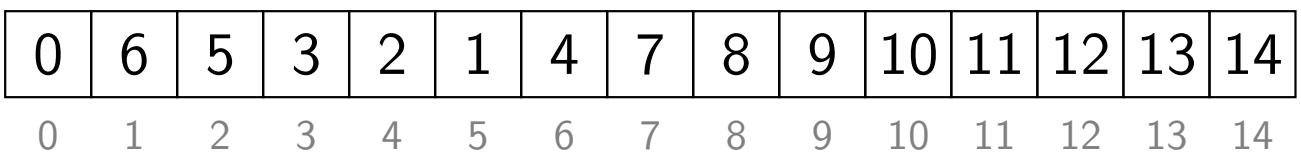


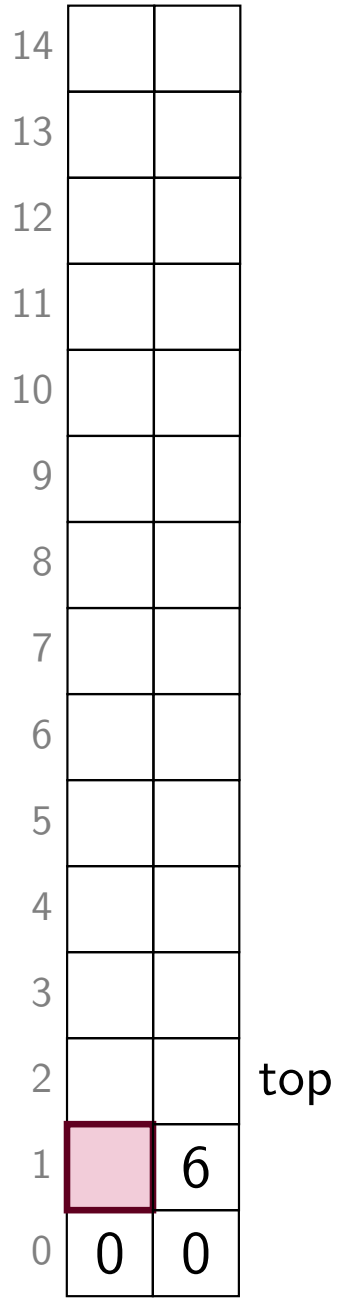

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```
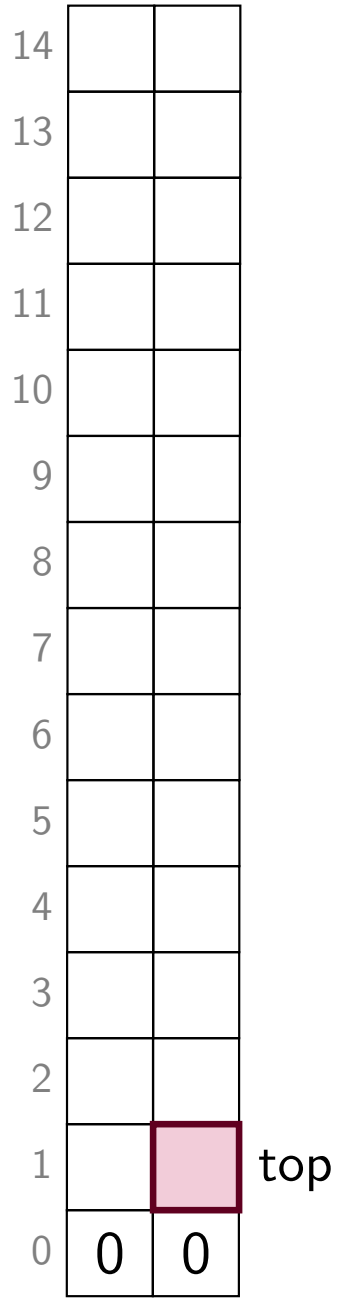

p a b

| 0 | 6 | 5 | 3 | 2 | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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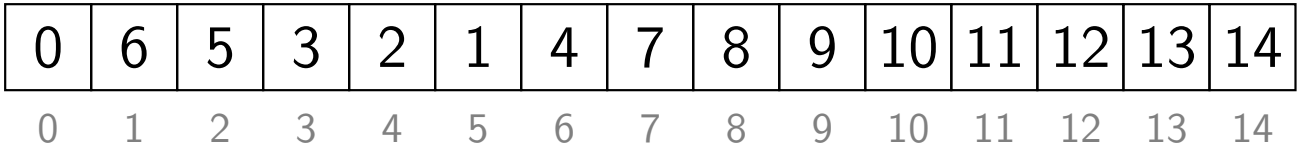


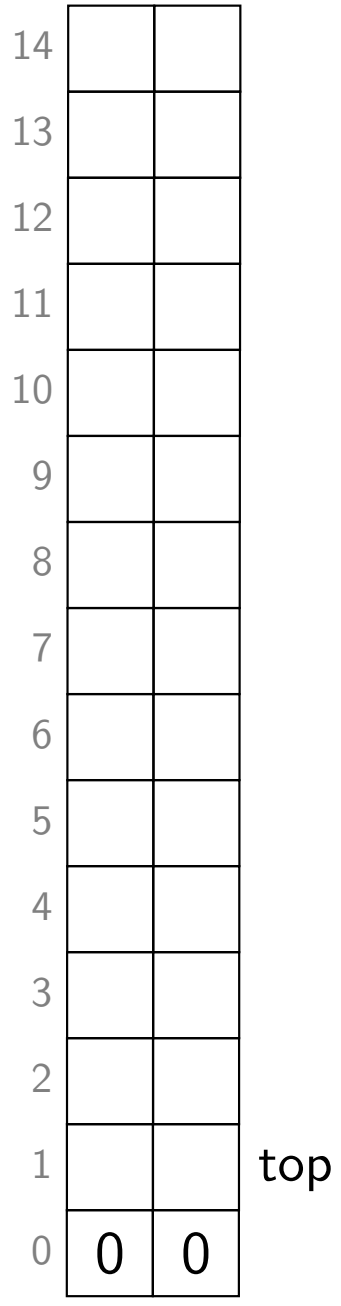

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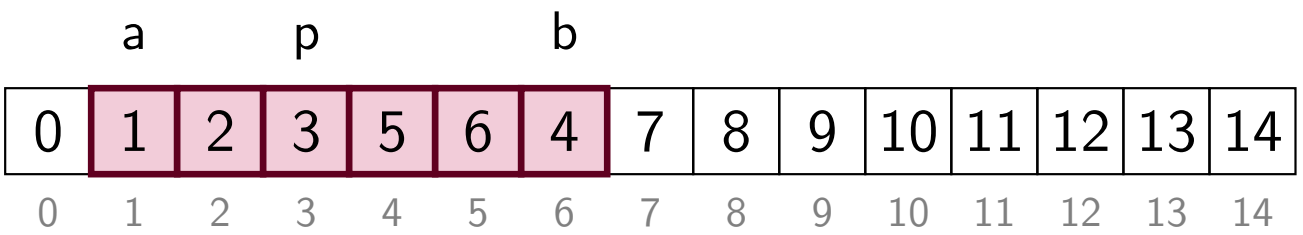


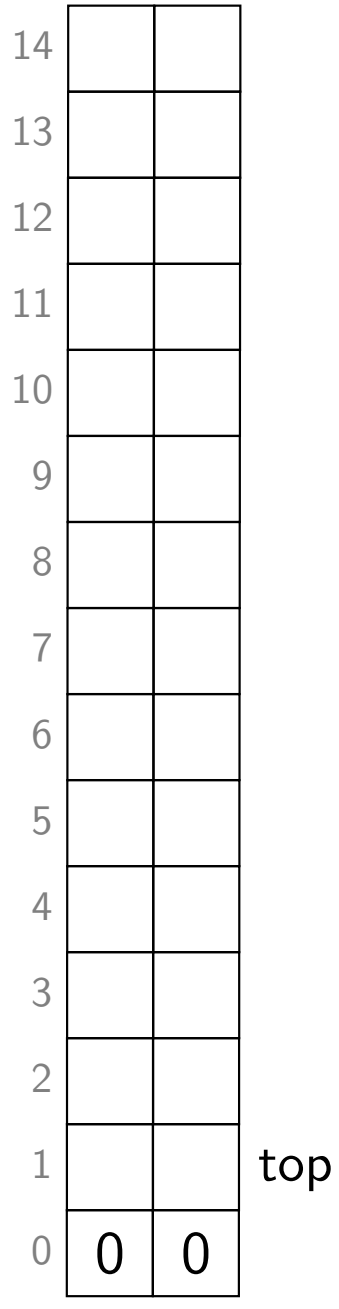

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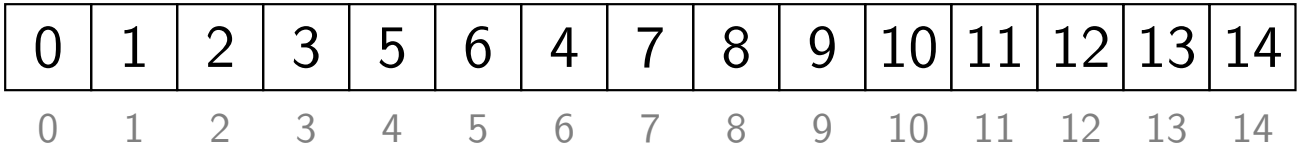


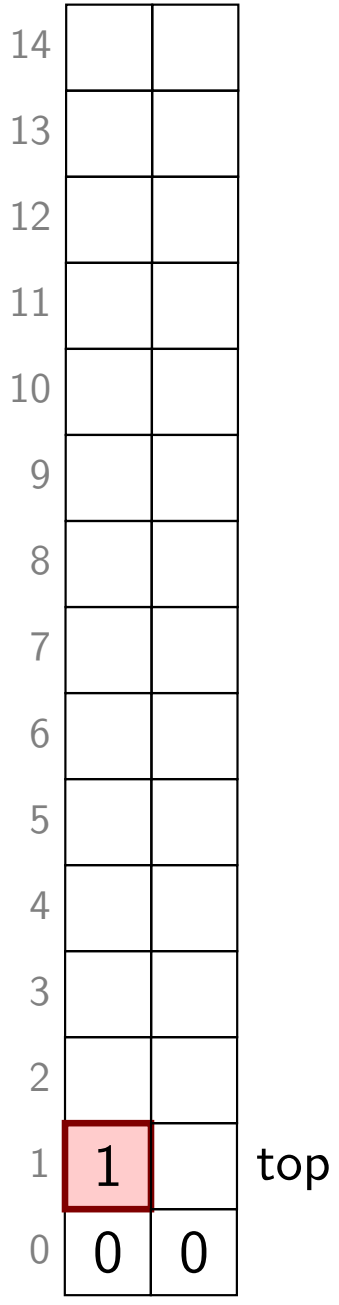

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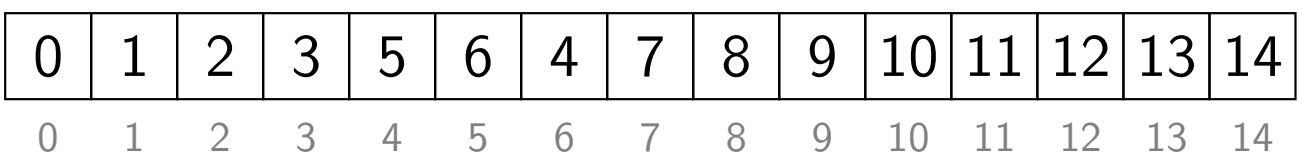


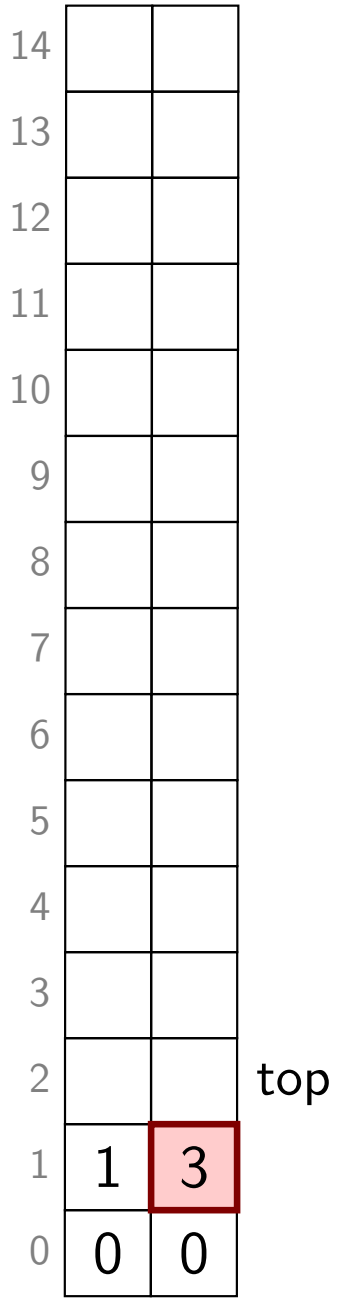

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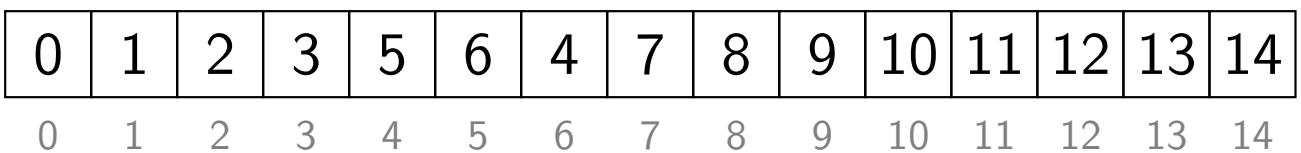


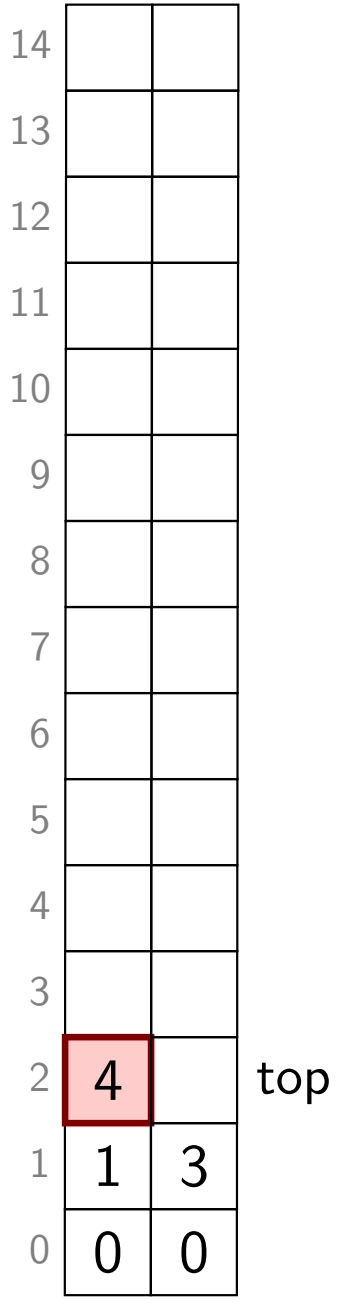

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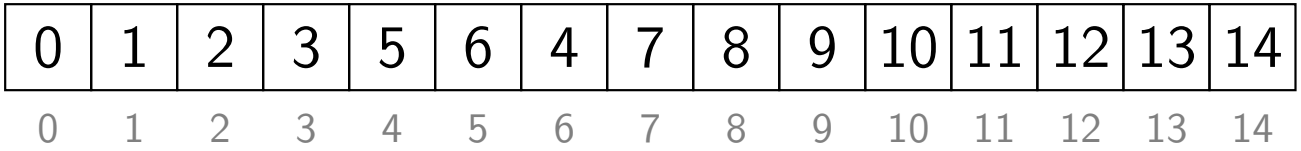


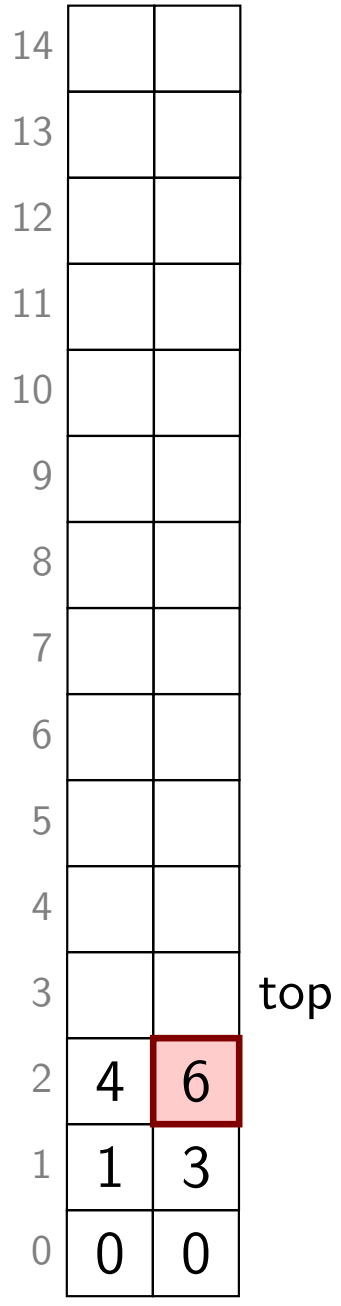

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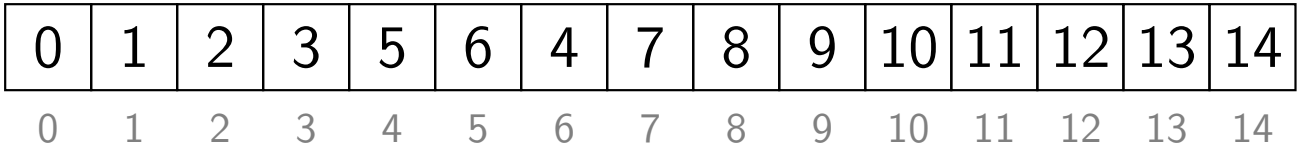


