Section B

You are advised to spend no more than **20 minutes** on this section.

Enter your answers to **Section B** in your Electronic Answer Document.
You **must save** this document at regular intervals.

The question in this section asks you to write program code **starting from a new program/project/file**.

You are advised to save your program at regular intervals.

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0 7 One method that can be used to compress text data is run length encoding (RLE). When RLE is used the compressed data can be represented as a set of character/frequency pairs. When the same character appears in consecutive locations in the original text it is replaced in the compressed text by a single instance of the character followed by a number indicating the number of consecutive instances of that character. Single instances of a character are represented by the character followed by the number 1.

Figure 9 and **Figure 10** show examples of how text would be compressed using this method.

Figure 9

Original text: `AAARRRRGGGHH`
Compressed text: `A 3 R 4 G 3 H 2`

Figure 10

Original text: `CUTLASSES`
Compressed text: `C 1 U 1 T 1 L 1 A 1 S 2 E 1 S 1`

What you need to do

Task 1
Write a program that will perform the compression process described above. The program should display a suitable prompt asking the user to input the text to compress and then output the compressed text.

Task 2
Test the program works by entering the text `AAARRRRGGGHH`.

Task 3
Test the program works by entering the text `A`.

Evidence that you need to provide
Include the following in your Electronic Answer Document.

0 7 . 1 Your PROGRAM SOURCE CODE.

[12 marks]

0 7 . 2 SCREEN CAPTURE(S) for the test showing the output of the program when `AAARRRRGGGHH` is entered.

[1 mark]

0 7 . 3 SCREEN CAPTURE(S) for the test showing the output of the program when `A` is entered.

[1 mark]