

CS1632 Lecture 7

Automated vs. Manual Testing

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Manual testing

- What we have been doing so far.
- We write test plans.
- A human executes them on the software.

Automated tests

- Mostly what we will be doing from here on out.
- We write tests which the computer executes for us.

Benefits of manual testing

- It's simple.
- It's cheap in the short run.
- No additional software to learn or write.
- Flexible.
- Focuses on things the users care about.
- Humans can catch things that programs don't notice.

Drawbacks of manual testing

- It is boring.
- Ambiguity.
- Some tasks may be difficult or impossible to test manually.
- Human error.
- Time and resource intensive.

Benefits of automated testing

- No chance for human error during execution.
- Fast
- Easy to execute
- Repeatable
- Less resource intensive.
- The only way to test some features.
- Cheap in the long run.

Drawbacks of automated testing

- Requires extra time up front.
- May not catch user facing bugs.
- Requires learning tools and frameworks.
- Requires skill.
- It only tests what it is looking for.

Which is better?

It is important to have a test suite of both manual and automated tests.

- Most tests may be automated and the automated tests will verify that the system is executing as expected.
- It is always important to put eyes on an application. Just because automated tests have passed, doesn't mean the application solves the needs of the customer.

What tests should be automated?

- Automate tests that are repetitive.
- Automate tests that have clearly defined inputs and expected outputs.
- Prefer to automate back-end tests.

Things to avoid

- Only test your code. Don't write automated tests for third-party applications.
- Random values and if statements are signs of tests that are not repeatable.
- Tests should not depend on each other.
- Testing more than one thing per test.

Writing automated tests

Automated tests are written in the same form as manual tests.

- Preconditions
- Execution steps
- Postconditions

Executing automated tests

Now that we have automated tests we need to execute them.