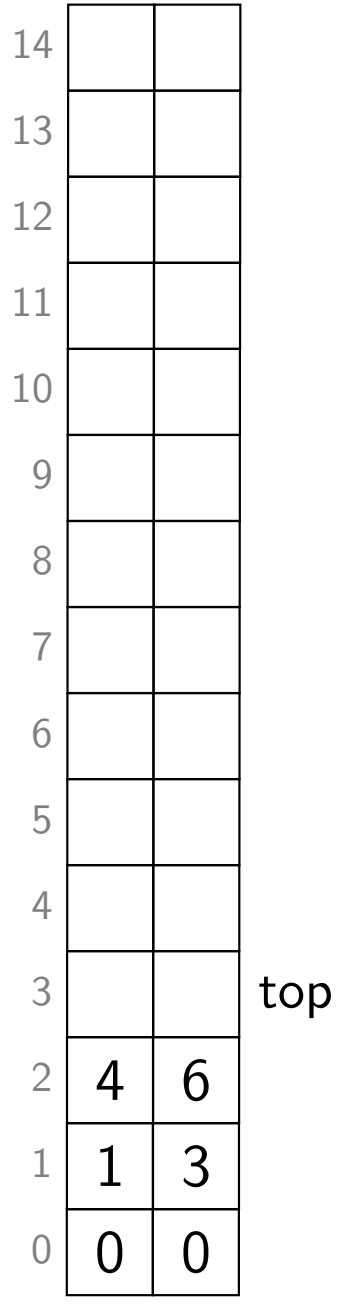

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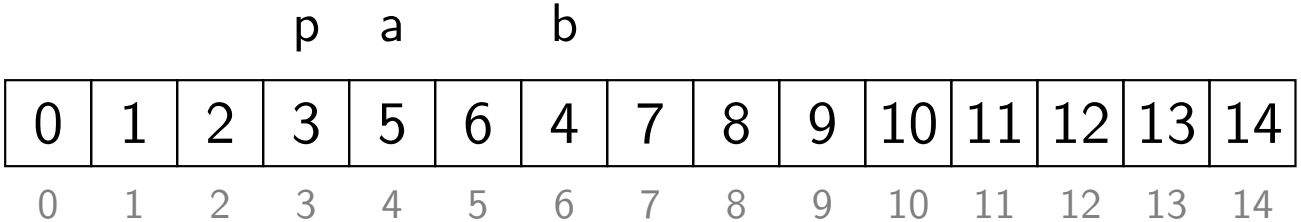


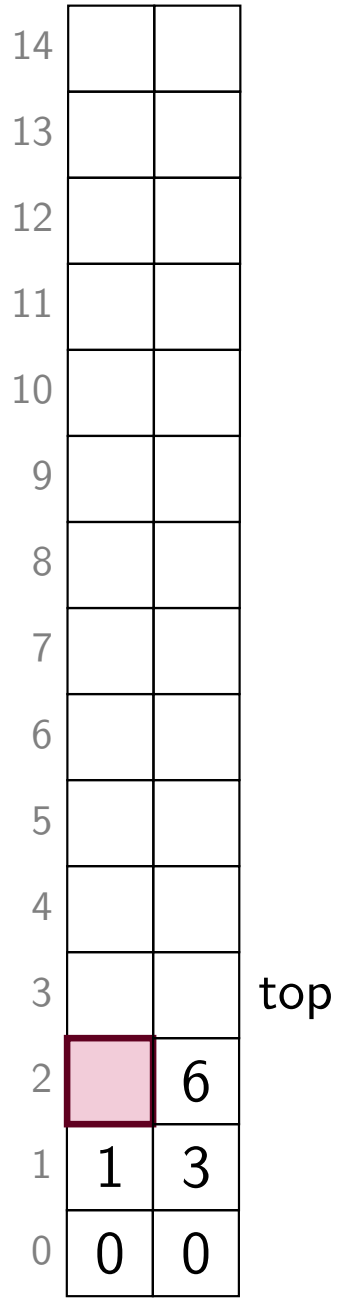

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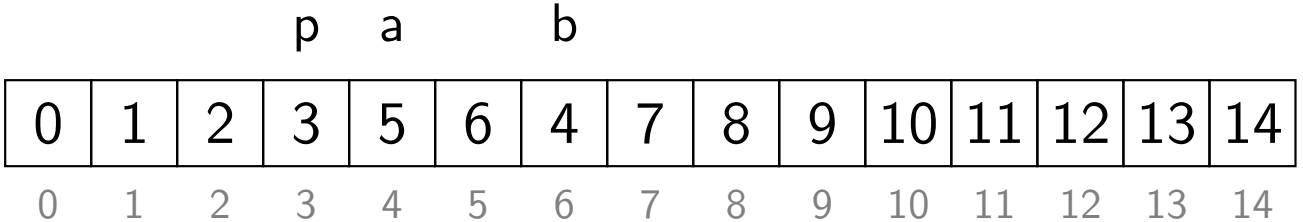


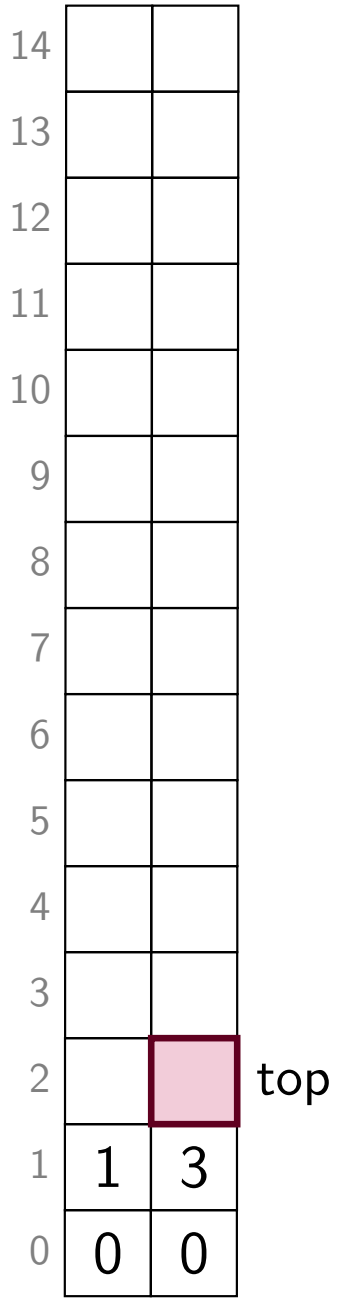

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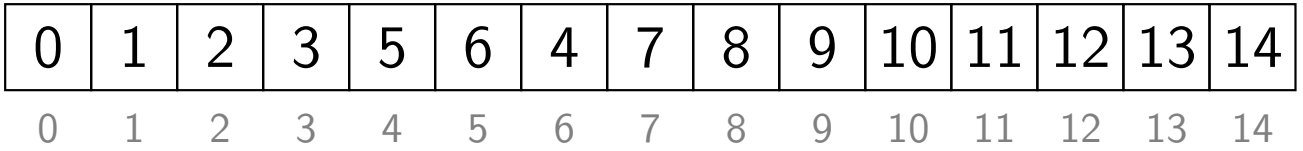


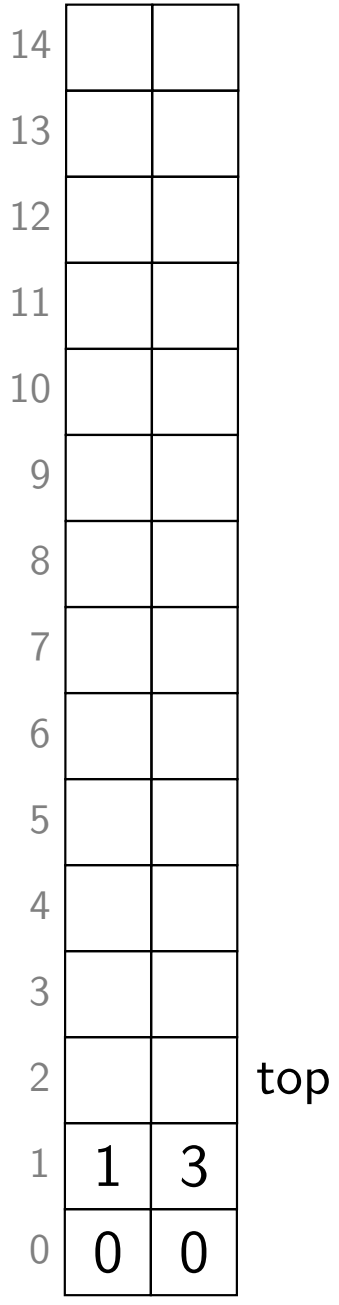

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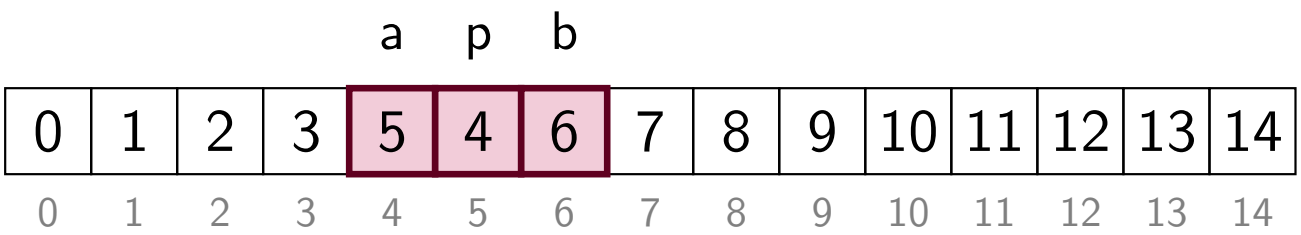


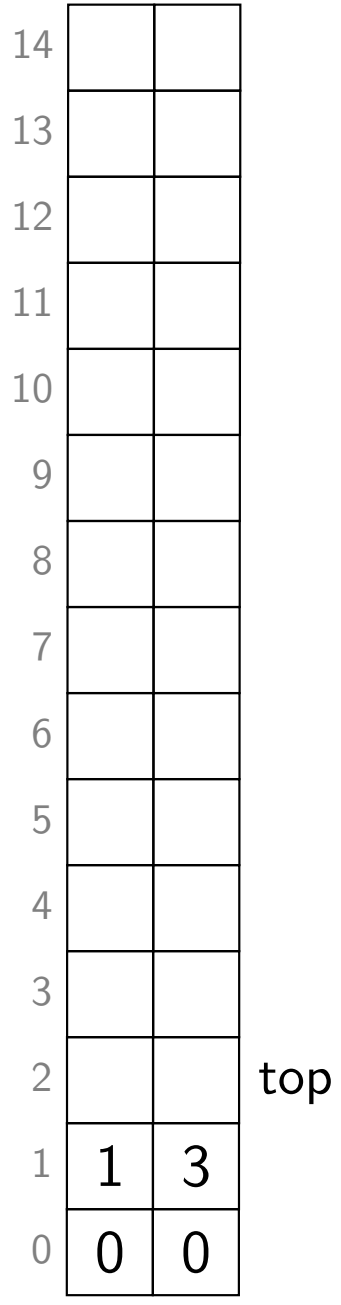

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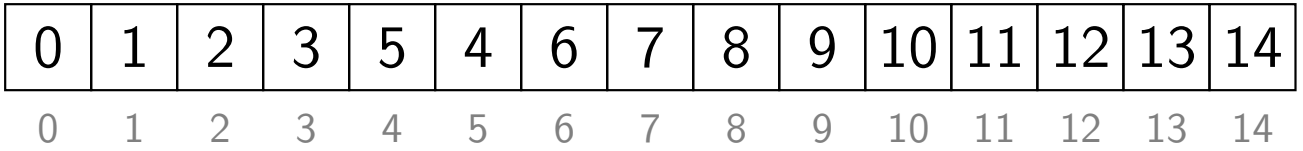


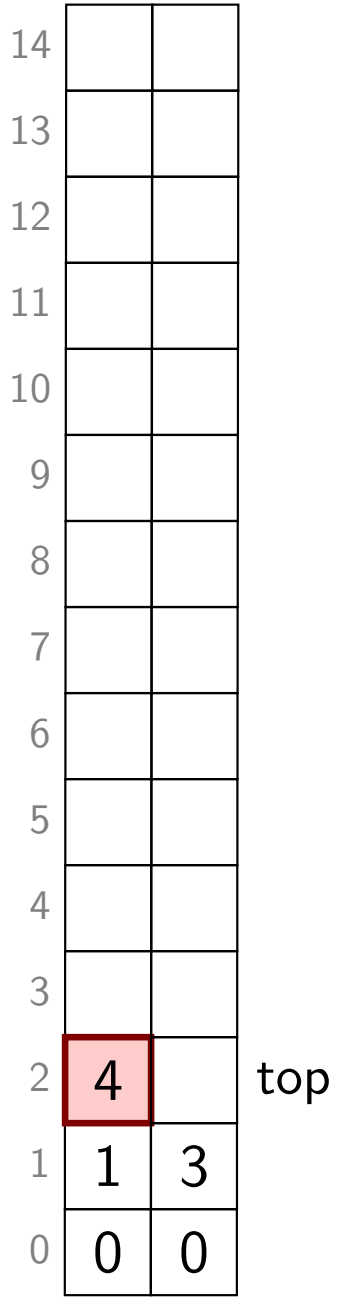

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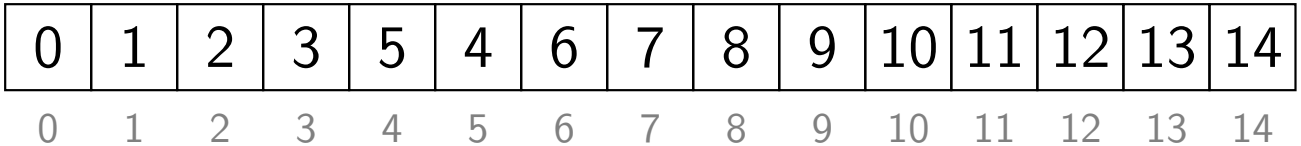


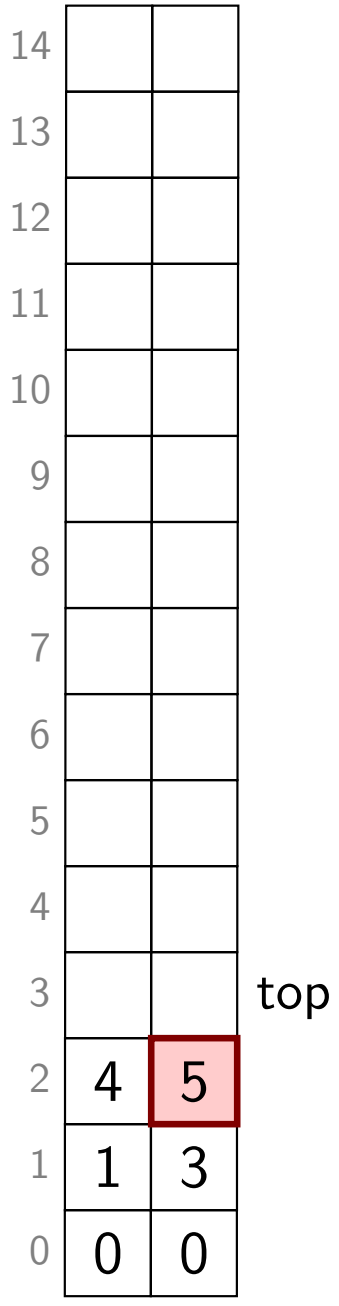

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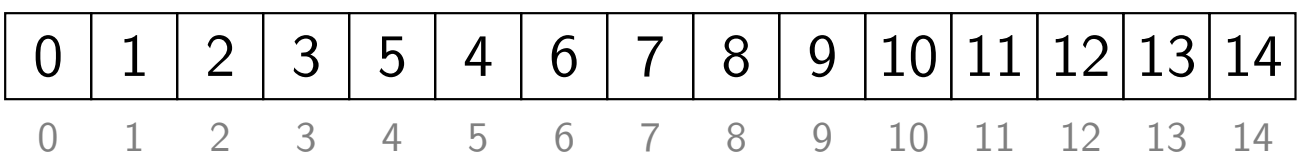


