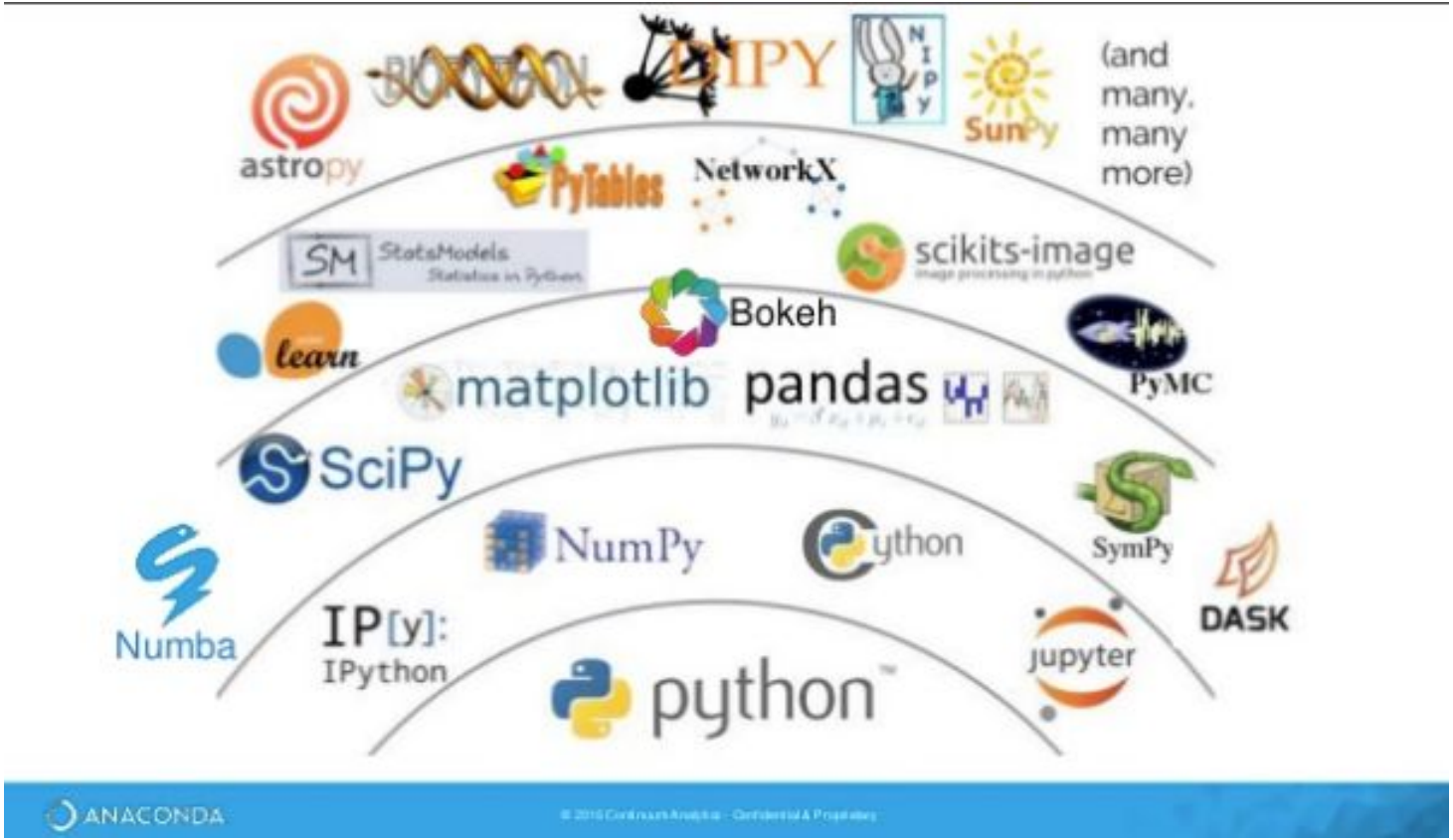
Day 6: Packages, External Data, Coding Community

