INT205 Database Management System

ระบบจัดการฐานข้อมูล

3 (2-2-5) credits

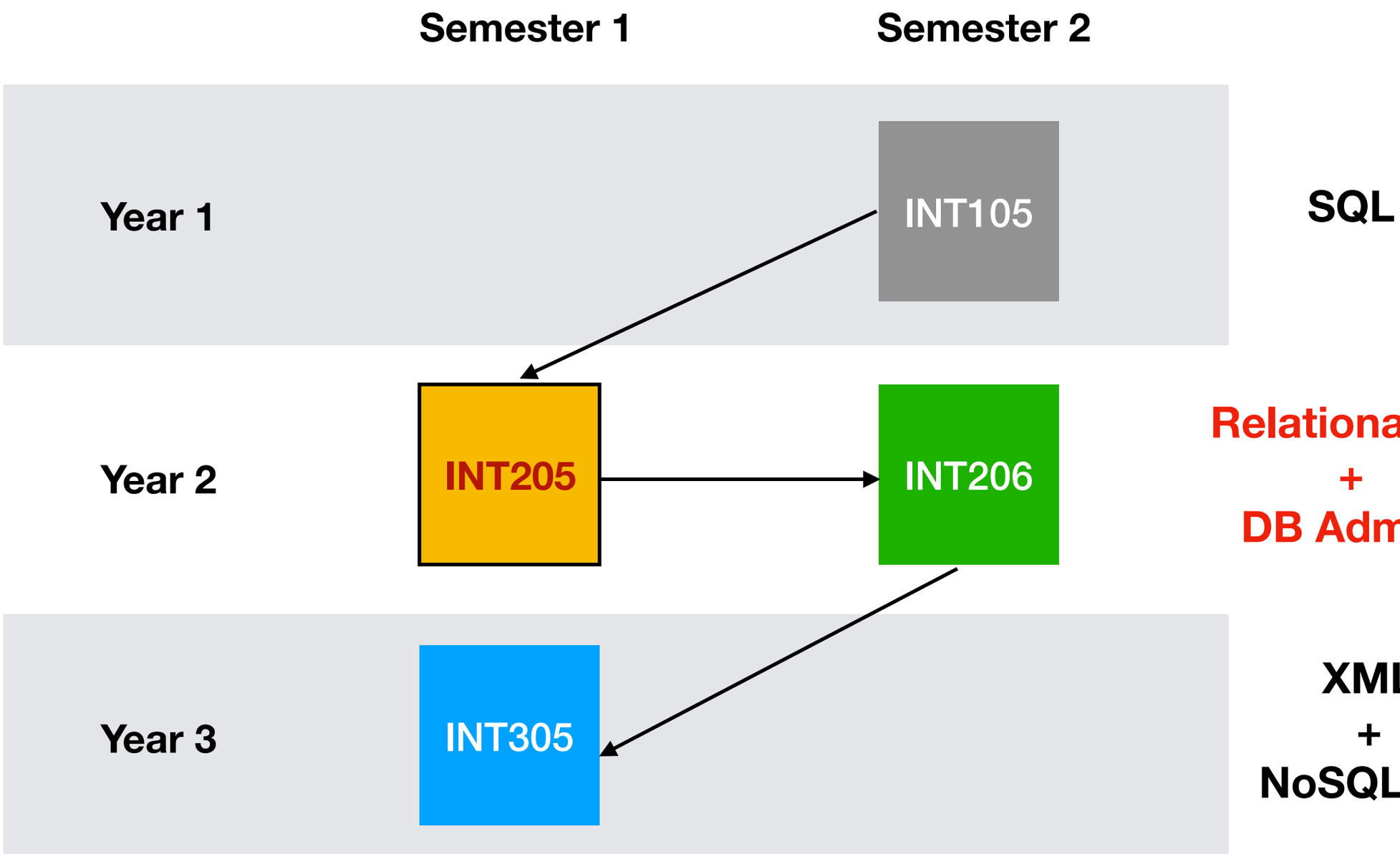
B.Sc.IT Curriculum 2562

Semester 1/2021

11-Aug-2021

INT205 Database Management System

DB in B.Sc.IT Curriculum 2562



Course Description

Introduction to databases, relational database concept, database design using entity relationship model, normalization, writing SQL subqueries, creating view, basic data warehouse concepts

