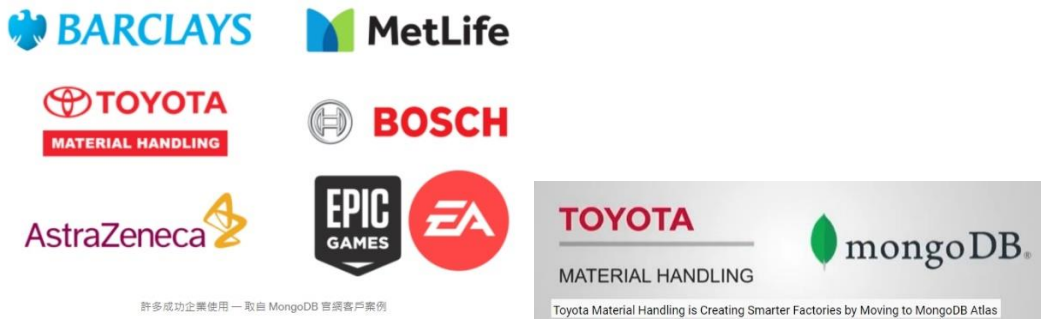
TaiwanICDF / Dept of CSIE, National Dong Hwa University
MongoDB Professional Certification – MongoDB Developer Training Course
Tentative Syllabus

Course Advantage	**Why study MongoDB Developer Training Course?** Database is the core system of a company's business operation. Taking "Online Shopping" activity as an example: the construction, management and maintenance of databases such as product catalogues, inventory quantities, storage in and out, and customer information; the design and implement of applications for big data analysis on customer consumption content, web browsing habits, and promotional advertising effects, ...and so on, all these operations need to rely on database development and application talents In the era of the Internet of Things (IOT), Artificial Intelligence (AI), Cloud Services, Big Data… applied in all industries, major enterprises and institutions have upgraded from traditional databases to NoSQL databases. MongoDB, the distributed document-based NoSQL database can be applied in Linux, Windows, Mac OS X operation platforms, is the first choice of the modern database software, and has been adopted in world leading companies, such as Barclays Bank, MetLife Insurance, Toyota, Bosch Inc., AstraZeneca, Epic Games, EA Games..etc just to name a few . **Being a MongoDB developer and knowing how to manage this database software will open many opportunities in the job markets.**  **MongoDB Developer Certificate**, designed for NoSQL database and its application developers, is the important indicator to identify MongoDB professional talents. **Obtaining this MongoDB Developer Certificate will greatly improve your competitiveness in the workplace!** **The advantage of this training course is highly flexible and can be carried out at the time convenient for students.** The unsynchronized online classes can be reviewed anytime, anywhere and with various devices. In addition, the synchronized online group discussion sessions, Q&A forums, and email counseling will be provided to students as well.
Prerequisite	**Who can study MongoDB Developer Training Course?** General knowledge of the following topics is required: ● Fundamental database concepts and SQL language ● Fundamentals of OS concepts and operations

	● Basic JavaScript programming ● Basic programming with a high-level language such as C/C++, Java, or Python,.. ● English listening, reading, writing, speaking ability
Course Objectives	**What will students learn from this MongoDB Developer Training Course?** Guide students to learn MongoDB software from scratch, starting from the installation and setting, step by step, building in-depth knowledge of MongoDB's CRUD (create, read, update, delete), data modeling, replication and backup, indexing and performance, sharding, aggregation, …etc. skills and operations. **What is the goal of this training course?** The goal of this training course is to enrich students' knowledge in MongoDB software and to enable students to have the ability to take the MongoDB Developer certification exam by actively encourage and guide students to participate in the weekly classes, in exercises, in discussion, in simulated and in real MongoDB Developer exams.
Job Opportunity After Training	As mentioned above, database is the core system of a company's business operation. World leading companies, such as Toyota, Bosch Inc., AstraZeneca, Epic Games are adopting MongoDB to manage their database. **Being a MongoDB developer and knowing how to manage this database software will open many opportunities in the job markets** **Below are the examples of jobs that a MongoDB developer can apply and their salaries: (Source: Payscale website)**

MongoDB Jobs by Salary (as in US Dollars)

