HTTP in Detail

Task 1 : What is HTTPS?

What is HTTP?
HyperText Transfer Protocol. HTTP is the set of rules used for communicating with web servers for the transmitting of webpage data, whether that is HTML, Images, Videos, etc.

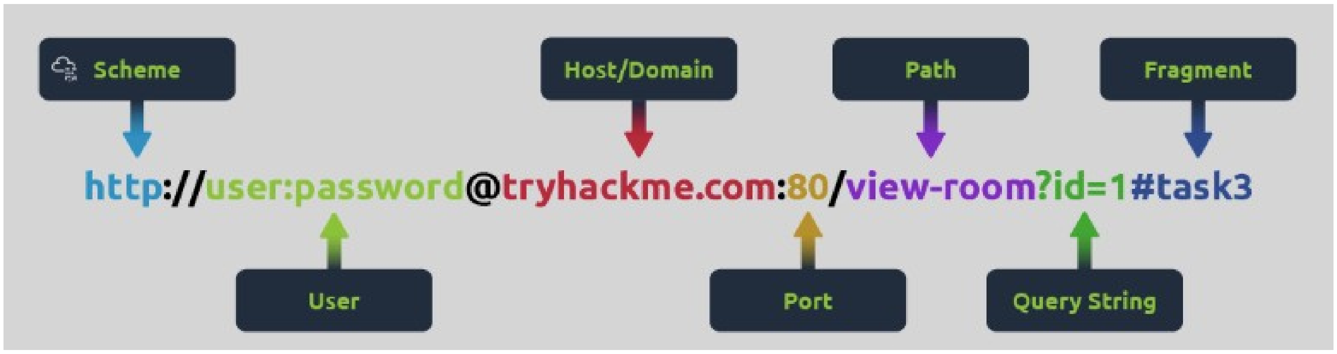
What is HTTPS?
HyperText Transfer Protocol Secure. HTTPS is the secure version of HTTP. HTTPS data is encrypted so it not only stops people from seeing the data you are receiving and sending, but it also gives you assurances that you're talking to the correct web server and not something impersonating it.

Task 2 : Requests and Responses

What is a URL? (Uniform Resource Locator)

A URL is predominantly an instruction on how to access

a resource on the internet.



Scheme: This instructs on what protocol to use for accessing the resource such as HTTP, HTTPS, FTP (File Transfer Protocol).

User: Some services require authentication to log in, you can put a username and password into the URL to log in.

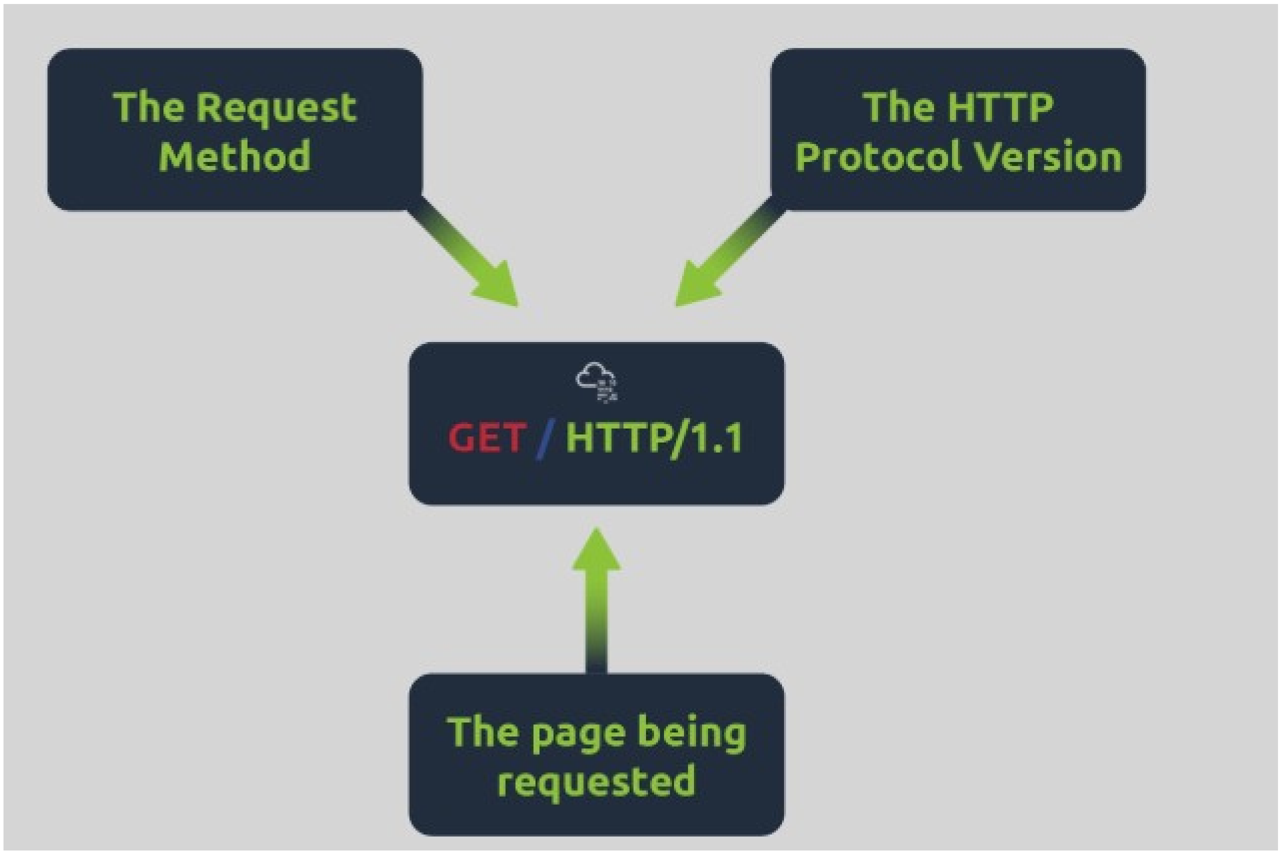
Host: The domain name or IP address of the server you wish to access.

