Lab Problems

1. Zipping Lists

Given two lists e.g. [a, b, ..., z] and [0, 1, ..., 25], return the lists [a, 0, b, 1, ..., z, 25]

Assignment Problems

1. Find the Largest Recombination

Given a list of numbers, output the largest possible number made from their recombination.

e.g.
Given [10, 5, 16, 8], output 851610.

2. Rotating a Matrix

Rotate a square matrix 90 degrees clock-wise (in-place).

e.g. Given:
```
01 02 03 04
05 06 07 08
09 10 11 12
13 14 15 16
```

Output:
```
13 09 05 01
14 10 06 02
15 11 07 03
16 12 08 04
```

Undetermined Problems

Block I or II

1. Age Differences

Given a list of (age, name) tuples of length n, then for all k where 0 < k < n, output:

```
if age-k < age-(k-1):
    print: "{name-k} is {x} years older than {name(k-1)}"
```

2. Remove the Duplicates

Given a list of values, some of which are doubled, return an identical list, only without any duplicates.

3. Only the Duplicates

Given a two lists of values, with some values appearing in both lists, return a list containing only the shared values.

4. Count the Duplicates

Given a list of values, where some values are repeated a varying number of times, return a list of tuples that pair each (unique) value with the number of times it appeared in the original list.

Block II or III

1. Students and Grades

Given a list of (name, (grade-subject-A, grade-subject-B)) tuples within tuples and a list of [subject-A-name, subject-B-name] subjects, build a dictionary of dictionaries of names, subjects, grades then print:

"There are {n} students.
The highest subject A grade is: {max A grade}.
The highest subject B grade is: {max B grade}.
The lowest subject A grade is: {min A grade}.
The lowest subject B grade is: {min B grade}.
The average subject A grade is: {sum A grades/n}.
The average subject B grade is: {sum B grades/n}.
The following students did better than average in both subjects: {student x, student y, ...}."