IHF: CODE - PYTHON WORKSHEET 6 - ACTIVITY 4

Challenge - Play That Tune - 15 points

1. You must get the Edison car to play two different songs - "Mary had a Little Lamb (shown in the example below) and one of your own. (5 points)
2. You must play the two song three times in a row, then stop. (5 points)
3. You must get the Edison car to dance whilst playing a song. (5 points)

What you need to know

To drive the car, you use the the Ed.PlayTone() function.
The Ed.PlayTone() function takes two input parameters: the note and the duration.
The note determines what note to play and the duration determines the given length of time the note should be played.

In the EdPy app, we need to use a string to play a musical tune. We call this a 'tune string' and use the Ed.TuneString() function to play the tune. Ed.TuneString() has two input parameters. The size of the string (in other words, the number of characters in the string) is the first parameter, and the actual string you want to play is the second parameter. You can change the speed your tune plays by changing the Ed.Tempo variable in the Setup code.

Tune strings are made up of notes and duration inputs, which are represented by single characters. A tune string looks like this: "ndndndndndz" where n is a note from the notes table and d is duration from the duration table. All tune strings must end with the 'z' character to end correctly. You can have a maximum of 250 notes.

Notes Table	
String Character	Plays Musical Note
m	low A
M	low A sharp
n	low B
c	C
C	C sharp
d	D
D	D sharp
e	E
f	F
F	F sharp
g	G
G	G sharp
a	A
A	A sharp
b	B
o	high C
R	rest
z	end of tune

Duration Table	
String Character	Plays
1	Whole Note
2	Half Note
4	Quarter Note
8	Eighth Note
6	Sixteenth Note

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CODING EXAMPLES

To play a note:

```
#------------Setup---------------

import Ed

Ed.EdisonVersion = Ed.V2

Ed.DistanceUnits = Ed.CM
Ed.Tempo = Ed.TEMPO_MEDIUM

#--------Your code below-----------
Ed.PlayTone(Ed.NOTE_G_SHARP_7, Ed.NOTE_HALF)
```

This will play the note whilst the car is driving.

```
#------------Setup---------------

import Ed

Ed.EdisonVersion = Ed.V2

Ed.DistanceUnits = Ed.CM
Ed.Tempo = Ed.TEMPO_MEDIUM

#--------Your code below-----------
Ed.PlayTone(Ed.NOTE_G_SHARP_7, Ed.NOTE_HALF)
Ed.Drive(Ed.FORWARD, Ed.SPEED_7, 10)
```

This will play the note and then drive instead of the music playing in the background.

```
#------------Setup---------------

import Ed

Ed.EdisonVersion = Ed.V2

Ed.DistanceUnits = Ed.CM
Ed.Tempo = Ed.TEMPO_MEDIUM

#--------Your code below-----------
Ed.PlayTone(Ed.NOTE_G_SHARP_7, Ed.NOTE_HALF)
while Ed.ReadMusicEnd()==Ed.MUSIC_NOT_FINISHED:
    pass
Ed.Drive(Ed.FORWARD, Ed.SPEED_7, 10)
```

This will create an wake-up alarm.

```
#------------Setup---------------

import Ed

Ed.EdisonVersion = Ed.V2

Ed.DistanceUnits = Ed.CM
Ed.Tempo = Ed.TEMPO_MEDIUM

#--------Your code below-----------
for i in range(33):
    Ed.PlayTone(100+(i*100), 1000)
    while Ed.ReadMusicEnd()==Ed.MUSIC_NOT_FINISHED:
        pass
```

This will play "Mary had a Little Lamb"

```
#------------Setup---------------

import Ed

Ed.EdisonVersion = Ed.V2

Ed.DistanceUnits = Ed.CM
Ed.Tempo = Ed.TEMPO_MEDIUM

#--------Your code below-----------
maryLamb = Ed.TuneString(53, "e4d4c4d4e4e4e2d4d4d2e4g4g4e4d4c4d4e4e4e4e4d4d4e4d4c1z")

Ed.PlayTune(maryLamb)
while Ed.ReadMusicEnd() == Ed.MUSIC_NOT_FINISHED:
    pass
```

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