

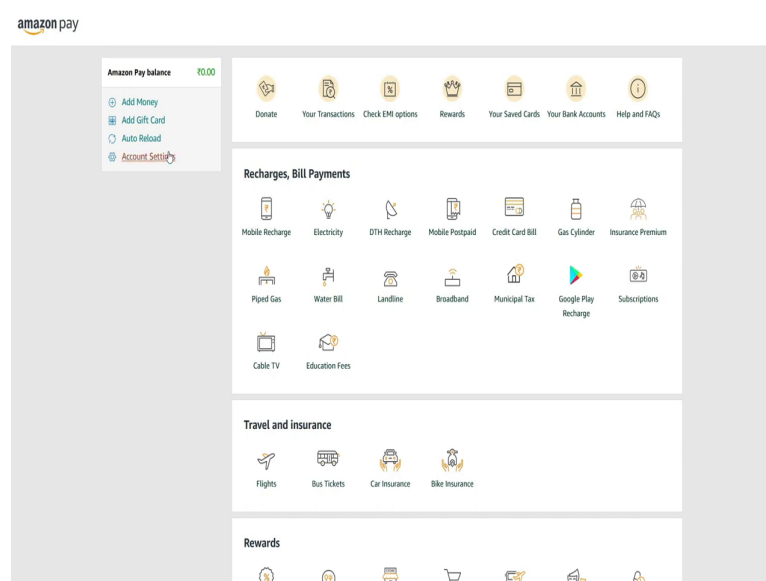
**Software Conceptual Design**  
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**Lecture - 03**  
**Requirement Specification**

In the previous video, we explored the Amazon e-commerce web page and also identified some components.

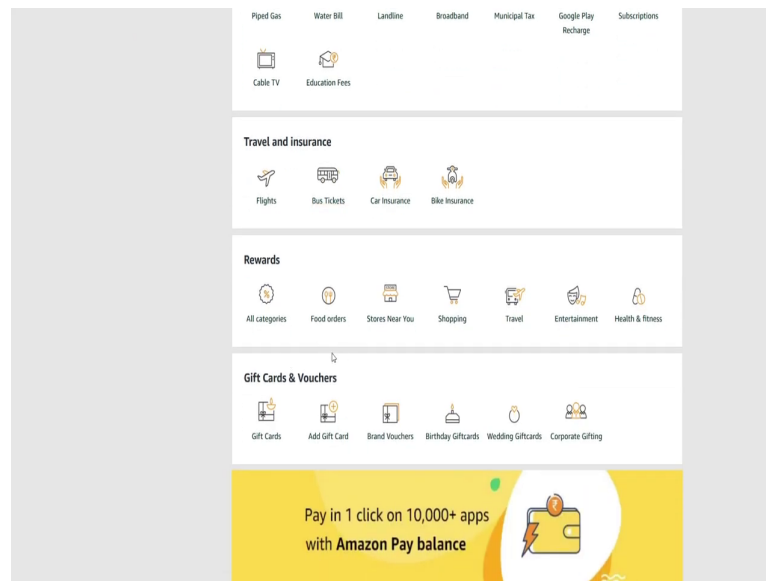
So now, I understood that there are different components to a software system, but it is also interesting to understand how Amazon implements each of these components. For example, how did they come up with the Amazon Pay feature?

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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.

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There are many categories like recharges, bill, payments, travel and insurance, rewards, gift vouchers and so on. A mobile wallet has features such as adding money and auto reload as well.

So, how did they start building the system? How did they come up with all these functionalities?

That is an important question. What do you think is a first step in creating a software?.

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## Reflection Spot



What do you think is the first step in creating a new software component?




Please pause the video and write down your responses


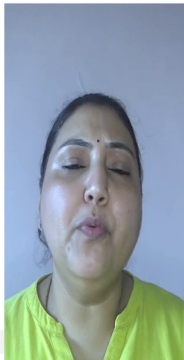

Pause and reflect on this question, write the answer in your notebook.

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## First Step in Creating Software



- Learn a programming language?




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Some of you would have thought that we first need to learn a programming language. That is, in a way true, you need to write code for the software using a programming language, but even before you start thinking of the solution, you would need to think what is the problem that you have want to solve.

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## First Step in Creating Software



- Study existing components of the system -  
to understand how the new component will interact with  
existing components



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Another answer can be that we need to study existing systems and components for example, in Amazon, we saw the components inventory management and payment gateway. This can give us an idea of how a payment gateway will interact with the software.

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The slide is titled "First Step in Creating Software" and features the IIT Bombay logo in the top right corner. A bullet point states: "Look at similar systems to understand features e.g. PayTM, PhonePe". Below the text is a large image of the Paytm Money logo, which consists of a blue triangle with a white Indian Rupee symbol (₹) inside, followed by the text "paytm Money" in blue and black. At the bottom left is the NPTEL logo, and at the bottom center is the text "Software Conceptual Design". A faint background image of a person is visible on the right side of the slide.

