

Database Systems

CMU 15-445/645 – Fall 2024

ⓘ Intro to Database Systems

Yes, this is the premier course at Carnegie Mellon University on the design and implementation of database management systems. Topics include data models (relational, document, key/value), storage models (n-ary, decomposition), query languages (SQL, stored procedures), storage architectures (heaps, log-structured), indexes + filters (order preserving trees, hash tables, vector indexes), transaction processing (ACID, concurrency control), recovery (logging, checkpoints), query processing (joins, sorting, aggregation, optimization), and parallel architectures (multi-core, distributed). Case studies on open-source and commercial database systems are used to illustrate these techniques and trade-offs. The course is appropriate for students that are prepared to sweat their systems programming skills.

⌚ **Time:** Mon/Wed 2:00pm-3:20pm ET

📍 **Location:** [Tepper 1403](#)

📘 **Textbook:** [DB System Concepts \(7th Ed.\)](#)

💬 **Discussion:** [Piazza](#)

❤ Acknowledgements

Thanks to the following organizations for their support towards course development as part of the [CMU-DB Affiliates Program](#).



🎓 Instructors

Name	Office Hours
 Andy Pavlo	Wednesday 3:30-4:30pm GHC 9019

/people/ Teaching Assistants

Name	Office Hours
 Connor Tsui	Thursday 6:00-7:00pm GHC 5th Floor (Commons, Carrel 2)
 Yash Kothari	Friday 2:00-3:00pm GHC 5th Floor (Commons, Table 7)
 William Zhang	Wednesday 10:30-11:30am GHC 5th Floor (Commons, Table 7)

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[Kunle Li](#)

Thursday 9:30-10:30am
GHC 5th Floor (Commons, Table 1)



[Prashanth Duvvada](#)

Friday 4:00-5:00pm
GHC 5th Floor (Commons, Table 1)



[Lan Lou](#)

Monday 12:45-1:45pm
GHC 5th Floor (Commons, Table 1)



[J-How Huang](#)

Tuesday 10:30-11:30am
GHC 5th Floor (Commons, Table 1)



[Yuanxin Cao](#)

Tuesday 12:30-1:30pm
GHC 5th Floor (Commons, Table 1)