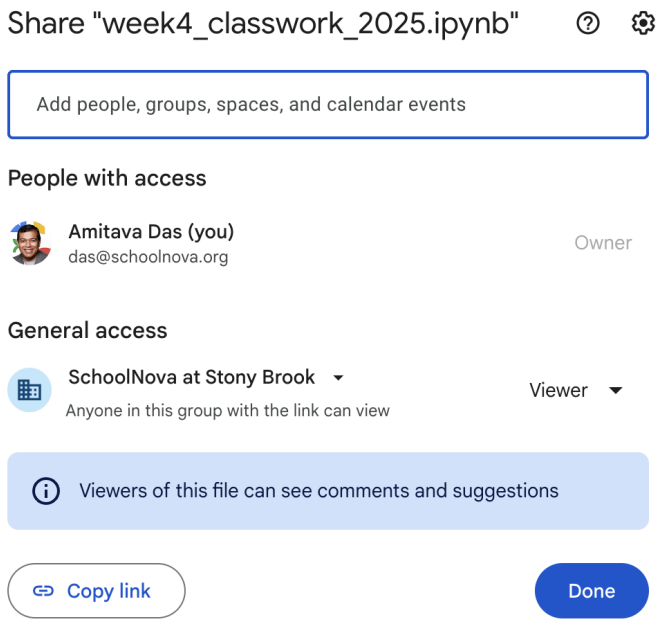
KEY CONCEPTS:

In class, we started a new file in our programing environment at http://colab.google
The classroom discussion can be found at https://colab.research.google.com/drive/18UTbhARbGduusR317_bzESIHXr1Uenz6?usp=sharing

We worked with basic math operators + - * / ** and %, math functions round() and abs() and the shorthand format of math operators += -= /= etc.

For your homework submission this week, please follow the instructions below:

1. Start the Python script file with name: *yourname_homework2.ipynb*
2. After you are done coding, click on the Share button, and set the General Access to School Nova (Viewer):



3. Click on Copy Link (this copies the link address into the clipboard) and then click on Done.
4. Go to the Homework assignment in Google Classroom, and paste the URL (link) in as the submission.

HOMEWORK:

Hint: use a separate cell for each problem! Create the Python script file with name: *yourname_homework2.ipynb*

1. PROBLEM 1

A. Create a variable called r, and assign it the value 30

B. Create a variable called pi, and assign it the value 3.14

C. Calculate the area and perimeter of a circle with radius r, and print them as follows:

The radius of the circle is:
The area of the circle is:
The perimeter of the circle is:

2. PROBLEM 2

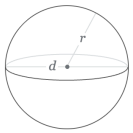
The volume of a sphere is given by the following formula:

Sphere

Solve for volume

$$V = \frac{4}{3}\pi r^3$$

r Radius Enter value



A. Create a variable called r, and assign it the value 30

B. Create a variable called pi, and assign it the value 22 / 7

C. Calculate the volume of a sphere (accurate up to 3 decimal places) with radius r , and print them as follows:

The radius of the sphere is:
The volume of the sphere is:

3. PROBLEM 3

A. Create a variable call my_vol with the same value as the volume from the problem above

B. If I had filled this sphere with water, and poured it into cups of volume 27, how many cups would I fill to the top? How much water would be left over?

4. CHALLENGE PROBLEM (OPTIONAL)

One of the useful skills for a programmer is to read documentation and figure out how to use a new command. The page at https://docs.python.org/3/library/functions.html contains the functions built in to Python 3. One of the functions available is the pow() function which is similar to ** - it can be used to calculate base ** exp (eg. $3^2 = 3 \times 3 = 9$). Read the section of the manual that describes this function and use it to calculate:

- $9^{-1/2}$
- 10^2
- $8^{1/3}$