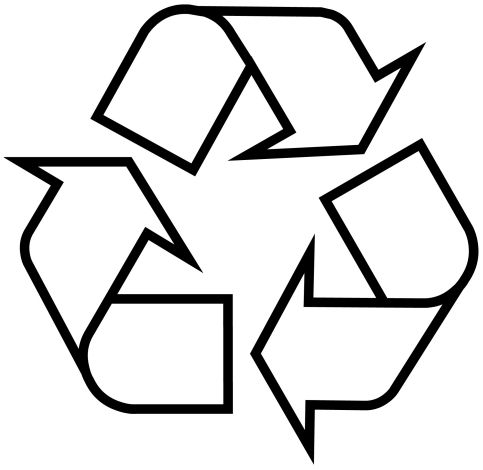
Recycling Tally Counter

A micro:bit makecode project (mentor guide)

Title	○ **Recycling Tally Counter**
Description	A progressively challenging series of tasks. Program your micro:bit to be a tally counter of materials recycled in your library.
Required materials	Maybe pencil, paper and card if modes can be indicated by LEDs?
Characters	• recycling_tally_counter (developers) • seacroft_recycling_centre (mentors)
Activities	Kids are given only one part of the makecode solution at a time, only receiving the next part when they can explain what they've done so far. They explain to eachother.
micro:bit requirements	micro:bit firmware version 0253 or greater
	Leeds City Council have asked our Code Club to help keep a tally of how many metal drinks cans are being recycled every day in one of their libraries. You walk though the library and for each recycled metal can you count, you **increase the tally by 1**. If count something by mistake, you can **decrease the tally by 1**. Also, when you observe one of the recyclable items in non-recycle bin, you're also allowed to **decrease the tally by 1** - in this way it's possible for a library to have negative totals. You **get the total number** of recycled cans when you've finished counting. You also remember to **reset the counters to zero** when you've finished for the day.
	You were so good they ask other code clubs to do the same in their base libraries on the same day.
	If total tally is 0, between 1 and 10, 11 and 20, greater than 20... report: bad library, ok library, good library, excellent library...
use case story	LCC now need separate tallies and totals for plastic bottles and paper cups. Remi starts her tally count on the 4th floor so she can walk down while visiting each room in the building. at the recycling corner in the first room, there are 3 separate bins, for metal cans, plastic bottles and paper cups. she **resets her tally counter**

	to get everything back to zero. she's put into '*choose material mode*'. she decides to start with the metal cans. she **selects *metal count mode*** on her tally counter device. the current count of zero is then displayed. for each metal can she counts, she **increases the count by one**. when she has counted all the metal cans, she **stores the total metal can count** on the device. the device then goes back out of *metal count mode* back into *choose material mode*. Remi decides that she'll count plastic bottles next. she **selects *plastic count mode*** and repeats the same process. When she's got totals for each recycled material in that room, and her device is back in choose material mode, she walks to the next room on that floor. When at the recycling corner, she checks the bins and decides to count plastic bottles first. she **selects *plastic count mode*** and the current total count for plastic is displayed. Remi then changes her mind and decides to start with paper cups this time. she **re-stores the plastic count**, which takes her back to *choose material mode* at the same time. she then **selects *paper count mode*** and the device displays the current total for paper. for each paper cup she counts, she **increases the tally on the device by one**. when she's counted all the paper cups, she again **stores the new total** and is returned to *choose material mode*. When she's moved down through the library, visited every room and tallied all recycled items, she's ready to get the daily recycling report for the library and send the recycle totals to Seacroft or Cross Green recycling centre servers... while in choose material mode she **puts the device in to send *report mode*** and the device displays the library name followed by total counts for each recycled material. while in send report mode the daily recycling report is transmitted to the seacroft recycling centre server. the send confirmation is then briefly displayed and she's returned back to choose material mode. while in choose material mode, Remi decides to **reset all tallies and totals to zero.** she puts the device into reset mode, where she's presented with the option to confirm or cancel the reset. she chooses to reset and all tallies and total are zeroed. Now report....
	Send totals|reports along with other data collectors to Seacroft / Cross Green future dev on Rpi: green grade report for each office. seacroft recycling centre server receives data from tally counter devices and adds them to it's database, the contents of which it continuously displays
	the seacroft_recycling_centre receives daily reports from each of the leeds libraries. each report is validated.

	the data received is assigned to local variables. each report variable is then added to its' store of data, before being reset. whenever it receives a new daily report, it displays all received daily reports.
futher dev	empty receiving bucket as part of resets in case it's been corrupted by simultaneous uploads during display process. also send totals for each material to seacroft. try key-value pairs. what to do with 'fake' (unknown library, mis-spellings, etc.) data. how to put separator between daily reports show happy, sad faces for good, bad...
testing notes	the getButtonPress() and testButtonPress() is waiting for either a short button A press to cancel, or a long button A+B press to zero reset all tallies. if the user wants to zero reset, but presses button A a instant before button B, the cancel condition will have been met, triggering that code. so, to do an A+B reset, user must consciously press button B first, before button A. while within reset mode, button B event by itself does not trigger any code to run - so it's safe to press.
	All instructions in words only. If you decide to use functions, you'll need two of them. Can you see what they'd be? Create a function that will display this logo for 6 seconds each time the device is started. Create a function …. Press button A for 5 seconds...



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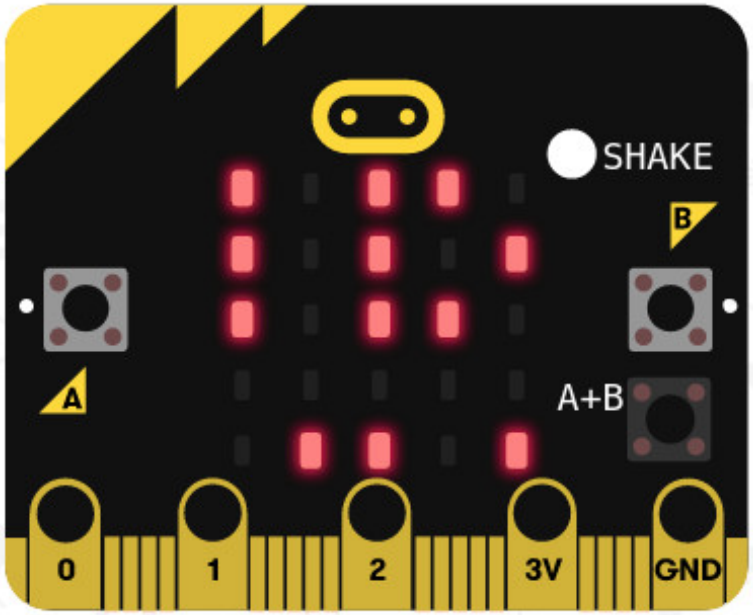

seacroft recycling centre