July 17th 2023

Importing Packages



Importing Packages

```
from psychopy import visual, core, event
from psychopy.clock import getAbsTime
import numpy as np
import pandas as pd
import os, random
from datetime import date, datetime
from settings import *
```

Example Package: Random

```
import random

for x in range(3):
    print(random.randint(1, 10))
```

```
7
1
9
```

how do I know what to do with random? what does randint do? use **documentation**

Review Problems - LCR Dice Game

Practice Looking for Documentation

- sorting through what is helpful / not helpful
- not getting overwhelmed by the code you **don't** know
- looking at multiple solutions and seeing what comes up multiple times
- trying it for yourself to see if it works!
- **iterating the process** – *while don't have solution, look for documentation*

Homework Problem 1: Dice Game Update

you have decided to add some new rules to the dice game we coded in class. starting with the code we made in class, you need to add two more functions – roll_evil_dice() and roll_nice_dice() – and incorporate them into the main game code

- **roll_evil_dice**() should give the user a 1/10 chance of keep, a 3/10 chance of center, a 2/10 chance of left, and a 4/10 chance of right
- **roll_nice_dice**() should give the user a 3/4 chance of keep. if they roll the other 1/4 chance, they should get to **pick** where they move their token using an input() call

you can store these functions in a dictionary as **keys**, or use if/else statements to call them. in the take_a_turn() function, you should have the player **roll_evil_dice**() if they have more than 10 tokens, and **roll_nice_dice**() if they have fewer than 2 tokens. they should roll these dice instead of the dice function we wrote today.

Homework Problem 2: Dice Game Players

In this problem, you should add yourself to the dice game as a fourth player. Before coding, think about what parts of the game will change and which will stay the same if you were to sit down at a table to play!

Optional Challenge: right now, the players are **hard coded** because we typed them directly into a dictionary/list and used the number of players in the code (for example, in the modulo to get who was to the right and the left). Try changing the code so that it asks for input at the start to get the number of players, the names of those players, and then it makes a dictionary with them, splitting the 24 start tokens evenly (in the real game, if there is an uneven division, extra tokens go to the center). They should still play the game with three dice.

Problem 3: Time the code

In this problem, you will practice searching for documentation for a new python feature we did not learn in class! this is an important part of coding because there will always be new packages you might want to learn, and you will not always have the way to code something memorized. reading documentation is a typical part of the day of a software developer!

You should write code to **time the game** you have now coded in the dice game. Before starting coding, think about **where** you will need to start and end the timer. If you were playing an actual game, how often would you start / stop the timer? Would it happen every turn, every dice roll, or just when the game starts / ends?

You should print out the total time the game took in **seconds** at the end of the game. Test your code by adding more chips to the pot – if you start your users with 80 coins instead of 8, does it take longer to run the game?

Hint: Python has a package **time** you can import which will help. This is not the only solution, so if you find something else, please feel free to be creative. The simplest solution requires adding <5 lines of code, so if you feel like you are struggling, come to office hours or look at more examples online!

Problem 4: Research a python package

For this problem, please research a python package you would be interested in learning more about in the future. pypi.org (The PYthon Package Index) is a repository of software for the python programming language you can use to do this. You can also google ‘python packages for ____’ and see what is out there!

Write 100 words or more about the package you found, how you went about finding it, and what you think it might do. Please provide a link to documentation for this package. Be creative! Think back to day one all of the examples of code in our lives you generated and see if you can find related packages.

Problem 5: Explore Your Dataset

Take time to look at the dataset you will be using in your group project, either by looking at the data directly or by using the provided website for where it lives online. Write a description of the **variables** recorded in the **columns** of the dataset. Write a description of at least 10 columns of your dataset.

Use the following template to get you started:

- [column name]: contains [data type] with values [in this range / category]. it records [description in words]. [special notes]
- **example**: color: contains string with all caps values like BROWN or MULTI. it describes the color of the dog being recorded. missing values seem to be recorded with a .

Finally, write one suggestion of something interesting you might plot from this dataset. **Example**: I will plot how many **brown** dogs were recorded each year to see how colors have changed.