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# By submitting this assignment, I agree to the following:
# "Aggies do not lie, cheat, or steal, or tolerate those who do."
# "I have not given or received any unauthorized aid on this assignment."
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# Section: 219
# Assignment: Lab5b_Act1
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Lab 5b Planning

Young's Modulus: 30,000 ksi or 200 GPa for steel
- Relatively large because steel is structurally very stiff

Variables needed
- i: input
- stress: calculated stress

Logic needed
- Bounds-checking
  - Can be done with a fall-through if/elif/else block
- Linear interpolation
  - Simply use y=mx+b
    - x = i-a
      - a is the lower strain-bound of that particular segment
    - b = the starting stress of the segment
    - m = (d-b)/(c-a)
      - d = the ending stress of the segment
      - c = the ending strain of the segment

Steps
1. Prompt the user for input
2. Get input
3. Convert that input to float
4. Check whether the input is between 0 and 0.27
   a. If not, print accordingly
5. Determine the segment encapsulating the input

6. Determine linearized approximation
    a. Use the method described above
7. Output the stress
    a. If the input was invalid, output nothing

Test cases:

Inputs	Expected Outputs
Normal Cases	
0.005	The stress is approximately 25.1
0.5	The stress is approximately 43.4
0.12	The stress is approximately 51.8
0.20	The stress is approximately 50.8
Corner Cases	
0	The stress is approximately 0.0
0.01	The stress is approximately 43.0
0.06	The stress is approximately 43.5
0.18	The stress is approximately 60.0
0.27	The stress is approximately 51.0
Edge Cases	
-0.4	Strain is undefined in that region
0.28	Strain is undefined in that region