



**BACKEND  
DEVELOPER**

# BACKEND?

- Input: URL Parameter, JSON, XML, ....
- Output: JSON, HTML, XML, Binary(File)

Web API  
(Backend)



Web Frontend  
(Single Page App)

Web MVC  
(Frontend/Backend)

# BASIC (REQUIRED)

- Data Structure: Array, List, Map
- Logic: Loop, Condition, Algorithm
- Concept: MVC, Web API, Routing, OOP
- HTTP: RESTful, Protocol Spec (Header, Body)
- Storage: DBMS, File
- Message Format: JSON / Base64 / HTML
- Source Control: Git

# WEB API

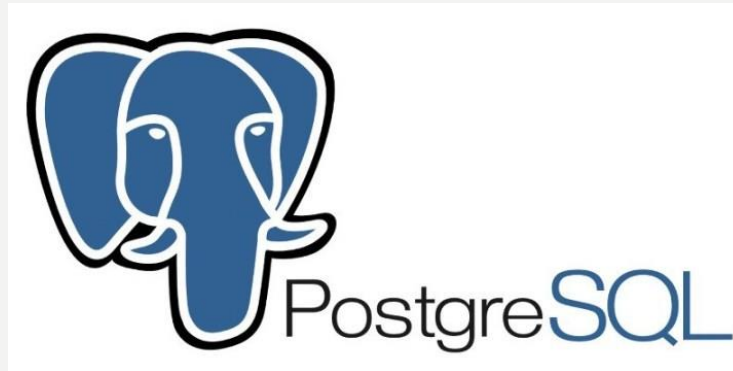


# DBMS

- Basic: SELECT, INSERT, UPDATE, DELETE, WHERE, ORDER BY
- Intermediate: JOIN, Aggregate Function, Sub-Select
- Advance: Index, Full-Text, Profiler
- Tools
  - Query Builder
  - ORM

# RELATIONAL

	PurposeGuid	Description	IsActive
1	68CBC16A-1DDD-42BF-95D9-04602A3EA78C	Compliance: Internal Audit	1
2	3BE8AB13-6E8C-4BDF-9ED0-1D029CDE8BFC	Compliance: Client Monitoring	1
3	155A5BDE-E4BD-4FE3-8EE7-2405F656CD1F	Compliance: Record & Info Management	1
4	DF65A533-BBBE-4502-AED1-389A0E0126DB	Enforcement: Record & Info Management	1
5	8502FEE4-FFA1-4538-995E-7F83ACB02E34	Enforcement: Catalyst Sponsorship	1
6	DD09667C-BA3D-4213-83E0-B5ECCFCBABC8	Others	1
7	65249B04-24C3-4A57-968F-C295DC1470F4	Discovery: Entity Research	1
8	5B999B46-1640-4303-8E90-C2B81F855390	Enforcement: Forensic Investigation	1
9	A52F0C00-D819-4B4F-A246-D41F0AB94B52	Discovery: Competitive Intelligence	1



# TESTING TOOL: POSTMAN



Params ● Authorization Headers (9) Body Pre-request Script Tests Settings

Query Params

	KEY	VALUE
<input checked="" type="checkbox"/>	start	1582995600
<input checked="" type="checkbox"/>	end	1586624400
<input checked="" type="checkbox"/>	-	1583140276575
	Key	Value

Body Cookies (1) Headers (10) Test Results Status: 200

Pretty Raw Preview Visualize JSON

```
1  [
2    {
3      "id": 1309,
4      "title": "Chakri Memorial Day",
5      "start": 1586131200,
6      "end": 1586131200,
7      "url": null,
8      "allDay": true,
9      "backgroundColor": "red",
10     "type": "<font color='red'>Holiday</font>",
11     "time": "06 Apr 2020",
12     "desc": null,
13     "create": "Admin.",
14     "textColor": "yellow",
15     "borderColor": null
```

# NEXT LEVEL !!

- Session
- Design Pattern
- Dependency / Modularity
- Testing: Unit Test / Integration Testing
- Logging



# ADVANCE

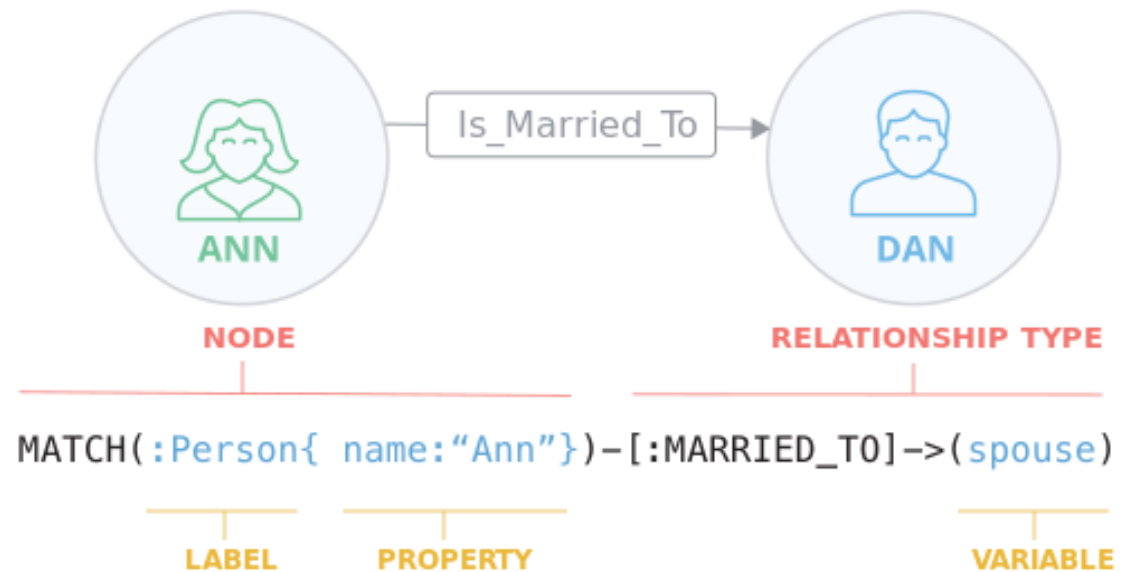
- Stateless
- Complexity (BigO) / Optimization
- Other Protocols: WebSocket / gRPC / TCP
- Authentication: OAuth
- Microservice
- Security (Input Validation, XSS/CSRF), Hashing, Encryption
- Concurrent Programming: Threading, Mutex, Join/Wait
- Caching
- Container: Docker

# PLUS (ADVANTAGE)

- Networking
- DevOps (Deployment, CI/CD), Cloud Service
- 3rd Party Integration: Push Notification, External API, Web Hook
- Other Knowledge: Blockchain, ML, Data Mining, ...

# OTHER DBMS TYPE

- Key-Value: Redis, LevelDB, RocksDB
- NoSQL: Mongo, Neo4j



# DEPLOYMENT

- CI / CD
- Serverless (Cloud)
- Kubernetes

# CLEAN ARCHITECTURE

- Dependency Injection / IoC Container Concept / Decoupling
- Separation of Concerns / Modularity
- Anti-Pattern / Good Design Pattern



**Q / A**