Assignment 3

Instructions

You will complete a JavaFX application named "Scrabble points Generator"

The application will allow the user to TYPE in a word and it will calculate how many points that word is using the scrabble point system.

Please refer to the photo below for the Scrabble Point System.

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The application will also decrease the letter counter when the user has entered a word. For example, there are 9 "A" letters in the bag in scrabble. If the user enters the words "ha" and "able", he or she has only 7 "A" letter remaining.

Please refer to the second column of the image below

Letter	# in bag
E	12
A	9
R	6
O	8
I	8
T	6
S	4
N	6
L	4
D	4
U	4
G	3
P	2
M	2
B	2
H	2
C	2
W	2
Y	2
F	2
V	2
K	1
X	1
Z	1
J	1
Q	1

Please keep a running Point total and a history of words submitted.

The restrictions for valid words are as follows:

- Two letters minimum
  - One letter must be vowel
    - A, E, I, O, U or Y
- 8 letters maximum
- Cannot have duplicate words

Use this sample layout / mockup as a guide
However, you can design the application however way you see fit.

The Total Points area will run a running total

The grid of letters will display the point values for each letter (please put 26 instead of 10). Also note that the point values are NOT according to Scrabble rules.

The Submit Word button will determine if word is valid.

The Previous Words section will store previous words

Graphics / Layout Rubric

26 Letters displayed with their accompanying point values and the number of letters remaining in the bag. (10 marks)

- 3 marks if all 26 letters present
- 1 mark for point-value of each letter appearing
- 6 marks for letter-count present and accurate in GUI as user submits word(s).

TextField to type word (1 mark)

Submit Word button (1 mark)

Previous Word element to display previous words (3 marks)

Design look & creativity (5 marks)

Total: 20 marks

Java Rubric

Submit button initializes processing   (1 mark)

History to Previous Words is kept as any data structure desired   (2 marks)

User can type using keyboard to submit a word   (1 mark)

User can click on GUI letter to submit a word   (1 mark)

Previous Words node displays valid previous words in format "Word1, Word2"
(notice the commas in-between words and no trailing comma)   (3 marks)

Counter of Letters remaining "in bag" is accurate according to the chart above   (3 marks)

       Letter is either greyed out, disabled or disappears when no more remaining (3 marks)

Error message is displayed when user clicks Submit Word and   (1 mark)

- Word is too short (only 1 character)   (1 mark)
- Word does not include vowel   (2 marks)
- Word is blank   (1 mark)
- Word is too long (more than 8 characters)   (1 mark)
- Word contains letter that is no longer available "in bag"   (5 marks)

Error message disappears when error is corrected   (1 mark)

Message of "Game Over" displayed when they are no possible valid words to enter (1 mark)

- only one letter remaining in bag   (1 mark)
- only consonants remaining in bagHistory of Previous Words   (1 mark)

MVC Architecture followed   (3 marks)

- Controller is present only handles events   (3 marks)
- Model is present and handles all logic & back-end processing   (10 marks)

45 marks

Submission

Your package name should be assignment3
Submit one zipped file named assignment3.zip.
The zip file should only contain .java & .fxml source files. (Hint: zip your package)

Deductions

The following deductions will apply if applicable

Name	Percentage	Description
Late Submission	10% per day	If assignment is not handed in by the due date, this penalty will be applied every 24 hours
Project Not Named Correctly	5%	Case-Sensitive naming convention must be followed