

# Software Project Management - Team Dynamics

Software Engineering (CS5704) Project 3: Presentation  
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# Outline of Topics for This Presentation

- 1. Software Engineering: The Importance of Teamwork**
  - 1.a. Interesting Quote from a Luminary
- 2. The Composition of a Team**
  - 2.a. Pause and Think
  - 2.b. Pause and Think → Answer
- 3. Motivating the Team**
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- 4. Effective Communication in a Team Context**
- 5. Conflict Resolution**

# Software Engineering: The Importance of Teamwork

- Software Engineering is a **team sport**. Individual contributors doing their roles with great care + good management results in: **A great software product!**



# An Initial Thought



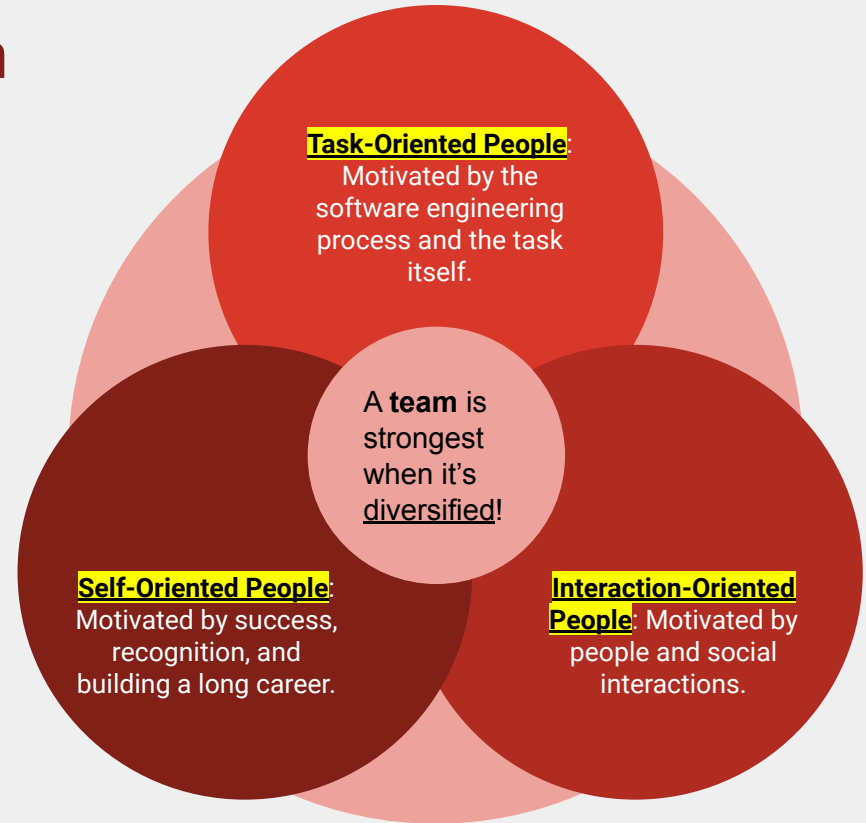
# An Initial Thought

**“Design and programming are human activities; forget that and all is lost.” - Bjarne Stroustrup, Creator of C++**



# The Composition of a Team

- The team roles include: Designers, Engineers, QA/Testing, Product Managers, Leadership.
- Must make sure the team is balanced **skill-wise** and **personality-wise**.  
Balance the following types of people:
  1. *Task-Oriented People*
  2. *Self-Oriented People*
  3. *Interaction-Oriented People*



# Pause-and-Think

Are Self-Oriented People looking out for themselves only and look at things from a purely competitive perspective? A totally zero-sums approach?