INT205 Database Management System

CLO: Course Learning Outcome

1. Justify the advantages of a database approach compared to traditional file processing.
2. Compare and use key terms such as: information, data, database, database management system, metadata, and data mining."
3. Illustrate data quality, accuracy, and timeliness, and explain how their absence will impact organizations.
4. Design Entity Relationship diagrams based on appropriate organizational rules for a given scenario.
5. Evaluate importance of database constraints.
6. Design a physical model for the best performance including impact of normalization and indexes.
7. Compare and contrast the differences and similarities between the relational and the dimensional data modeling (OLTP vs. OLAP)."
8. Evaluate data integrity and provide examples of entity and referential integrity.
9. Demonstrate an understanding of online analytical processing and data warehouse systems.
10. Create updatable and non-updatable views.

INT205 Database Management System

- **Lecturers**

Aj.Sanit Sirisawatvatana

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Aj.Kittipong Warasup

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Dr.Sunisa Sathapornvajana

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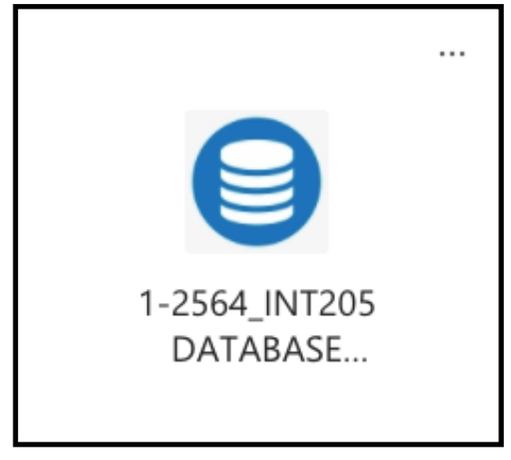
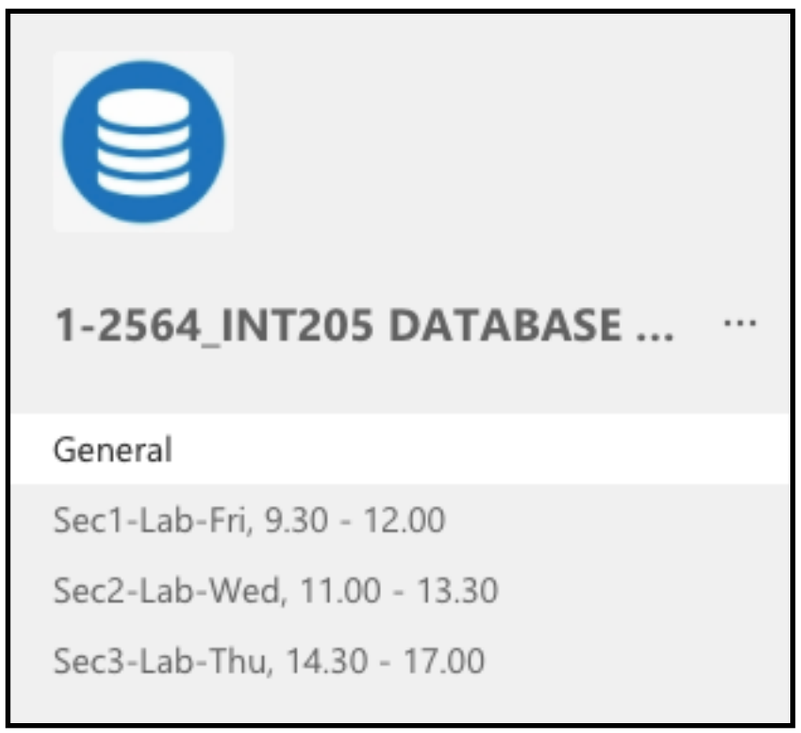
INT205 Database Management System

- **Online Class [Microsoft Teams]**



- **Class Date & Time:**
- **Theory: Wednesday, 09.30 - 11.00 hrs.**
- **Lab:**

Section	Date & Time
Sec. 1	Fri. 9.30 - 12.00
Sec. 2	Wed. 11.00 - 13.30
Sec. 3	Thu. 14.30 - 17.00



INT205 Database Management System

Course Outline (1/2)

