Lab 11.2 (Deadline Monday 4 April 23:59)

Some miscellaneous exercises (not graph-related).

Double vowels

- Write a program called *doubles_112.py* that reads a list of words from `stdin` (one word per line and all lower-case).
- Your program should print the word that contains most *double vowels* (two successive instances of the same vowel constitute a double vowel).
- For example:

```
$ cat doubles_stdin_00_112.txt
artist
engineer
beekeeper
programmer
```

```
$ python3 doubles_112.py < doubles_stdin_00_112.txt
beekeeper
```

- Note that each vowel can be used only once in a double vowel i.e. the string *eee* contains a single double vowel.
- You can assume there will always be a unique winner.

No duplicates

- Write a program called *nodups_112.py* that reads text from `stdin`.
- Your program should output the same text with every subsequent occurrence of a word (after its first) replaced by a full-stop.
- Ignore case when comparing words.
- For example:

```
$ cat nodups_stdin_00_112.txt
Once upon a time there was a Wicked Witch.
In fact there were so many wicked witches
it was hard to tell which witch was which!
As a result, a walk through the dark forest
was, for Rapunzel and Snow White, fraught
with danger.
```

```
$ python3 nodups_112.py < nodups_stdin_00_112.txt
Once upon a time there was . Wicked Witch.
In fact . were so many . witches
it . hard to tell which . . .
As . result, . walk through the dark forest
. for Rapunzel and Snow White, fraught
with danger.
```

Symmetric order

- Write a program called *`symmetric_112.py`* that reads a list of names (ordered by increasing length) from `stdin`.
- Names on consecutive lines (i.e. lines k and k+1, where k is even) have the same length and are pairs.
- Your program should output the same list of names reordered to be symmetric around the longest name(s) in the list i.e. with elements of each pair moved to opposite ends of the list (with the first name in each pair above the second).
- Confused? An example should help:

```
$ cat symmetric_stdin_00_112.txt
Abe
Max
Mary
Jane
Polly
Timmy
```

```
$ python3 symmetric_112.py < symmetric_stdin_00_112.txt
Abe
Mary
Polly
Timmy
Jane
Max
```

- The last name in the list may not be part of a pair. Here is one such example:

```
$ cat symmetric_stdin_01_112.txt
Ben
Una
Sylvia
Thomas
Penelope
```

```
$ python3 symmetric_112.py < symmetric_stdin_01_112.txt
Ben
Sylvia
Penelope
Thomas
Una
```

- You can assume there will always be at least one name in the input list.

Code breaker

- Jimmy has invented a ground-breaking encryption algorithm.
- After each vowel he adds a *p* followed by the vowel again.

- Write a program called *`decode_112.py`* that decodes Jimmy's messages.
- Messages (all lower-case) are read, one per line, from `stdin`.
- For example:

```
$ cat decode_stdin_00_112.txt
papapapa
papapripikapa
prepetty popolly
pepeteper pipipeper pipickeped apa pepeck opof pipickleped pepeppepers
jipimmy lopovepes sapally opo'bripiepen
```

```
$ python3 decode_112.py < decode_stdin_00_112.txt
papa
paprika
pretty polly
peter piper picked a peck of pickled peppers
jimmy loves sally o'brien
```