Homework 2

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1.
```
public void printLots (Collection P, Collection L) {
 for (int i: P)
        System.out.println(L(i));
 }
```

2.
```
public List<AnyType> intersection (List<AnyType> L1, List<AnyType> L2) {
 private AnyType[] L3= (AnyType[]) new Object(L1.size);
 for (AnyType i: L1)
        if (i is in L2) {
              L3.add(i);
              L1.removeAll(i);
        }
 return L3;
 }
```

3.
```
public class MyStack<AnyType> {

 private AnyType[] arr;
 private int sizeOne, sizeTwo;

 public MyStack (int length) {
        a=(AnyType[]) new Object(length);
        sizeOne=0;
        sizeTwo=0;
 }

 public boolean emptyOne() {
        return (sizeOne==0);
 }

 public boolean emptyTwo() {
        return (sizeTwo==0);
 }

 public boolean hasNext() {
        return (sizeOne+sizeTwo<arr.length);

 public void pushOne(AnyType a) {
        if (hasNext()){
              arr(sizeOne)=a;
              sizeOne++;
```

```
        }
        else
            throw new Exception();
    }

    Public void pushTwo(AnyType a) {
        if (hasNext()){
            arr(arr.length-sizeTwo-1)=a;
            sizeTwo++;
        }
        else
            throw new Exception();
    }

    public AnyType popOne() {
        if (!emptyOne())
            return arr(--sizeOne);
        else
            throw new Exception;
    }

    public AnyType popTwo() {
        if (!emptyTwo())
            sizeTwo--;
            return arr(arr.length-sizeTwo-1);
        else
            throw new Exception;
    }

    public AnyType peekOne() {
        if (!emptyOne)
            return arr(sizeOne-1);
    }

    Public AnyType peekTwo() {
        If (!emptyTwo)
            return arr(arr.length-sizeTwo);
    }

    }
```

4. (a)

Step1: move car4 and then car3 to holding track1, move car1 to the output track (output: 1)

Step2: move car8 to holding track2, move car2 to the output track (output: 21)

Step3: move car3 and car4 from holding track1 to the output track (output: 4321)
Step4: move car7 and then car6 to holding track2, move car9 to holding track1
Step5: move car5 to the output track, move car6, 7, 8 from holding track 2 to the output track (output: 87654321)
Step6: move car9 from holding track1 to the output track (output: 987654321)

(b)
198765432