Week#	Date	Theory Topic	Lecturer
1	11-Aug-21	Class Overview + SQL Review	Sunisa
2	18-Aug-21	Introduction to DB & DB Environment	Sunisa
3	25-Aug-21	Subquery	Sunisa
4	1-Sep-21	DB Architecture + View	Sunisa
5	8-Sep-21	The Relational Model **(Quiz#1: Subquery)**	Sunisa
6	15-Sep-21	Entity-Relational Diagram (1/3)	Sanit
7	22-Sep-21	Entity-Relational Diagram (2/3)	Sanit
8	**29-Sep-21**	**Midterm Lab Test**	**All**

INT205 Database Management System

Course Outline (2/2)

Week#	Date	Theory Topic	Lecturer
9	6-Oct-21	Entity-Relational Diagram (1/3)	Sanit
10	13-Oct-21	ERD Mapping (Holiday)	Sanit
11	20-Oct-21	Software Development Life Cycle **(Quiz#2: ERD)**	Sanit
12	27-Oct-21	Normalization (1/3)	Kitipong
13	3-Nov-21	Normalization (2/3)	Kitipong
14	10-Nov-21	Normalization (3/3)	Kitipong
15	17-Nov-21	Data Warehouse (1/2)	Kitipong
16	24-Nov-21	Data Warehouse (2/2) **(Quiz#3: Normalization)**	Kitipong
17	**1-Dec-21**	**Final Exam**	**All**

INT205 Database Management System

Sec. 1: Lab Fri. 9.30 - 12.00

Date	Lab Topic	Lab Lecturer
13-Aug-21	SW Demo & Lab Setup	Kittipong
20-Aug-21	SQL Practice	Kittipong
27-Aug-21	Subquery 1	Kittipong
3-Sep-21	Subquery 2	Kittipong
10-Sep-21	View	Kittipong
17-Sep-21	MySQL Workbench: Data Model	Sunisa
24-Sep-21	Design ER Diagram	Sunisa
1-Oct-21	**Midterm Exam**	**All**
8-Oct-21	Design ER Diagram (Generalization/Specialization)	Sunisa
15-Oct-21	Design ER Diagram (Case Study)	Sunisa
22-Oct-21	ER Conversion to Tables	Sunisa
29-Oct-21	Data Redundancy and Update Anomalies	Sanit
5-Nov-21	Normalization	Sanit
12-Nov-21	Normalization	Sanit
19-Nov-21	Star Schema	Sanit
26-Nov-21	Data Warehouse Query	Sanit
3-Dec-21	**Final Exam**	**All**

INT205 Database Management System

Sec. 2: Lab Wed. 11.00 - 13.30

Date	Lab Topic	Lab Lecturer
11-Aug-21	SW Demo & Lab Setup	Sunisa
18-Aug-21	SQL Practice	Sunisa
25-Aug-21	Subquery 1	Sunisa
1-Sep-21	Subquery 2	Sunisa
8-Sep-21	View	Sunisa
15-Sep-21	MySQL Workbench: Data Model	Sanit
22-Sep-21	Design ER Diagram	Sanit
29-Sep-21	**Midterm Exam**	**All**
6-Oct-21	Design ER Diagram (Generalization/Specialization)	Sanit
13-Oct-21	Design ER Diagram (Case Study)	Sanit
20-Oct-21	ER Conversion to Tables	Sanit
27-Oct-21	Data Redundancy and Update Anomalies	Kittipong
3-Nov-21	Normalization	Kittipong
10-Nov-21	Normalization	Kittipong
17-Nov-21	Star Schema	Kittipong
24-Nov-21	Data Warehouse Query	Kittipong
1-Dec-21	**Final Exam**	**All**

