For question 2:

- I am still unclear about some of our tasks and the terminology presented. Is the 5-by-5 matrix the one composed of values for "m" in slide 47 (Multiple Slip: Strain)? I think these values for "m" are Schmid factors, where $m_{ij}=b_i*n_j$, but where do these b and n values come from and how do we account for the 12 directions?

[matrix equation shown in slide 47]

$$\begin{bmatrix} D_2 \\ D_3 \\ D_4 \\ D_5 \\ D_6 \end{bmatrix} = \begin{bmatrix} m_{22}^{(1)} & m_{22}^{(2)} & m_{22}^{(3)} & m_{22}^{(4)} & m_{22}^{(5)} \\ m_{33}^{(1)} & m_{33}^{(2)} & m_{33}^{(3)} & m_{33}^{(4)} & m_{33}^{(5)} \\ (m_{23}^{(1)}+m_{32}^{(1)}) & (m_{23}^{(2)}+m_{32}^{(2)}) & (m_{23}^{(3)}+m_{32}^{(3)}) & (m_{23}^{(4)}+m_{32}^{(4)}) & (m_{23}^{(5)}+m_{32}^{(5)}) \\ (m_{13}^{(1)}+m_{31}^{(1)}) & (m_{13}^{(2)}+m_{31}^{(2)}) & (m_{13}^{(3)}+m_{31}^{(3)}) & (m_{13}^{(4)}+m_{31}^{(4)}) & (m_{13}^{(5)}+m_{31}^{(5)}) \\ (m_{12}^{(1)}+m_{21}^{(1)}) & (m_{12}^{(2)}+m_{21}^{(2)}) & (m_{12}^{(3)}+m_{21}^{(3)}) & (m_{12}^{(4)}+m_{21}^{(4)}) & (m_{12}^{(5)}+m_{21}^{(5)}) \end{bmatrix} \begin{bmatrix} d\gamma_1 \\ d\gamma_2 \\ d\gamma_3 \\ d\gamma_4 \\ d\gamma_5 \end{bmatrix}$$

The "b" and "n" are the slip direction and slip plane normal, respectively. When you take the outer product of a pair then you get a *slip matrix* aka *Schmid tensor*. The actual values as Miller indices are given on, e.g., slide 41. You need to account for 12 *independent slip systems*, not 12 *directions*.

Table 10.1 Designation of slip systems in FCC crystals

Plane		(1 1 1)			$(\bar{1}\,\bar{1}\,1)$	
Direction	$[0\,\bar{1}\,1]$	$[1\,0\,\bar{1}]$	$[\bar{1}\,1\,0]$	[0 1 1]	[101]	$[1\,\bar{1}\,0]$
System	a_1	a_2	a_3	b_1	b_2	b_3
Plane		$(\bar{1}\,1\,1)$			$(1\,\bar{1}\,1)$	
Direction	$[0\,\bar{1}\,1]$	$[\bar{1}\,0\,\bar{1}]$	[1 1 0]	[0 1 1]	$[1\,0\,\bar{1}]$	$[\bar{1}\,\bar{1}\,0]$
System	c_1	c_2	c_3	d_1	d_2	d_3

For question 3:

- I think my confusion comes from the format of the question. My approach was to complete a total of 15 "sections," one for each orientation - strain tensor interaction (so 2.1 and uniaxial, 2.1 and plane, 2.1 and simple shear, 2.2 and uniaxial, etc.). For each of these outcomes, I index the stress state, calculate the Taylor factor (using the pseudo code), and find the active multi-slip stress state from the A-through-H values. Is this correct?

Yes indeed, each combination of strain tensor and orientation is a distinct problem or calculation.