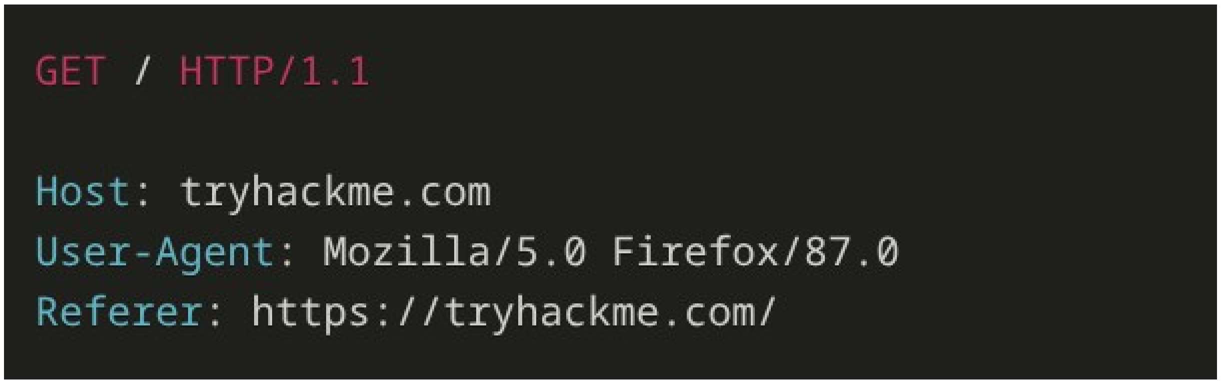
Port: The Port that you are going to connect to, usually 80 for HTTP and 443 for HTTPS, but this can be hosted on any port between 1 - 65535.

Path: The file name or location of the resource you are trying to access.

Query String: Extra bits of information that can be sent to the requested path. For example, /blog?id=1 would tell the blog path that you wish to receive the blog article with the id of 1.

Fragment: This is a reference to a location on the actual page requested. This is commonly used for pages with long content and can have a certain part of the page directly linked to it, so it is viewable to the user as soon as they access the page.





```
GET / HTTP/1.1

Host: tryhackme.com
User-Agent: Mozilla/5.0 Firefox/87.0
Referer: https://tryhackme.com/
```

