Software Engineering
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Software Development Process - Requirement Specification

Sridhar Iyer: In the previous video we spoke about the Amazon website and identified some components that it is made up of. The key idea we wanted to convey at that time was that a software system is made up of different, different components, which interact with each other to provide the functionality of the entire system.

Now it is also interesting to understand how each of these components are implemented. So for example, let us look at the Amazon Wallet, which is known as Amazon Pay, which stores your money and using which you do transactions. How do you think the Amazon Pay feature is implemented? Let us take a look.

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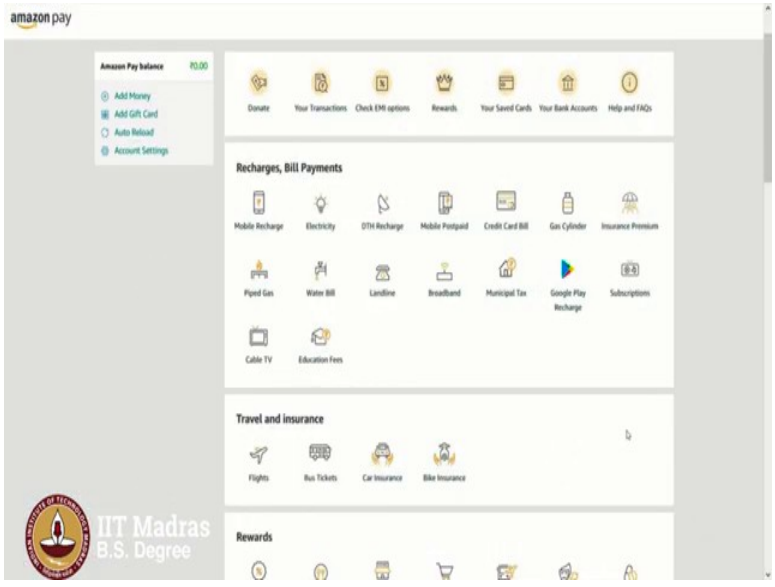

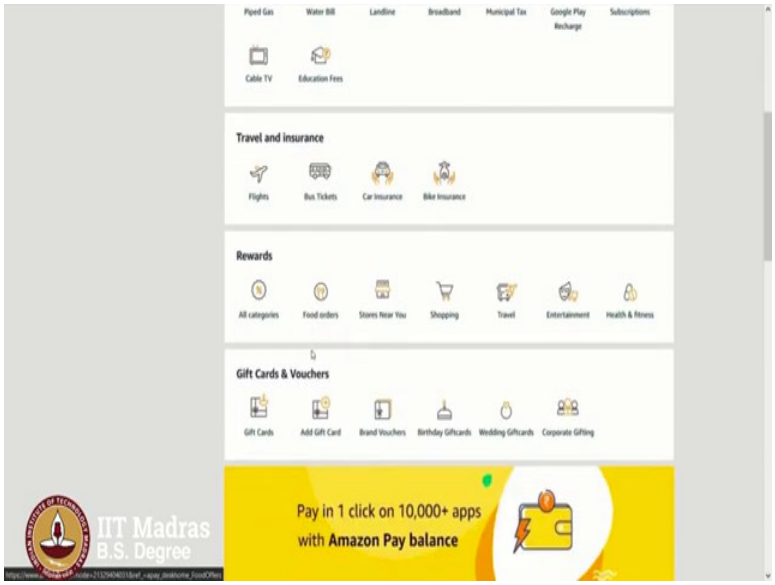

Prajish Prasad: Amazon Pay is a mobile wallet. A mobile wallet is a way to carry cash in digital format. You can link your credit card or debit card information as well as your bank accounts to a mobile wallet application or you can transfer money online to your mobile wallet.

Instead of using your debit or credit card to make purchases you can pay with your smartphone which has this mobile wallet. There are many categories like recharges, bill payments, travel and insurance, rewards, gift vouchers and so on. A mobile wallet has feature such as adding money and auto reload as well.

