



# Java Software Development

## Homework 4

Deadline: 2016/04/07 23:00

# Problem Description

1

- Write a program to encode or decode Morse Code.
- A Morse Code is composed of the following five elements:
  - Short mark, dot or dit (.) : 1
  - Longer mark, dash or dah (–) : 111
  - Intra-character gap (between the dots and dashes within a character) : 0
  - Short gap (between letters) : 000
  - Medium gap (between words) : 0000000

Java GO

. - - - . -  
101110111011100010111000  
. . . - . -  
101010111000101110000000  
- - . - - -  
11101110100011101110111

A	● —	N	— ●
B	— ● ● ●	O	— — —
C	— ● — ●	P	● — — ●
D	— ● ●	Q	— — ● —
E	●	R	● — ●
F	● ● — ●	S	● ● ●
G	— — ●	T	—
H	● ● ● ●	U	● ● —
I	● ●	V	● ● ● —
J	● — — —	W	● — —
K	— ● —	X	— ● ● —
L	● — ● ●	Y	— ● — —
M	— —	Z	— — ● ●

- The first input (`args[0]`) is a Morse Code table. The second input (`args[1]`) is the mode (encode/decode) to execute. The third input (`args[2]`) is the string to be translated.
- The format of the first input:
  - $A = \text{Code}_1; B = \text{Code}_2; \dots; Z = \text{Code}_{26};$
  - e.g.  $A = . -; B = - . . .; \dots; Z = - - . .;$
- The Morse Code is case-insensitive. You can assume that the string to be encoded only contains English alphabets.
- You should check whether the string to be decoded is valid or not.
- Define a class `MorseCode` with two methods:
  - `encode(String): String`
    - Encodes English words to a Morse Code sequence
  - `decode(String): String`
    - Decodes a Morse Code sequence to English words

# Sample Input and Output

1

Input 1 (args[0])	A=-.;B=-...;C=-..;D=-..;E=.;F=-..;G=-..;H=...;I=..;J=-.-;K=-..;L=-..;M=-.;N=-.;O=-.;P=-..;Q=-..;R=-.;S=...;T=-;U=-..;V=...;W=-..;X=-..;Y=-..;Z=-..;
Input 2 (args[1])	encode
Input 3 (args[2])	Java Go
Output	10111011101110001011100010101011100010111000000011101110100011101110111

# Sample Input and Output

2

Input 1 (args[0])	A=-.;B=-...;C=-..;D=-...;E=.;F=-..;G=-..;H=...;I=..;J=-.-;K=-..;L=-...;M=-.;N=-.;O=-.-;P=-..;Q=-.-;R=-.;S=...;T=-;U=-.;V=-..;W=-.-;X=-..;Y=-.-;Z=-..;
Input 2 (args[1])	decode
Input 3 (args[2])	101110111011100010111000101010111000101110000001110111010011101110111
Output	JAVA GO

Input 1 (args[0])	A=-.;B=-...;C=-..;D=-...;E=.;F=-..;G=-..;H=...;I=..;J=-.-;K=-..;L=-...;M=-.;N=-.;O=-.-;P=-..;Q=-.-;R=-.;S=...;T=-;U=-.;V=-..;W=-.-;X=-..;Y=-.-;Z=-..;
Input 2 (args[1])	decode
Input 3 (args[2])	101110111011100010111000101010111000101110000001110111010011101110111
Output	*INVALID*

# Scoring Criteria

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- Correctness: 80%
  - Note that TA will test your program with more than one test case.
- Coding standards: 20%
- Plagiarism is strictly forbidden

# Submission

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- Please archive your source code to `STUDENT_ID.zip` and upload to Moodle before deadline
- Your zip file should follow the format depicted in the document "`Java Online Judge System Manual.pdf`"
- Remember to test your code on *Java Online Judge System* before uploading to Moodle
- No late submission is accepted

If you have any problem about this homework,  
please contact TA: 林孝融 (XavierLinX@gmail.com)