



# Web API for Cooperative Education Plan Applicant Management System

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## Abstract

The main purpose of this independent study involve a data center about Applicant Documents for Cooperative Education plan management system. The approach used to manage the data center of this system is Web API, a communication way of data across platforms, based on World Wide Web, and comes with different styles of architecture. The results of this study was accomplished by the combination of ReSTful Web API style with NodeJS and MongoDB. It has benefits such as comfortable with only one easy to learn programming language and ease of maintenance.

**Design**  
The design of this data center was aim to provide resources to any application consistently.

- Data Model : Document database needs a change of design to a no relational database. So Subdocument comes on stage, any relations have to consider which one should be the core.
- HTTP Methods: Variety of methods and paths to resources should be common and understandable, according to ReSTful style.
- Lastly, the format of resources. Aside of resultant an erroneousness but metadata should be included in also

## Results

The ReSTful Web API is a suitable way to create a data center for Cooperative Education plan because it ease access of data for development with JSON format and HTTP communication. Furthermore, it can take heavy load of requests with NodeJS characteristic, Non-Blocking I/O model, which would helps a lot in the future when lots of users request at the same time.



Citation  
<https://nodejs.org/>  
<https://www.mongodb.org/>  
[https://en.wikipedia.org/wiki/Representational\\_state\\_transfer](https://en.wikipedia.org/wiki/Representational_state_transfer)

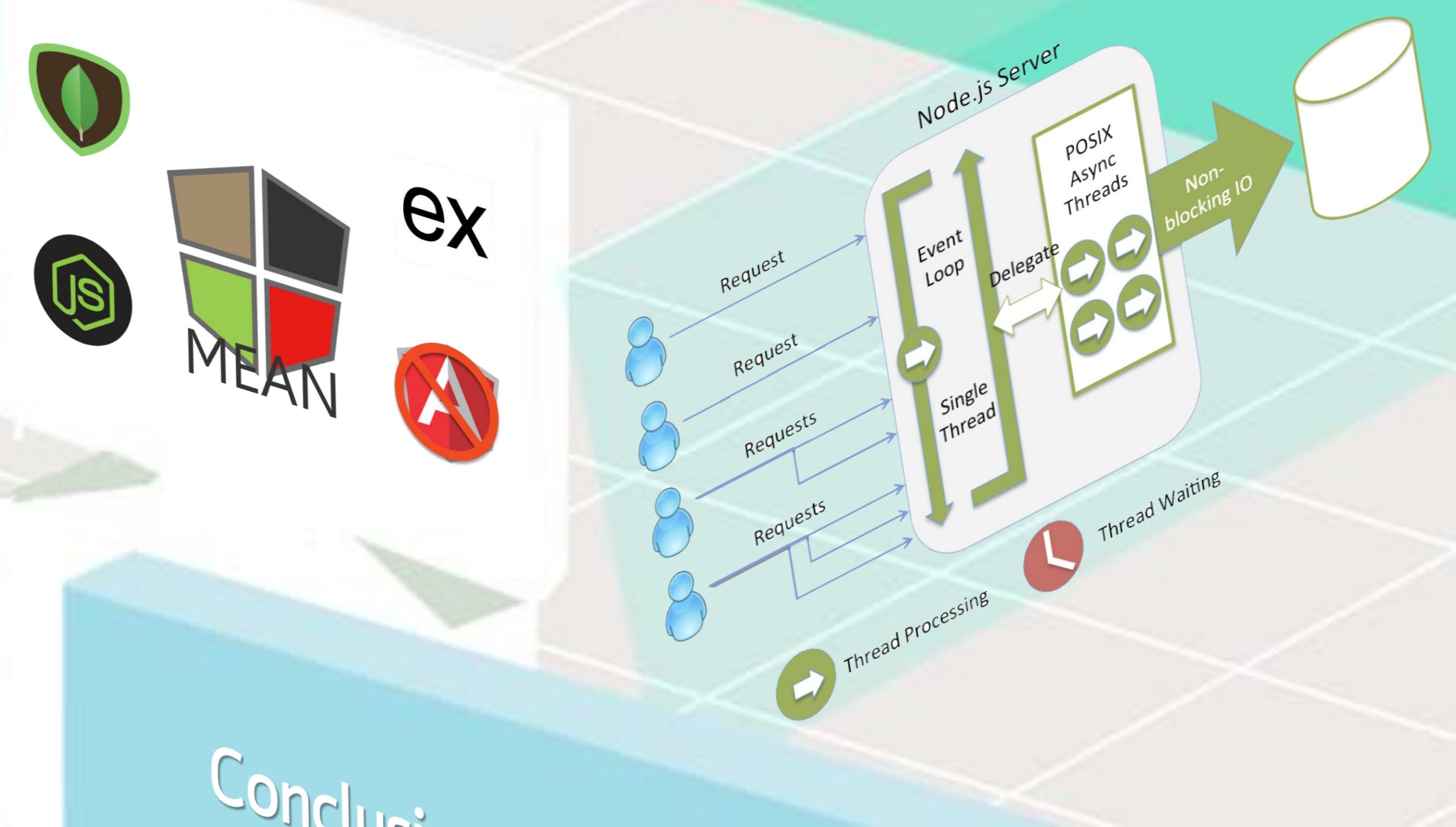
## Introduction & Motivation

The Cooperative Education plan, with establishment, focuses on help students gain experiences in actual workplaces and trains students to suit companies' needs. A lot of papers were used for documentations and increasing linearly, which has downsides of a difficulty of management and lack of ease to access, solving this problem is the main reason for this study.

## Technology

NodeJS with Express

- high-performance event-driven I/O server-side environment
- Based on V8, a Google's open-source JavaScript engine
- Non-blocking I/O single thread model
- ReSTful style Web API
  - World Wide Web base application interface
  - Transfer resources with HTTP
- And MongoDB, the next-generation open-source document database, as a storage.



## Conclusion & Future Work

The API is compatible with web application with angular framework. The following web application can use all resources provided by the API with appropriate requests and have very less response time.

Further work can be in the same way which is allow developers to focus only on front-end like mobile or native stationary application