Chapter 1

1. Project-based software engineering involves an external customer for whom the product is being developed. The product will be designed by the developers according to the client's needs. Product based software engineering is where the features of the product are designed by the developers and developer company according to their own wishes.

2. Software products are *generic* software systems sold to a customer. Software product lines are designed to be adaptable by the customer. By editing the source code, the customer can easily change the product to meet their needs. Additionally, a software product line is a set of software products combined, rather than one product.

4. Product managers have to be generalists because they have to consider an array of issues outside of the technical field. They have to deal with customers, as well as coordinate with the administrative side of the business.

5. A product roadmap helps keep the project on track via milestones and project goals. This is particularly useful for educational software products so that it can be ready on time for the school year.

6. Implementing a prototype before starting to developing a new software product is good practice because it allows the developer to get a better grasp of how the final product will look. It also allows them to test out the basics and make any changes that they think will make the product better.

Chapter 2

1. It is important for software products to be developed and delivered quickly because a lot of the time whoever ordered the product has an imminent need for its functions. Taking too long to give a working product could result in losing customer trust. In some cases, delivering an unfinished base product and then providing new versions later on could be beneficial for projects that cannot proceed until some sort of software is installed. With very large software packages, it can sometimes be impossible to finish in a short amount of time, so getting a working basis and delivering that can allow the client project to continue while still allowing the developers to take the time they need for the finished product.

2. Agile methodology typically involves developing and delivering the product in increments, giving the customer fast access to the early stages of the product. The developers can then get feedback from the customer and adapt the product to their needs as the development continues, allowing the customers to get a product they are completely satisfied with as fast as possible.

7. Estimating effort put into a project in person-hours/days can vary from the actual effort spent because it tracks how many hours were put into a project but says nothing about how much is actually accomplished during this time.

9. Some good ways to counteract this problem is to run meetings where everyone is given time to speak, as well as fostering an environment where informal communication is encouraged, so seniority doesn't feel like as intimidating as a factor.

10. Using Scrum for student projects can be problematic due to a lack of experience. Scrum requires the majority of planning to be done beforehand, but students may not have the experience to have a good vision for their product. Additionally, students usually learn new things as they figure out how to best implement their project, so diverging from the plan is common. Some Scrum components that would be useful for such teams would be for the team to meet often and discuss the current plan for the project.