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Lesson 18a: Concatenation

(+) concatenation is used to combine 2 lists.

Example:

```
grades = ["A", "B"]
```

```
grades2 = ["C", "D", "F"]
```

```
all_grades = grades+grades2
```

```
then all_grades will contain ["A", "B", "C", "D", "F"]
```

Lesson 18b: append

```
vowels = [ "a", "e", "i", "o" ]
```

```
vowels.append("u")
```

now vowels will have ["a", "e", "i", "o", "u"]

But, append can also be used to add on lists.

```
Animals = [ "Mammals", "Reptiles" ]
```

```
List_of_mammals = [ "Dogs", "Cats" ]
```

Animals.append(List_of_mammals) will now have ["Mammals", "Reptiles", ["Dogs", "Cats"]]

Lesson 18c: extend

Extend will enlarge one list with another.

```
vowels1 = [ "a", "e", "i" ]
```

```
vowels2 = [ "o", "u" ]
```

```
vowels1.extend(vowels2) will now have [ "a", "e", "i", "o", "u" ]
```

Lesson 18d: pop

pop will get rid of the item in the list and return the item to you.

```
Names = ["John", "Kevin", "Mark", "Kevin", "Larry"]
```

```
the_name=Names.pop(3) --→ here the_name will hold "Kevin"
```

```
print(Names) will print ["John", "Kevin", "Mark", "Larry"]
```

```
print(the_name) will print "Kevin"
```

Lesson 18e: del

```
Names = ["John", "Kevin", "Mark", "Kevin", "Larry"]
```

```
del Names[3]
```

```
print(Names)
```

```
["John", "Kevin", "Mark", "Larry"]
```

Can also do this..

```
Names = ["John", "Kevin", "Mark", "Kevin", "Larry"]
```

```
del Names[1:4]
```

```
print(Names)
```

```
["John", "Larry"]
```

Lesson 18f: in

```
Names = ["John", "Kevin", "Mark", "Kevin", "Larry"]
```

```
if "Jack" in Names:
```

```
    Names.remove("Jack")
```

```
else:
```

```
    print("Sorry Jack not in the list of names")
```

Lesson 18g: sort

```
Names = ["John", "Kevin", "Mark", "Kevin", "Larry"]
```

```
Names.sort()
```

```
print(Names) will print ["John", "Kevin", "Kevin", "Larry", "Mark"]
```

Homework for Lesson 18

Do the following in Python 3

1. Download a csv file (comma delimited file) of states with abbreviations.
2. Write a python program that will ask for abbreviation and you give the state.
3. Put the states in a list and print them out alphabetically.
4. Put the states and abbreviations in a list.
5. Download the file I gave you in your homework directory called countries.txt
6. Make a list of all the countries and for each country put the languages in a list (ie list inside a list) but delete everything inside ().