# Pause-and-Think

## Answer:

Not necessarily. Self-Oriented People know what they want and are very focused and driven to get the results they want. Self-Oriented people can excel in the following:

- **Managing people**
- **Allocating resources**
- **Removing roadblocks for the team to work more effectively**
- **Advocating for their direct reports to get them promoted**

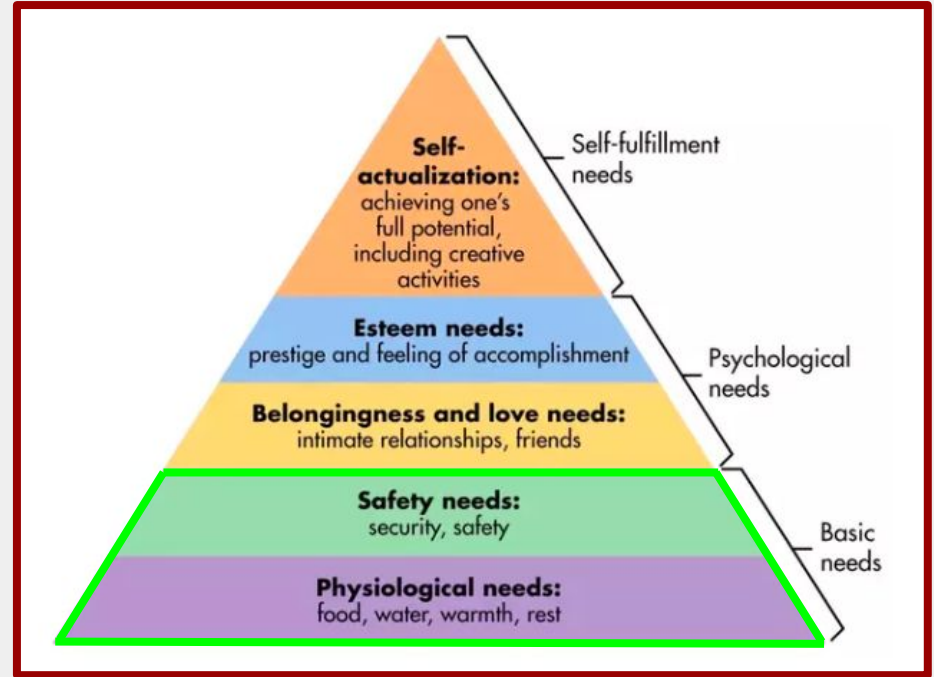


# Motivating the Team (Part 1)

- A guiding framework to promote team culture and motivate individual contributors:

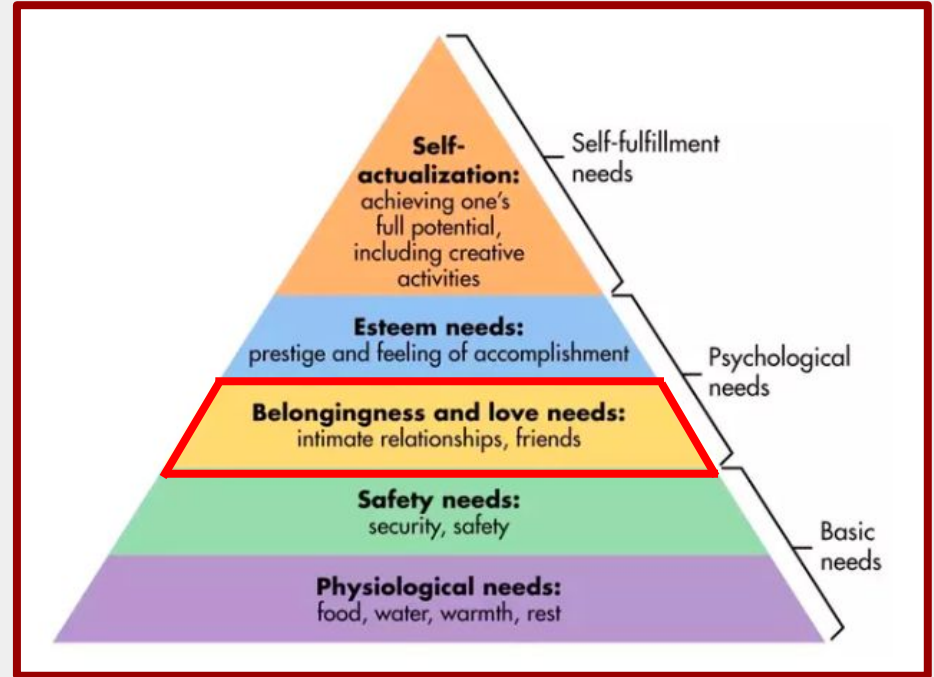
## Maslow's Hierarchy of Needs.