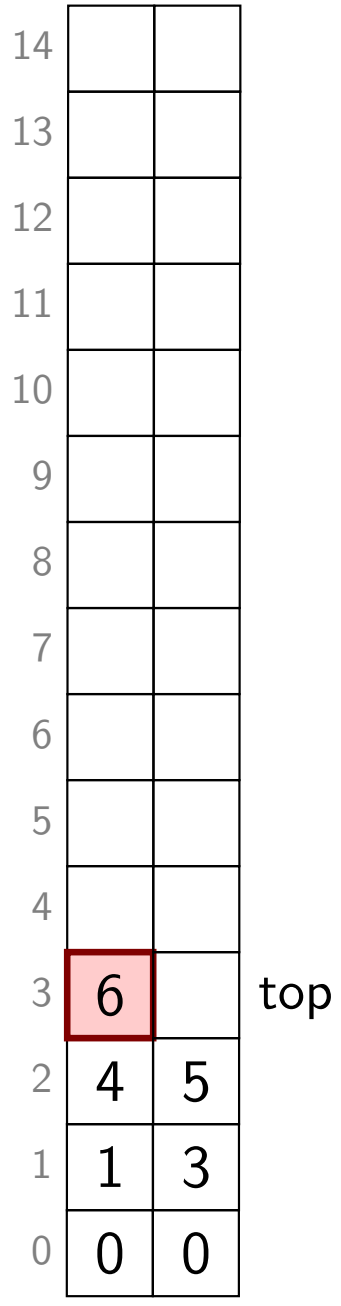

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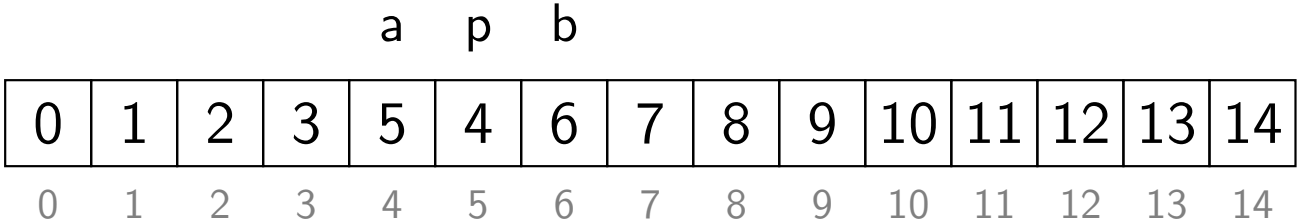


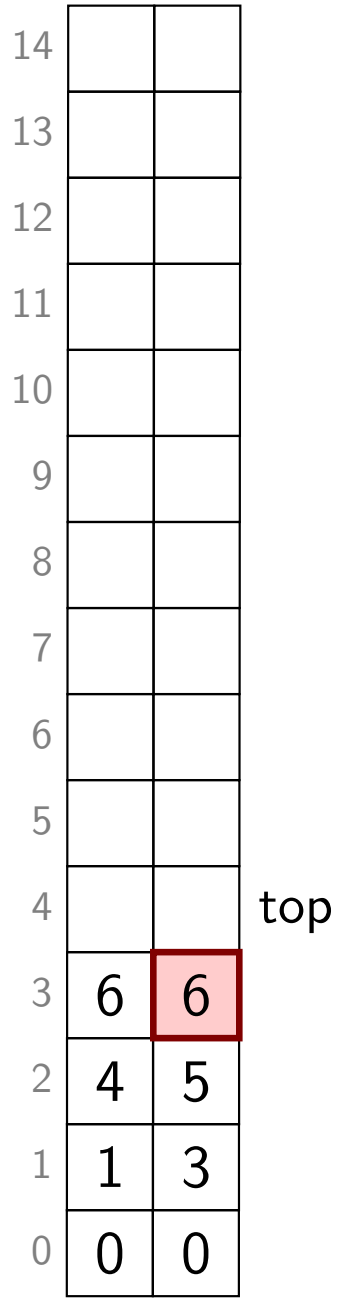

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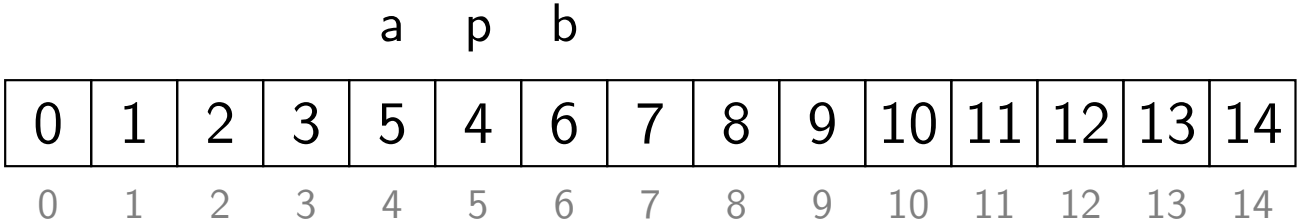


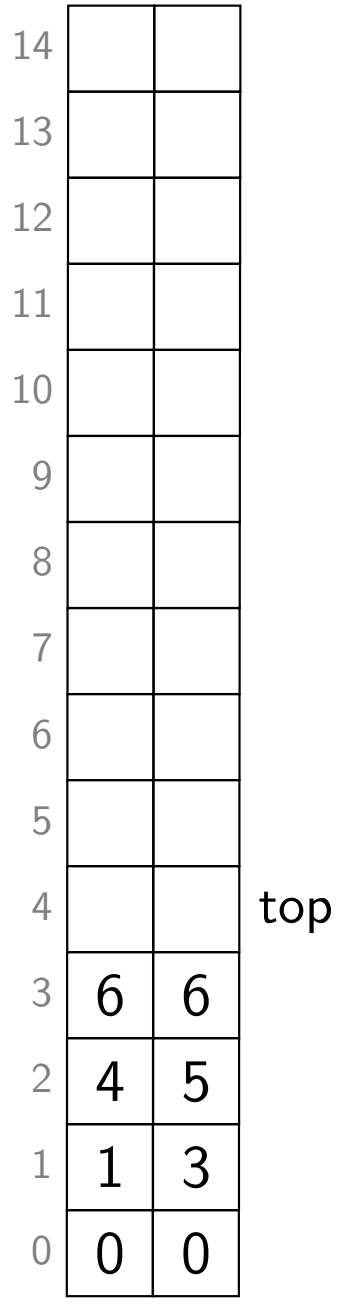

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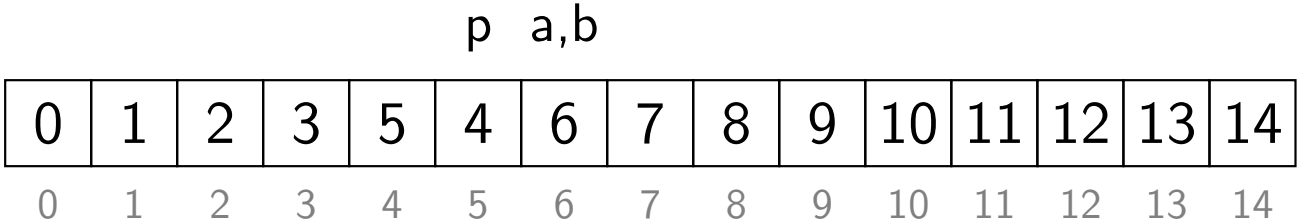


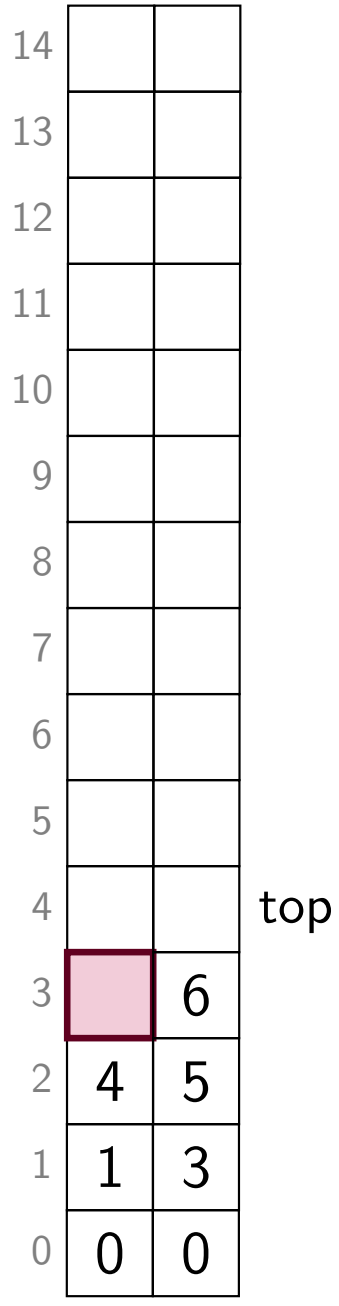

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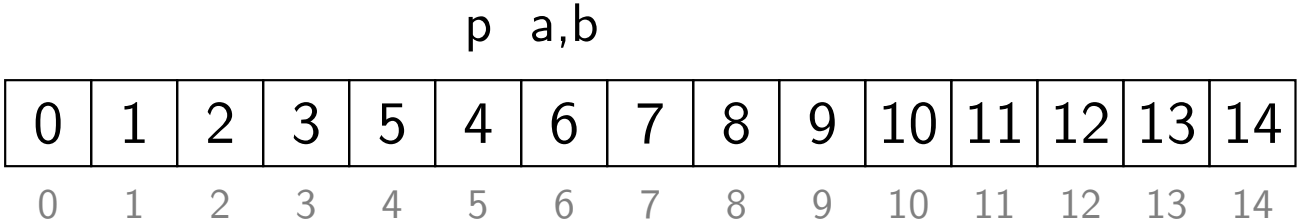


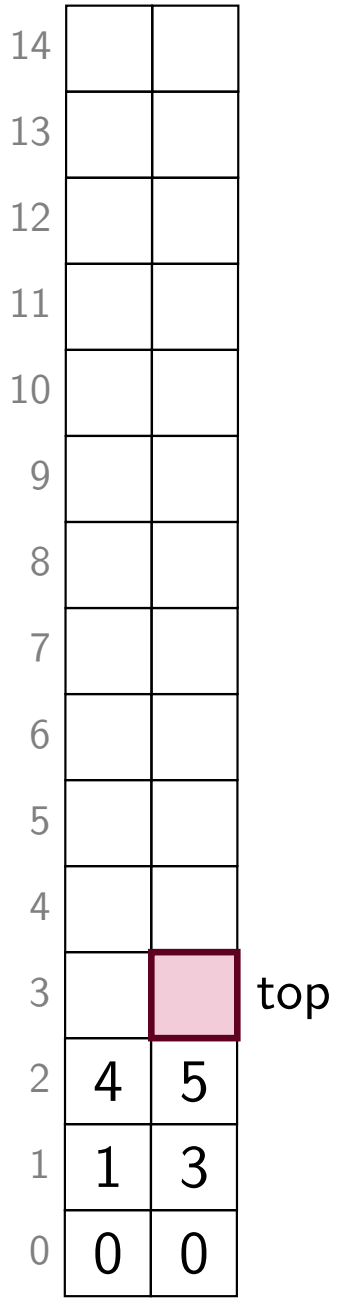

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```

p a,b

| 0 | 1 | 2 | 3 | 5 | 4 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

| | | | |
|---|---|---|---|
| 14 | | | |
| 13 | | | |
| 12 | | | |
| 11 | | | |
| 10 | | | |
| 9 | | | |
| 8 | | | |
| 7 | | | |
| 6 | | | |
| 5 | | | |
| 4 | | | |
| 3 | | | top |
| 2 | 4 | 5 | |
| 1 | 1 | 3 | |
| 0 | 0 | 0 | |

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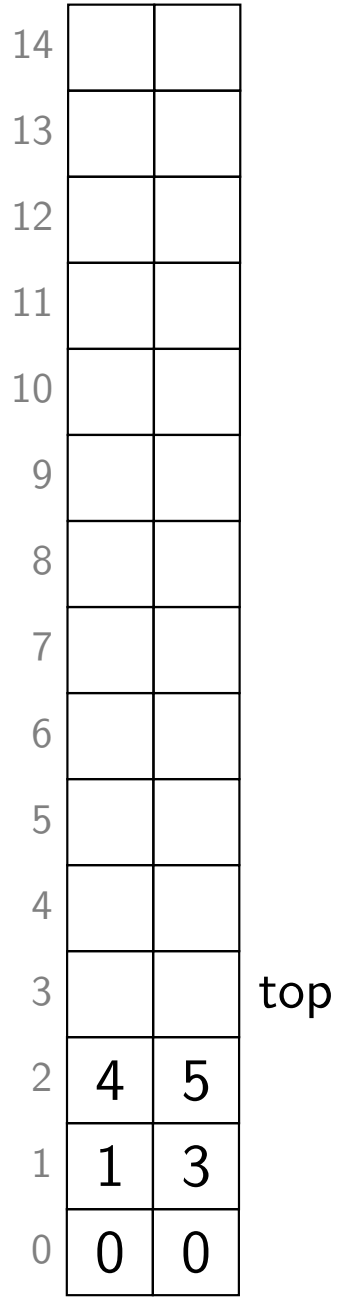
p a,b

| 0 | 1 | 2 | 3 | 5 | 4 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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```
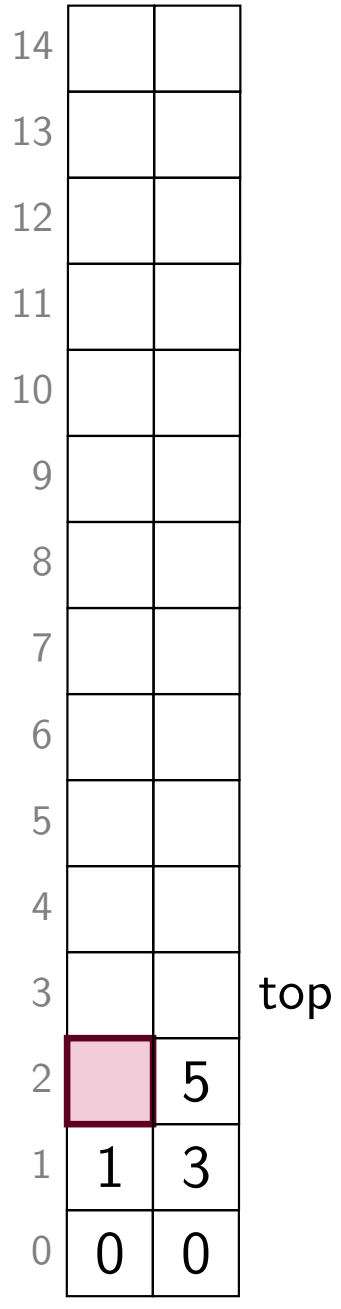

a p b

| 0 | 1 | 2 | 3 | 5 | 4 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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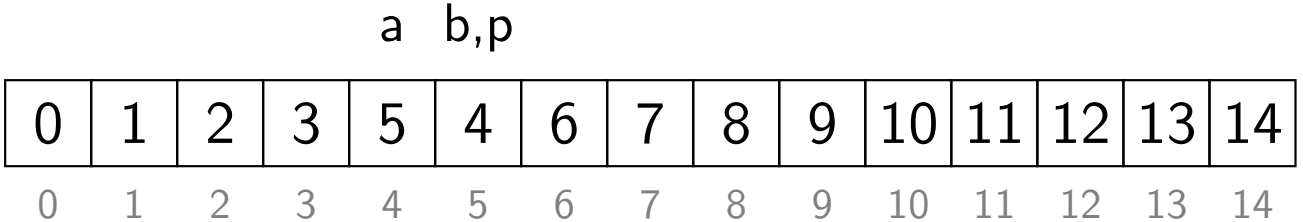
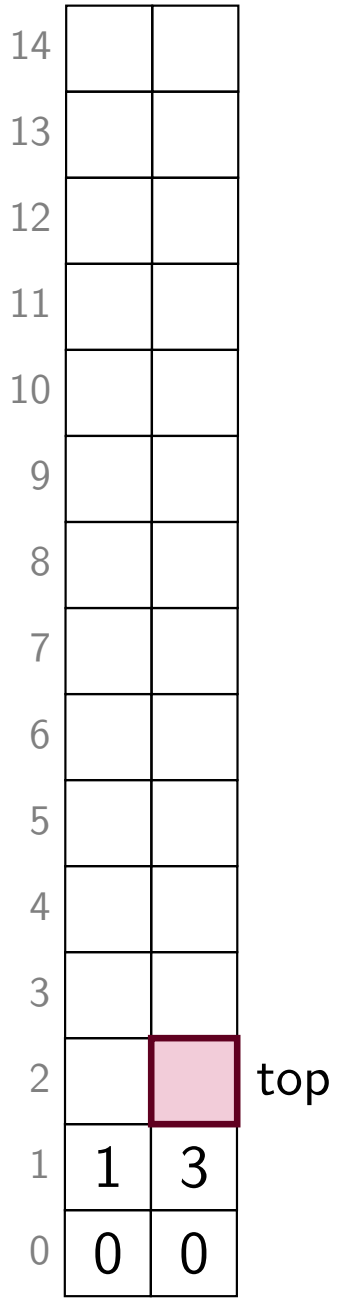
}
```