Search by job title

Job Title	Range	Average
Software Engineer	$62k - $132k	$87,618
Senior Software Engineer	$92k - $159k	$119,747
Software Developer	$52k - $139k	$81,714
Sr. Software Engineer / Developer / Programmer	$72k - $139k	$98,195
Full Stack Software Developer	$52k - $123k	$86,912
Senior Database Administrator (DBA)	$82k - $152k	$121,428
Application Developer	$39k - $92k	$65,328

	Average Salaries at MongoDB (as in US Dollars) **Software Development** **Senior Solution Architect** **$205,696** per year **Software Engineer** **$165,452** per year **Software Architect** **$146,315** per year **Sales** **Enterprise Account...** **$164,562** per year **Account Executive** **$77,914** per year **Administrative Assistance** **Executive Assistant** **$85,066** per year **Operations Associate** **$97,985** per year

Course Name	**MongoDB Developer Training Course**
Training Period	**Training Periods#1: 2022/05/~~20~~ 27~2022/08/19 (max 100 students)** **Training Periods#2: 2022/08/26~2022/11/25 (max 100 students)**
Instructor	**Professor Shiow-yang Wu, Ph.D (吳秀陽)** **Department of Computer Science & Information Engineering** **National Dong Hwa University, Taiwan**
Course Instruction	**This training course is conducted in multiple methods.** **Method #1**：The main training is based on the English-Taught online classes provided by the **MontoDB University** (https://university.mongodb.com/). **All online classes are FREE and can be viewed at any time and any device of students' convenience, and can be repeated as many times as needed**. The training course consists of 13 weeks of learnings and preparations toward taking the actual MongoDB Developer Certification Exam and increase the opportunity to obtain the Certificate. **Method #2** is during the training period, the instructor NDHU's Professor Shiow-yang Wu and the teacher assistants (TAs) will conduct **Synchronized-Online** Group Discussions, Q and A Sessions, Lab Forums, and E-Mail consultations. Students have multiple channels to learn the subject effectively. **Method #3:** There are searchable Theorical Forum and Tech Lab / Discussion Forum. Students may ask questions, conduct discussions, or search answers on them. Teacher Assistants (TAs) will accumulate everyone's questions, then pass onto the instructor for the answers.

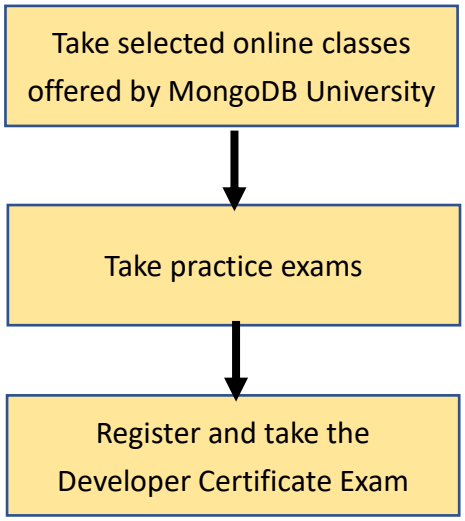
Method #4: E-Mail consultations with NDHU's Professor Shiow-yang Wu will be provided to students who need more assistances.

Method #5: There is a quiz associated with each MongoDB online class. The passing score of a quiz is 65% to receive the official Proof of Completion. Students may repeat the quizzes as many times as needed until pass. Students should submit these proofs to TAs before the end of training period. These quizzes ensure students to obtain the essential knowledge of the subject.

Method #6: The MongoDB Developer Certification Exam is online exam conducted by MongoDB company. Date/Time will be available on its website. Early registration is strongly recommended.

Training Strategy

The training strategy is designed to be completely online, easy to follow and flexible. The training consists of three stages as follows:



Week	Subject/Topics/Course Link	Hours
1*	**Orientation with TaiwanICDF and NDHU.** **Synchronized-Online Introduction** of class, forum, MontoDB University online course registration, HW/SW environment setup.	4.0
2-3	**M001 MongoDB Basics**: Learn the fundamentals of MongoDB. (https://university.mongodb.com/courses/M001/about)	8.5
4-5	**M103 Basic Cluster Administration**: Learn the essentials of database administration in MongoDB. (https://university.mongodb.com/courses/M103/about)	9.5
6-7	**M121 The MongoDB Aggregation Framework**: Learn how to use MongoDB's Aggregation Framework. (https://university.mongodb.com/courses/M121/about)	8.5

