1. Write a line of code to generate the following errors:
    a. NameError: name ‘x’ is not defined
    b. IndexError: *list* index out of *range*
    c. ‘KeyError: ’ while declaring a ‘dictionary’ data type
    d. TypeError: must be ‘str’, not ‘int’
    e. ValueError: invalid literal
    f. ZeroDivisionError: division by zero

2. Check if ‘Python’ is in ‘Python is great!’

3. Turn ‘Python is great!’ to a list

4. Get the unique element from (2,3,2,3,1,2,5,3,2,3,3,2)

5. Assign (3,2,1) to set_a and (2,3,2) to set_b. Get the following
    a. Union of set_a and set_b
    b. Intersection of set_a and set_b
    c. Difference of set_a to set_b using difference method

6. Create a numpy array

$$y = \begin{bmatrix} 3 & 5 & 3 \\ 2 & 2 & 5 \\ 3 & 8 & 9 \end{bmatrix}$$

and calculate its transpose. Multiply *y* and its transpose and check whether $yy^T = y^T y$. Reshape the array into a 9 x 1 column vector z. Transpose z to produce a 1 x 9 row vector. Evaluate zz^T and $z^T z$. What is the difference?

7. Search the web and find a way to write a cell magic to clear all variables in a Jupyter notebook.