Sridhar Iyer: So, how do you think they started building the system, how did they come up with these functionalities?

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What do you think is the first step in creating a software system? This is the key idea. What is the first step that we need to take? You can pause here, think about it for a moment and then proceed.

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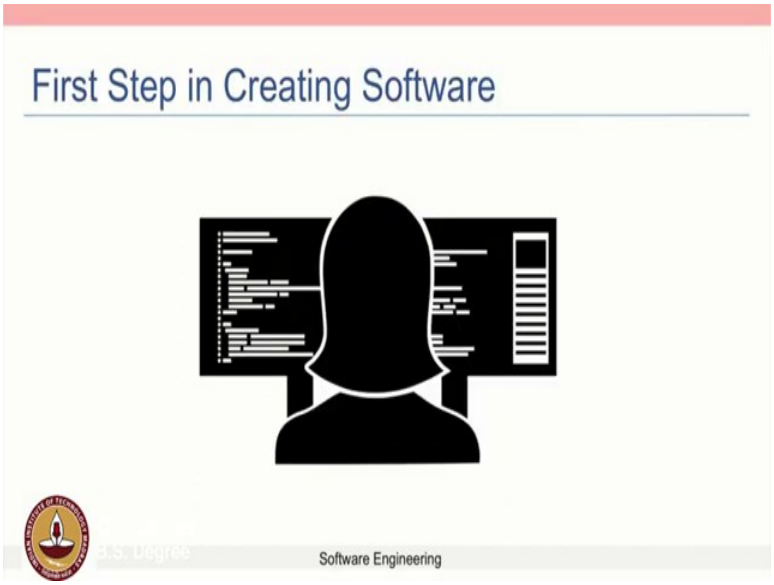

Prajish Prasad: So some of you would have thought that we first need to learn a programming language. Yes, that is in a way true. You need to write code for the software component using a programming language, but even before you start thinking of the solution you need to think of what problem you want to solve.

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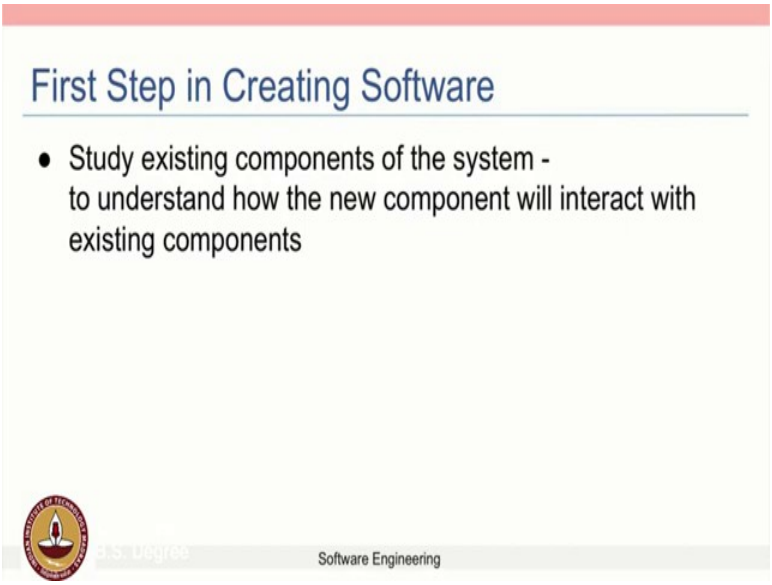

So another answer which you might have said is that we need to study existing components of the system. For example, other components of Amazon like the inventory management, the payment gateway and this can give us an idea of how this Amazon Pay feature will interact with these components.