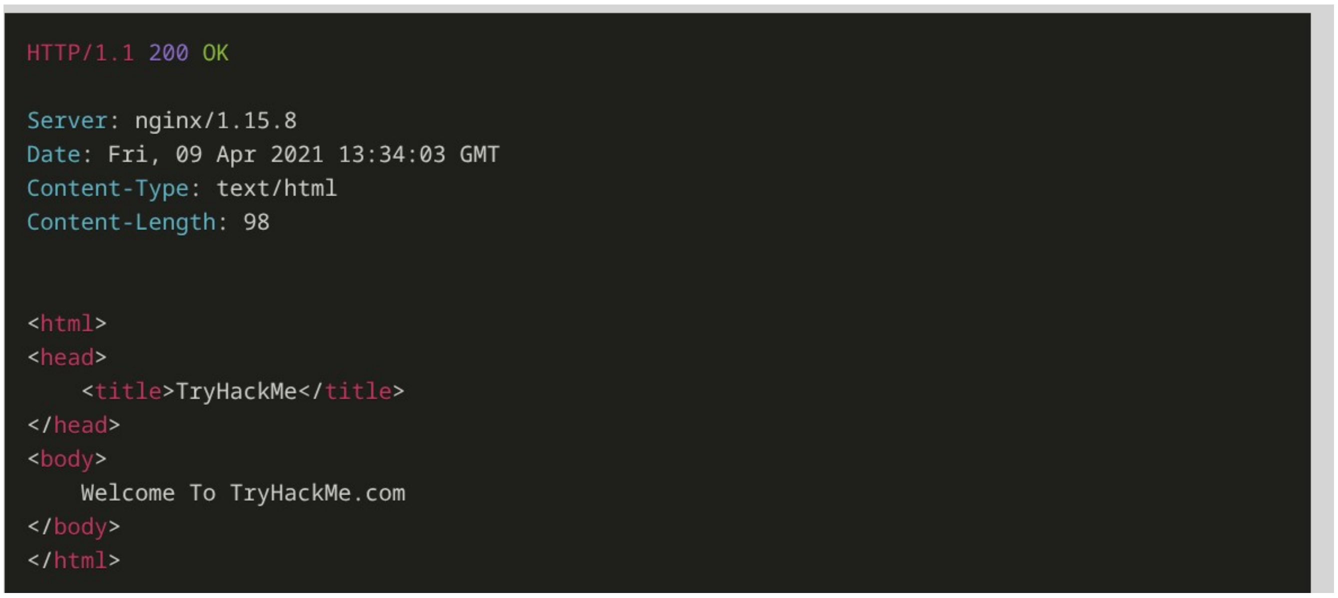
Line 1: This request is sending the GET method (more on this in the HTTP Methods task), request the home page with / and telling the web server we are using HTTP protocol version 1.1.

Line 2: We tell the web server we want the website tryhackme.com

Line 3: We tell the web server we are using the Firefox version 87 Browser

Line 4: We are telling the web server that the web page that referred us to this one is https://tryhackme.com

Line 5: HTTP requests always end with a blank line to inform the web server that the request has finished.



```
HTTP/1.1 200 OK

Server: nginx/1.15.8
Date: Fri, 09 Apr 2021 13:34:03 GMT
Content-Type: text/html
Content-Length: 98


<html>
<head>
    <title>TryHackMe</title>
</head>
<body>
    Welcome To TryHackMe.com
</body>
</html>
```

Line 1: HTTP 1.1 is the version of the HTTP protocol the server is using and then followed by the HTTP Status Code in this case "200 OK" which tells us the request has completed successfully.

Line 2: This tells us the web server software and version number.

Line 3: The current date, time and timezone of the web server.

Line 4: The Content-Type header tells the client what sort of information is going to be sent, such as HTML, images, videos, pdf, XML.

Line 5: Content-Length tells the client how long the response is, this way we can confirm no data is missing.

Line 6: HTTP response contains a blank line to confirm the end of the HTTP response.

Lines 7-14: The information that has been requested, in this instance the homepage.

Questions:

What HTTP protocol is being used in the above example?

Answer: HTTP/1.1

What response header tells the browser how much data to expect?

Answer: Content-Length

Task 3 : HTTP Methods

GET Request
This is used for getting information from a web server.

POST Request

This is used for submitting data to the web server and potentially creating new records

PUT Request

This is used for submitting data to a web server to update information

DELETE Request

This is used for deleting information/records from a web server.

UPDATE Request

`This is used when updating the website.`

Questions:

What method would be used to create a new user account?

Answer: POST

What method would be used to update your email address?

