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# Physicists Can Code

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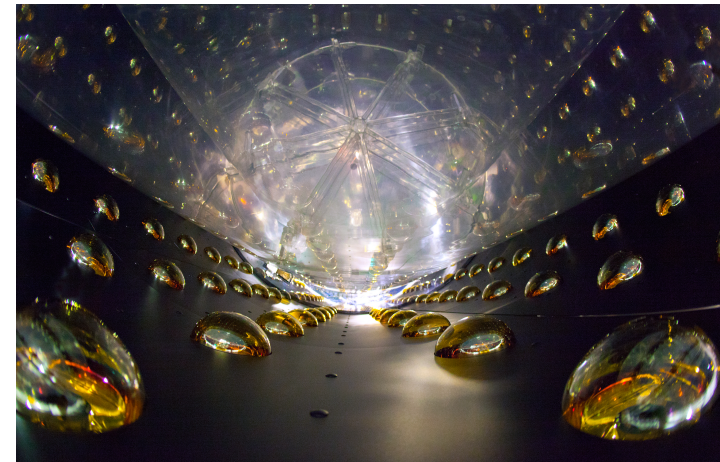
# Outline

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- About me
- What is Software Development?
- Why are Physicists good software developers?
- What do I like?
- How to get a job?
- Q & A

# About Me

- Worked on Daya Bay Reactor Neutrino Experiment
  - Initial experiment design, Fortran 77
  - Detector construction
  - Simulation and Data Analysis, C++ and Python
- Developed a lot of interests in programming
- Joined Bloomberg R&D in 2012
  - Enterprise Content Delivery
  - Fixed Income Default Risk



# What is Software Development?

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- Business needs
- Requirements gathering
- Software design
- Implementation
- Testing

# A Real Example

- Business needs
  - Produce default probabilities for North America private companies
- Requirements gathering
  - What kind of private companies? What mathematical models? What are the deliverables? When is the deadline?
- Software design
  - What are the components? How do they interact? Scalability issue?
- Implementation
  - Write code!
- Testing
  - alpha, beta, production environment

# Bloomberg Terminal



# Why are Physicists Good Software Developers?

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- Ability to understand complex systems
  - Software frameworks generally have many components
- Ability to learn
  - Physics is hard...
- Ability to communicate with other people
  - Collaborators in both experimental and theoretical Physics
- Ability to design
  - Not very different from designing an experiment
- Ability to test
  - We always make sure what we do is correct

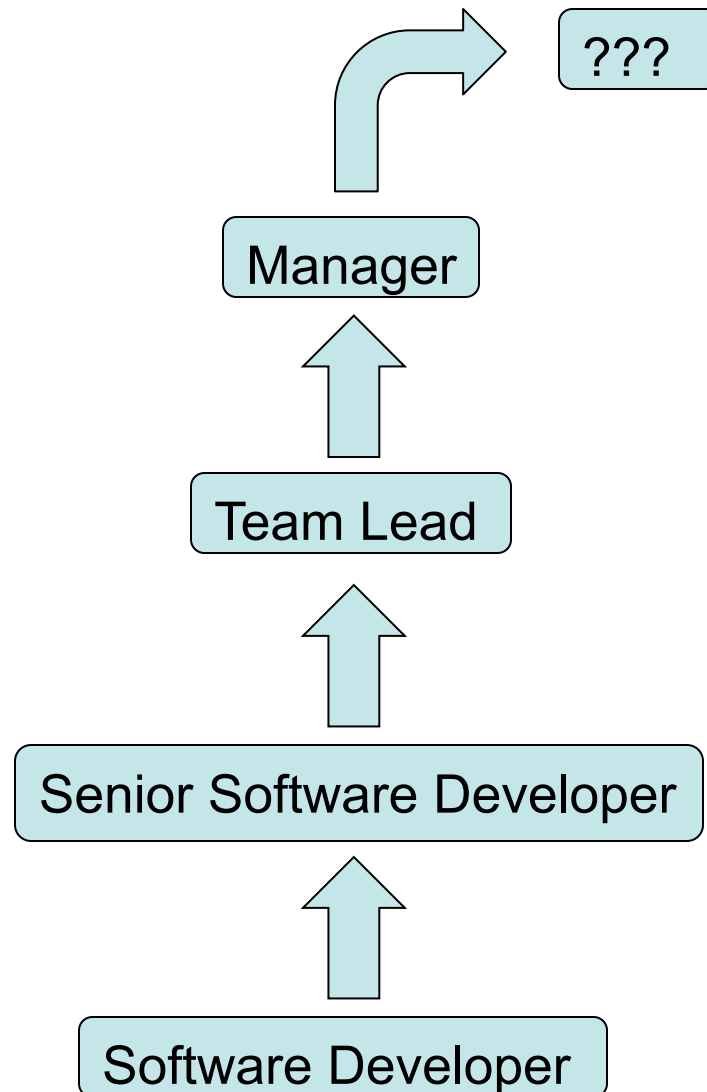
# What Do I Like

- Intellectually challenging
  - Collaborative
  - Short project lifetime
  - Freedom to create
  - Job stability
  - Flexible working hours (relative)
  - Financially rewarding
  - Live in NYC
2. **Software Engineer** - Glassdoor Job Score: 4.6
- Number of Job Openings: 104,828
  - Average Base Salary: \$98,074
  - Career Opportunities Rating: 3.3

<http://www.glassdoor.com/blog/jobs-america/>



# Career Path



# How to Get a Job?

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- Get some basic understanding of Computer Science
  - Data Structures and Algorithms
  - CS 225
- Master one mainstream language
  - C++, Java, Python etc.
- Soft skills
  - Communication
  - Team player
  - ...
- Networking
- Career fairs

# Bloomberg-related Events

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- ECE Corp Day
  - ECE building (main hall) 10:30 am – 2:30 pm on 2/26
- ECE tech talk
  - Peter Sperl “Pursuit of Robust Software Design”
  - 1013 ECEB 5:30 pm on 2/26
- HackIllinois
  - <https://www.hackillinois.org>

# Q & A

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Thank you!

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