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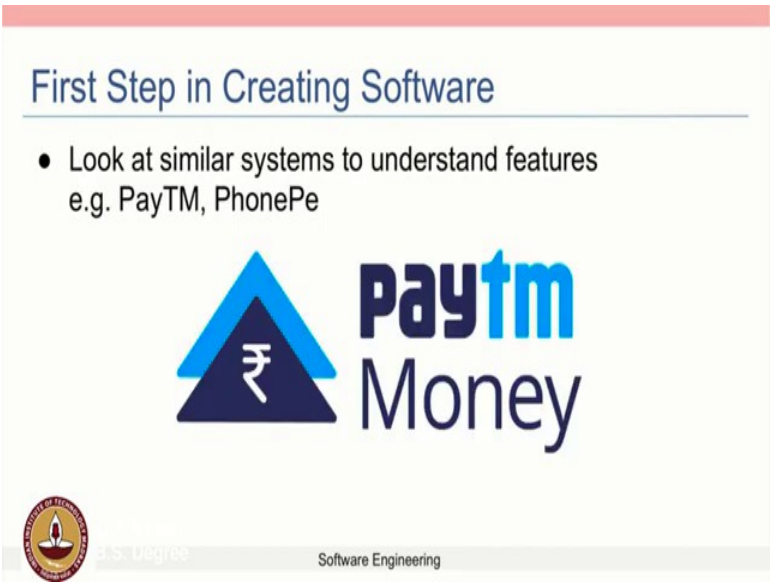

Maybe I can also look at other wallet systems like Paytm, Phone Pay, etc. and see what features they have.

Sridhar Iyer: All these are valid answers. We need to first understand what is the problem we want to solve and based on an analysis of existing or similar systems we need to come up with an explicit set of goals for our own system or for what our implementation should provide.

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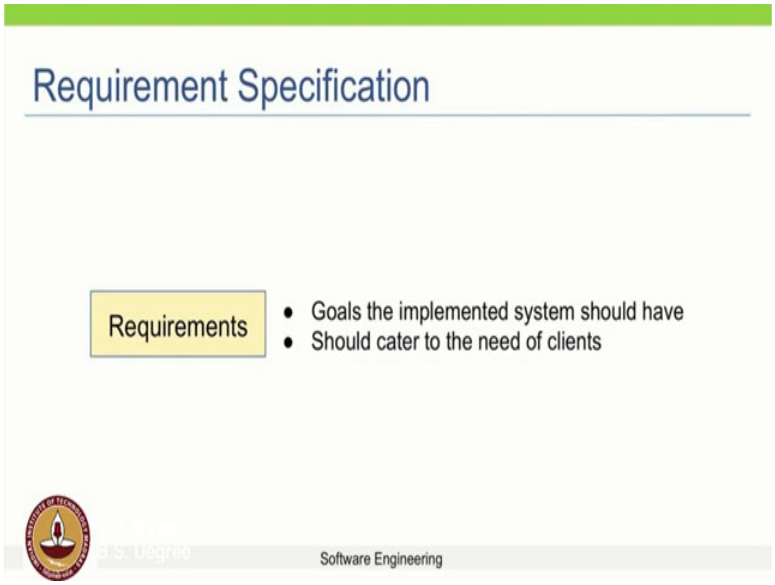

Prajish Prasad: So these goals are called the requirements of the system. And this is usually the first step in the software development process. So ultimately the software component will be used by different types of users and these users are known as the clients. And we need to ensure that the requirements cater to their needs.

Sridhar Iyer: So who is a client? Does it mean that the client is the end user or does it mean the client is somebody who comes to buy something? That is the usual understanding of the term client. However, when we look at a software system, it is not always that the user is external to the system. Clients could be internal users also. For example, a client can be one component of the system, could be also a client of another component.