- Assume that workers' *physiological needs* and *safety needs* are met.



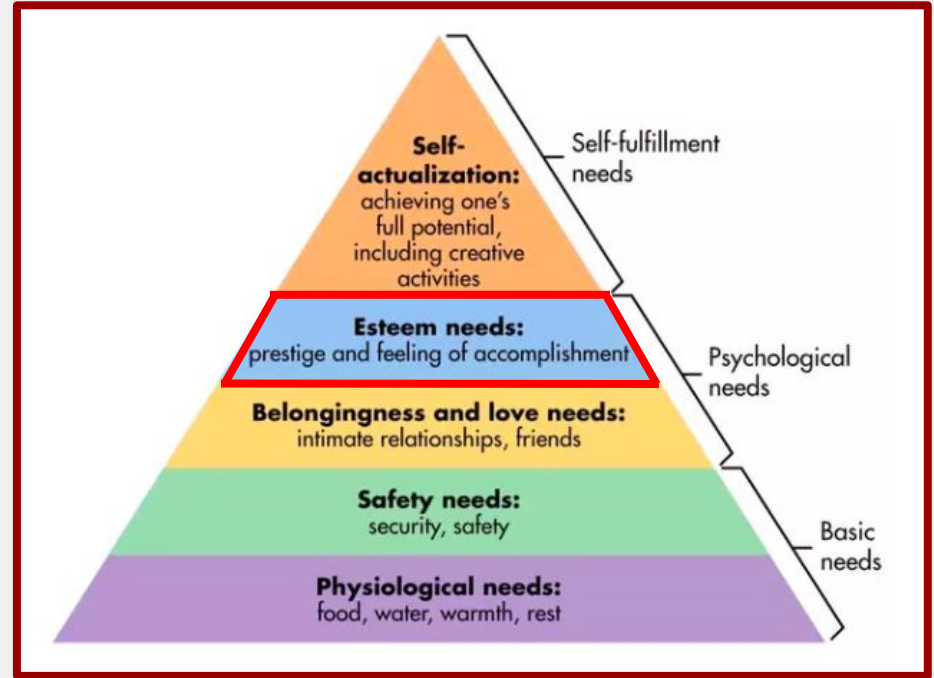
# Motivating the Team (Part 2)

- To satisfy people's belongingness needs:
  - Offer off-site event sponsorships (conferences, hackathons, learning opportunities, etc.).
  - Host team fun/after-work social events.
  - Promote culture where team members feel supported and cared for.



