Unit Tests

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What is unit testing?

- A software testing method by which individual units of source code are tested.
- A test is a piece of code that tests some other code.
  - Each test should be independent.
  - Each test should test some specific functionality.
- Benefits:
  - Detect regressions.
  - Test-driven development.
- We will use a simple, header-only library for unit testing, *acutest*.

How does it work?

- *TEST_CHECK*: tests a boolean condition and fails if the condition evaluates to false.
- *TEST_LIST*: the list specifies name of each test (it has to be unique) and pointer to a function implementing the test.

```c
#include "acutest.h"
#include "list.h"

// a unit test that checks the list_size function
void test_list_size(void)
{
        List* list = list_prepend(NULL, 0);
        TEST_CHECK(list_size(list) == 1);

        list = list_prepend(list, 1);
        TEST_CHECK(list_size(list) == 2);
}


// all the tests that will run
TEST_LIST = {
    { "test_list_size",   test_list_size  },
    { NULL,                NULL           }  /* zeroed record marking the end of
the list */
};
```