INT205 Database Management System

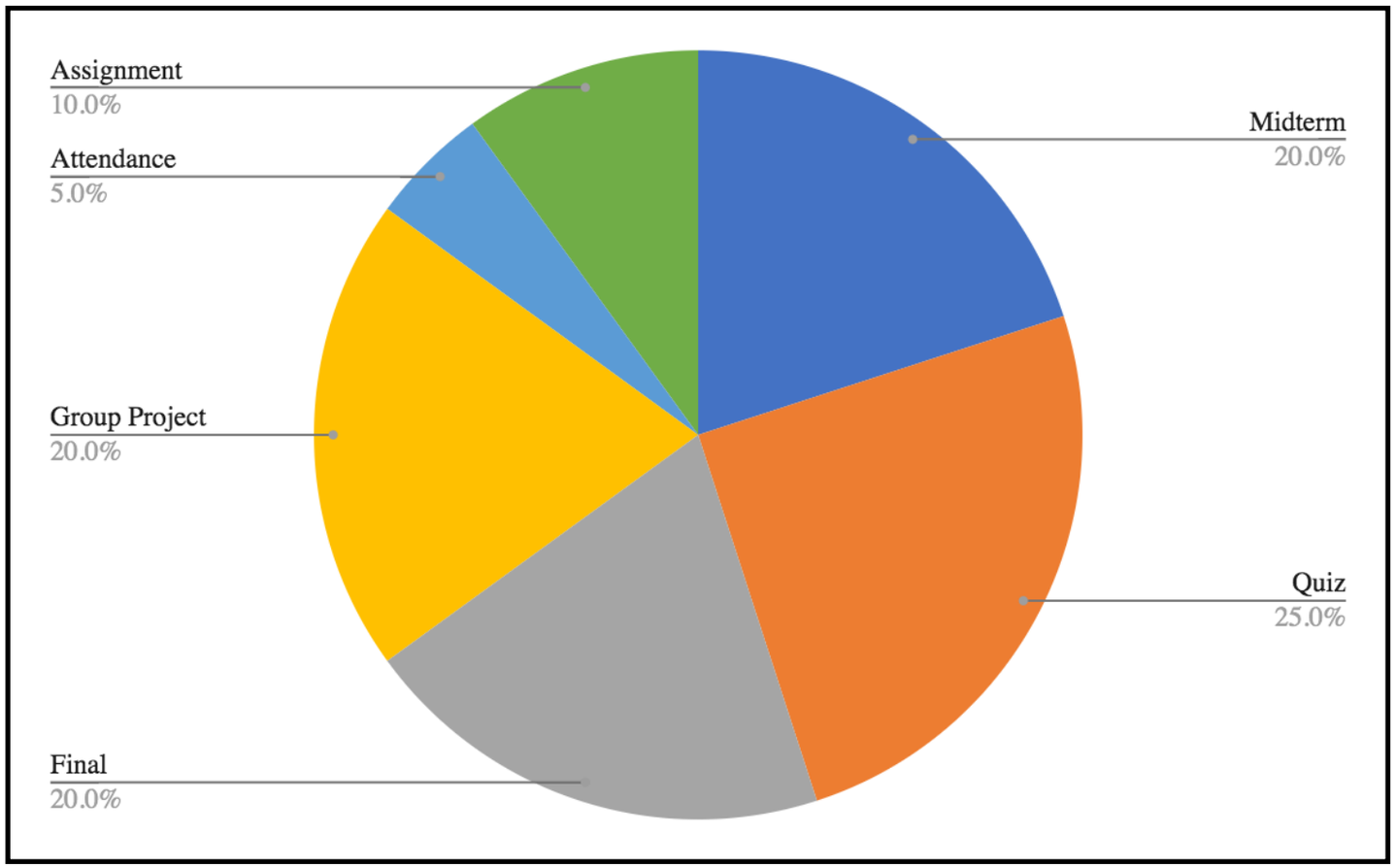
Sec. 3: Lab Thu. 14.30 - 17.00

Date	Lab Topic	Lab Lecturer
12-Aug-21	SW Demo & Lab Setup (Holiday)	Sanit
19-Aug-21	SQL Practice	Sanit
26-Aug-21	Subquery 1	Sanit
2-Sep-21	Subquery 2	Sanit
9-Sep-21	View	Sanit
16-Sep-21	MySQL Workbench: Data Model	Kittipong
23-Sep-21	Design ER Diagram	Kittipong
30-Sep-21	**Midterm Exam**	**All**
7-Oct-21	Design ER Diagram (Generalization/Specialization)	Kittipong
14-Oct-21	Design ER Diagram (Case Study)	Kittipong
21-Oct-21	ER Conversion to Tables	Kittipong
28-Oct-21	Data Redundancy and Update Anomalies	Sunisa
4-Nov-21	Normalization	Sunisa
11-Nov-21	Normalization	Sunisa
18-Nov-21	Star Schema	Sunisa
25-Nov-21	Data Warehouse Query	Sunisa
2-Dec-21	**Final Exam**	**All**