```
void sort (Tab t) {
  uint p, a, b;
  Stack first = stackNew(t.len);
  Stack last = stackNew(t.len);
  stackPush(&first, 0);
  stackPush(&last, t.len-1);
  while (!stackEmpty(first)) {
    a = stackPop(&first);
    b = stackPop(&last);
    if (a < b) {
      p = a + partition(slice(t, a, b));
      stackPush(&first, a);
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```

a b,p

| 0 | 1 | 2 | 3 | 5 | 4 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

| | | | |
|---|---|---|---|
| 14 | | | |
| 13 | | | |
| 12 | | | |
| 11 | | | |
| 10 | | | |
| 9 | | | |
| 8 | | | |
| 7 | | | |
| 6 | | | |
| 5 | | | |
| 4 | | | |
| 3 | | | |
| 2 | | | top |
| 1 | 1 | 3 | |
| 0 | 0 | 0 | |

```
void sort (Tab t) {
  uint p, a, b;
  Stack first = stackNew(t.len);
  Stack last = stackNew(t.len);
  stackPush(&first, 0);
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      stackPush(&first, a);
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
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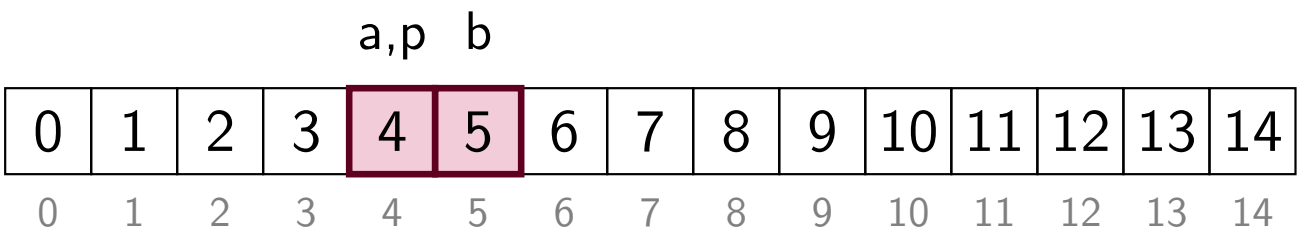
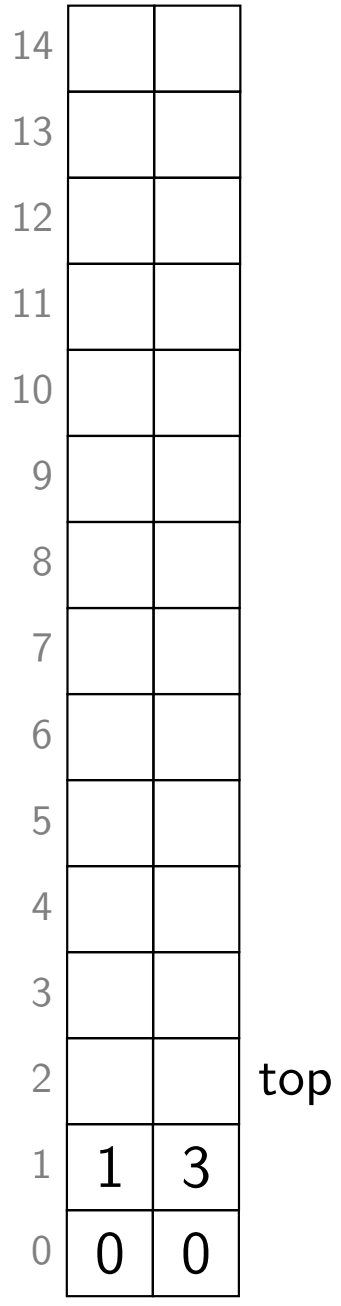
  }
}
```



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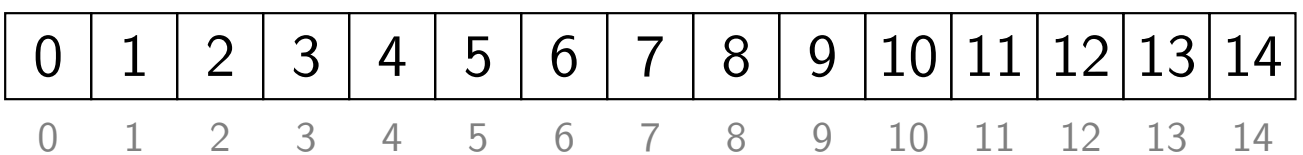


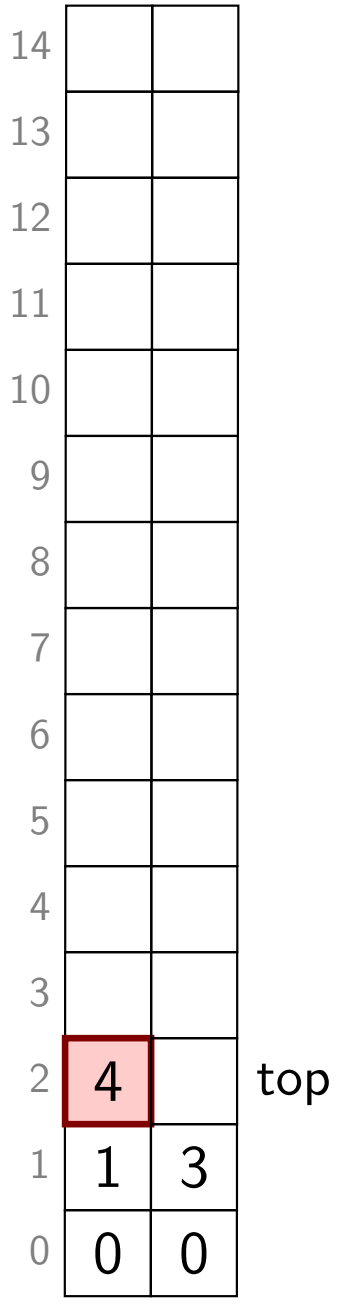

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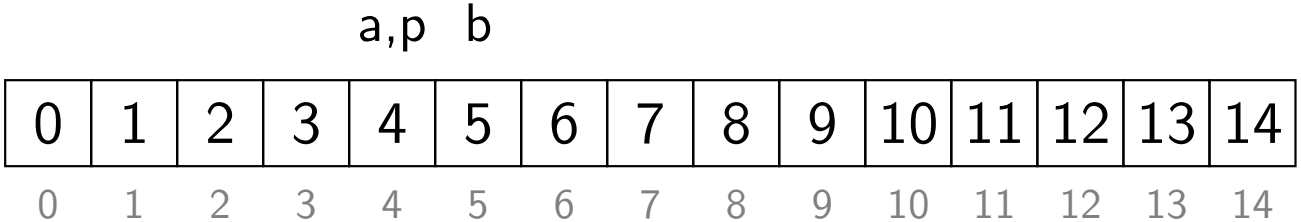


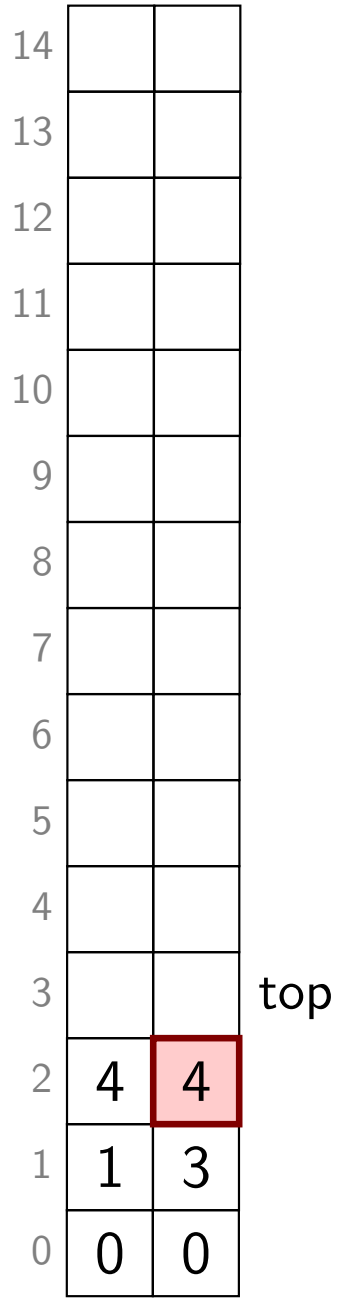

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      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```

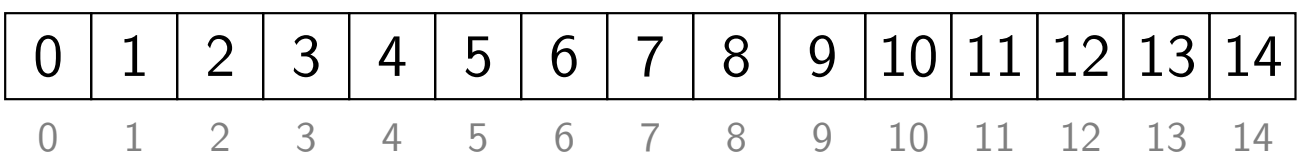


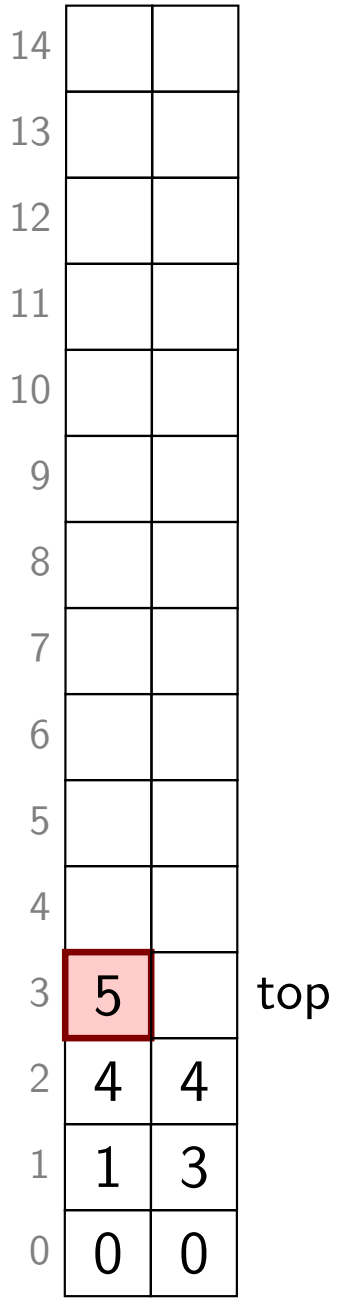

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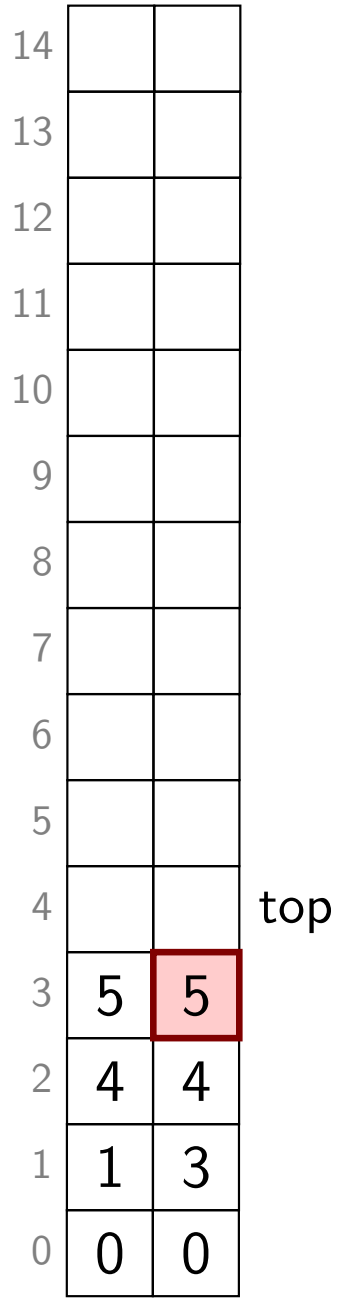
      stackPush(&first, a);
      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```

a,p b

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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```

a,p b

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

| | | |
|---|---|---|
| 14 | | |
| 13 | | |
| 12 | | |
| 11 | | |
| 10 | | |
| 9 | | |
| 8 | | |
| 7 | | |
| 6 | | |
| 5 | | |
| 4 | | | top |
| 3 | 5 | 5 |
| 2 | 4 | 4 |
| 1 | 1 | 3 |
| 0 | 0 | 0 |

```
void sort (Tab t) {
  uint p, a, b;
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      stackPush(&last, p);
      stackPush(&first, p+1);
      stackPush(&last, b);
    }
  }
}
```
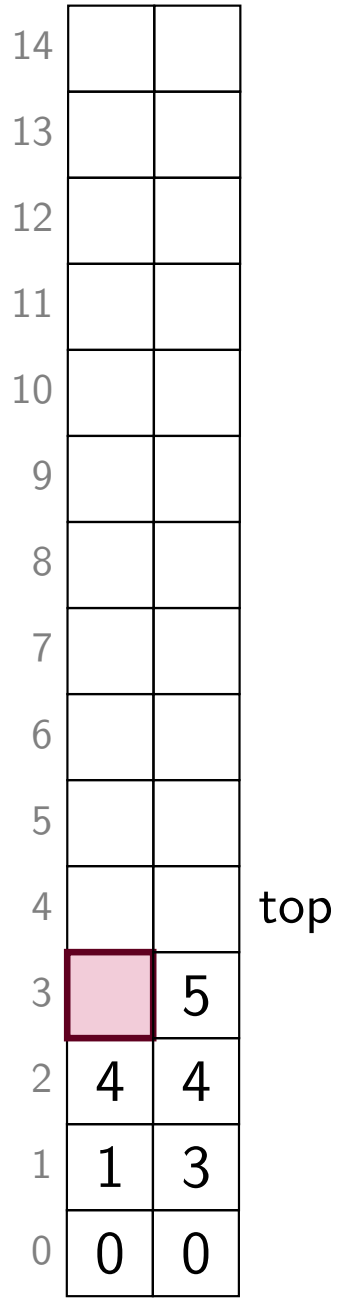

p a,b

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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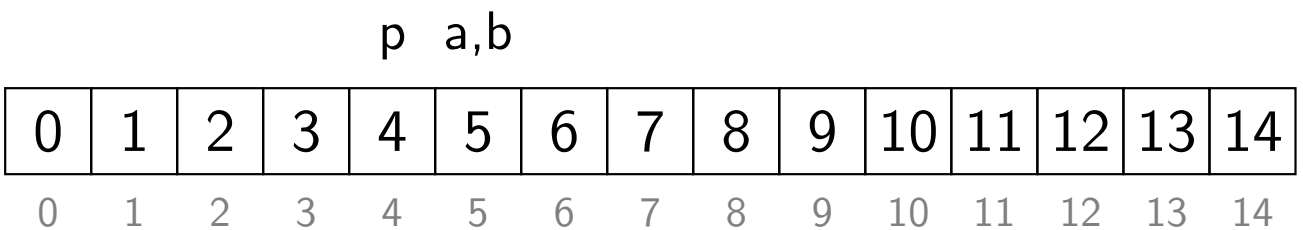


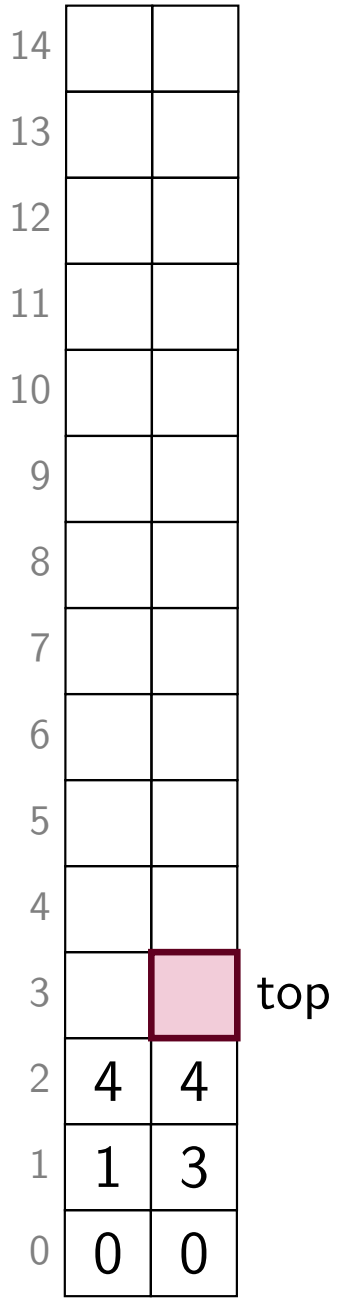

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p a,b

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
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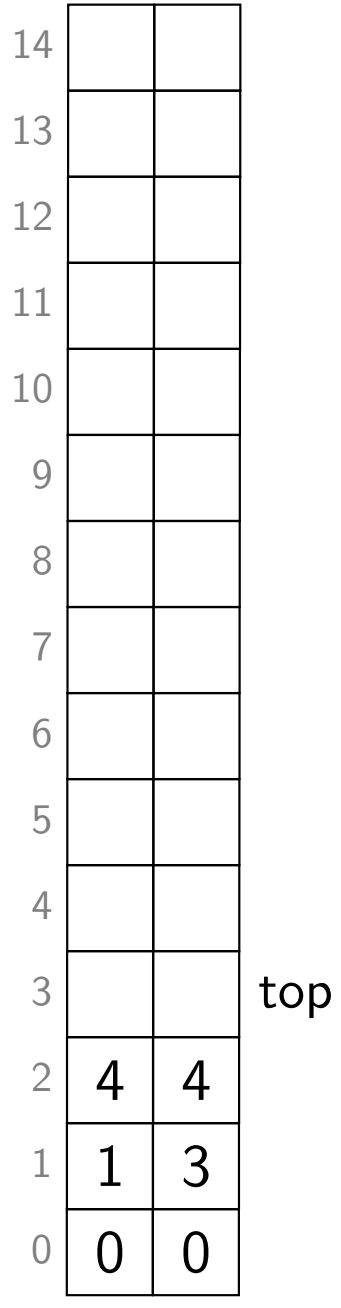
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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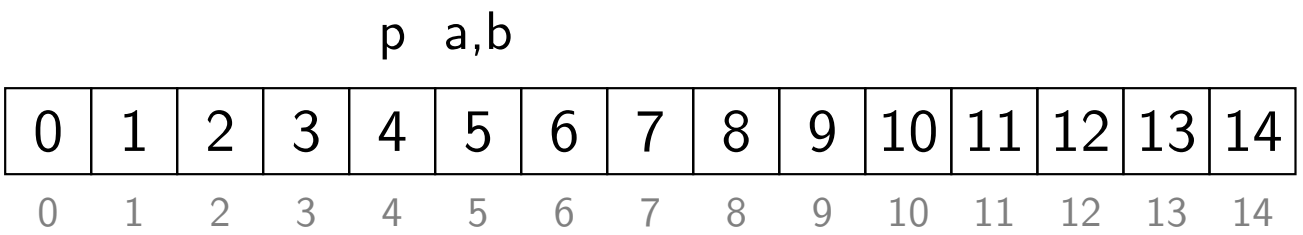


