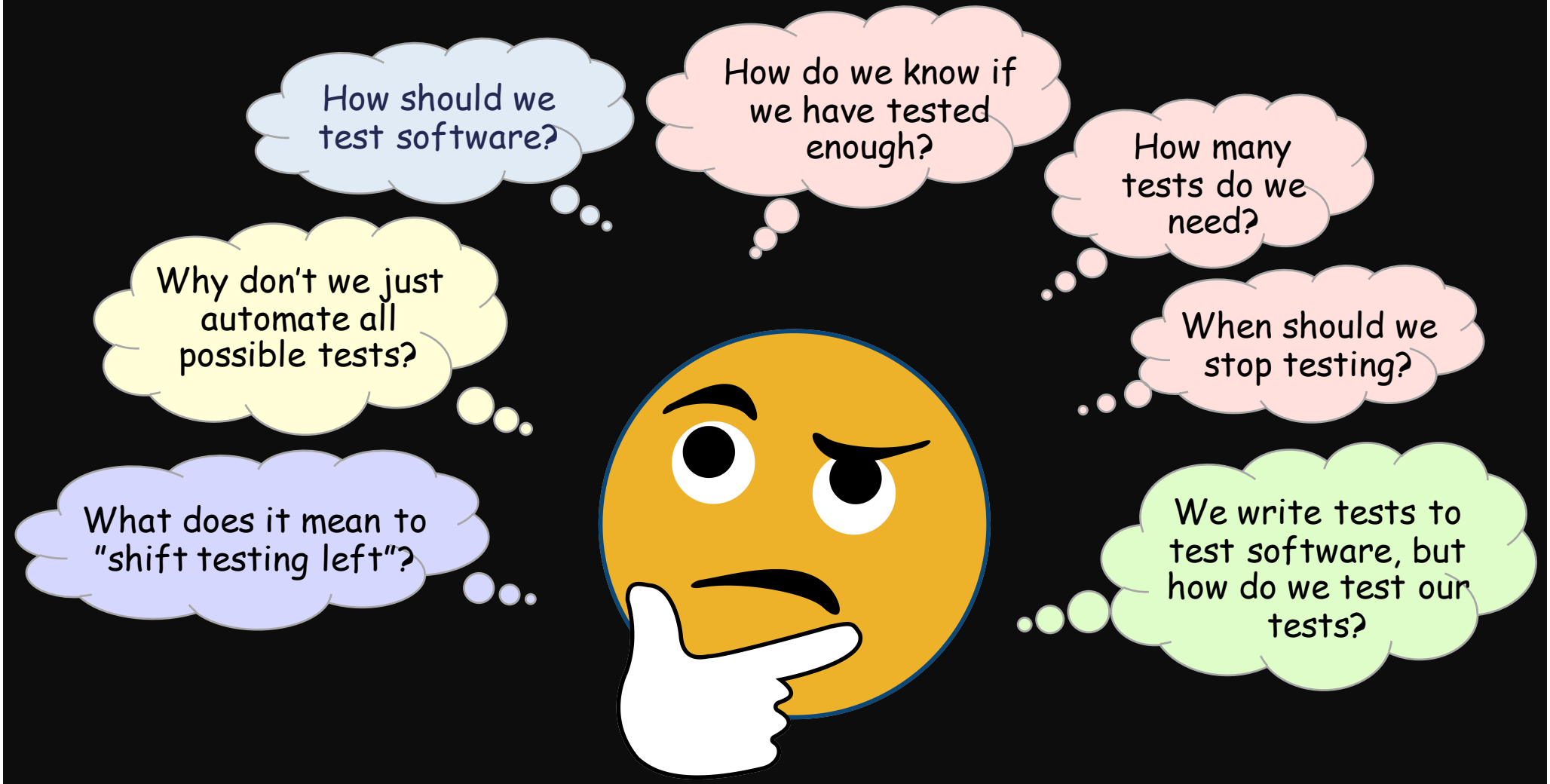
Welcome to CS 3250 Software Testing

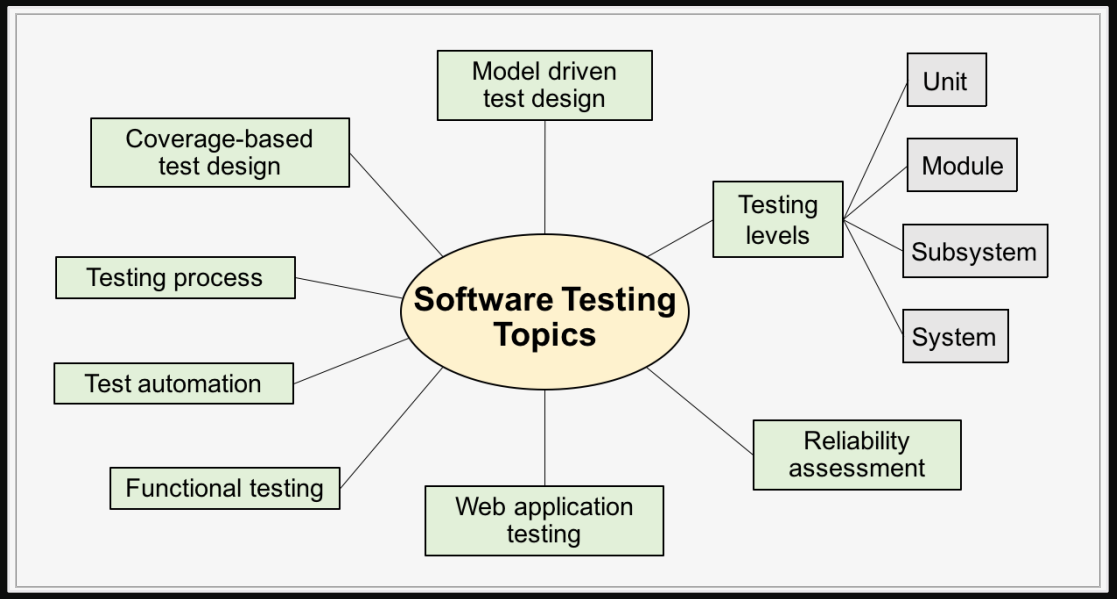
Have You Ever Wondered



[Ref: emoji by Ekarin Apirakthanakorn]

What This Course is About

- Importance of Software Testing
- Testing in Practice: design, automation, execution, evaluation
- Test-Driven Development
- Test Coverage Criteria
  - Input space partitioning
  - Graph coverage
  - Logic coverage
  - ~~Syntax coverage~~
- Web app testing
- Bypass testing



"The true subject matter of the tester is not testing, but the design of test cases" —Jeff Offutt

Instead of how testing is done,
we focus on
how it should be done and
how it will be done

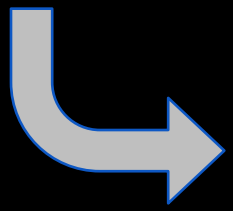
I Hope to Help You

Test software adequately, appropriately, efficiently, and effectively

Be able to lead and work effectively in collaborative environments

Have confidence in learning and applying new testing approaches or frameworks to test any software

