# Active Record

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# Preface - Object Relational Mapping

One of the most signifcant principles in Object-Oriented Programming is the idea of rich objects - things that store data, and allow it to be retrieved in logical and concise ways. This pattern is what Active Record strives for. They call it Object Relational Mapping, or ORM. It's basic principle is that rich objects in your application should be connected with database tables. Using ORM, the properties and relationships of the objects in an application can be easily stored and retrieved from a database without writing SQL statements directly and with less overall database access code. Also is far more secure due to lessened risks in regards to SQL Injections.

# What does Active Record do?

Active Record, as an ORM, gives us several mechanisms, the most important being the ability to:

* Represent models and their data.
* Represent associations between these models.
* Represent inheritance hierarchies through related models.
* Validate models before they get persisted to the database.
* Perform database operations in an object-oriented fashion.

# Convention over configuration – names to sort out DB associations

Convention over configuration is big in development anyway, but it is particularly full on when it comes to Active Record. That is because it uses the *names* to sort out associations etc. Make sure you follow these rules!!

* **Database Tables** - Plural with underscores separating words (articles, line\_items etc.)
* **Model / Class Names** - Singular with the first letter of each word capitalized (Article, LineItem etc.)

# How do you work with Active Record

1. require it in your file

require 'active\_record' # make sure this is at the top of the file!

1. establish the connection to the database. These are annoying lines that will be done automatically in Rails! Just copy and paste them. They go in WHAT FILE?????

# Sets up our connection to the database.db we have created

ActiveRecord::Base.establish\_connection(

:adapter => 'sqlite3',

:database => 'database.db'

)

ActiveRecord::Base.logger = Logger.new(STDERR) # Logs out the Active Record generated SQL in the terminal. This isn't necessary but very helpful and cool to see what it is actually running

# CRUD with Active Record

Once we have our models defined (i.e. our classes), we can get into the CRUD stuff. There are always a lot of options of how to do this!

### Create

plant = Plant.new

plant.name = "Hibiscus"

plant.flowers = true

plant.save # YOU MUST RUN THIS LINE! (When using the new approach)

# OR

plant.create( :name => "Hibiscus", :flowers => true )

# OR

user = User.new do |u|

u.name = "David"

u.occupation = "Code Artist"

end # THIS WILL RUN THE SAVE AUTOMATICALLY

### Read

Plant.all

Plant.first

Plant.last

Plant.find( 10 ) # Find with an ID

Plant.find\_by( :name => "Hibiscus" ) # Returns the first plant that this works with

Plant.where( :name => "Hibiscus" ) # Returns all instances where this is appropriate

### Update

plant = Plant.find\_by( :name => "Hibiscus" )

plant.name = "Hibiscus 2"

plant.save

plant = Plant.find\_by( :name => 'Hibiscus 2' )

plant.update( :name => 'Hibiscus' ) # This will save automatically

### Delete

plant = Plant.find\_by( :name => 'Hibiscus' )

plant.destroy

Plant.destroy\_all

[Homework!](https://gist.github.com/ga-wolf/fa9e3278f71906cfcc9fd34d3bd59526)

# ACTIVE RECORD COMMANDS and CRUD

|  | **SQL** | **HTTP Verbs** | **Active Record ?is this a command???** |
| --- | --- | --- | --- |
| Create | INSERT | (Put) or POST | .create or .new/.save |
| Read | SELECT | GET | .find or .find\_by |
| Update | UPDATE | (Patch) or POST | .update or .find/.save |
| Delete | DELETE | (Delete) or POST or GET | .destroy or .destroy\_all |

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