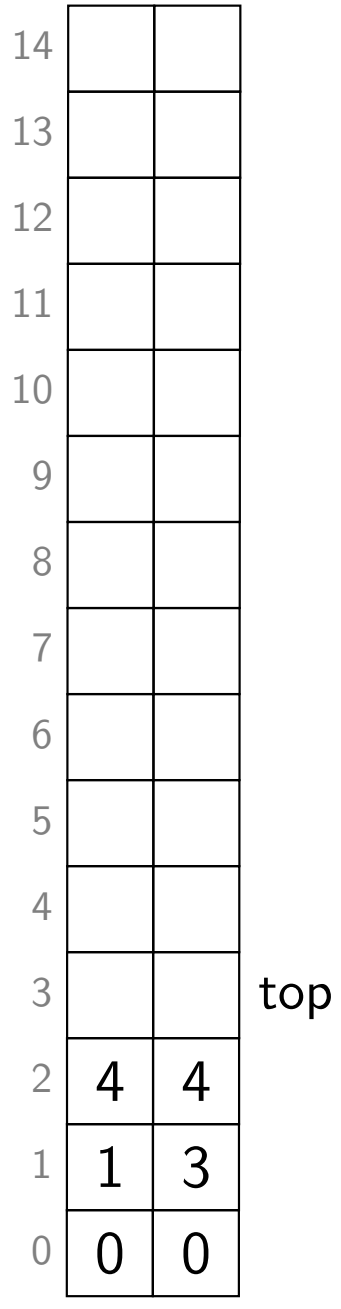

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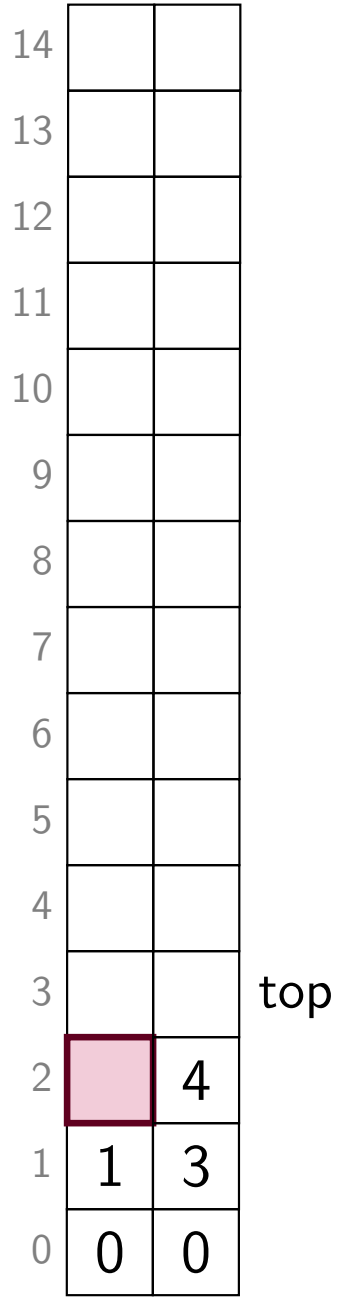
a,p b

