



# More on Node.js

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# AGENDA SLIDE

01 Tooling

02 Databases / MongoDB

03 Expressjs

04 TypeScript

# Tooling

## - Postman

- light-weight API Client
- easily send REST requests
- shareable collections
- Chrome extension deprecated

<https://www.getpostman.com/>



## - Docker & Docker Compose

- OS level virtualization based containers
- isolated containers
- containers can communicate between each other
- uses much less resources than a virtual machine

<https://www.docker.com/products/docker-desktop>

<https://docs.docker.com/compose/install>



# Databases

## - Relational

- database schema needs to be defined
- schema provides a blueprint for the tables in a database and relationships between those tables
- all database entries must follow a predefined table schema
- full control over relations between database tables

## - NoSQL

- non-relational
- key-value, document based, graph
- easily scalable
- useful for huge amounts of data that does not need to be related to each other



# MongoDB

- What is MongoDB ?
  - document based NoSQL database
  - each database contains collection of documents
  - makes data structure more in line with how developers use objects in their language of preference
- Features
  - highly scalable
  - stores data in flexible JSON like documents which makes coding easier because that is the object type most commonly used in the actual code
  - indexing
  - real time aggregation
  - free to use



# Express.js

- **What is Express.js ?**

it's light-weight web application framework  
for building single-page, multi-page web applications  
and APIs  
easy integration with databases (NoSQL)  
supports MVC like structure  
significant part of MEAN stack

- **Features**

web server features  
routing and http methods  
middleware  
cookies  
templating

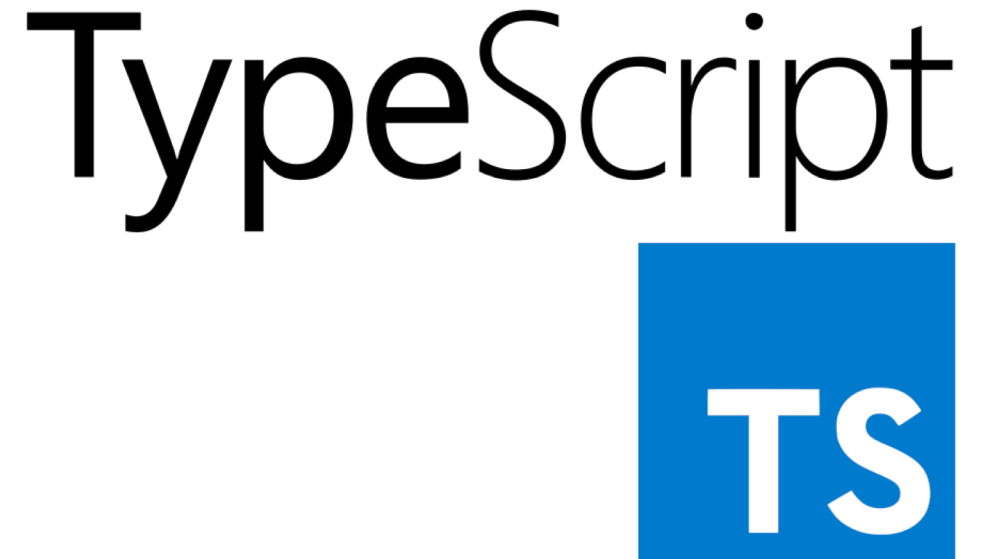
- **Demo – example-01**



# TypeScript

## About Typescript

- **developed by Microsoft**
  - one of author is Anders Hejlsberg (father of C# and TurboPascal)
  - first made public in the year 2012
  - TypeScript 0.9, released in 2013
- **open source**
  - <https://github.com/microsoft/TypeScript>
- **superset of JavaScript**
  - TypeScript can be converted(transpiled) into plain JavaScript code



# TypeScript

object – oriented programming language

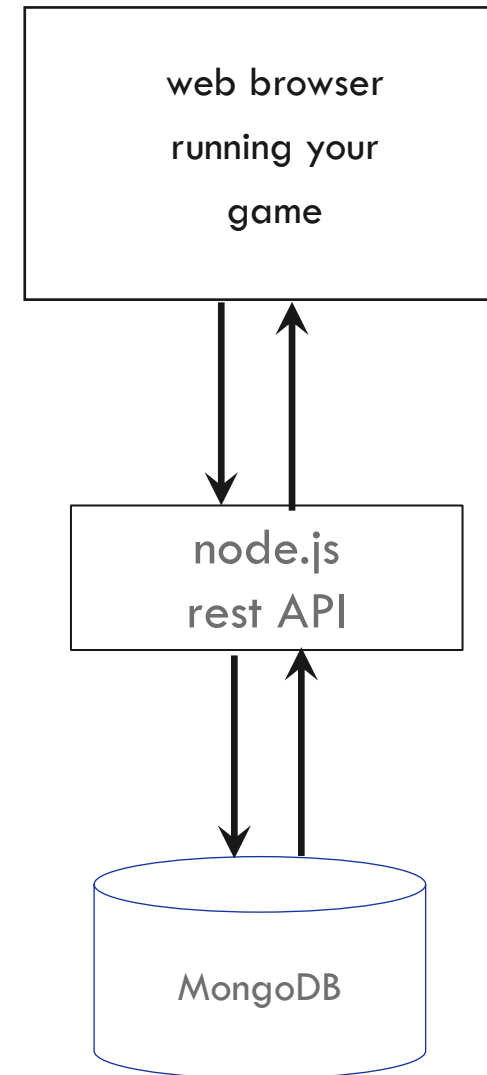
- class
- interface
- Inheritance
- strong types
- decorators
- generics

# TypeScript



# PRACTICE

- **create REST API with:**
- **route to store game results**  
post request to store game result data
- **route to retrieve game results**  
get request to return game results with ordering  
(for all users and per user)
- **route to update game results**  
put request to update game result for particular user
- **route to delete game result**  
delete request to delete game result for particular user





**QUESTIONS ?**