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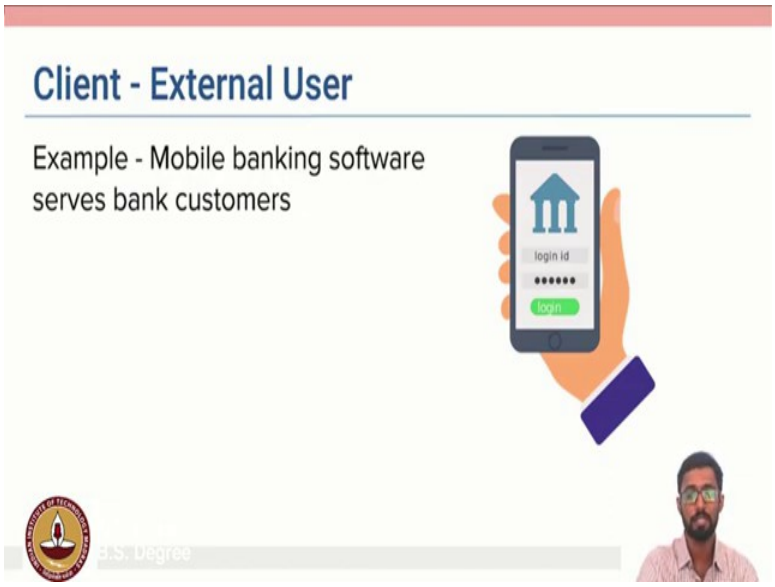

Prajish Prasad: So client can be an external user and this is the most typical way to think about clients. For example, a mobile banking software serves customers of the bank by providing various banking features such as checking the account balance and transferring money.

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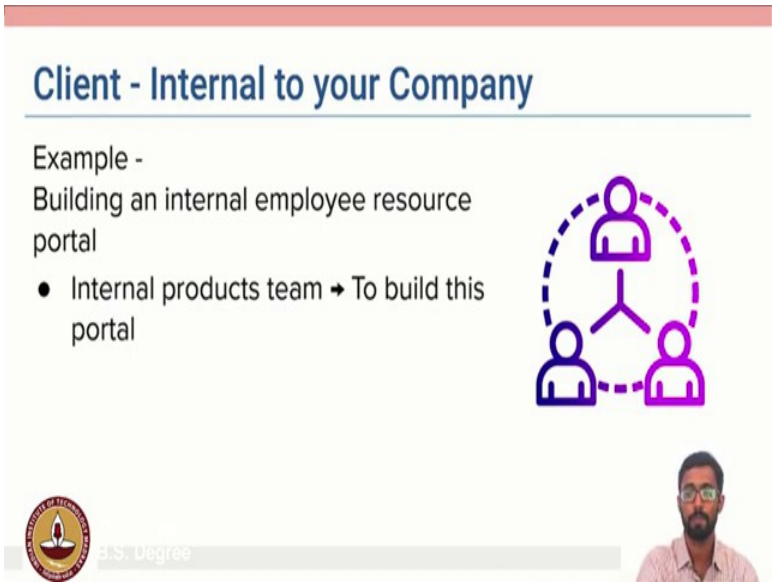

A client may be internal to your company as well. For example, a company might want to build an employee resources portal which contains information about various employees and teams in the company. To build such a system the company might form an internal products

team, which communicates with other departments like Human Resources to understand the requirements.

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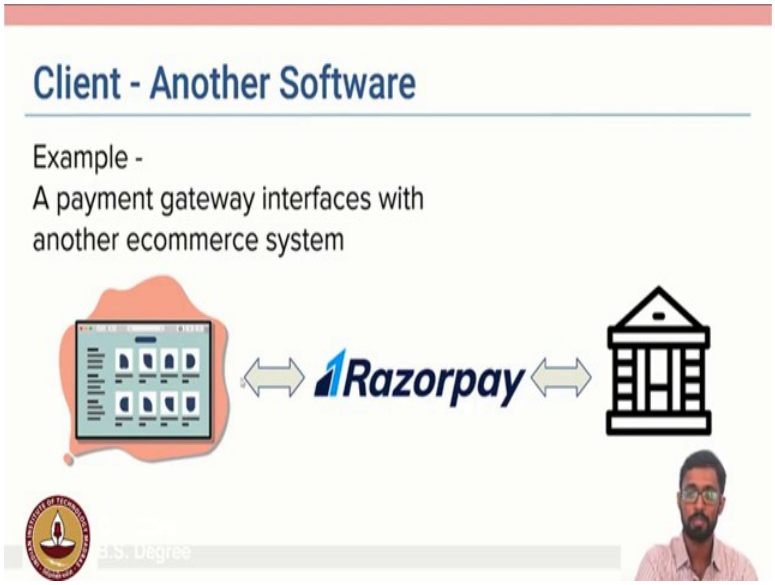

Now the client can be another software. For example, a payment gateway like Razorpay interfaces with another ecommerce website or app to handle customer payments and refunds. Customer details are sent to the payment gateway by the ecommerce website and then the payment gateway communicates with the customer's bank and sends the response back to the ecommerce website.