Get excited about exploring and developing new testing approaches to appropriately test any software



Become better testers
- Create high-quality tests at all testing levels
- Understand practical ways to design and automate tests
- Apply theory in practical ways

Become better programmers
- Be aware of potential problems in software and able to create high-quality developer tests

Become better engineers
- Build programs and test them in a unified manner

Become better thinkers
- Solve problems in logical and analytical ways

You Will be Able to Answer

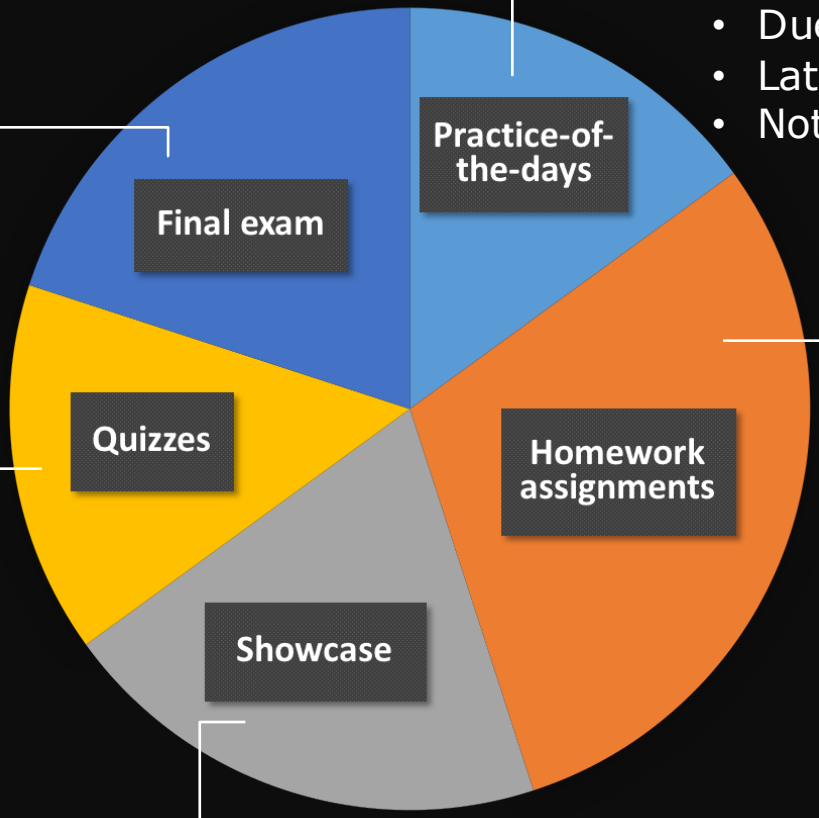
- What is software testing?
- Why do we test software?
- When should we test software?
- Who should test software?
- How should we test software? Why should we do it that way?
- When should we stop testing? Good enough?
- How many tests do we need to write?
- How do we choose test inputs effectively?
- How can we measure the quality of a test suite?
- How can we improve the quality of a test suite?
- How can we reduce the testing cost?

