ICP Coursework

Part 1
Total time: 1 hour
Question 1 & 2:
- Took 30 mins
- How do users input multi-line messages, using '\n'? If so, do we need to put that into sentences using full-stops? I don't really understand this part

Question 3 & 4:
- Took 20 minutes
- Maybe give a hint to use the 'ord' and 'chr' functions, or give a hint to look up ASCII character to number conversions (I wouldn't have known about this if I was a first year and I would have tried to hard-code enumerations of the alphabet)

Question 5:
- Took 10 minutes (again maybe hint to ASCII characters to check for non-letter characters)

Part 2
Total time: 1 hour 35 minutes
Question 1:
- Part a & b took 15 minutes
- Maybe remind them about punctuation when checking for unique words (As 'hello,' is a different word to 'hello')
- Part c took 45 minutes
- Part d took 5 minutes
- Part e took 20 minutes
- Maybe explain to students how to sort two things at once (I wanted to sort the letter and the count by just the count - I remember trying to do this in 1st year and it taking me about a week (and a lot of stress) how to figure it out - I still didn't know how to do it now - I think this could be something that they ask TAs to help and TAs just having to straight up give the answer - I think hints would really help)

Question 2:
- Is it the top 10 or all the words?
- Took 10 minutes

Part 3
Total time: 25 minutes
Question 1:
- Took 10 minutes

Question 2 and 3:
- Took 5 minutes

Question 4:
- Took 10 minutes (maybe hint towards to OS package)

Part 4
Total time: 25 minutes
Question 1:
-Took 5 minutes

Question 2:
- Took 5 minutes

Question 3:
- Took 15mins

Part 5
Total time: 2 hours 25 minutes
Question 1:
- Took 1 hour (debugging - I originally stored the Message a string, as I didn't understand the multi-line aspect, later changed this so Message is a list of strings for each line - maybe make that more clear)

Question 2:
- Took 45 mins
- Have they used matplotlib yet?
- Scatter plot?
- Maybe give a hint that they should convert the string data to float types (I tried to plot the strings and it wasn't pretty)

Question 3:
- Took 5 minutes (quick because used zip and list comprehension)
- But make clear what N is - is it number of axis or is it number of data points?
- I don't get how you want us to display RMSE on the graph if its a singular value - just in a box on its own?

Question 4:
- Took 5 minutes
- If you are going to deduct points for not having plot labels, maybe remind them to be thorough with their plots

Question 5:
- What is b? This is not clear (just set it to 1 - can edit this on line 502)
- Part a took 10 minutes
- Part b took 20 minutes
- Seems a bit pointless
- What is a csv file?
- Do you want bending stiffness added on the end - does order matter?
- Do we need to add feature titles into the csv file?

Overall

Total overall time: 350 minutes / 5 hours 50 minutes

- I really enjoyed the caesar-cipher part, not so much the stuff about beams (reminded me of Physics A-level, I don't really see the point of it)
- It didn't take me too long, however I am very comfortable with Python
- When I was a first year (not at Bristol, at University of Bath) I had this same coursework for one of my units, however it was a lot shorter than this - it just involved the caeser cipher automatic decryption part (and the build up to this). I remember really struggling with this and not getting it done on time, so not sure if this is sightly too long for 1st years. I had around 5 weeks for that coursework and was advised to spend 50 hours on it, so not sure if 3 weeks is too little time for them to get this done.
- The structure in your version is really clear and the build up to how to do automatic decryption is really helpful (a lot better than Bath explained to us), however I think a couple of hints would really help the first years. When I was a first year doing this I spent most my time on really small aspects as I had no clue where to begin and how to even google for the right thing, so I will make a list of hints that I think would be really helpful. I am not sure what is coming up in the lecture content, so if the following points will be covered please ignore me:
  - Maybe remind them about case-sensitivity when comparing words (use upper or lower functions)
  - Give them a hint for ASCII character numbering (I had no idea this existed when I was a first year and spent hours trying to hard-code a look-up table)
  - Remind them to wrap-around when shifting letters (if a letter + 1 goes past z, then wrap around to start from a)
  - Maybe remind them about the split() function to turn a sentence into a list of the words and about the separator.join() function to turn a list into a string
- With the whole coursework some of it felt a tad pointless and I couldn't see how it would be checked
  - What do you want outputted when the whole code is run?
  - Maybe get the students to output arbitrary things like Ecrypt("Hello",Rotation=5) as they go along
  - Some of the functions weren't used at all, like the word statistics and most common letter, so maybe add the same thing and get them to print the most common letter in a set text or something so they feel like their work is being checked and used
- Make it clear what the students are submitting and what their code should output when run

- Think perhaps the questions for counting words and letters were too difficult, but I understand your reasoning for putting them in and to test different data types