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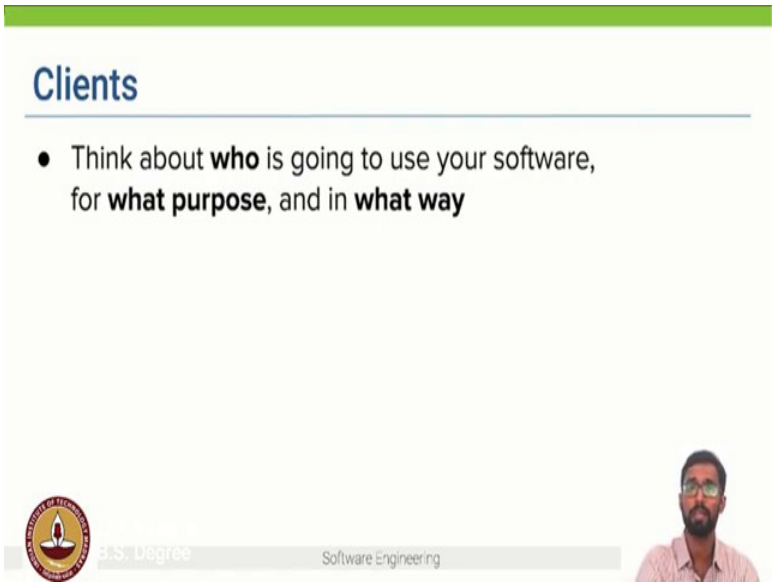

So the important thing to note is that we need to think about who is going to use our software, for what purpose and in what way. This persona of the intended user must be alive in our mind as we think about creating software.

Sridhar Iyer: To summarize the first step in the software development process is to gather requirements.

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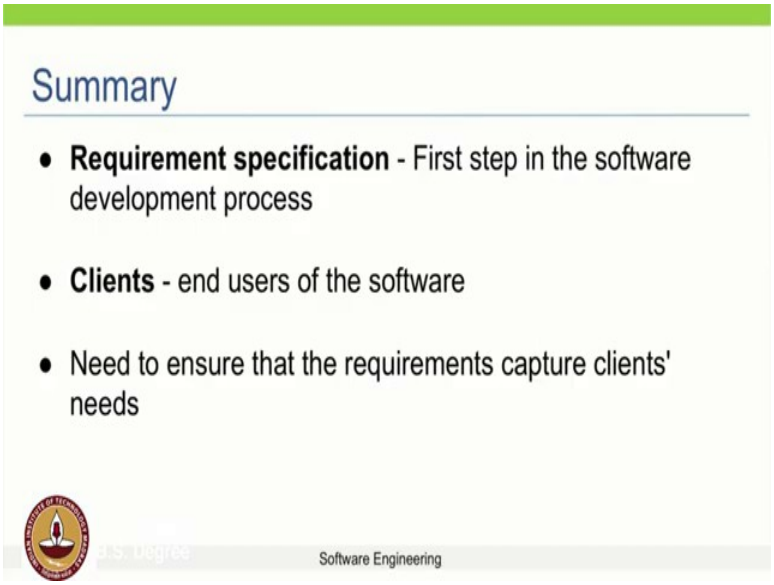

Why is this step important? Because this is the step that ensures that we have a good understanding of the users or the clients of the different components of our system. We need to ensure that these requirements are met at every stage, only then the entire software will meet the end users requirements.