

**Introduction to Modern Application Development**  
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**Module – 16**  
**Lecture - 35**  
**The API economy**

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### What is an API?

- An API is an interface that a software exposes to other software
- In our context, APIs are typically HTTP APIs that exchange data in JSON (or XML)
  
- But why is it interesting?
  - Because an API can expose extremely specific data or functionality that can become a part of a greater application!
- Eg:
  - Use a weather API in your travel web/mobile app

In this very short non technical module we are going to talk a little bit about what we mean by the API economy. So, for we have understood in a fair amount of detail that in API is basically an interface that a software exposes to other software. For example, our client side code uses APIs to be able to talk to the web server code and in our context API is are typically HTTP API is that exchange data in JSON or XML. Now why is an API such an interesting thing that is become such a buzzword over the last 4 or 5 years. This is because an API can expose extremely specific data or functionality in a way that another machine or another software can understand it and this allows us to build applications that piece together various different APIs.

A very simple example would be using a weather API if your building a travel web or mobile app right just using the weather API would at so much value to our mobile app, we do not have to worry about building the weather at API is portion of the application we can just build out our entire travel related application and for the portions where you

want to integrate and show uses what the weather is like at a particular destination we just use the weather API.

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## APIs are powerful

- Some APIs are so powerful, that the entire organization or business is just providing APIs to people:
  - Search APIs (<https://www.algolia.com/>)
  - Natural language APIs (<https://wit.ai/>)
    - Build chatbots
  - Email/SMS APIs (Sparkpost, Mailchimp, MSG91, Twilio)
- Applications are now built using:
  - APIs built in-house
  - APIs as a service

In fact, APIs are become so powerful that over the last decade we have seen several organizations and businesses whose entire business is just providing APIs and not even entire applications for example, I will go will as search API that developers use to indicate search in their applications which dot a i is a national language API, but the developers use to build chatbots. There are several email or SMS, APIs the developers integrate with to send emails or SMSs to that uses for example, Sparkpost, Mailchimp, MSG91, Twilio. So, applications that are built nowadays not only use in house APIs that are built, but also use APIs that are provided by other business is an organizations as a service.

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## APIs for existing organizations

- For existing organizations, APIs represent an amazing opportunity
- An existing IT system where information is being processed and passed around from one module to another
  - And consumed only via fixed UI interfaces
- However, modern systems are now exposing portions of their business functionalities as APIs is amazing!
  - New applications can be built using basic building blocks created by the organization internally

For existing organizations API is actually represent amazing opportunity if you looked at applications a few years ago the entire IT system goes composed of several software modules working together and the way to interact with data or information inside that system was only via UI interfaces that was fixed and these UI interfaces was designed by the people who built the IT software and uses of that software were constraint to use the system only we are those UI interfaces that was fixed. However, modern system is are now IT systems that provide a default UI, but also expose a lot of their functionalities as APIs; that means, that basic building blocks of a particular business or an organization can be exposed is an API and several different applications can be built that use these APIs to provide an amazing amount of flexibility to an organization. And to even open up entirely new opportunities are entirely new ways of solving problems using the different building blocks that we already have.

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## API first design

- Don't build a webapp
- Build a backend with APIs
- Build a user experience that uses those APIs
  - Web
  - Mobile
  - Device (IoT)
- Does not apply when you just need a simple static/portfolio website!
  - But for everything else, think about your webapp API first.

So, new kind of application design has emerged which I call API first design. So, when you thinking about building and their application, do not build the entire application in one shot try to break it up into building a back and first and building the frontend and when you build the back end built it in a way that you build APIs and build a user experience or build a frontend that has a user experience that uses those APIs.

The good thing about this style of building is that the APIs that we build can be used by web apps or mobile apps or even IOT; internet of things kind of applications. However, API first design is a bad idea if we building just a very simple static or portfolio website and which case designing in API is over K.

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## Going forward

- We'll be looking at some buzzwords that are common when we talk about apps, APIs and the cloud and try to understand them using the concepts that we have learnt so far

So, going forward in the next few modules we will looking at some common buzzwords that are common when people talk about apps APIs and the cloud and try to understand them using the concepts that we have learnt so far.