What You will Do

Hands-on activities:
- Almost every meeting
- No submission

Practice-of-the-days:
- Weekly
- Grade on done/not done
- Due 2pm EST the next day
- Late: -25% per 24 hours
- Not accepted after 48 hours past due

Final exam:
- Comprehensive
- Take home
- Open book/note



Homework assignments:
- Almost weekly
- Due before class
- Late: -25% per 24 hours
- Not accepted after 48 hours past due

Quizzes:
- Five quizzes
- First 15 minutes of class
- Through Collab
- One reflection & correction per quiz

Showcase:
- Choose one: [test generation | position paper | digital media]
- No late submission, no extension

How Your Learning will be Evaluated

Hands-on activities:
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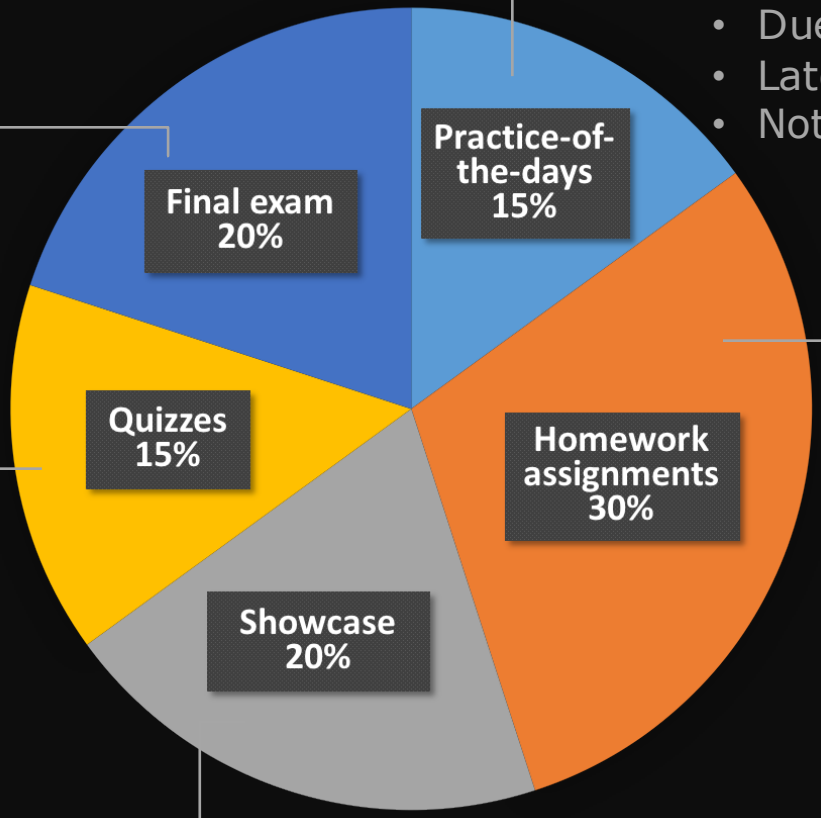

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Prerequisites

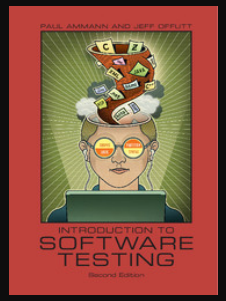
- CS 2150 or DSA2 with C- or better (or COVID CR)
- Discrete math, data representation, (some) software engineering
- Java, syntax and semantics of multiple programming languages
- Programming skills
- Software installation and troubleshooting skills
- Willingness and excitement to learn new concepts and experience new frameworks

Prerequisites define what you need to know before taking a class to succeed in the class. Please do not ask if you can take the class without the prerequisites, I have to advise against it

The CS student services staff will monitor and remove students not meeting prerequisites in courses in which they are enrolled

More Info to Help You Learn

- Class URL: http://www.cs.virginia.edu/~up3f/cs3250/
- Readings: Check schedule page, please read before class
- Textbook:



(book website) https://cs.gmu.edu/~offutt/softwaretest/

(student solution)
https://cs.gmu.edu/~offutt/softwaretest/exer-student.pdf

- Emails: Use UVA email, check it regularly, include "CS 3250"
- Masking: Required in class, no eating and no drinking in class
- Class recordings: In Collab > Class recordings, 24-48 hours after class

I would deeply appreciate you
keeping a physical distance from me

Share Ideas, Get Help, Just Talk

- Instructor office hours: virtual, Zoom link on class website
- TA office hours: days/times on class website
- Piazza: https://piazza.com/virginia/fall2021/cs3250/home
  - You should have gotten an invitation today
  - If not, check your UVA email or check with me
- Questions should be posted to an appropriate thread
  - Answered by instructor, TAs, and your peers
  - Public: general questions and answers
  - Private: Grade/homework-specific questions – instructor and TAs
- Help yourself learn: https://forms.office.com/r/xY9f5beEGy

"You" are the Main Driver!!

"You" are the main driver of your learning success.

Your engagement and participation is
the most important aspect of your learning experience.

You are encouraged to do all the activities,
try all concepts, experience all frameworks …
and do beyond the showcase's minimum requirements!!