That is right, maybe I can also look at other wallet systems like Paytm, PhonePe etcetera and see how they have implemented various features.

All these are valid answers. We need to first understand what is the problem that we want to solve, and based on the analysis of existing an similar systems, we need to come up with an explicit set of goals that the implementation should solve.

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## Requirement Specification

**Requirements**

- Goals the implemented system should have
- Should cater to the need of clients

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These goals are called the requirements of the software system, and this is usually the first step in the software development process.

Ultimately these software components will be used by someone, and these users are known as the clients of the software system. So, we need to ensure that these requirements cater to the needs of these users.

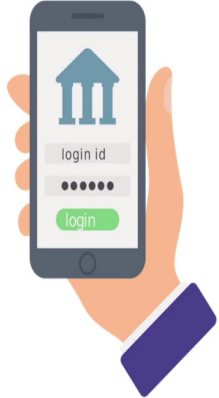
So, who is a client? Should they necessarily be end users of the system?

Well, not necessarily, they can be an external user, they can be internal to your company, and they can even be another software.

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## Client - External User

Example - Mobile banking software serves bank customers



The illustration shows a hand holding a smartphone. The screen displays a mobile banking interface with a blue bank icon at the top, followed by a 'login id' field, a password field represented by dots, and a green 'login' button. The IIT Bombay logo is in the top right corner, and the NPTEL logo is in the bottom left corner.


A client can be an external user. 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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## Client - Internal to your Company

Example -  
Building an internal employee resource portal

- Internal products team → To build this portal



The diagram shows three stylized human figures in purple and pink, connected by lines to form a triangle, representing an internal team or resource portal. The IIT Bombay logo is in the top right corner, and the NPTEL logo is in the bottom left corner.


A client may be internal to your company: for example, a company might want to build an employee resource 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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## Client - Another Software

Example -  
A payment gateway interfaces with another ecommerce system



The diagram illustrates a client-software interaction. On the left, a stylized orange cloud contains a laptop icon representing an e-commerce website. In the center, the Razorpay logo is shown with double-headed arrows connecting it to the website. On the right, a black icon of a classical building represents a bank. Another double-headed arrow connects the Razorpay logo to the bank icon, indicating bidirectional communication between the payment gateway and the bank.


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The client can be another software system as well: for example, a payment gateway like Razorpay interfaces with another e-commerce website or app to handle customer payments and refunds. Customer details are sent to the payment gateway by the e-commerce website. The payment gateway communicates with the customer's bank and sends the response back to the e-commerce website.

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## Clients

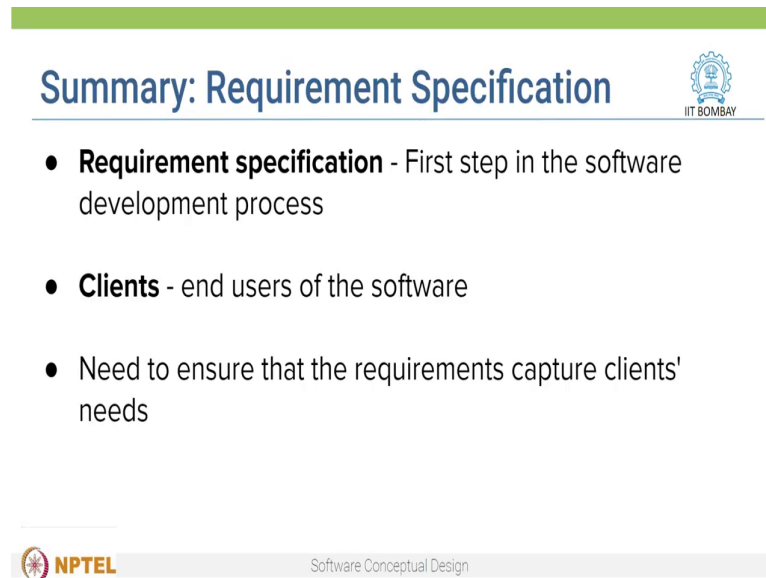
- Think about **who** is going to use your software, for **what purpose**, and in **what way**

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So, think about who is going to use your software, for what purpose and in what way. The persona of the intended user that is, the client, must be alive in your mind as you think about who you are going to create the software for.

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### Summary: Requirement Specification

- **Requirement specification** - First step in the software development process
- **Clients** - end users of the software
- Need to ensure that the requirements capture clients' needs

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So, to summarize the first step in software development process is to gather requirements. The requirements need to be gathered by the end users of the software, these users are usually called as clients, and we need to ensure that the requirements capture the needs of the client.