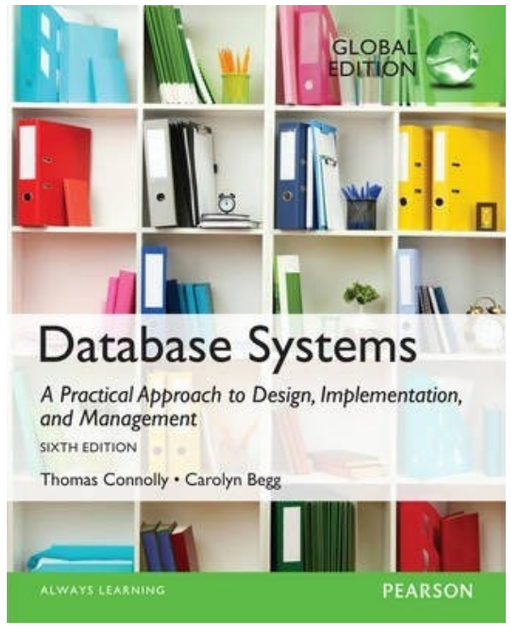
INT205 Database Management System

Evaluation

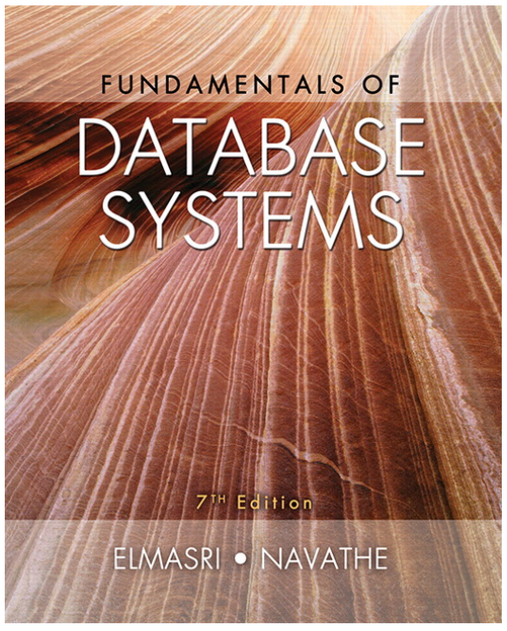
- Quiz 25% (3 Times)
- Midterm 20%
- Final 20%
- Group Project 20%
- Assignment 10%
- Attendance 5%



Textbook and References



- Thomas Connolly, Carolyn Begg , "Database Systems, A Practical Approach to Design, Implementation, and Management", 6th Edition, Pearson, 2015

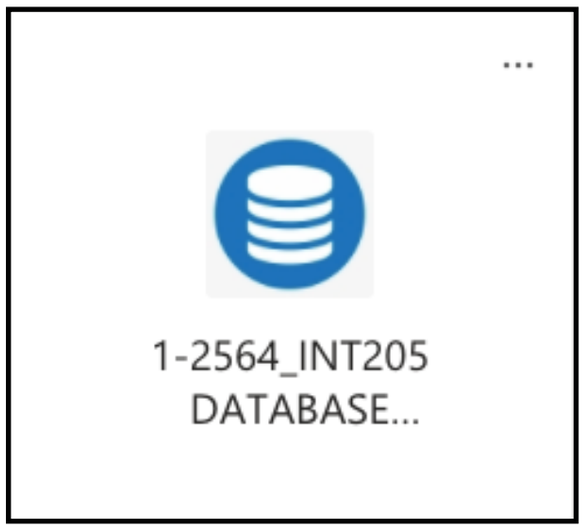


- R. Elmasri,S. Navathe, "Fundamentals of Database Systems", 7th edition, Pearson, 2016

INT205 Database Management System

Learning Tool

- **Microsoft Teams:**
  - Class Material
  - Announcement
  - Discussion



- **LEB2: https://www.leb2.kmutt.ac.th (Subject: INT205)**
  - Class Material
  - Attendance
  - Assignment

Rules for Attendance

- LEB2: Scan QR Code or using Code provided by a lecturer [The attendance info will be verified using the attendance report of MS teams].

- A student will be marked as:
  - "**Late**" if a student comes 30 minutes late in class.
  - "**Absent**" if a student comes 1 hour late in class.
  - 3 "Late" is equal to 1 "Absent".

DB Software

- **MySQL**
  - **MySQL Community Server:**
    - Download: https://dev.mysql.com/downloads/mysql/
    - Documentation: https://dev.mysql.com/doc/refman/8.0/en/
- **MySQL Workbench**
  - Download: https://dev.mysql.com/downloads/workbench/
  - Documentation: https://dev.mysql.com/doc/workbench/en/