

CSCI 136:  
Data Structures  
and  
Advanced Programming

Lecture 34

Final class

Instructor: Dan Barowy

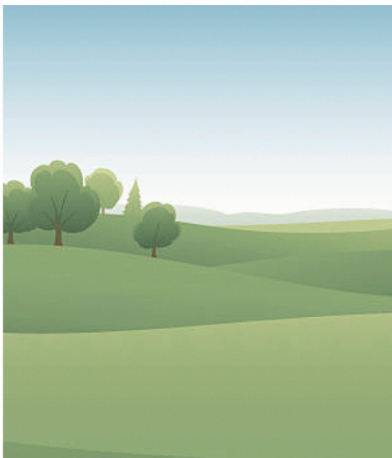
**Williams**

## Announcements

Final: Wednesday, May 15 @ 1:30pm  
in TPL 203

Review session: Monday, May 13 from  
4-6pm in TPL 203

## Announcements



### **Join us for a Science Picnic!**

**Who: Majors, Faculty, and Staff from  
Chemistry, Biology, Geosciences,  
Astronomy, Computer Science, and  
Physics**

**When: Friday, May 10, 2019 at 3:30 p.m.**

**Where: ~~Science Quad~~ First Floor SSB**

**Come eat (hamburgers/veggie  
burgers, hot dogs, salads, etc., etc.),  
play some lawn games, enjoy the  
sunshine, and maybe even see some  
friends that have been in hibernation  
since the fall semester!**

Direct any questions to Anthony Carrasquillo, ajc7@Williams.edu

What to expect in CS

# CS256: Analysis of Algorithms



(10 runs of Karger's randomized min-cut algorithm)

