Function name:

Inputs:

Outputs:

Algorithm:

Function name: readAccelerometer

Inputs: none

Outputs: array of acceleration values in x, y, and z

Algorithm:

Read the microbit accelerometer in x and store the value
Read the microbit accelerometer in y and store the value
Read the microbit accelerometer in z and store the value

Return an array of these three values

Function name: calculateAccelerationMagnitude

Inputs: array of acceleration values

Outputs: magnitude of acceleration

Algorithm:
This stores the magnitude of acceleration values in x, y, and z in variables
Then it calculates the magnitude using the 3D pythagorean theorem

Function name: scaleAccelerometerToMetersAndSeconds

Inputs: acceleration value

Outputs: acceleration value converted to meters per second squared

Algorithm:
The sensor gives a value between -1023 and 1023
Acceleration is measured in meters per second square.
The map command uses a linear function to convert a sensor value (-1023 to 1023) to be between -9.81 and 9.81 meters per second.
This scaled value is returned.

Function name: isAccelerationMoreThanIsAllowed

Inputs: acceleration magnitude

Outputs: true or false (is acceleration more than a maximum amount or not)

Algorithm:
If-then statement comparing the input acceleration to the maximum allowed acceleration

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Function name: displayAccelerationFeedback

Inputs: true/false whether acceleration is beyond maximum

Outputs: none

Algorithm:

if/then statement that either shows positive feedback or negative feedback

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Function name: showPositiveFeedback

Inputs: none

Outputs: none

Algorithm:
Show a happy face on the LED display

Function name: showNegativeFeedback

Inputs: none

Outputs: none

Algorithm:
Show a sad face on the LED display