Answer: PUT

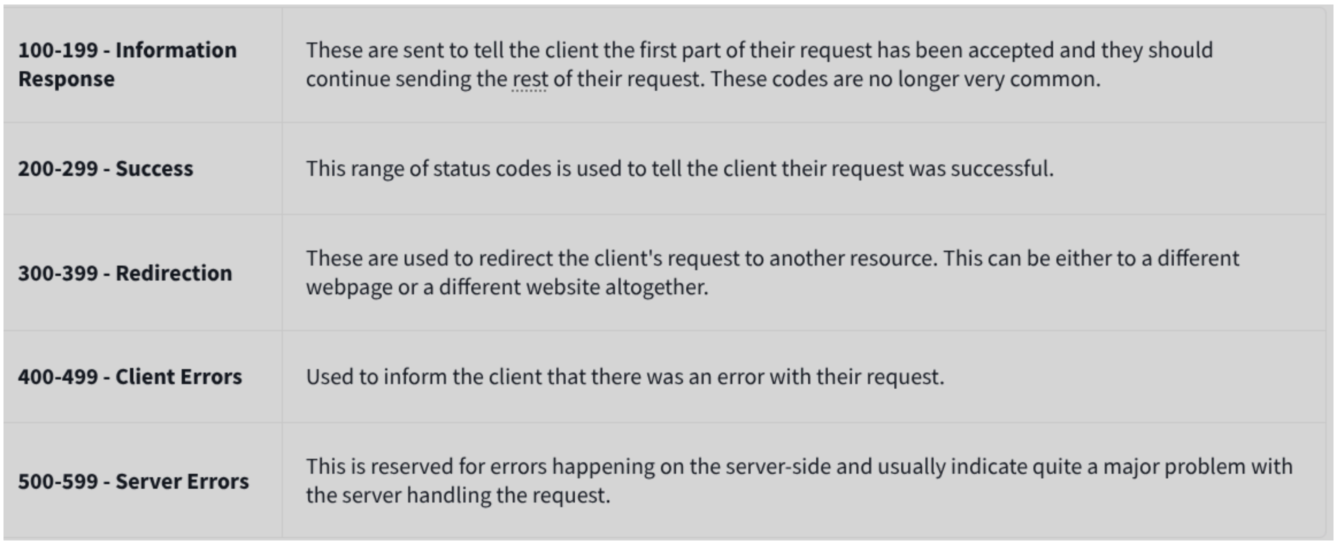
What method would be used to remove a picture you've uploaded to your account?

Answer: DELETE

What method would be used to view a news article?