8*	**Synchronized-Online group discussion and midterm progress evaluation hosted by NDHU's Professor Shiow-yang Wu.**	3.0
9	**M220P MongoDB for Python Developers**: Learn the essentials of Python application development with MongoDB. (https://university.mongodb.com/courses/M220P/about)	6.0
10	**M201 MongoDB Performance**: Learn how to optimize the performance of your MongoDB deployment. (https://university.mongodb.com/courses/M201/about)	7.0
11	**M320 Data Modeling**: Learn everything you need to know about data modeling for MongoDB. (https://university.mongodb.com/courses/M320/about)	7.0
12*	**Synchronized-Online group discussion and final reinforcement hosted by NDHU's Professor Shiow-yang Wu.**	3.0
13*	**Synchronized-Online Practice Exam and guidance on how to take the Developer Exam** (https://university.mongodb.com/certification/exam-prep) (https://university.mongodb.com/certification/developer/about). The MongoDB Developer Professional Certificate Exam is online exam conducted by MongoDB company. Date/Time will be available on its website. Early registration is strongly recommended.	3.5

Teaching Strategies

Online Lecture and Quiz、Group Discussion、Forum Discussion

Synchronized-Online Group Discussions

There will be 3-hour synchronized online group discussion at Week #1, #8, #12, and #13 conducted by NDHU's Professor Shiow-yang Wu to go through the theorical and practical questions that posted by students. These group discussion sessions will be side-recorded for students who miss the class hour or want to review them again.

Theoretical Q&A Forum

A Q&A Forum specially designed for this training will be set up for students to ask questions about theory and system. The instructor, Professor Shiow-yang Wu will answer the questions. Email support will be used for students who needs to catch up with the schedule.

Tech Lab Forum

A Tech Lab Forum specially designed for this training will be set up for students to ask questions about programming and application development. Students may ask questions, conduct discussions, or search answers on them. The Teacher Assistants will answer the questions. Email support will be used for students who needs to catch up with the schedule.

Email Supports

1. Email support will be provided for students who needs to catch up with the schedule.
2. Consultation support will be provided for students who are ready to take Certification Exam in advance.

Online Courses Websites & Resources

1. MongoDB Homepage (for software download and user's guide): https://www.mongodb.com/
2. MongoDB University (for online courses and learning materials): https://university.mongodb.com/
3. MongoDB Professional Certification (for MongoDB Developer and MongoDB Database Administrator exams): https://university.mongodb.com/certification

Optional References

1. Shannon Bradshaw, Eoin Brazil and Kristina Chodorow. *MongoDB: The Definitive Guide: Powerful and Scalable Data Storage, 3rd Edition*. O'Reilly Media, Inc. 2020. (https://www.oreilly.com/library/view/mongodb-the-definitive/9781491954454/)
2. Alex Giamas. *Mastering MongoDB 4.x, 2nd Edition*. Packt Publishing, 2019. (https://www.packtpub.com/product/mastering-mongodb-4-x-second-edition/9781789617870)

Certification Plan

Student are encouraged to take MongoDB Developer Certification Exam to become MongoDB Certified Developer.

Future Certification Plan

Take MongoDB Administrator Certification exam and become MongoDB Certified Database Administrator.

This training course is financially sponsored by TaiwanICDF and executed by Department of Computer Science & Information Engineering, National Dong Hwa University, Taiwan

Note for Students:

1. Applicants must provide supporting documents such as high school or university transcripts, certificates of advanced studies, work resumes, or self-study records for the instructor review. The qualified students will be announced at the end of the Registration. Approximate 100 students per each training period.
2. When student completes all training course hours, the course completion certificate will be issued by

the MongoDB official platform.

3. Students are encouraged to sign up for the MongoDB Certificate examination after completing this training.
4. **For fast learners**：Students may complete the online classes early and submit all Proofs of Completion from the quizzes of classes. Students may take the MongoDB Developer Certification Exam before the end of training period. Both the Proofs of Completion from the classes or the MongoDB Developer Certificate may be viewed as the completion of this training.