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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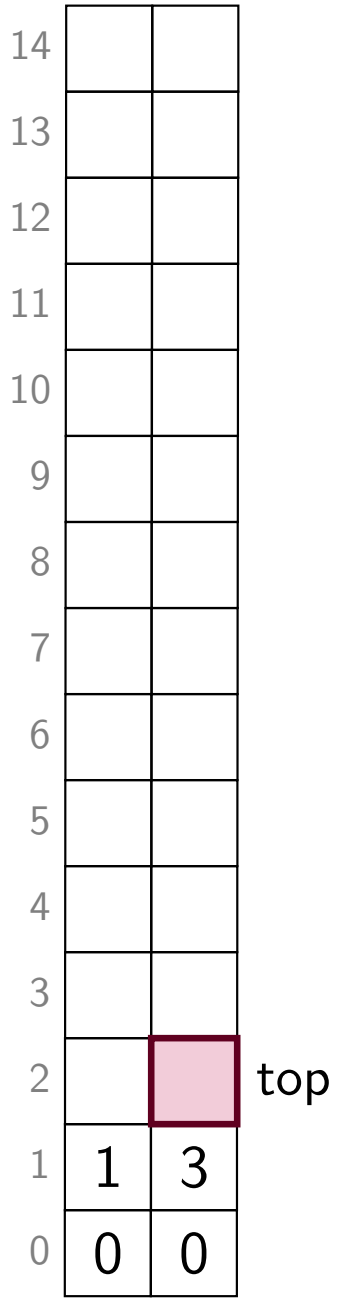
```

a,b,p

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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a,b,p

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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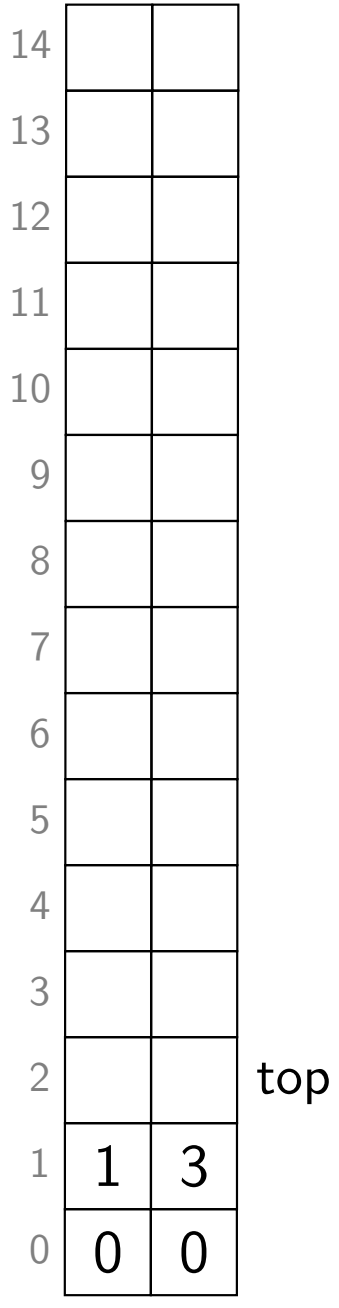

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a,b,p

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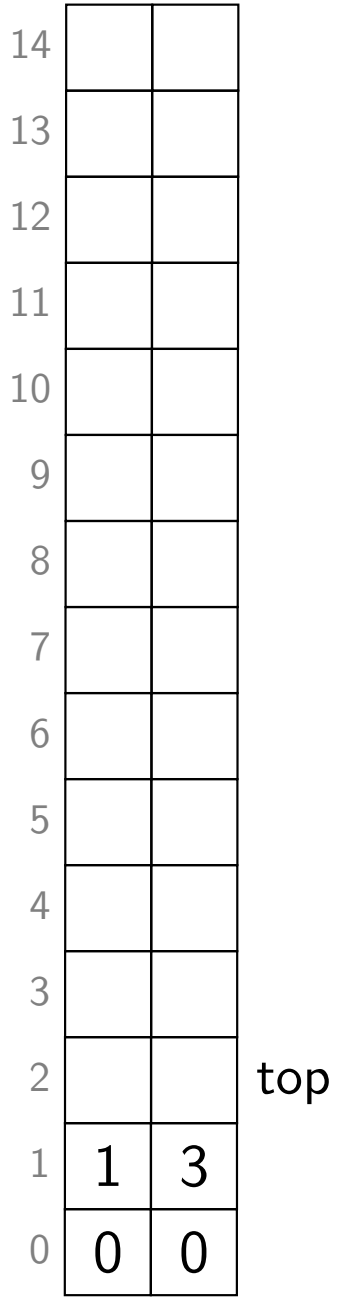

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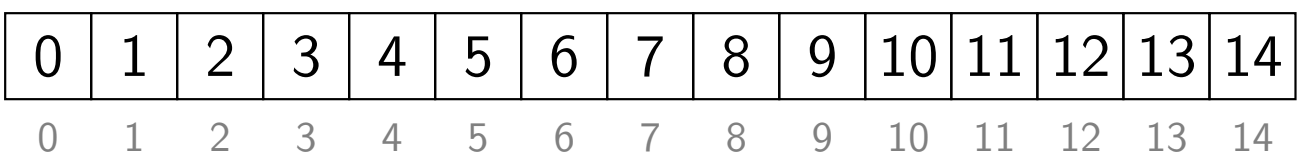


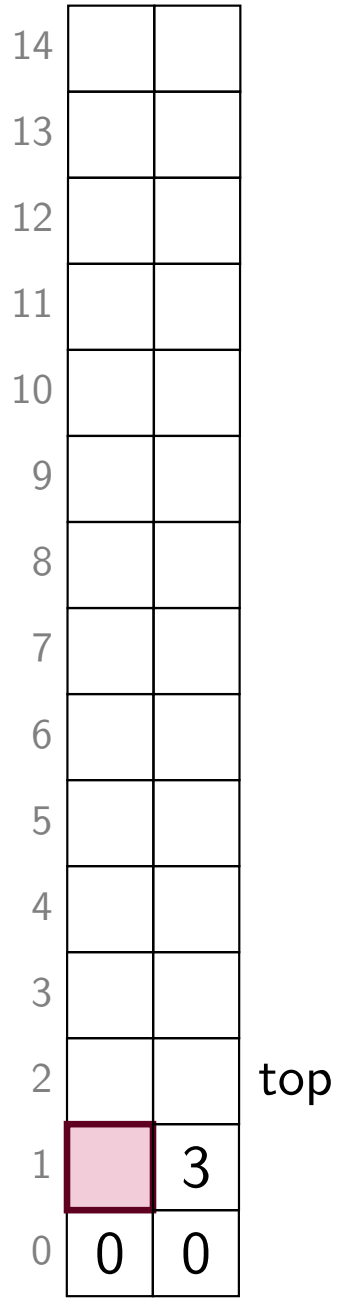

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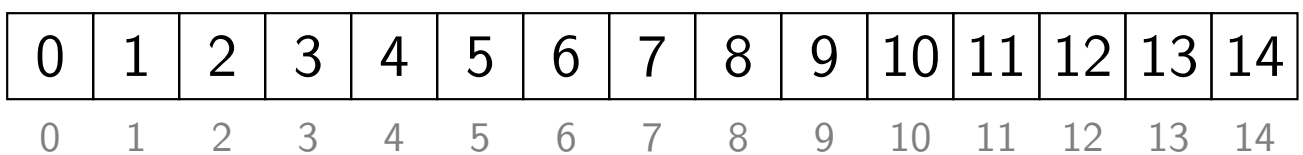


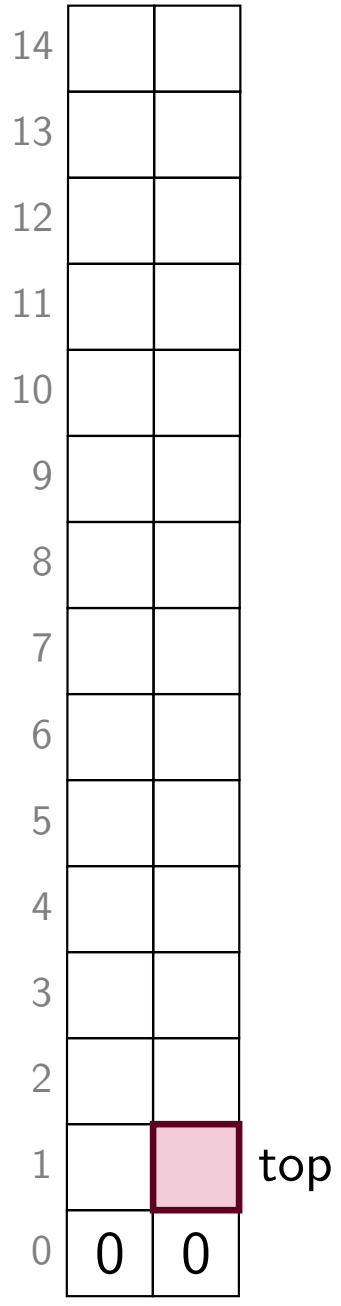

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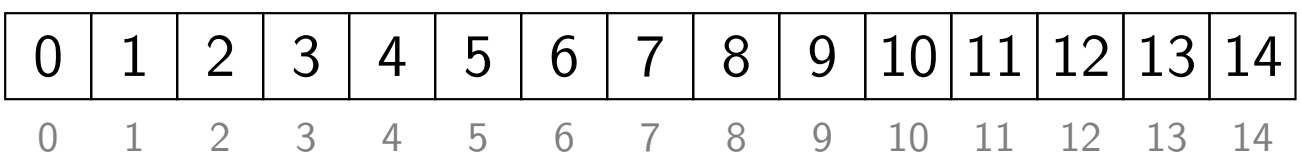


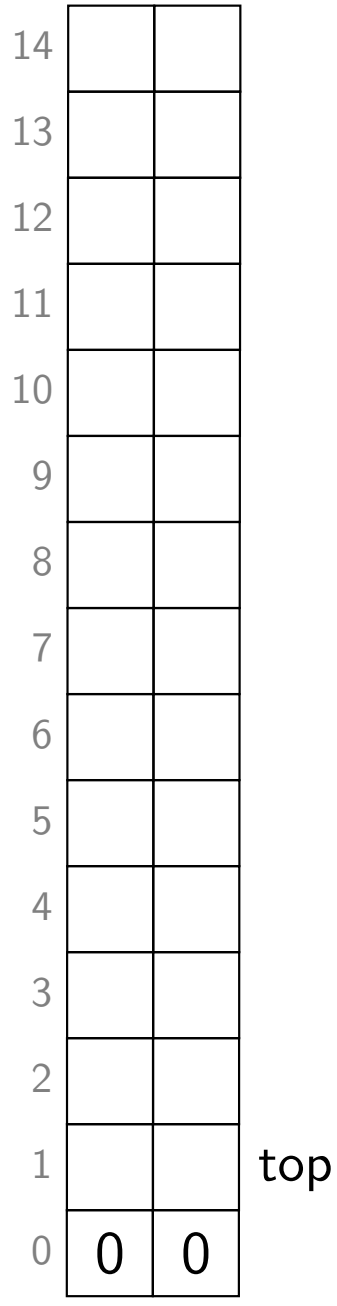

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  while (!stackEmpty(first)) {
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    if (a < b) {
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      stackPush(&last, p);
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    }
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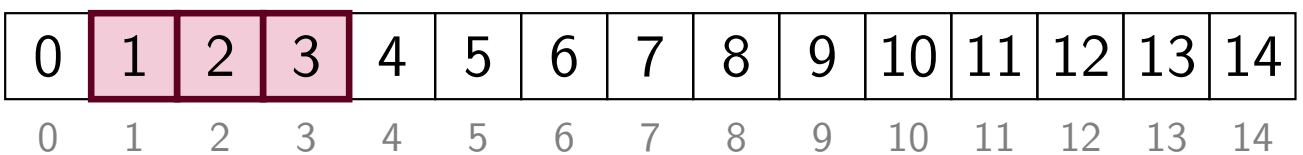


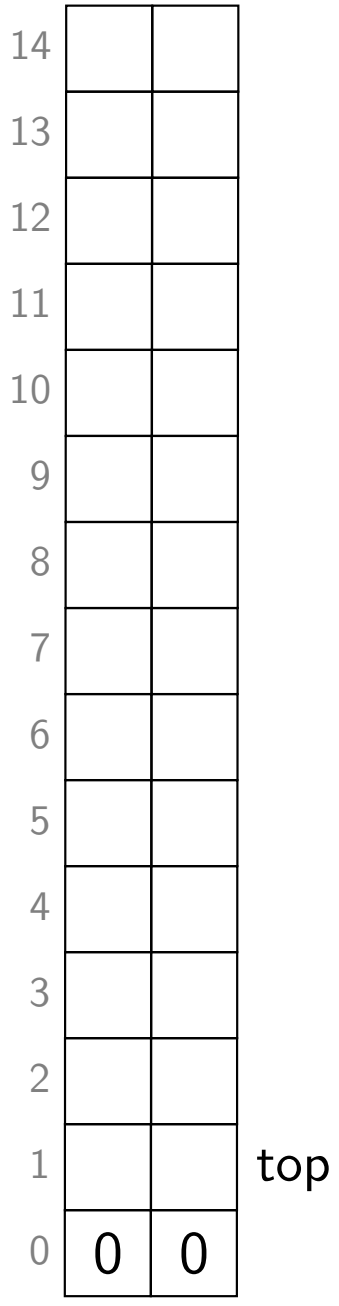

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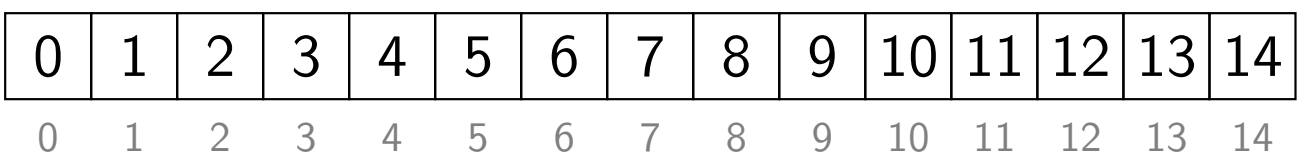


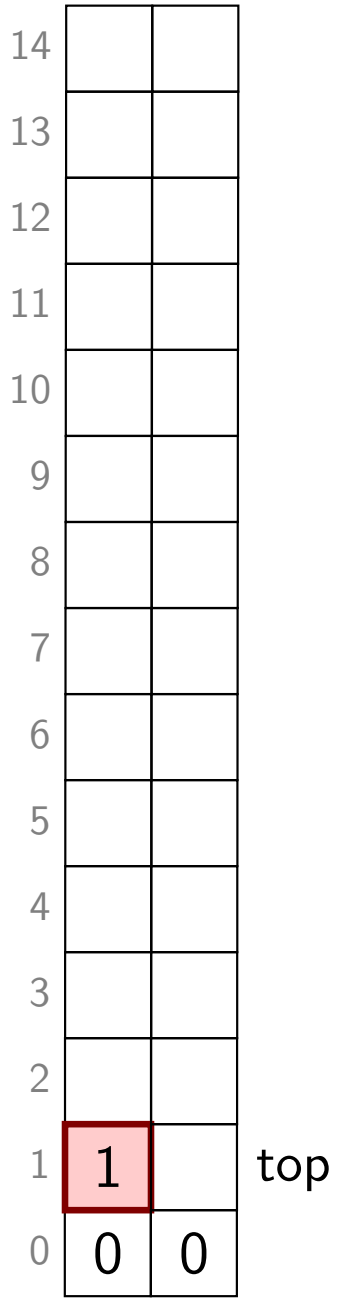

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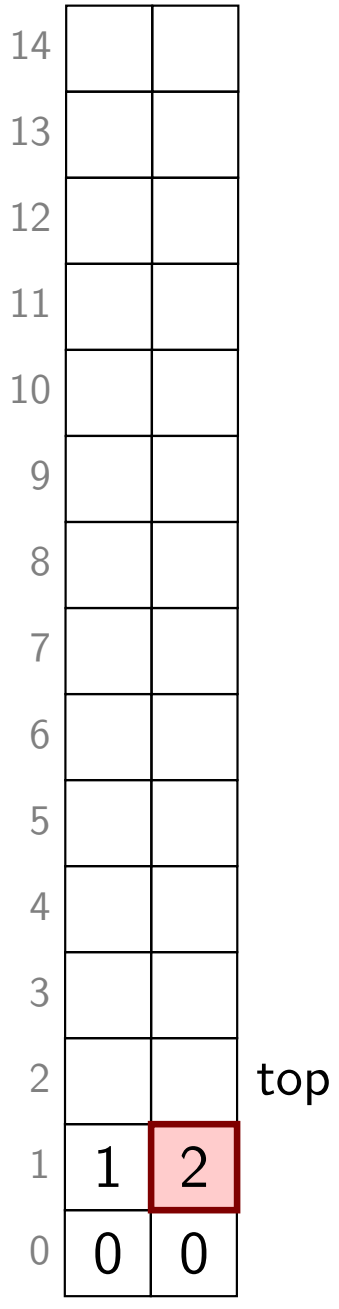
a p b

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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a p b

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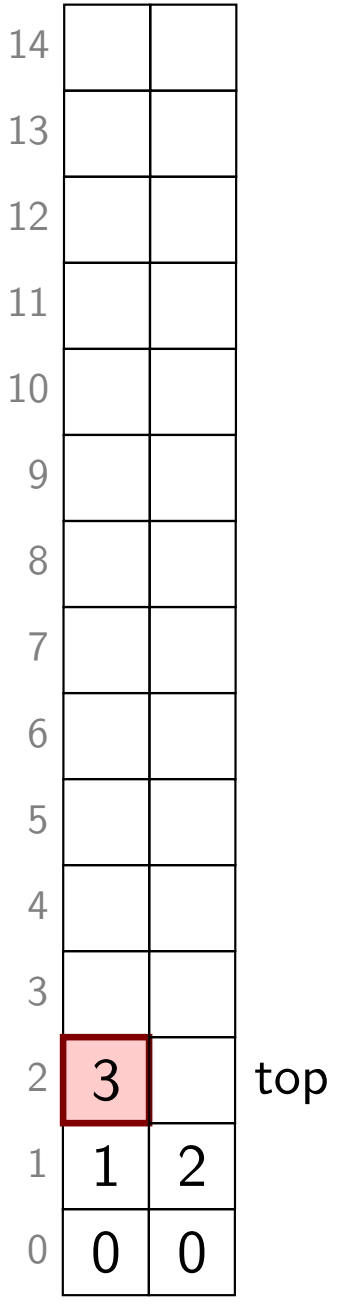
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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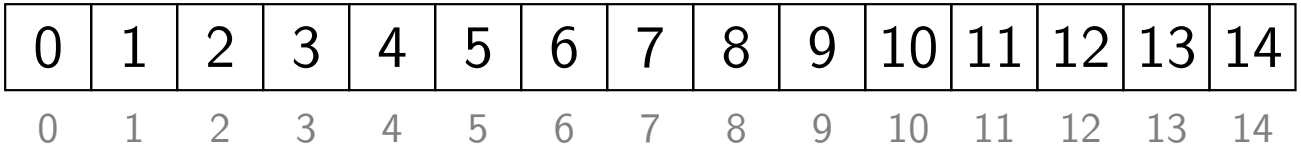


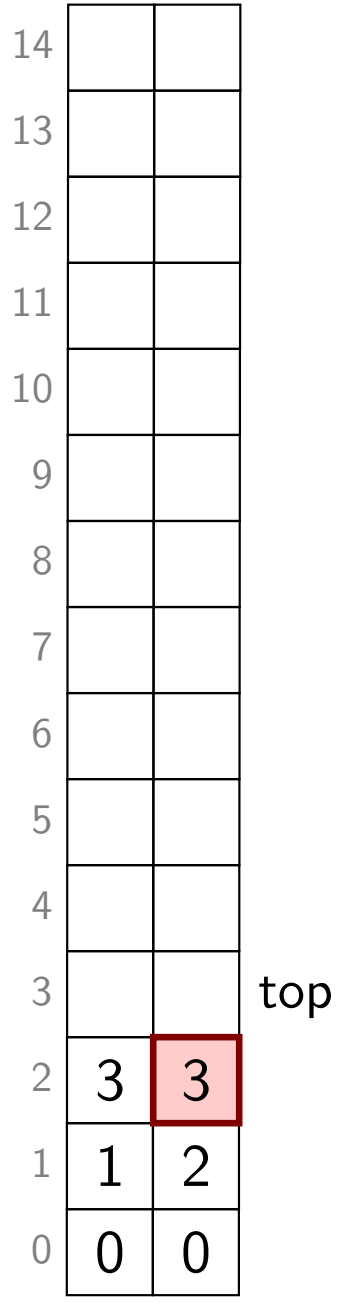

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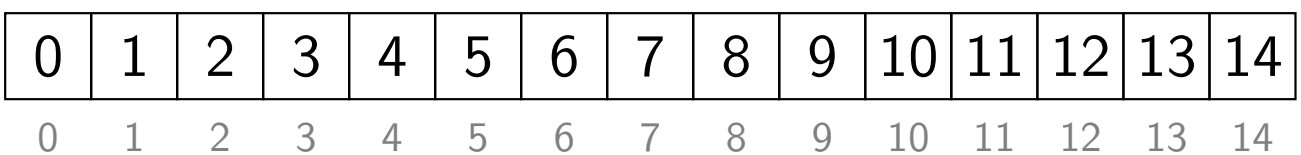


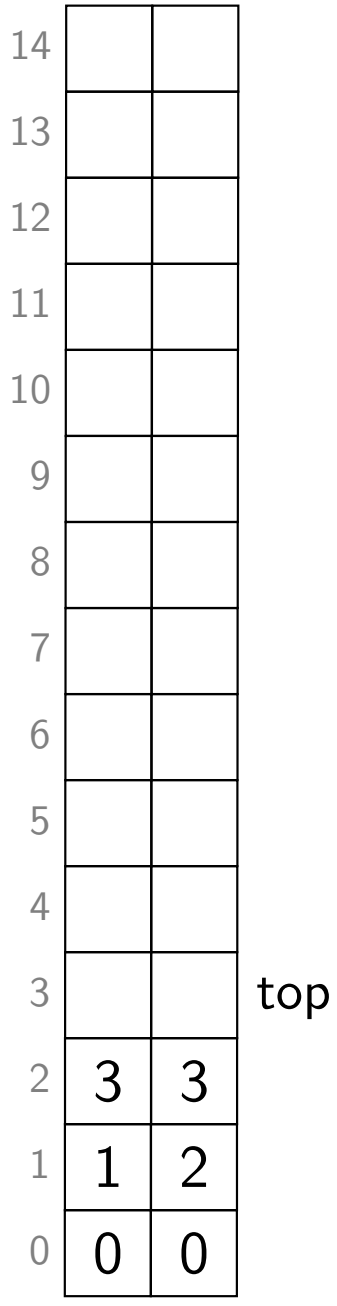

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```
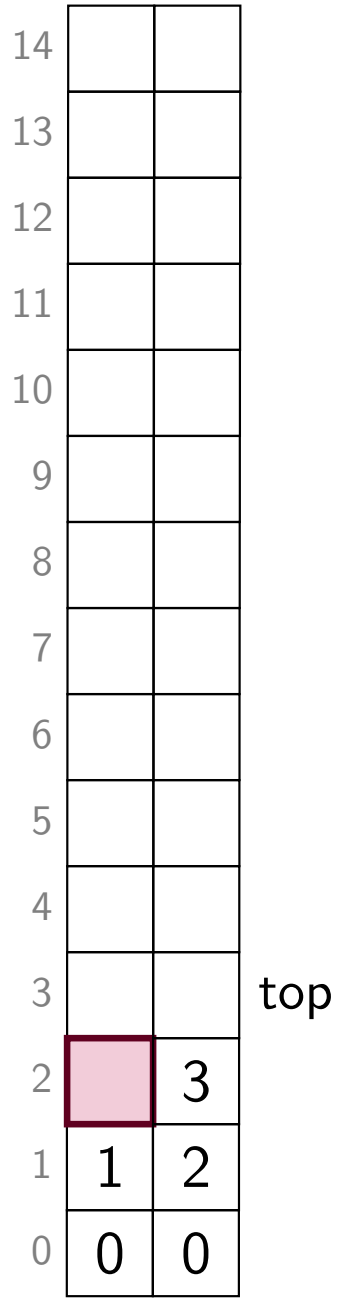

p a,b

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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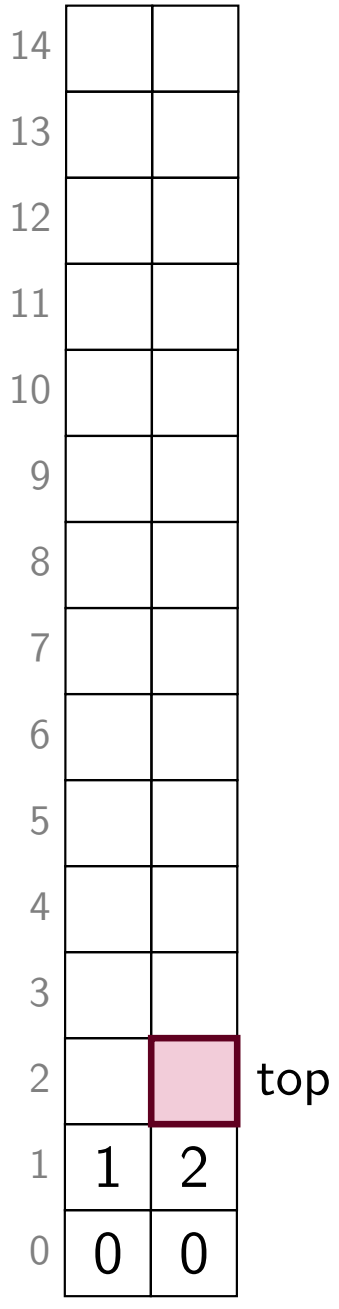
```

p a,b

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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p a,b

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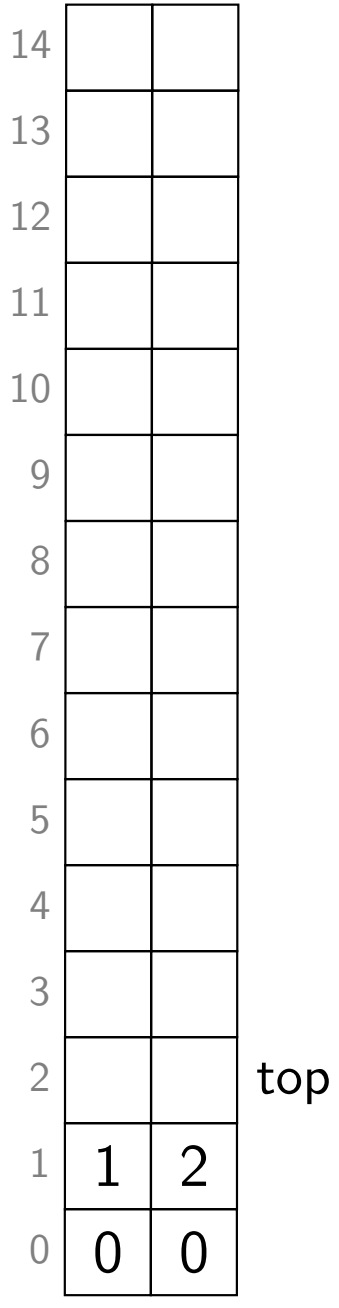
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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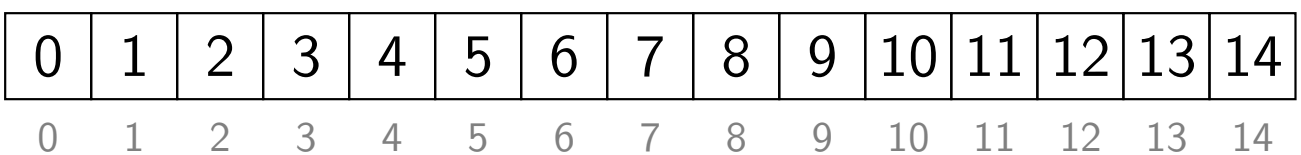


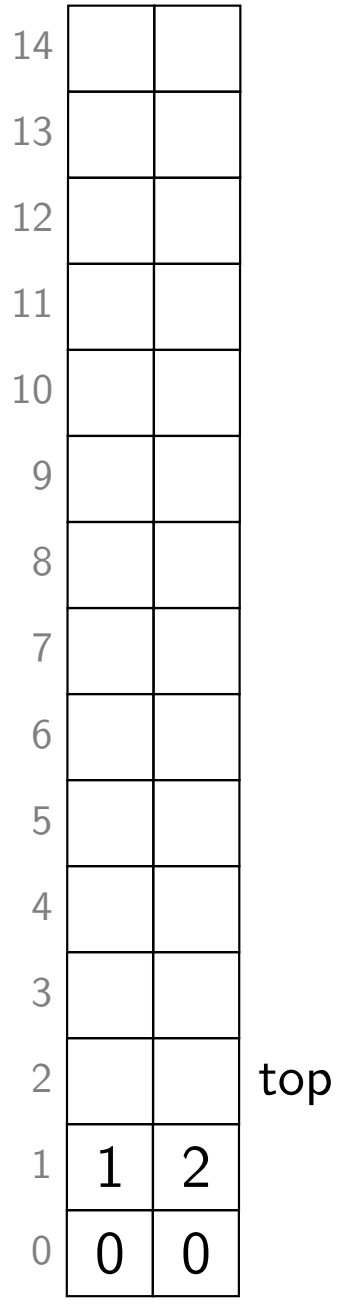

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a p b

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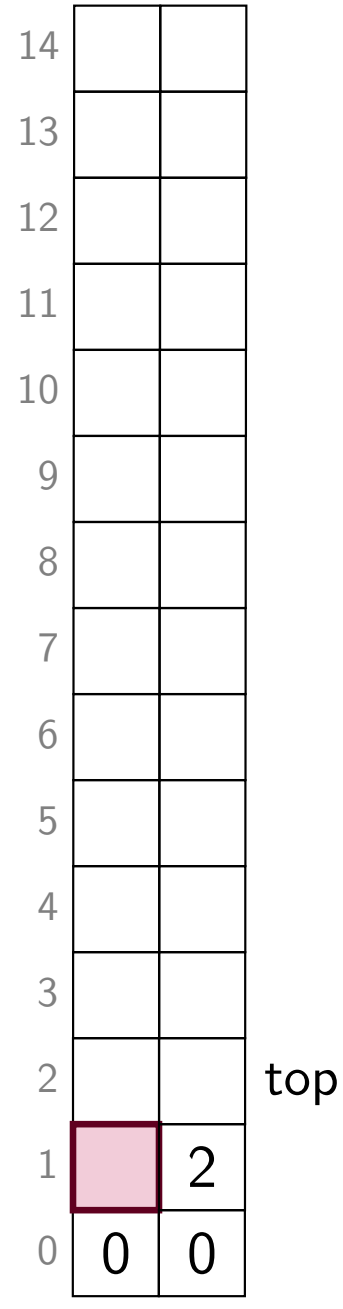