Answer: GET

Task 4: HTTP Status Codes

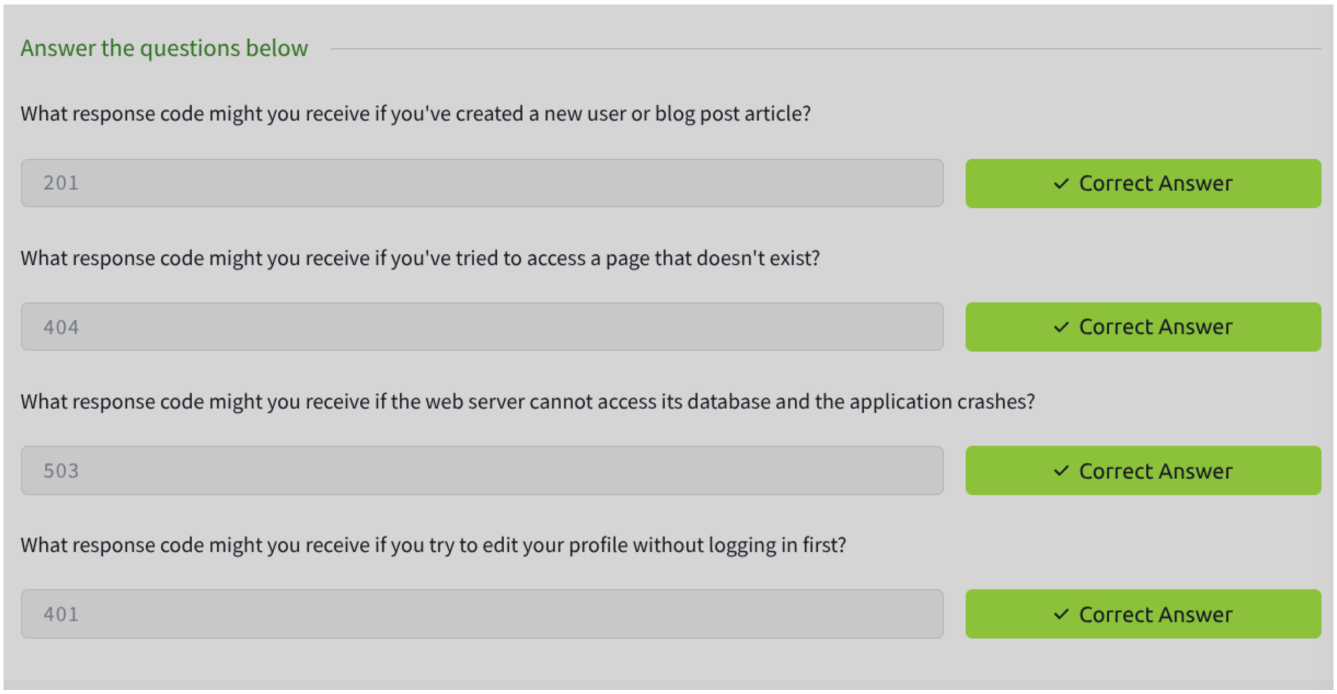


100-199 - Information Response	These are sent to tell the client the first part of their request has been accepted and they should continue sending the rest of their request. These codes are no longer very common.
200-299 - Success	This range of status codes is used to tell the client their request was successful.
300-399 - Redirection	These are used to redirect the client's request to another resource. This can be either to a different webpage or a different website altogether.
400-499 - Client Errors	Used to inform the client that there was an error with their request.
500-599 - Server Errors	This is reserved for errors happening on the server-side and usually indicate quite a major problem with the server handling the request.

Common HTTP Status Codes:

200 - OK	The request was completed successfully.
201 - Created	A resource has been created (for example a new user or new blog post).
301 - Moved Permanently	This redirects the client's browser to a new webpage or tells search engines that the page has moved somewhere else and to look there instead.
302 - Found	Similar to the above permanent redirect, but as the name suggests, this is only a temporary change and it may change again in the near future.
400 - Bad Request	This tells the browser that something was either wrong or missing in their request. This could sometimes be used if the web server resource that is being requested expected a certain parameter that the client didn't send.
401 - Not Authorised	You are not currently allowed to view this resource until you have authorised with the web application, most commonly with a username and password.
403 - Forbidden	You do not have permission to view this resource whether you are logged in or not.
405 - Method Not Allowed	The resource does not allow this method request, for example, you send a GET request to the resource /create-account when it was expecting a POST request instead.
404 - Page Not Found	The page/resource you requested does not exist.
500 - Internal Service Error	The server has encountered some kind of error with your request that it doesn't know how to handle properly.
503 - Service Unavailable	This server cannot handle your request as it's either overloaded or down for maintenance.

Questions:


Answer the questions below

What response code might you receive if you've created a new user or blog post article?

201

What response code might you receive if you've tried to access a page that doesn't exist?

404

What response code might you receive if the web server cannot access its database and the application crashes?

503

What response code might you receive if you try to edit your profile without logging in first?

401

Task 5: Headers

Common Request Headers

These are headers that are sent from the client (usually your browser) to the server.

Host: Some web servers host multiple websites so by providing the host headers you can tell it which one you require, otherwise you'll just receive the default website for the server.

User-Agent: This is your browser software and version number, telling the web server your browser software helps it format the website properly for your browser and also some elements of HTML, JavaScript and CSS are only available in certain browsers.

Content-Length: When sending data to a web server such as in a form, the content length tells the web server how much data to expect in the web request. This way the server can ensure it isn't missing any data.

Accept-Encoding: Tells the web server what types of compression methods the browser supports so the data can be made smaller for transmitting over the internet.

Cookie: Data sent to the server to help remember your information (see cookies task for more information).

Common Response Headers

These are the headers that are returned to the client from the server after a request.