# CS237: Computer Organization

**JUMP INSTRUCTIONS**  
This section describes instructions which all have the same execution sequence of instructions. Instruction class occupies one or three bytes as follows:  
(a) For the PCML instruction (one byte):  
[ 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 ]  
(b) For the remaining instructions (three bytes):  
[ 1 | 1 | 1 | ... | 0 | 1 | 1 ]

```

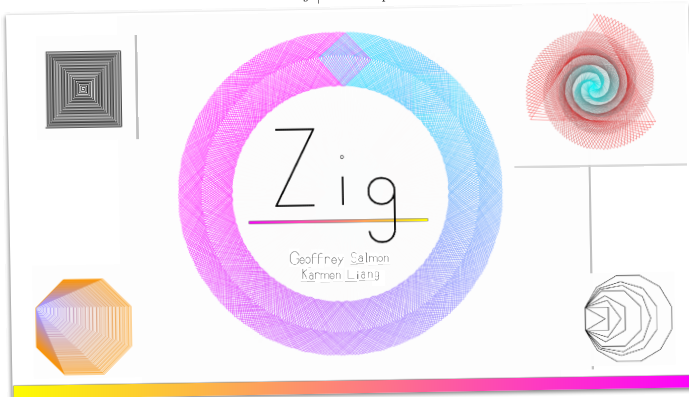
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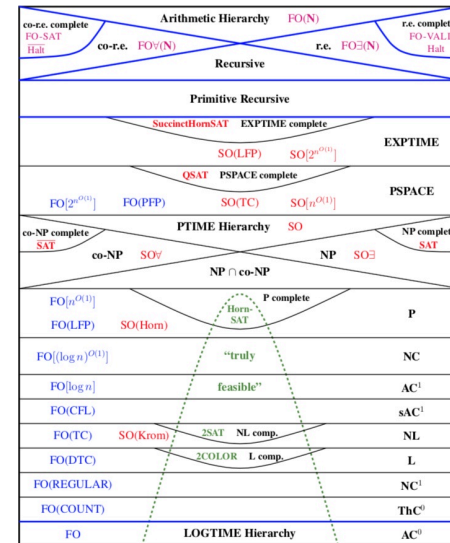
10h inc si  
a1,d1 int 10h  
10h loop writel  
sequace: rdt  
a1,020h fazz:  
10h db "fizz"  
b1 buzz:  
writel db "buzz"

# CS334: Principles of PL

$(\lambda x. \lambda y. xy)(\lambda x. xy)$  given  
 $(\lambda a. \lambda y. ay)(\lambda x. xy)$   $a$  reduce  $x$  with  $a$   
 $(\lambda a. \lambda b. ab)(\lambda x. xy)$   $a$  reduce  $y$  with  $b$   
 $((\lambda x. xy)/a)(\lambda b. ab)$   $\beta$  reduce  $a$  with  $(\lambda x. xy)$   
 $(\lambda b. (\lambda x. xy)b)$  sub  
 $(\lambda b. ((b/x).xy))$   $\beta$  reduce  $x$  with  $b$   
 $(\lambda b. (by))$  sub  
 $\lambda b. by$  eliminate parens



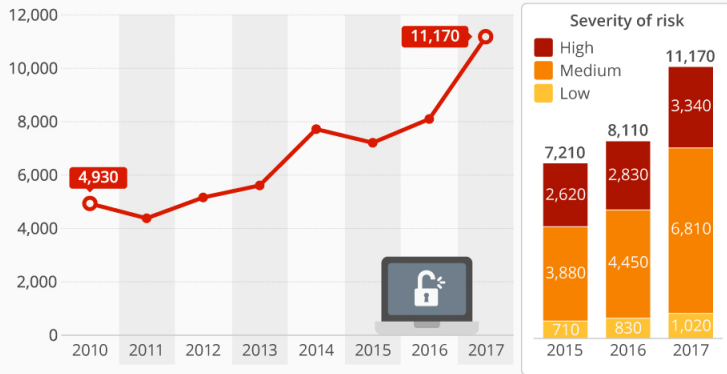
# CS361: Theory of Computation



# CS331: Intro. to Computer Security

## Software Security Risks at All Time High

Number of registered security vulnerabilities in computer software worldwide



As of January 2018, figures rounded  
Severity of risk measured according to the international standard  
Common Vulnerability Scoring System (CVSS)



@StatistaCharts Source: Hasso-Plattner-Institut



# CS338: Parallel Processing



# CS343: App. Dev. with Functional Prog.



# CS376: Human-Computer Interaction





# CS315: Computational Biology

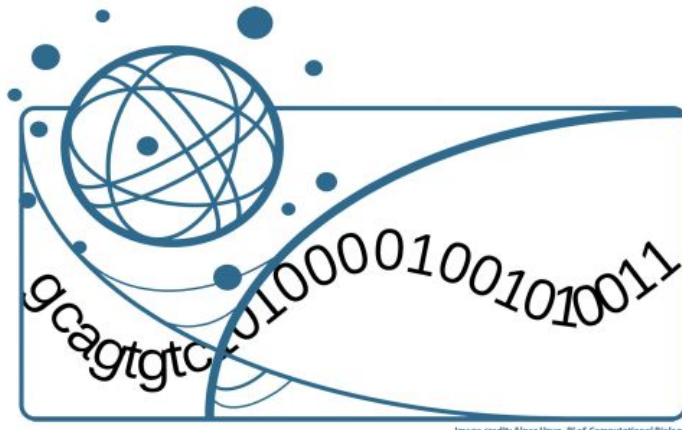
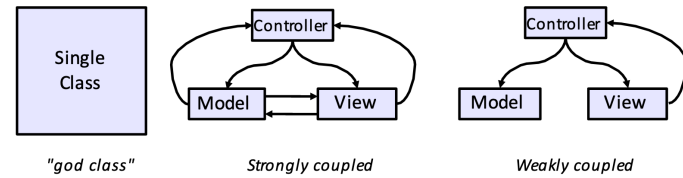


Image credit: Alper Uzun, PLAS Computational Biology

# CS326: Software Methods

$$\frac{\{P\}S\{Q\} , \{Q\}T\{R\}}{\{P\}S;T\{R\}}$$



"god class"

Strongly coupled

Weakly coupled

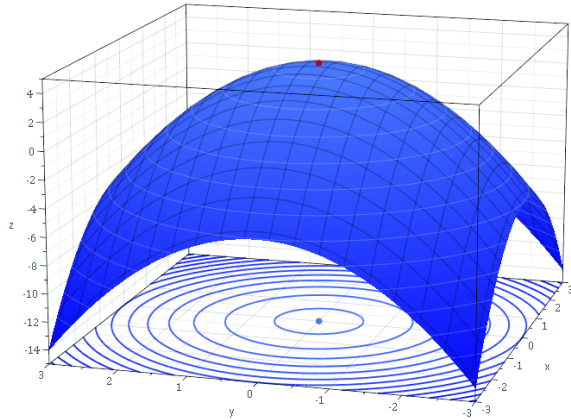
# CS333: Storage Systems



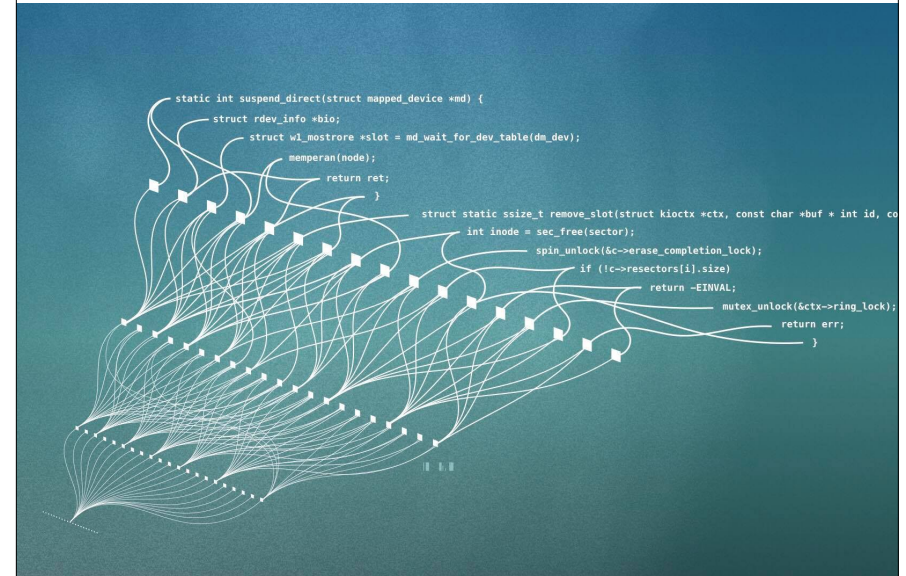
# CS339: Distributed Systems



## CS358: Applied Algorithms



## CS374: Machine Learning



Let's look at Hashtable.java

Questions?

See you Monday!

Final Exam Review

Monday, May 13 from 4-6pm in TPL 203