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a b,p

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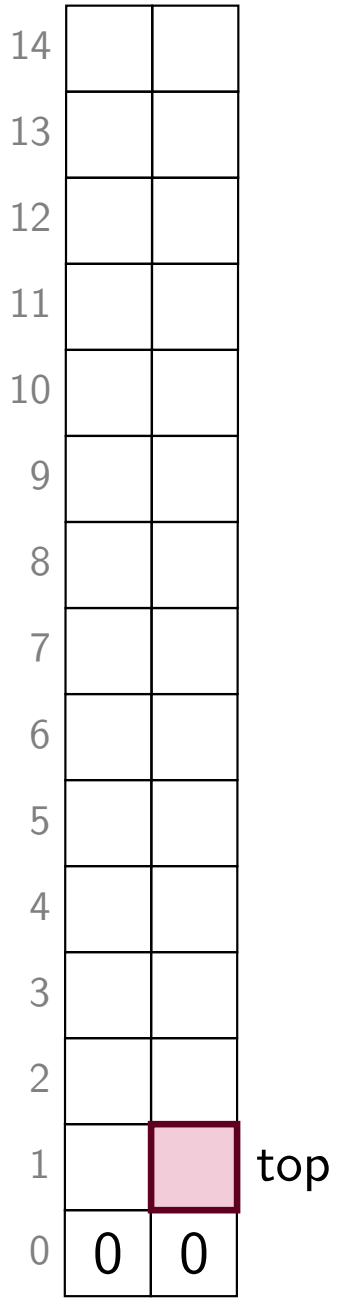

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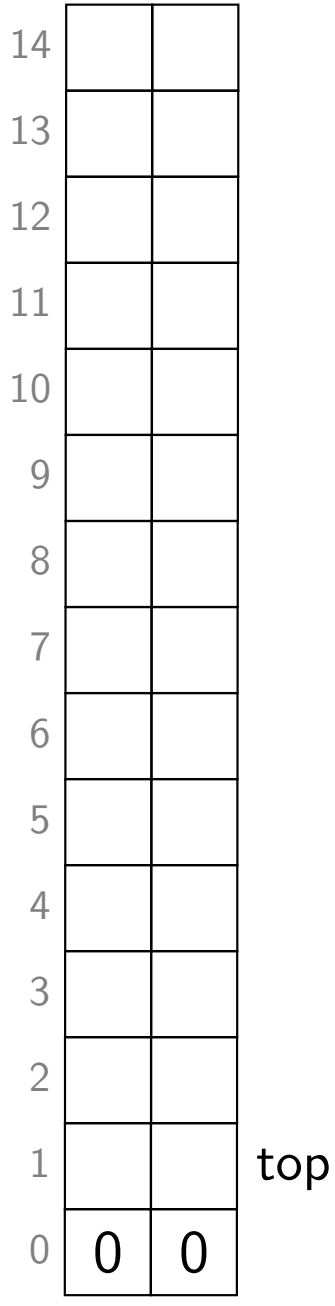
a b,p

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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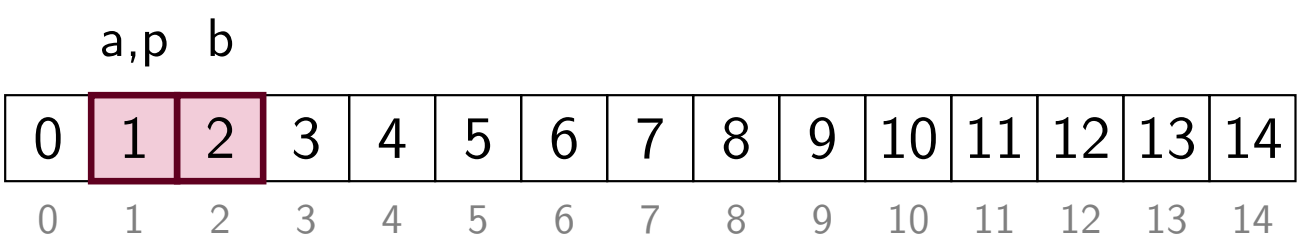


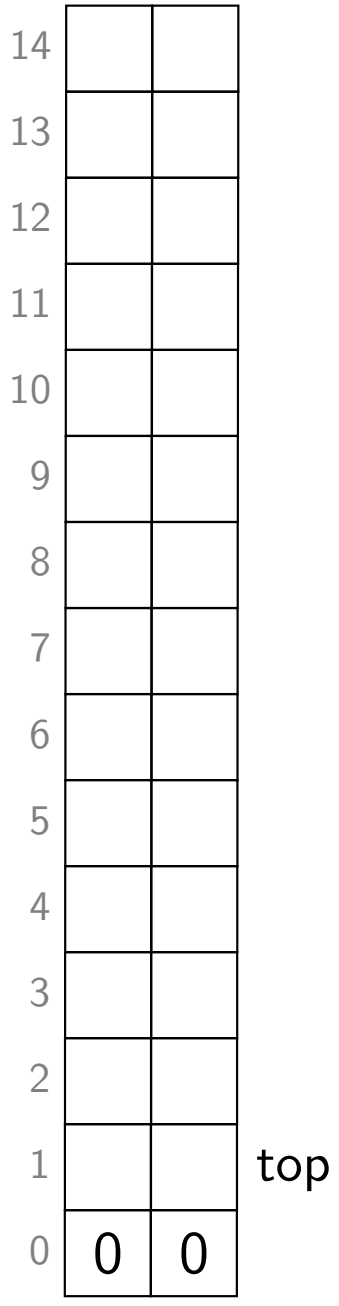

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a,p b

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
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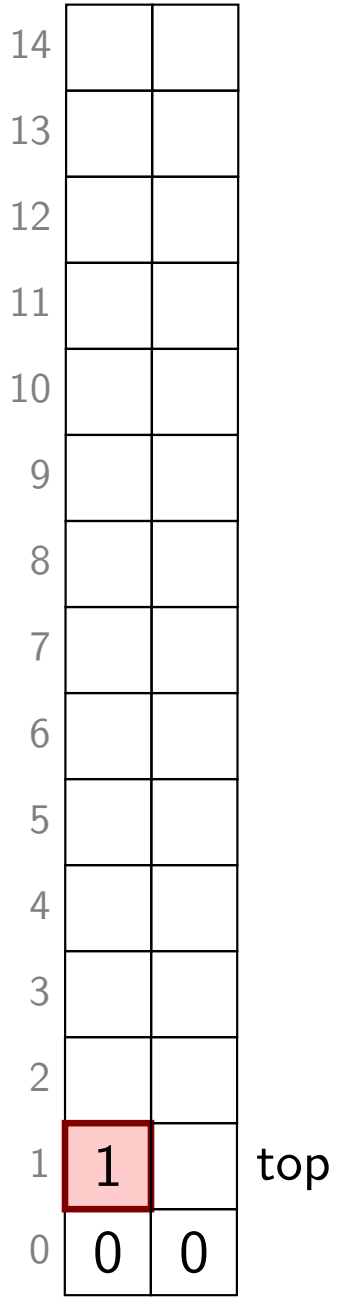

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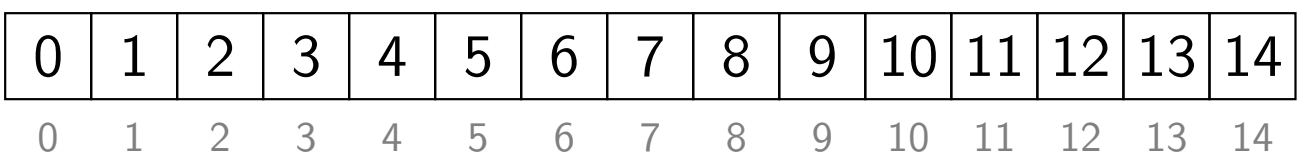


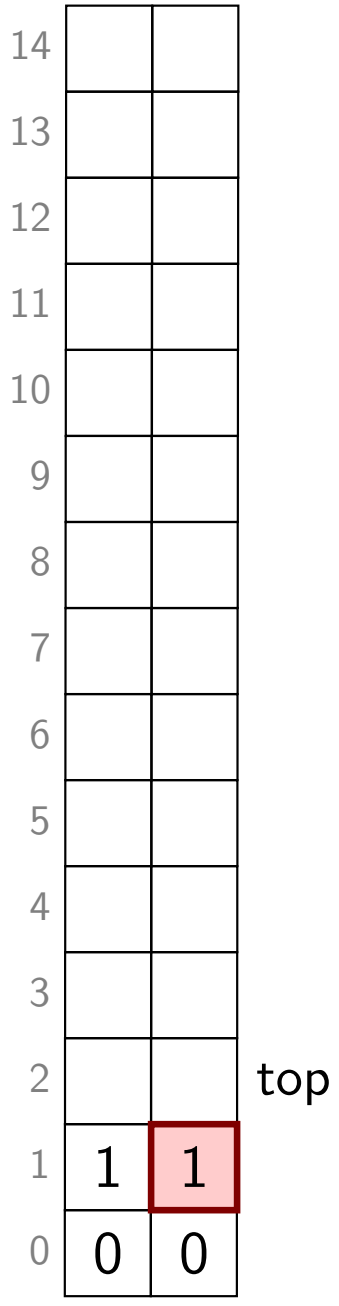

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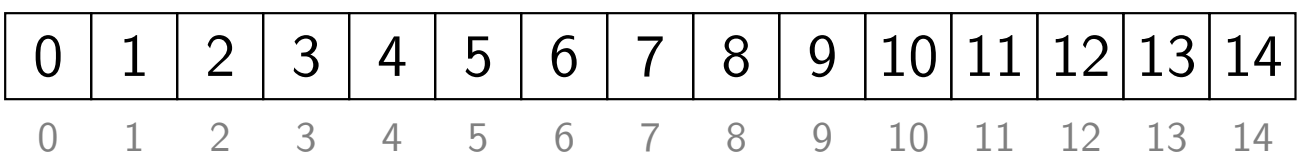


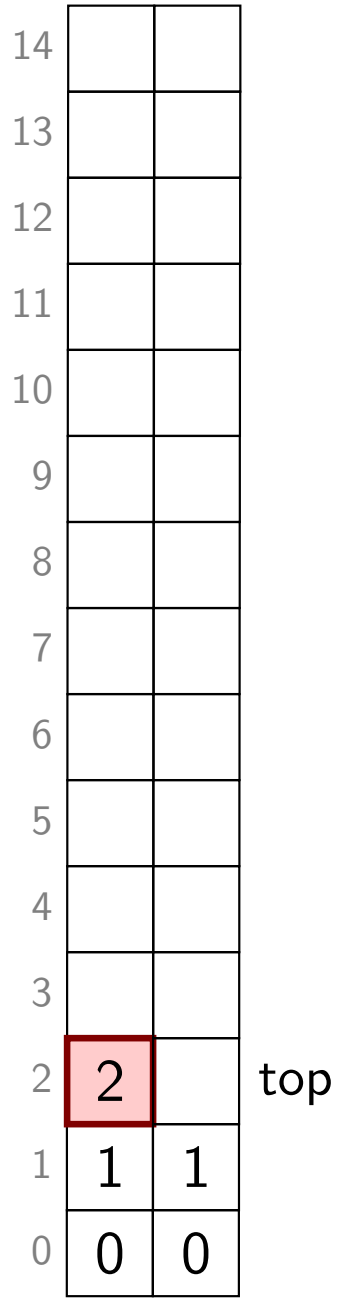

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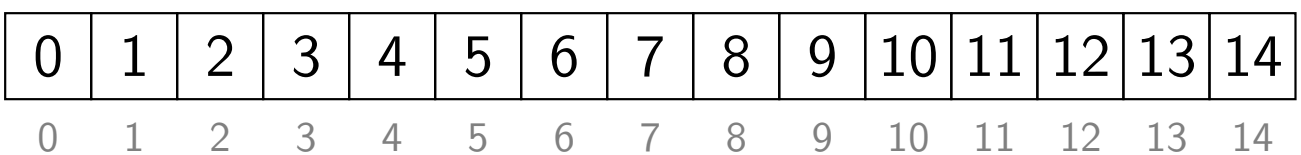


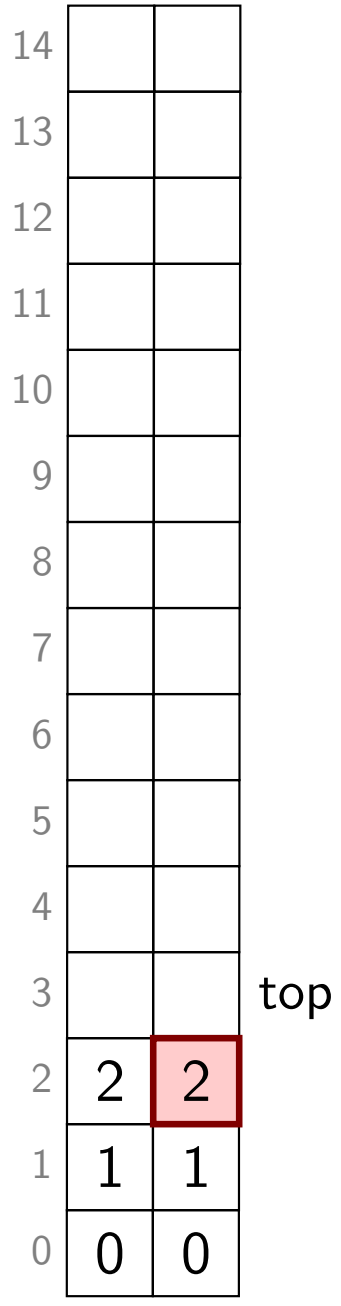

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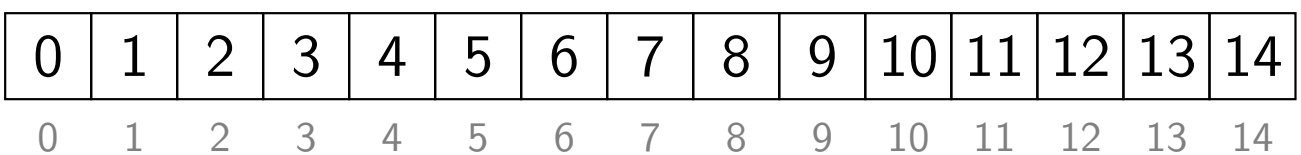


