

Python Lists

ENGF2: Design and Professional Skills

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Data Structure of the Week

Python Lists

Often you need to store a bunch of data. In python, one way to do this is to use a **list**.

```
days = ["mon", "tues", "weds", "thurs", "fri"]

#how many weekdays are there?
count = len(days)

#what's the second day of the week?
day2 = days[2] # "weds"

#ooops, indices start at zero
#what's the second day of the week?
day2 = days[1] # "tues"

#add the weekend
days.append("sat")
days.append("sun")
# days is now ["mon", "tues", "weds", "thurs", "fri", "sat", "sun"]
```

Deleting and Inserting in Python Lists

```
days = ["mon", "tues", "weds", "thurs", "fri"]

#I don't like mondays
del days[0]
# days is now ["tues", "weds", "thurs", "fri"]

#OK, add monday back
days.insert(0, "mon")
# days is now ["mon", "tues", "weds", "thurs", "fri"]

days[4] = "FRIDAY!!!"
# days is now ["mon", "tues", "weds", "thurs", "FRIDAY!!!"]
```

Be careful about copying Lists

```
days = ["mon", "tues", "weds", "thurs", "FRIDAY!!!"]

#another list of days - careful here, just allocates
#another name for the same list
moredays = days
# moredays is now ["mon", "tues", "weds", "thurs", "FRIDAY!!!"]

#calm down
moredays[4] = "fri"
# moredays is now ["mon", "tues", "weds", "thurs", "fri"]
# days is now ["mon", "tues", "weds", "thurs", "fri"]

yetmoredays = days.copy()    # an actual copy, not the original
yetmoredays[0] = "YAWN!"
# yetmoredays is now ["YAWN", "tues", "weds", "thurs", "fri"]
# days is still ["mon", "tues", "weds", "thurs", "fri"]
```

Iterating over Python Lists

```
days = ["mon", "tues", "weds", "thurs", "fri"]
```

```
# iteration over a list using an index,  
# print one day per line
```

```
for day_num in range(0, len(days)):  
    print(days[day_num])
```

```
# native iteration over a list (more pythonic!)  
# print one day per line
```

```
for day in days:  
    print(day)
```