

Computer networking: project 2

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1 Software architecture

1.1 connexion handling

1.1.1 WebServer

This is the main class. Its job is to manage the sockets; it accepts clients and assign a new Worker for handling the client's request. It thus handle the threadpool mechanism.

In addition to that it also keeps manage the cookies of all the clients providing a method for creating new cookies and getting cookie from their id. However, this class only handle the storing of the cookies and not the mechanisms that come with it.

1.1.2 Worker

This is a thread class that handle a client's request given its socket. To do so it calls the RequestHandler and close the socket when the Request is handled.

1.2 Request handling

1.2.1 RequestHandler

This class has a private constructor and is not meant to be instantiated. It provides a static method for handling request based on the client sockets.

1.2.2 HTTPRequest

This class represent a request of the HTTP protocol. The main job of this class if performed by its constructor as it takes a socket as argument and construct parsing what is given through this socket. It also performs some checks about the consistency of what's given though the socket. The pieces of information about this request are then easily accessible by getting the values of the variables of the HTTPRequest object.

1.2.3 HTTPReply

This class represent a reply of the HTTP protocol. It works as the opposite of the HTTPRequest. The constructor takes as arguments The different pieces of information of the reply and have a method to send it through a socket with the HTTP protocol.

1.2.4 HTTPRedirectionReply

1.2.5 MethodExecutor

This is an abstract class. It has an abstract method called process that produce the appropriate HTTPReply object given a HTTPRequest object. This abstract method is then implemented by either the `GetMethodExecutor`, `PostMethodExecutor` or `HeadMethodExecutor` Which implement the logic of a get, post, head request. It also provides a method to manage cookies. It modifies the headers of a reply given the headers of the request. It also modifies the cookie associated to this Executor and the cookie list according to the situation.

1.3 client side

1.3.1 HTMLPage

1.4 Other classes

1.4.1 Colors

Enumeration representing a Color providing some basic method associated to it.

1.4.2 Combination

This class represent a Combination (Combination + result). It also provides a method parse a string containing the representation of a combination in order to set the combination of the object. It provides a method to set a random combination and a method to evaluate the combination setting the results based on a comparison combination given in argument.

1.4.3 Cookie

This class represent a cookie holding a mastermind game state. It thus associate a game state to a cookie ID in order to make the match when the user send a cookie id. It then has a method to adapt the HTMLPage to set the current game state.

1.4.4 FileType

1.4.5 HTTP

1.4.6 HTTPOption

1.4.7 ReturnCode

2 Multi-thread coordination

3 Limits

4 Possible improvements