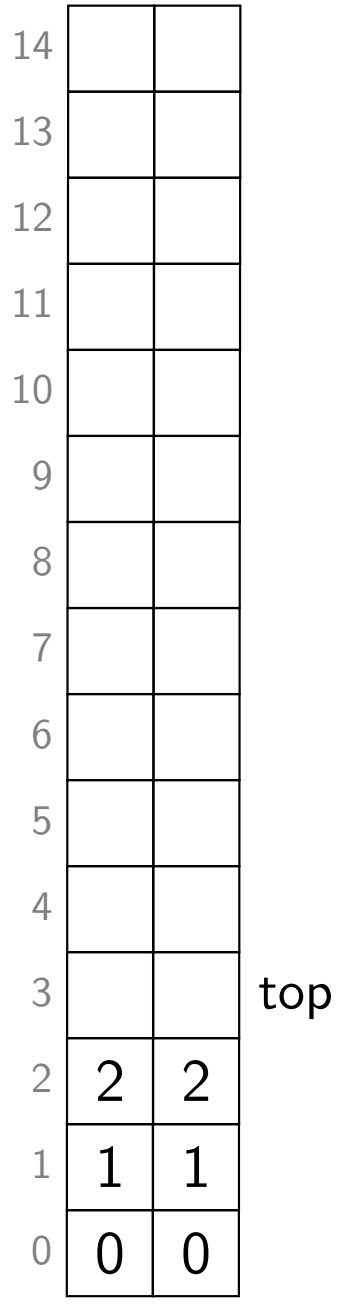

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```
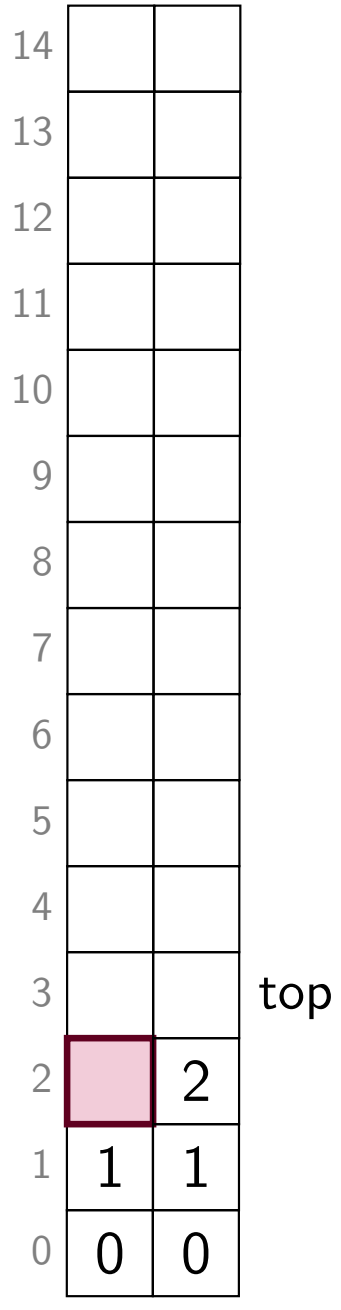

p a,b

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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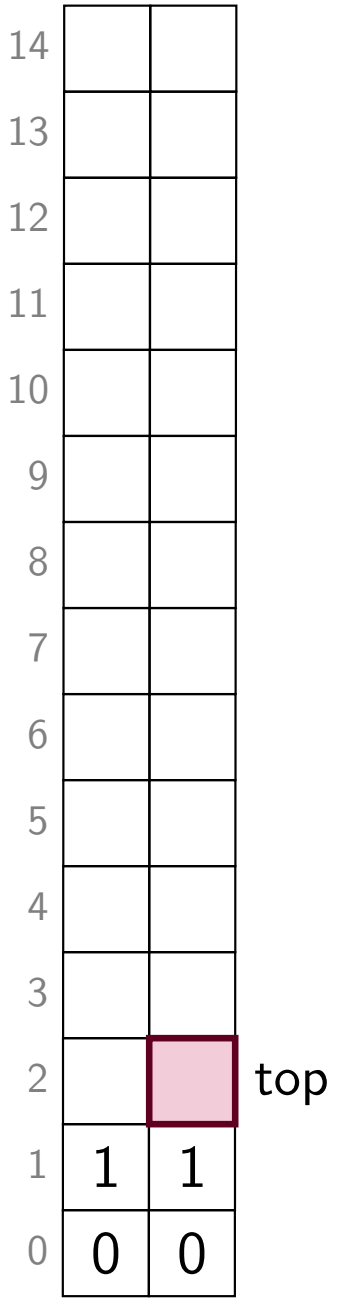

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p a,b

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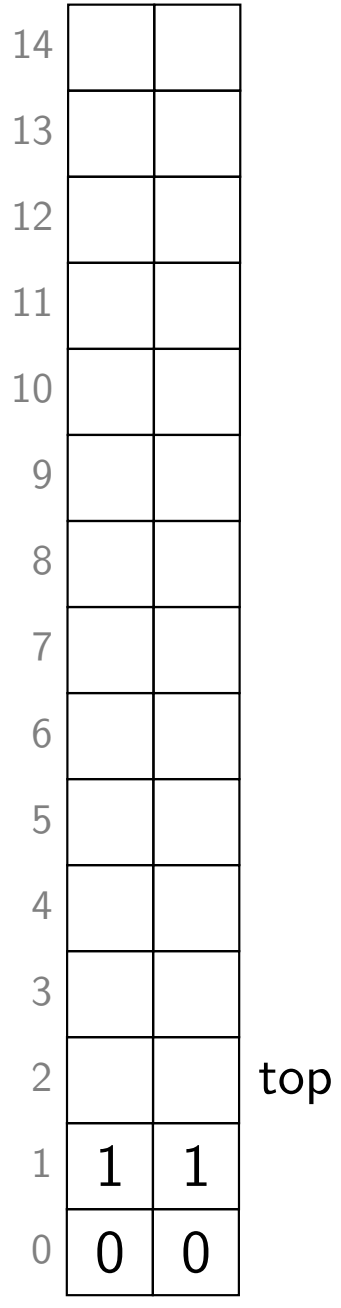

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p a,b

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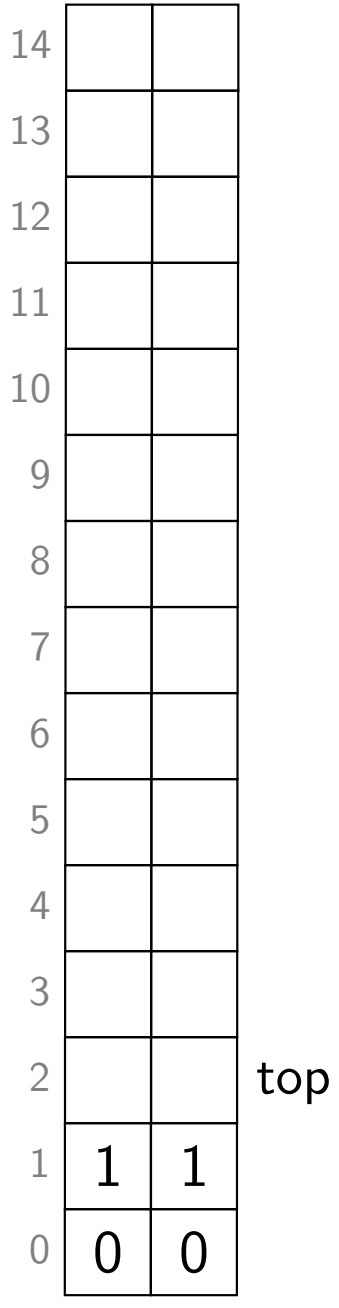
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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a,p b

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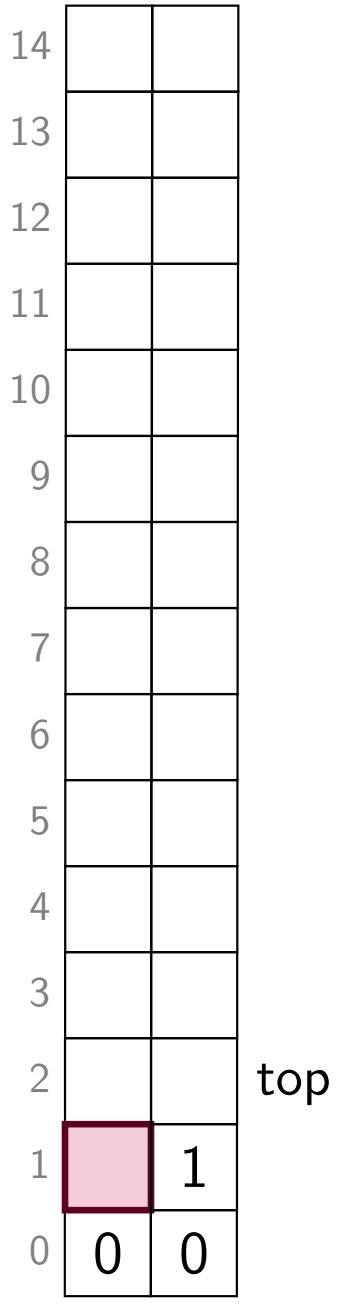
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



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a,b,p

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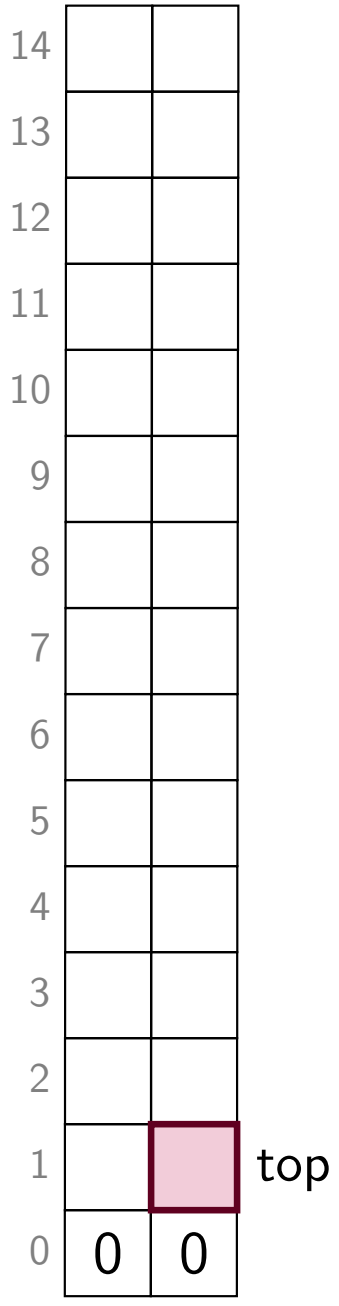

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a,b,p

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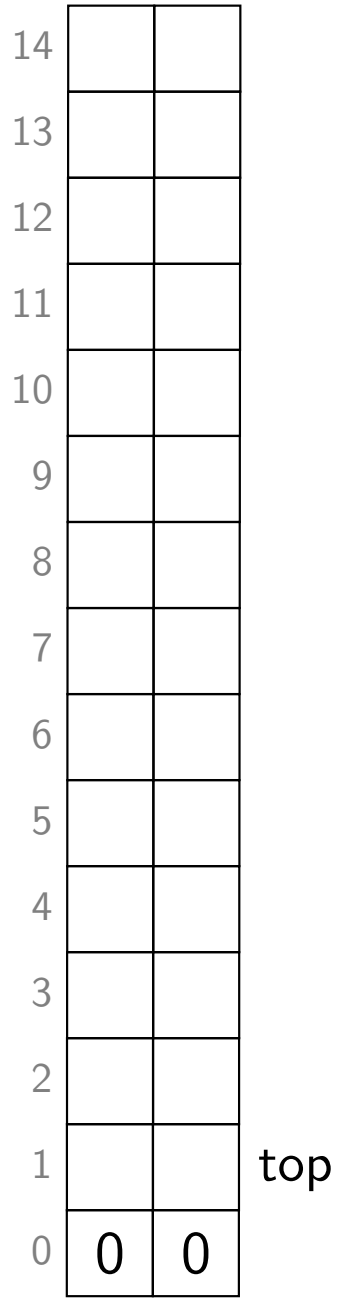

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a,b,p

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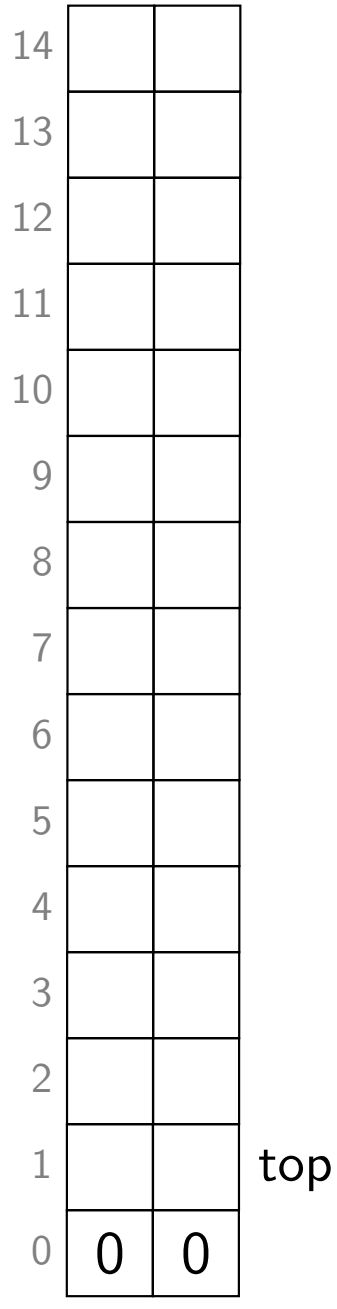

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a b,p

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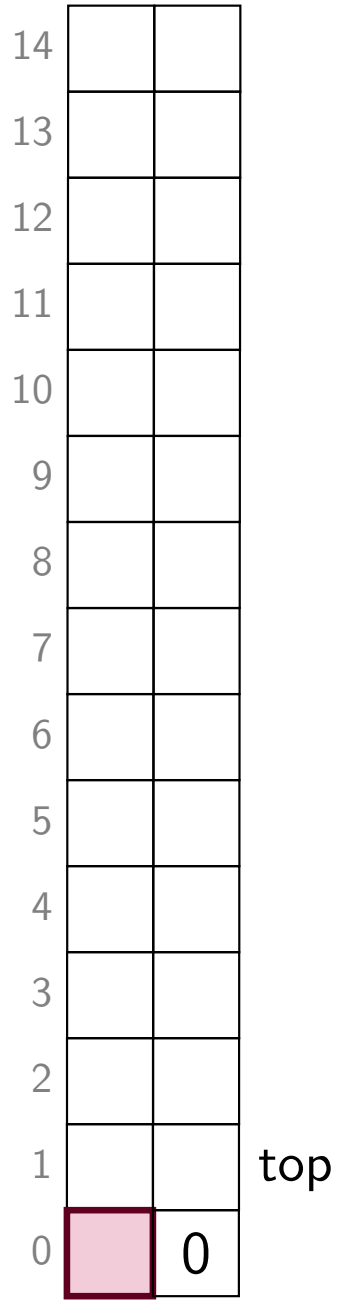

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a,b p

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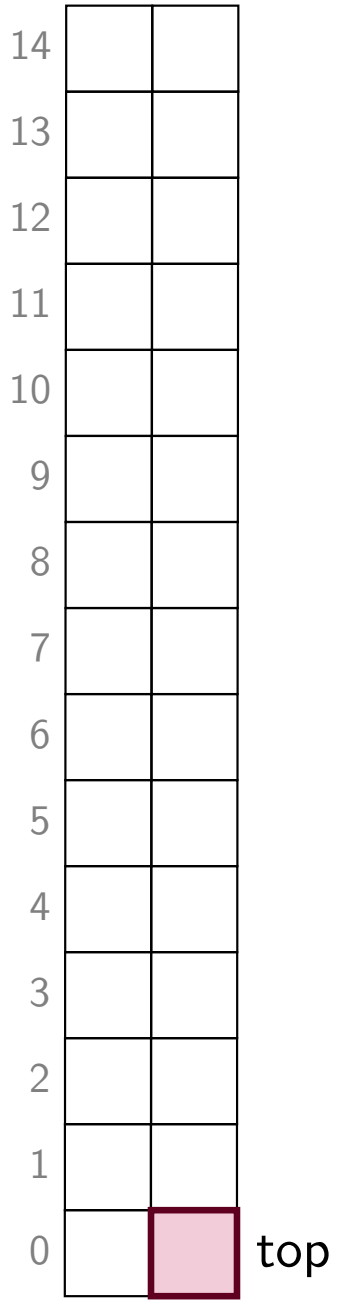

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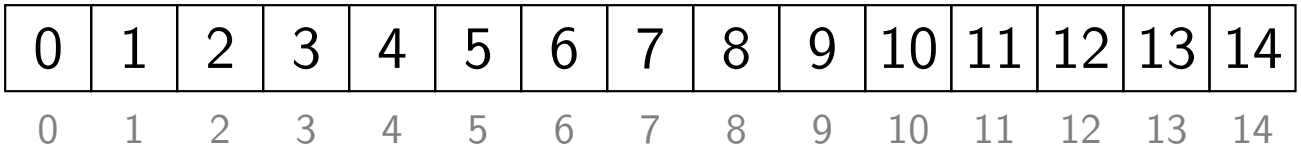
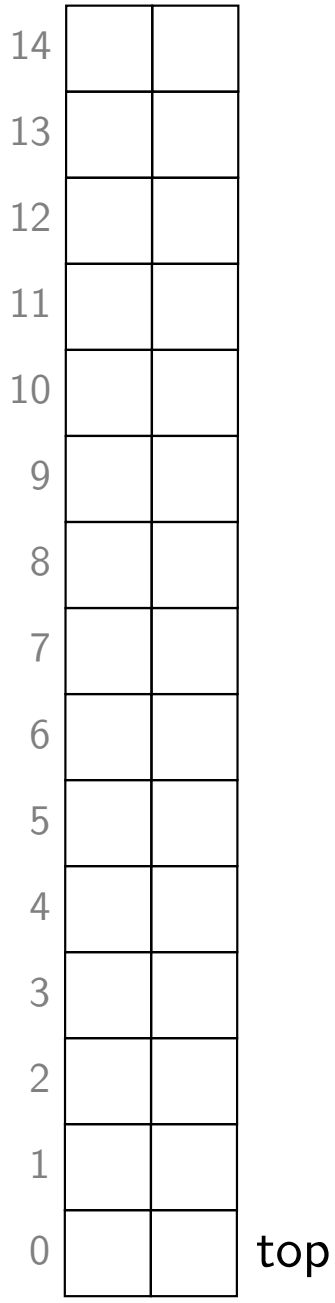
a,b p



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a,b p