



Databases

Repeating a little

Data – large and small its all about information.

Database – means the data is stored in a structured manner.

mySql – is our database that we can access with
phpMyadmin, Unix commands,
using the mySQL language.

Php Website – is the application that we create to access our
database system.

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Databases

Database Systems provide

- **Performance** – provide fast response time for queries
- **Authorization** – Read write access to different users
- **Security** – Only authorized users access data
- **Rules** – data saved or deleted follows rules to ensure data integrity
- **Recovery** – Be able to recover from failures

We will do our best with our code ☺

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Databases

Database Systems provide

- **Transactions** – ensure queries get done in the proper order or not at all if one fails.
- **Conflicts** – two people place an order at the same time but only one product in stock.
- **Backup** – Keep transactions even after complete. Often times we save the user, date and time of the transaction

We won't get to everything.

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Databases

CRUD -Create, Read, Uppdate, and Deleate data.

- **Create** – Design database with ERD convert ERD to Schema which is the sql create statement.
- **Read** – Select queries
- **Update** – Insert and update records
- **Delete** – delete records

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CREATE

```
CREATE TABLE table_name (  
    field_name datatype [PRIMARY KEY]  
                        [NULL or NOT NULL]  
                        [DEFAULT 'default value']  
                        [AUTO_INCREMENT]  
                        [REFERENCES tblTableName (pkFieldName)]  
    ,  
    etc ...  
);
```

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SELECT

```
SELECT field list  
FROM table  
[WHERE criteria]  
[ORDER BY field [ASC DESC]];
```

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INSERT

Multiple Records

```
INSERT INTO table  
(fldName, fldName, fldName) VALUES  
("text", 23, "2021-09-11")  
[, ("text", 23, "2021-09-11")]  
;
```

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INSERT

One Record

```
INSERT INTO table SET  
fieldname=value  
[, fieldname=value]  
;
```

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Update

Do not need to update all fields
but we generally do on the web

```
UPDATE table SET  
    field=new-value  
    [, field=new-value]  
WHERE field=value;
```

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DELETE

No WHERE clause and you delete all the records

```
DELETE FROM table WHERE criteria;
```

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MySQL Unix commands

```
mysql -h webdb.uvm.edu -u rerickso_admin -p  
show databases;  
use RERICKSO_Registrar-Data-2020;  
show tables;  
describe tblEnrollments;  
Select etc.
```

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Databases

Database Design

- **Analysis** – database requirements, Get all the attributes
- **Logical Design** – Put attributes into entities and define relationships creating the ERD and the Schema.
- **Physical Design** – Create the database and add indexes as needed.

Let's practice this one hundred times ☺

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