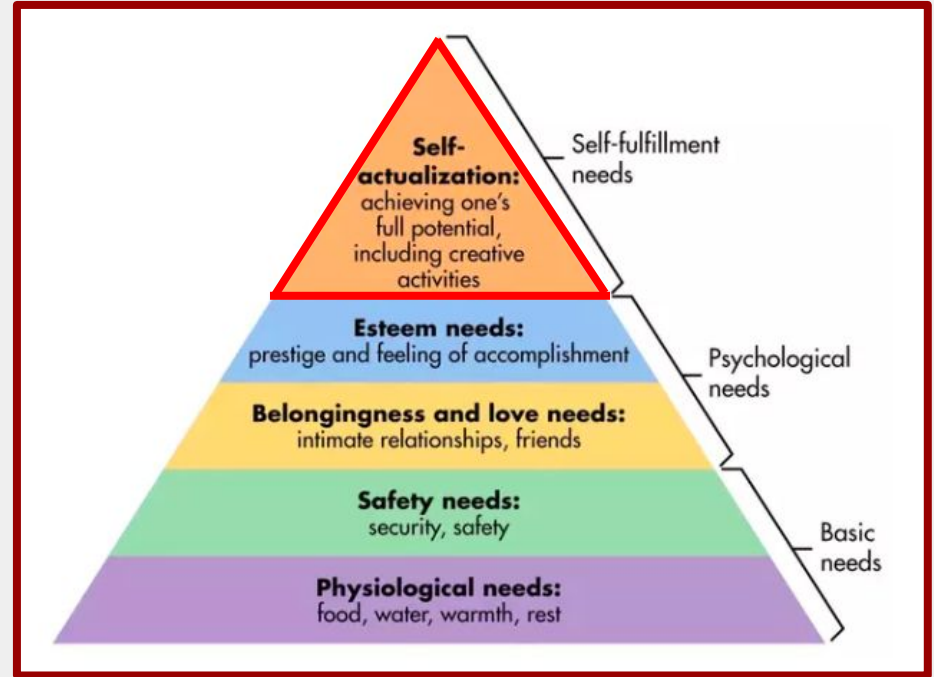
# Motivating the Team (Part 3)

- To satisfy people's esteem needs:
  - Reward people for their contributions based on the merit/quality of their work.
  - Define clear and explicit promotion guidelines. People move up commensurate to the value they add.
  - Promote a technically excellent and fast-paced culture of getting engineering work done.



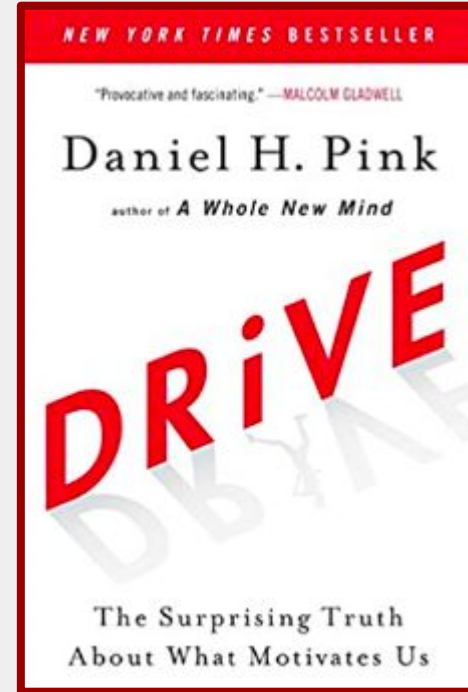
# Motivating the Team (Part 4)

- To satisfy people's self-actualization needs:
  - Give people challenging work. Promote a culture of innovation; it's ok to take risks and fail.
  - Give people opportunities to work in different roles (engineering, product, design, etc.).
  - Set people up for success by offering support if needed.



# Insights from Author: Daniel Pink

- In his book *Drive: The Surprising Truth About What Motivates Us*, Daniel Pink says people are motivated by three things:
  1. **Autonomy**
  2. **Mastery**
  3. **Purpose**



# Effective Communication in a Team Context

- In Software Engineering, Ian Sommerville identifies the key communication factors:
  - **Group Size**: Smaller is better.
  - **Group Structure**: Informal structure facilitates communication, not hierarchical.
  - **Group Composition**: Diversity in personality and gender facilitates communication.
  - **The Physical Work Environment**: Design office space that facilitates collaboration as well as deep work.
  - **The Available Communication Channels**: Provide multiple channels of communication (in-person, email, web chat, reusable documentation, etc.).

# Conflict Resolution

- Should major conflict on the team arise, solve the problem by doing the following:
  1. First **listen** to the perspective of each individual involved in a safe space without offering judgement.
  2. Bring the individuals together with senior management at hand, and have the offender **apologize**. Team forgives, heals, and moves on from the incident.
  3. If it's a seriously egregious act, take aggressive action and potentially **remove** the offender from the organization. This should be a **LAST RESORT!** Tread carefully...