Review

Views

- Derived/Not stored directly
- Ex:

```
create view good_sailors
as select * from sailors where rating>=7;

select *
from good_sailors;
```

Chapter 1-2

- File system vs. DBMS
- Advantages of a DBMS
- When not to use DBMS?

Chapter 1-2

- Three-level of abstraction
  - What are they?
- Data independence
  - What is it?
  - How many different kinds?
  - Example for each kind.
- Transaction management
  - What is a transaction?
  - What mechanism is used to ensure the integrity?

Chapter 1-2

- People who work with databases

Chapter 3

- Relation
  - Relation schema
  - Relation instance (tuple, record, row)
  - Field (column, attribute)
    - Domain
      - Name and values
  - Degree (number of fields)
  - Cardinality (number of records)
  - Integrity Constraints

Chapter 7

- Know how to draw ER and use it to express your application requirements

- Entities
  - Definition, graphical representation in ER

- Attributes
  - Definition, graphical representation in ER
  - Domain, key, primary key, candidate key

- Relationships
  - Relationship instance
  - Definition, graphical representation in ER
  - Can relationship have attributes?
  - Role and role indicators

Chapter 7

- Key constraints
  - One-to-many
  - Many-to-many
  - Graphical representations in ER
- Participation constraints
  - Total vs. partial
  - Graphical representations in ER

Chapter 7

- Weak entities
  - Identifying owner
  - Be in total participation with the owner
  - Partial key
  - Graphical representations in ER
- Conceptual design with ER model

Chapter 9.1

- ER to Relational
  - Entities
  - Relations without constraints
  - Relations with key constraints
  - Relations with participation constraints
  - Weak entities
  - Class hierarchies

Chapter 4

- SQL commands for creating tables
- INSERT
- DELETE
- UPDATE

- Be careful with the syntax

Chapter 4

- Integrity constraints
  - Key constraints
    - Primary key, superkey, candidate key
    - SQL syntax (UNIQUE, CONSTRAINT)
  - Foreign key constraints
    - SQL syntax
  - Domain constraints
  - NULL constraints

Chapter 4

- Integrity constraints
  - ON DELETE/UPDATE
    - CASCADE
    - NO ACTION
    - SET DEFAULT
    - SET NULL

Chapter 6

- Relational algebra
  - Basic operations
    - Selection
    - Projection
    - Set operations
      - Union
      - Difference
      - Cross-product
  - Other operations
    - Intersection
    - Join
      - Equijoin
        - » Natural join
    - Division

Chapter 4-5

- Basic queries

  SELECT

  FROM

  WHERE

- What is the order in which the query is executed?

Chapter 4-5

- Cross product between the same table
  - When do we need it?
  - How do we rename columns or tables?
- How many tables do we need?

Chapter 4-5

- UNION, INTERSECT, EXCEPT

- String comparison
  - LIKE ‘_’, ‘%’

Chapter 4-5

- Nested queries
  - WHERE … IN ( )
  - Can have several layers
  - Can act as argument

Chapter 4-5

- Aggregate operators
  - COUNT
  - SUM
  - AVG
  - MAX
  - MIN
- GROUP BY
- HAVING

- What is the order of execution?

Practice

- What does the * mean in SQL?
- What does this say?

```
Select E.eid
From Employees E
Where E.salary = (Select MAX(E2.salary)
                  From Employees E2)
```

- Provide the SQL for this:

  Find the names of all employees who are directly supervised by ‘Franklin Wong’