Question 1: (Collection class) 10 Marks

Problem description:

Vehicles registration's first two parts "XX-XX" contains the state information and the RTO zonal area code were the vehicle was registered.

For example if vehicle registration number is "KA-50-EF-1234", then "KA" refers to "Karnataka" and "50" refers to Zonal office area "Yelahanka" and similarly if the vehicle registration is "KA-05-45", then "KA" refers to "Karnataka" and "05" refers to Zonal office area "Jayanagar".

Given below is the complete set of RTO Code and corresponding area names of RTO's in Bangalore:

RTO Code	Area
KA-01	Koramangala
KA-02	Rajajinagar
KA-03	Indiranagar
KA-04	Yeshwanthpur
KA-05	Jayanagar
Ka-50	Yelahanka

RTO Code	Area
KA-51	Electronics City
KA-52	Nelamangala
KA-53	K.R.Puram
KA-54	Nagamangala
KA-55	Mysore East
KA-56	Basavakalyan
KA-57	Shantinagar

Complete the method provided which accepts a collection of registration numbers and returns a collection of registration numbers which are sorted on RTO-Zonal area where the vehicles were registered. Note: If vehicles are from same area then they should be sorted based on registration sequence number [Part of number without RTO Code]

UTC	Input	Output	Description	Marks
UTC_01_01	KA-55-AB-4555, KA-01-EF-4444, KA-04-AB-9000, KA-56-200, KA-50-T-3111, KA-02-AG-9243	KA-56-200, KA-01-EF-4444, KA-55-AB-4555, KA-02-AG-9243, KA-50-T-3111, KA-04-AB-9000	Vehicles are sorted based on area namely: **Basavakalyan, Koramangala, Mysore East, Rajajinagar, Yelahanka, Yeshwanthpur**	10
UTC_01_02	KA-57-DE-111, KA-51-A-9, KA-04-500, KA-02-L-41	KA-51-A-9, KA-02-L-41, KA-57-DE-111, KA-04-500	Vehicles are sorted based on area namely: **Electronics City, Rajajinagar, Shantinagar, Yeshwantpur**	
UTC_01_03	KA-57-DE-	KA-51-A-9,	Since Both the vehicles "KA-	

	111, KA-51-A-9, KA-04-500, KA-02-L-41, KA-57-AB-9011, KA-04-A-100	KA-02-L-41, KA-57-AB-9011, KA-57-DE-111, KA-04-500, KA-04-A-100	57-AB-9011" and "KA-57-DE-111" are from same area they are sorted based on sequence. Similarly for "KA-04-500" and "KA-04-A-100"	

Question2 (Collection class) 10 Marks

Given a string array of valid and invalid integer and decimal numbers, complete the provided method which accepts a String array of valid and invalid numbers and check if the numbers are Valid or invalid Integer or decimal number.

Input: A String array of Valid and invalid integer and decimal numbers

Output: The output is a list of strings that gives the message <Number> is a valid decimal number or <Number> is an invalid decimal number or <Number> is a valid Integer number or <Number> is an invalid integer number

Test Case	Input	Output	Marks
UTC2_ 01	10.29, 12345,12.0.0	Decimal, Integer, Invalid	10
UTC2_02	Number, 12	Invalid, Integer	
UTC2_03	Number.0, 12a	Invalid, Invalid	
UTC2_ 04	2.0a, 10,0.5	Invalid, Integer, Decimal	
UTC2_05	null	Invalid	

Question3 (File Handling) 10 Marks

Problem description:

Given a file with some lines of text in it, find the number of characters, words and sentences on a particular line in the file. Complete the provided method that counts the no. of characters (including spaces), words and sentences in a file for a given line number and returns the count in a ArrayList<Integer>.

Input : line number to read from file

Output: ArrayList<Integer> returning the character count, word count and sentence Count.

Test Case	Input	Output	Marks
UTC3_01	1	{96,19,2}	8
UTC3_02	2	{64,10,1}	
UTC3_03	3	{0,0,0}	2

Note: Refer file question3file.txt for this question