Lab 4b program 5 planning pdf

Goal: to take an input of strain and calculate stress level and region value falls in

1.) We will prompt the user for an input of strain value
2.) Our model will only have 4 regions represented by linear functions till the breaking point

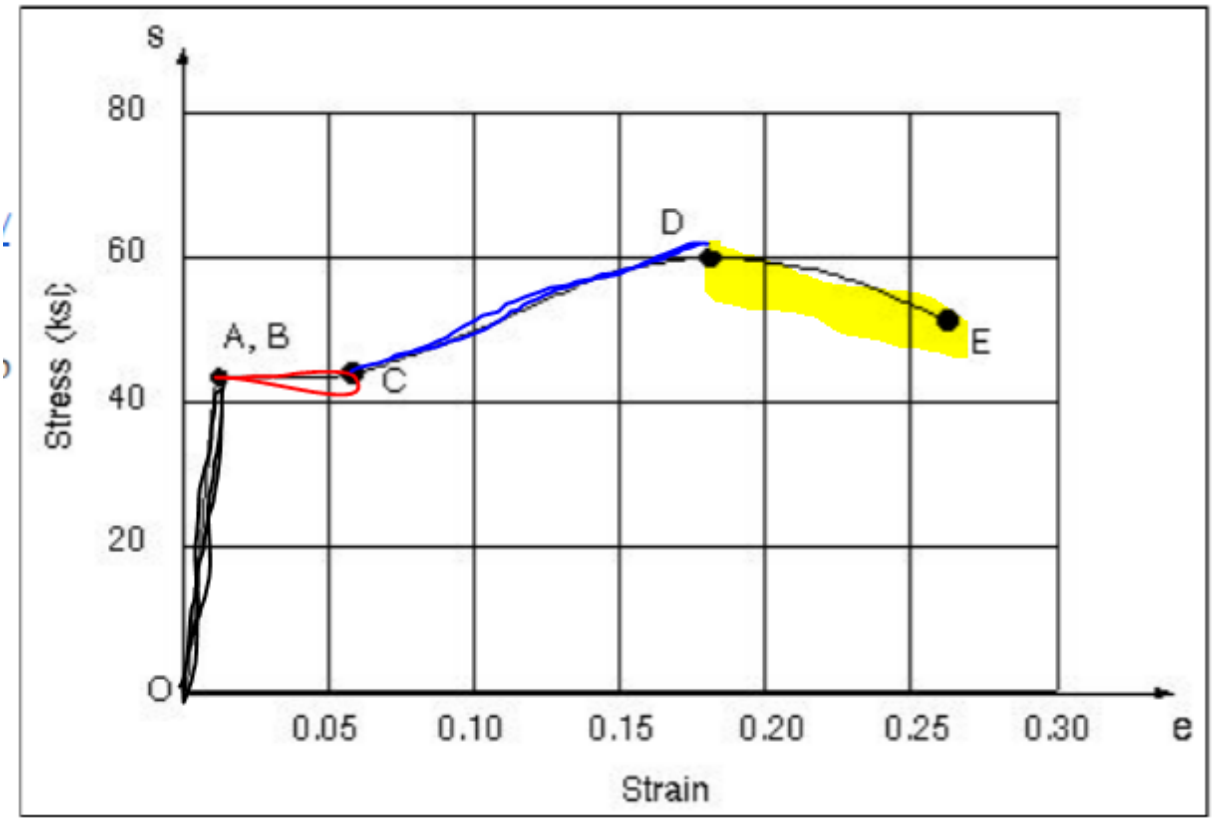
Our values will be between these points

O-A (0,0) → (.02,44) positive slope m = 2200 y = 2200x

A-C (.02,44) → (.06,44) no slope horizontal line m = 0 (y = 0x + 44)

C-D (.06,44) → (.18, 60) positive slope m = 400/3 y = 400x/3 + 36

D-E (.18,60) → (.265,51) negative slope m = -105.8823529 y = -105.8823529x + 79.0588



The 4 linear regions are represented by the 4 different color lines

O-A black

A-C red

C-D blue

D-E yellow

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- Use if elif statements to apply the different y = functions to the inputted strain values that fall between the different regions
- There will be edge cases that at certain values < and <= will be used at edge case values
- If strain between 0 and .02 function 1 will be applied to x
- If strain between .02 and .06 function 2 will be applied to x
- If strain between .06 and .18 function 3 will be applied
- If strain between .18 and .265 function 4 will be applied
- If higher than .265 the strain exceeds the fracture point

program will take strain values, determine whether they fall within the 4 regions of stress, calculate the stress value and print the applicable info