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CSCI 446

Midterm Exam

1. The difference between an HTTP PUT request and a POST request is a matter of handling and URIs; a PUT request has an intended URI and cannot be applied to a different URI without giving a 301 (Moved Permanently) response. On the other hand, the URI of a POST request identifies a resource to be used in handling the request, though what this resource is may vary.
2. The target URL is relative because it does not contain a full path name but instead refers to a file in the current directory.
3. An absolute URL contains the full path to the named file/resource whereas a relative URL contains a partial path, depending on the relation to the current file/directory. Absolute URLs are generally longer and more cumbersome and can point to resources on a different server than the current one, but are also less portable.
4. If you clicked on this link, the browser would generate a POST request.
5. Yes. The querystring is “request\_type=PUT”
6. Including the title attribute in the link declaration would enhance accessibility.
7. The database and Web browser in Web applications are not unlike the controller and view in an MVC architecture, respectively. The browser displays the application. The database stores information about the application. Requests are sent to the database in order to update or perform actions from the browser.
8. An HTTP response that begins like this would usually contain a body, as indicated by the HTTP status code “200.” Codes of the form 2xx indicate the successful processing of a request and that the resource requested is contained therein.

class Troll

attr\_accessor :ugliness, :smelliness, :strength

@grunt = "UNGAH"

def speak()

for i in 1..42

puts @grunt

end

end

def reverse()

puts @grunt.reverse()

end

def self.propagate()

temp = Troll.new()

temp.grunt = "eegah"

return temp

end

end

1. The instance method called fight() is the missing piece that would cause fred.respond\_to?(“fight”) to return true.
2. Yes, the respond\_to?() method illustrates object-oriented polymorphism because it can be used with any object, no matter the object’s specifications.
3. I expect to receive a Boolean (true or false) value from a method that ends in a question mark.
4. According to Ruby conventions, methods that end in exclamation points (such as do\_this!) are generally thought of as “dangerous” methods because they could potentially change the calling object, arguments, or self, whereas methods that do not end with a bang are considered “safe” because, if they modify something, they only modify a copy and not the original.
5. Ruby is dynamically typed, meaning that data types for all included objects are determined (via type checking) at run-time. In a statically typed language, type checking is done when the code is compiled.
6. The expression yields an array of words.
7. The two snippets of code would do the same thing.
8. In Ruby, functions do not need explicit return statements because the value of the last statement in the function (generally, the line before end) is automatically returned. However, an explicit return statement can still be used, if so desired.
9. Four ActiveRecord callback that you can bind methods to: before\_save, after\_save, before\_destroy, after\_destroy

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| --- | --- | --- |
| **HTTP Method** | **Controller Action** | **CRUD Operation** |
| GET | *index* | read |
| GET | *new* | create |
| POST | *create* | create |
| GET | *edit* | update |
| PUT | *update* | update |
| DELETE | *delete* | delete |

1. Rails “simulates” PUT and DELETE requests because some browsers only support GET and POST.
2. In the ‘development’ environment source files are automatically reloaded in response to new requests. This is why, while creating the application, it is not necessary to restart the application whenever code is changed. However, this causes a small delay in loading times that would be unappreciated in common use. Therefore, the ‘production’ environment does not automatically reload as needed, but instead runs more smoothly.
3. A controller should have a singular name when it makes more sense grammatically (since Rails is supposed to be clear and meaningful in its naming schemes) or when one instance of the object referred by the controller is likely to be used.
4. “A helper is simply a module containing methods that assist a view. Helper methods are output-centric. They exist to generate HTML (or XML, or JavaScript) – a helper extends the behavior of a template.” (Agile Web Development with Rails, 4th ed., pg 352) Helper methods should be defined by the developer as a means of organizing and cleaning up the code, structuring the overall code such that helpers with similar responsibilities are grouped together.
5. In order for AR to infer the proper foreign key relationship between bees and flowers there must be an intermediate join table, containing foreign key pairs and conventionally named using the alphabetical concatenation of the target tables’ names.
6. All of these queries are not okay because they can slow down processing time and bog down the application. This problem can be alleviated by implementing eager loading, which reduces the number of queries necessary.