

2. Write a main function and the following functions to compute the stress and strain in a steel rod of diameter D (inches) and length L (inches) subject to the compression loads P of 10,000 to 1,000,000 pounds in increments of 100,000 pounds. The modulus of elasticity E for steel is 30×10^6 .

- A function to compute the stress from the formulas

$$\text{stress } f = \frac{P}{A}$$

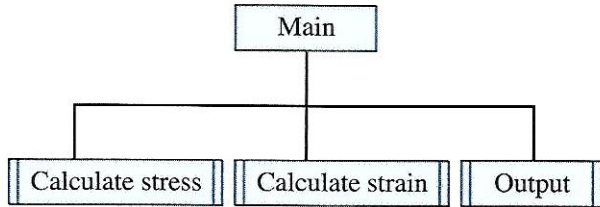
where $A = \pi D^2 / 4.0$

- A function to compute the strain from the formulas

$$\text{elongated or shortened length } \Delta L = \frac{fL}{E}$$

$$\text{strain } e = \frac{\Delta L}{L} = \frac{f}{E}$$

- A function to output the stress and strain at different loads of P .



The functions should call each other as shown in the structure chart.