

# [0051] Real-World Programming

Programmers learn to program in school and then, often, get a rude awakening in "the real-world." Newly hired computer programmers are frequently amazed at how their responsibilities at their new job are completely different from what they experience in the classroom. Different tools, different workflows, different skills - different... everything!

Here's a list of just some of the differences between typical Academic Assignments and "The Real World"

<b>Academic Assignments</b>	<b>"Real-World" Production Programs</b>
Once working, they are typically run once or twice and then discarded.	Once working are run on a regular basis for months or years.
Are short, rarely exceeding 1000 lines of code.	Are quite long. 25,000+ lines is not unheard of
Are usually done alone.	Are usually done in groups or teams of 3 to 10 members.
Are started and completed by the same individual.	May have many different programmers working on it over its lifetime.
Are rarely changed after working correctly.	Updated frequently over the life of the program.
Any maintenance done by original programmer.	Maintenance done by many different people.
Only looked at by instructor and student - both of whom are very familiar with the problem being solved.	Reviewed by management and customers who are not familiar with the structure of the program.
End-users are intimately familiar with the problem.	End-users may be clueless about the problem.
Lower productivity doesn't result in lower profits.	Real-money is on the line.
Bad programming results in lower grades	Bad programming results in financial loss, possibly job loss or even user death.

And here's a list of some of the things programmers use in the real world that are rarely seen in school:

- Profilers
- Group Chat (Slack)
- Continuous Integration Builds (Jenkins)
- Advanced Source Code Control Systems (Gitflow)
- Bash Scripts (grep, sed, awk, etc.)
- Server Log Managers
- Bug Databases (Jira)
- Test Driven Development
- Server Load Balancers
- System Integration Testing
- and much, much more.

Unfortunately, there isn't enough time in this one class to teach you all of the stuff you'll need in the real-world however during this class we are going to get much, much closer to reality. And that process starts with writing programs. Lots and lots of programs...