

Lecture 10

Queries

Mention that the last one is a fold pattern! They'll see more later/also in Lab 6.

1 List of Tuples

Go through the example (list comprehension mapping $x \rightarrow (x, x^2)$ in a list). Also print specific tuples and then specific values from the tuples.

2 Project 3

Talk about list of lists and Project 3. Should start *NOW*. Read through the specification carefully. Go over description and then walk through big example `p1.in`. Quit after a bit and then run program to solve it. It worked! Now work through entire little example.

3 Lists of Lists

Write a 2 dimensional sum function.

4 Strings

How exactly are strings stored in a computer?

4.1 Characters

```
char = 'a' # How is this stored in a computer?

# It's stored as a number!!! (Bring up ASCII table.)
# Strings are just numbers! How might I get that number?

print(ord(char)) # 97
print(chr(98))   # 'b'

# For the most part, we don't really care which character is which
# number. One thing that we do care about is where 'A' and 'a' are
# relative to each other. 'A' is 32 before 'a'.

print(char.islower()) # True
print(char.isupper()) # False
```

4.2 Character Functions

Let's write a function called `char_upper` that will take a single character and return the uppercase version.

4.3 Strings

```
s = "hello"
s[1] = 'u' # Nope!  Strings are immutable!!!

# But what if I really want a string that like the one I have, but
# with a 'u' at index 1?  We have to turn s into a list of
# characters!

lst = [c for c in s]
lst[1] = 'u'
print(lst) # We're almost there!  But this isn't quite what I want...

print("".join(lst)) # Explain this!

print(", ".join(lst))
```

4.4 String Functions

Let's write a function called `str_upper` using `char_upper`.

5 Searching

Write a `contains` function and an `index_of` function.