Software Engineering: Working As A Team

CS 18000

(revised 6/9/24)
Software Engineering: Working As A Team

• Nearly all software these days is written by teams of 4-6 software developers.
• In CS 18000 you get experience with this.
• The Final Project is a team project.
• You will be teamed with other students from your lab.
• Your Lab Instructor will be your Project Manager and will meet with your team each week in lab.
• You will tell your Project Manager how you are doing and any problems you are having.
The two biggest problems with CS 18000 team projects

(1) Students who do not communicate with the rest of the team. No one knows what they have done, what they are doing, or what problems they are having.

(2) Students who are not doing their share of the work.

• Your Project Manager will check with your team about both of these issues each week.
Software Engineering Teams

• Teams usually work best with a small number of people.
• A small team of people avoids the "herd" mentality of large teams.
• In a large team people tend to go along with popular opinion rather than thinking for themselves.
Software Engineering Teams

• Teams must make a strong commitment to a common purpose and goals.
• The members of the team must also share a sense of mutual accountability.
• They must hold themselves and each other answerable for meeting the team's goals.
Software Engineering Teams

Some of the reasons for organizing a group of people as a team:

• A team working together usually gets more results in less time than other types of organizations.

• Teams allow each member to have an equal say in decisions and discussions.

• By considering all ideas and proposals equally, teams can produce more creative and optimum results.

• People on teams generally derive more satisfaction from their jobs.
Defining Roles and Responsibilities

• Understanding the mission begins with understanding the product the team will produce.
• Define the roles of each team member according to their interests and skills.
• Each team member will have the responsibility for the design and implementation of a sub-section of the product.
Responsibilities Common to all Team Members

• Follow through on commitments.
• Lack of follow-through impedes the performance of others and reduces trust.
• Team members will interpret lack of follow-through as a lack of respect for others.
Responsibilities Common to all Team Members

• A team member has a responsibility to speak frankly and openly when there is a difference of opinion.
• Members should show flexibility, an ability to meet halfway.
• Team members should negotiate their differences so that both parties can win.
Responsibilities Common to all Team Members

• Team members must be willing to say what they think, ask for help, share new or unpopular ideas, give the status of their activities, and risk admitting mistakes.

• When communication is friendly, open and positive, teams are more productive and team members feel more satisfied.
Responsibilities Common to all Team Members

• Do things on time.
• Show up on time for meetings.
• Return emails and texts as promised.
• Share important information promptly and succinctly.
The Team Leader

Why does a team need a leader?

• Someone needs to look at the big picture: the project as a whole.

• This allows the other team members to focus on their parts of the project knowing that someone is thinking about how everything fits together.

• The team may choose one person as the team leader.

• The team may decide to rotate leadership during the project.
The Team Leader

• Team leaders are not like "traditional" bosses.

• The team does not work for the team leader; the team leader works for the team.
The Team Leader

Some main responsibilities of the Team Leader

• Monitor actual performance of the team in meeting its goals.

• When necessary, the team leader must force the team to make decisions and change strategies to ensure their success.

• Every team member must do roughly equal amounts of work and that includes the team leader.

• Often times the leader must set an example by volunteering to do jobs that no one else wants to do.
Applicability to CS 18000

• Make sure that you know exactly what is expected of you.
• Everyone should attend every meeting.
• Make sure that your teammates know exactly what you have done and are doing. If you are silent about your contributions, they may think you are not being as productive as you are.
• Explain any problems you have run into and ask for help. Don't wait until too late and then drop the bomb that you cannot get your part done on time.
Applicability to CS 18000

• Talk to other team members. Find out why their work is not getting done. Re-organize if someone is unfairly overloaded. Help other team members if you are ahead of schedule.

• If someone is chronically underperforming, don't wait to penalize them in Peer Evaluations. Fix it now!

• The Team Leader should talk to poor performers. Try to fix it within the team. If that does not turn things around, ask your Project Manager for help.

• Your team will depend on you. Make a commitment right now to be a great teammate!
Team Member Contributions

• What you earn on the 100 team points for each phase of the project will be subject to a multiplier based on peer evaluation by your team members.
• You will be asked to evaluate the contribution of all the other members of your team every Sunday by 11:59 pm.
• Please rate each of the other members of your team for work done on this phase.
• You will not be rating yourself in this assessment.
To complete the evaluation you will go to a Website where you will:

1) Assign a rating for each of the other members of your team using either integers or numbers with one decimal place.
2) Assign an average of 10 points to the other members of your team (i.e., you should assign a total of 30 points in a 4-member team).
3) If you think everyone has worked equally well, you can give everyone a 10. You can give a score of 11, 12 or greater to team members who have done a really great job.
You can give a score of 9 or 8 to team members who have not done their share or who have performed badly.
But, remember that the average rating MUST be 10.
4) Briefly describe your reasons for your ratings (1-2 sentences).
• Basically, there is a "pool" of X amount of points, where $X = 10 \times (\text{number of team members} - 1)$.
• You must distribute the pool of points among your team members.
• Some factors you might consider when rating your teammates include, but are not limited to:
  – Contribution -- Did this person contribute productively to team discussion and work?
  – Reliability -- Did this person get the work done on time and as promised?
  – Respect for others' ideas -- Did this person encourage others to contribute their ideas?
  – Flexibility -- Was this person flexible and helpful when disagreements occurred?
• If you are on a team of 4 people, and your team members give you ratings of 11.2, 10, and 9.4 for the peer evaluation, your multiplier will be \((11.2+10+9.4)/30 = 1.02\).

• For a typical student this multiplier will be 1.0.
• For a high contributing student this will be greater than 1.0.
• For a low contributing student this will be less than 1.0.
• Your multiplier will determine the total points you receive for each phase.
• If your team earns 92 of the 100 team points for the project and your multiplier is 1.02, you will receive $1.02 \times 92 = 93.84$ points for that phase.
• On the other hand, if your team earns 92 of the 100 team points and your multiplier is 0.9, you will receive $0.9 \times 92 = 82.8$ points for that phase.
• (Note that no matter what your multiplier is, your total points for a phase cannot be greater than 100.)
• No team member will be permitted to have a multiplier larger than 1.05.
• Also, ratings less than 8 can only be given if your Project Manager has been contacted and is aware of an ongoing problem.
• If you assign a rating below 8 and have not discussed this with your Project Manager regarding a team member's poor performance during the phase, the rating will be capped at 8.