Project 1: Morse Code

In this project you will develop a program for the **FRDM-KL46z board** that uses the on-board **Green LED** to flash an arbitrary message in Morse Code.

This is an **individual assignment**, and should not be completed in groups.

There are two terminologies in Morse code, dot and dash, which are used to represent the letters of the alphabet. For a “dot”, the LED should be on for **250 milliseconds** and for a “dash”, the LED should be on for **750 milliseconds**. The LED must be off between any two symbols (dot or dash) for **250 milliseconds**.

Between **two letters**, there should be a delay of **750 milliseconds** while between two words there should be a delay of **1000 milliseconds**. For example, suppose we are given a string: “AB CD”. The delays between A and B characters and, C and D characters should 750 milliseconds whereas the delay between B and C should be 1000 milliseconds. For terminating the string, you can consider a dot (“.”) as the last symbol.

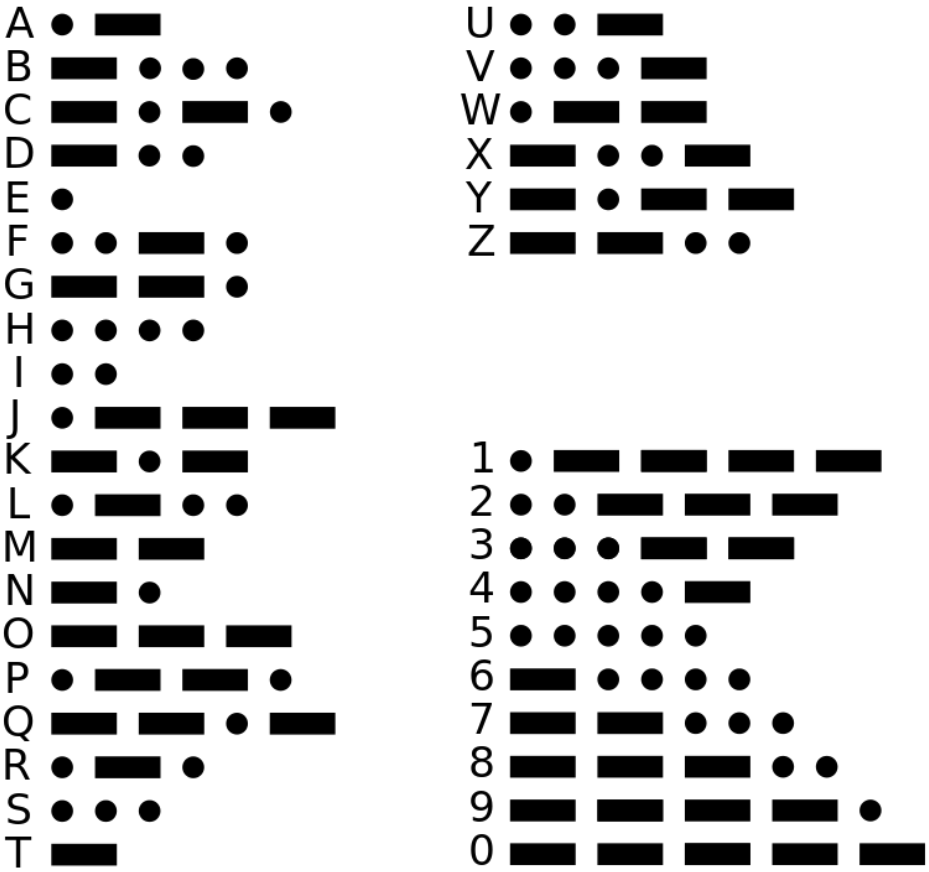
In main, your code must call a function with the following prototype:

```
void displayMorse(char *message, int length);
```

Followed by an infinite loop, so that the function only runs once after reset.

The `displayMorse` function will flash the morse code of the string found in the `message` character array.

International Morse Code



Submission

Once you have completed the development challenge, export your project file by clicking File -> Export, then choose Archive File. Click "Browse" to save your project as "CSE325_Project_1_*yourlastname*.zip"

Submit the following to canvas:

- **Zipped project file**
- Completed **Integrity.txt**

Demonstration

You must submit your code and complete a demonstration with a TA by the due date set on blackboard. The TA will read your code, and you must demonstrate that it works. The TA may ask you questions about your code, and you must be prepared to answer.

Grading

Rubric:

Criteria	**Points**
Program is well structured, well commented, variables and methods are named clearly.	10
The program successfully shows the correct morse code set by the TA with the onboard Green LED.	40
The timing of the Morse code is correct.	30
The student can answer questions about the program correctly.	20
Total	**100**

If you do not upload your code before the assignment deadline, you will receive a grade of 0.

Hints

Accurate timing will be challenging on this project. Use a busy-wait loop for delays, and an oscilloscope to accurately time the duration of a delay loop. If you choose to work ahead and implement a hardware based timer delay, you will receive 10 points extra credit on this assignment.