

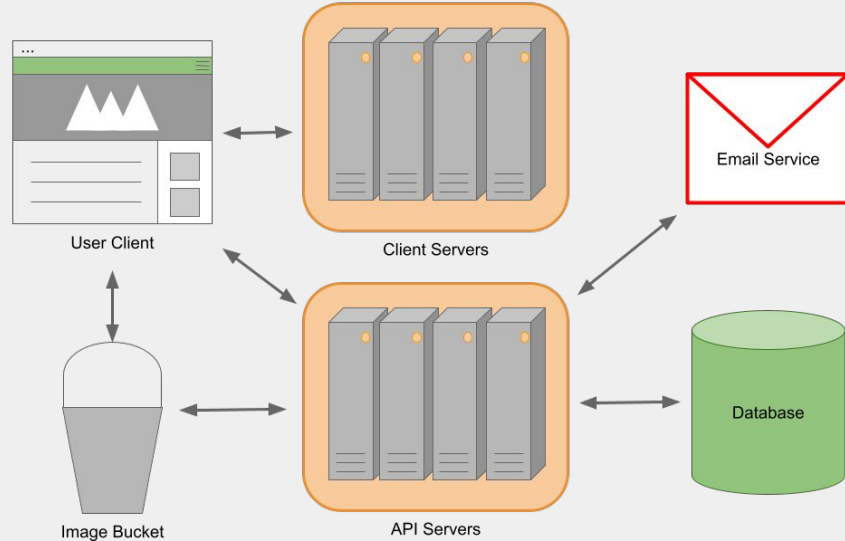
The background features a repeating pattern of white coffee cups with orange circular logos containing the code symbol ((^)).

Pumpkin Spice Latte

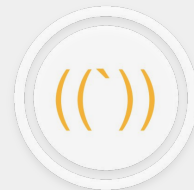
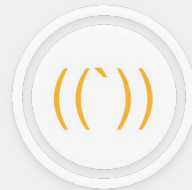
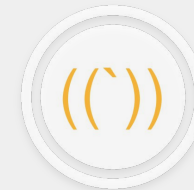
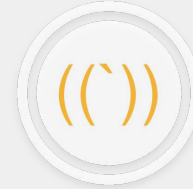
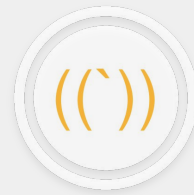
Introduction to Server Programming

Keywords & Topics

- Platforms & Frameworks
 - Python, Node.js, C++, Java, Rust, C#, Ruby on Rails, C (eventually, psl)
- HTTP
 - Requests
 - Responses
- Routing & Paths
 - File systems
 - Directories
 - Query
- APIs
 - RESTful
 - CRUD
 - SOAP



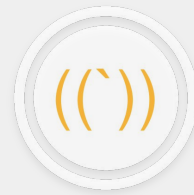
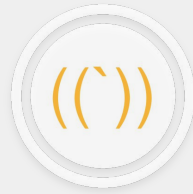
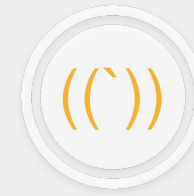
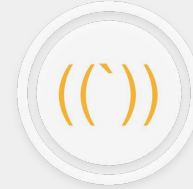
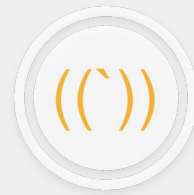
Platforms & Frameworks



Platforms & Frameworks

- Most modern servers are written using some a platform independent framework such as Java, Python, or Node.
- They are broken into 3 categories:
 - Object Oriented
 - Java
 - C++
 - C#
 - Scripting
 - Python
 - Ruby
 - Rust
 - Procedural
 - Node.js
 - C
 - Eventually, psl

Hypertext Transfer Protocol (HTTP)



HTTP - Hypertext Transfer Protocol

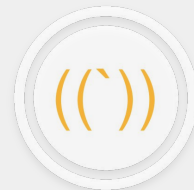
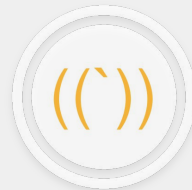
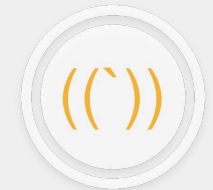
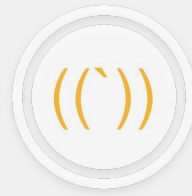
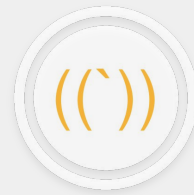
- Requests

- GET - what the browser URL bar uses (sans body)
- PUT - runs once per page load (idempotent)
- POST - can run multiple times on the same page load
- PATCH - used for CRUD operations mostly
- OPTIONS - preflight to check if the path exists (sans body)
- UPDATE - used to update stored information
- DELETE - used to delete stored information (idempotent)

- Responses

- Status Codes
 - 2XX - typically means everything is good to go
 - 3XX - typically means some form of redirection
 - 4XX - typically means there is an error on the user's part
 - 5XX - typically means there is something wrong with your server

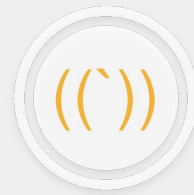
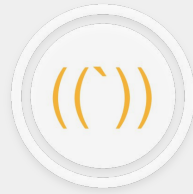
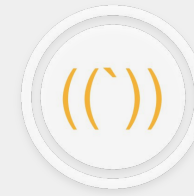
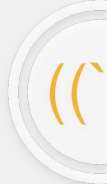
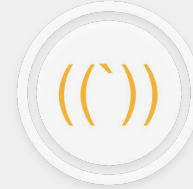
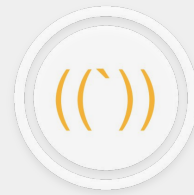
Routing & Paths



Routing & Paths

- Operating Systems (OS) are file systems. This means that everything on your computer is just a file that is referenced somewhere on your operating system.
- Directories are basically just folders on your file system. To reference a specific file, you typically need to know what folders or directories they are located. The location is known as a path. Example:
 - ~/Documents/file.txt
- Query
 - Paths can have additional parameters attached to them using search or query string which has the syntax patten of **?<variable>=<content>&<variable>=<content>**. Example:
 - GET /cars?color=white&year=2020

Application Program Interface (API)



API - Application Program Interface

- RESTful - Representational State Transfer
 - Protocols:
 - GET, PUT, POST, DELETE
 - Supports:
 - application/json, application/xml, application/x-wbe+xml, application/x-www-form-urlencoded, multipart/form-data
- CRUD - Create, Read, Update, and Delete
 - POST - create
 - PUT & PATCH - update
- SOAP - Simple Object Access Protocol
 - It purely supports XML calls and a lot of older companies typically support this type of API architecture such as older banks that have not migrated to a newer more robust API

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