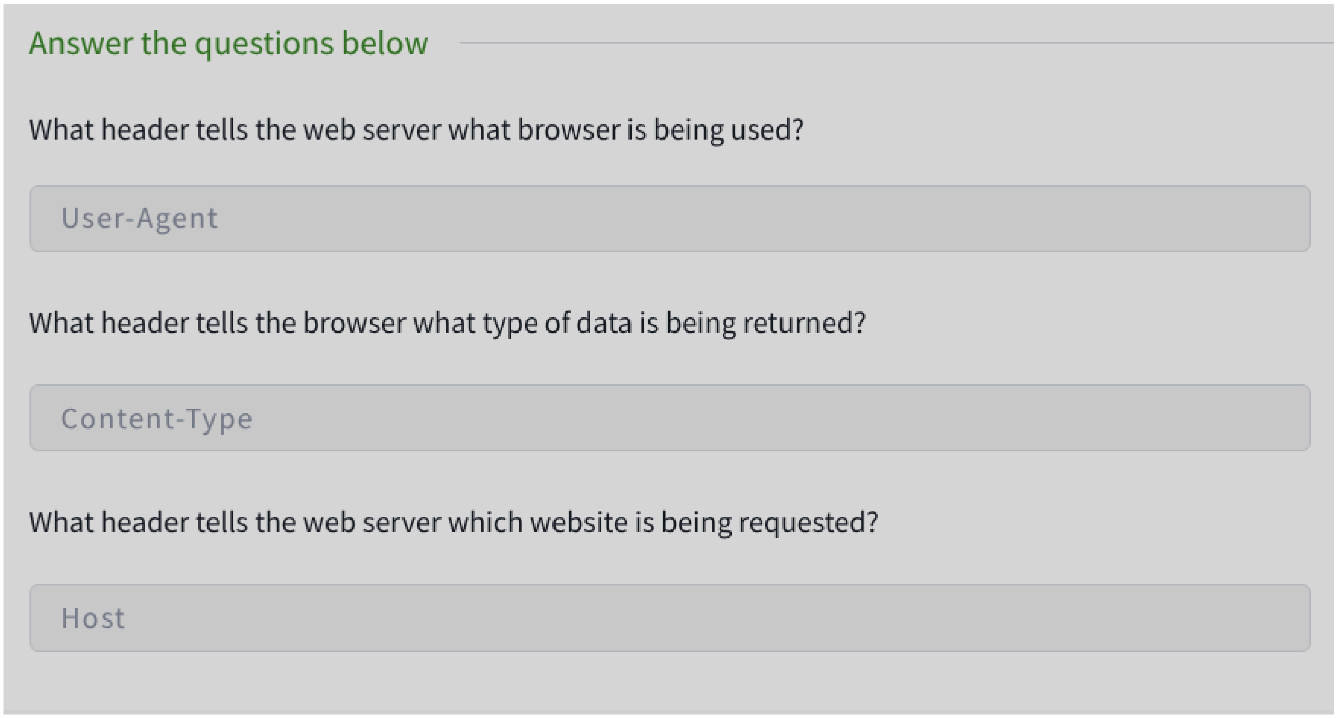
Set-Cookie: Information to store which gets sent back to the web server on each request (see cookies task for more information).

Cache-Control: How long to store the content of the response in the browser's cache before it requests it again.

Content-Type: This tells the client what type of data is being returned, i.e., HTML, CSS, JavaScript, Images, PDF, Video, etc. Using the content-type header the browser then knows how to process the data.

Content-Encoding: What method has been used to compress the data to make it smaller when sending it over the internet.

Questions:



Answer the questions below

What header tells the web server what browser is being used?

User-Agent

What header tells the browser what type of data is being returned?

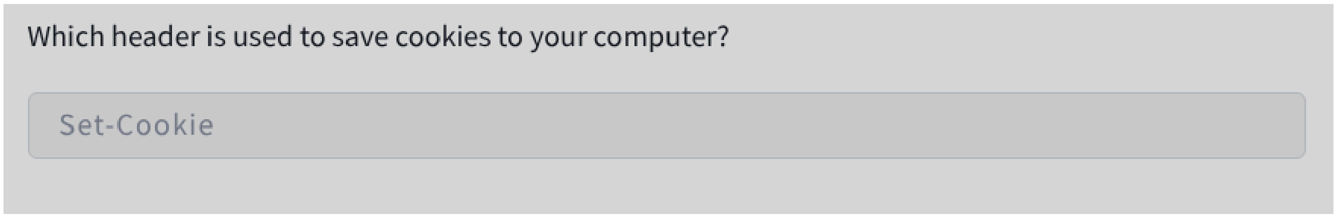
Content-Type

What header tells the web server which website is being requested?

Host

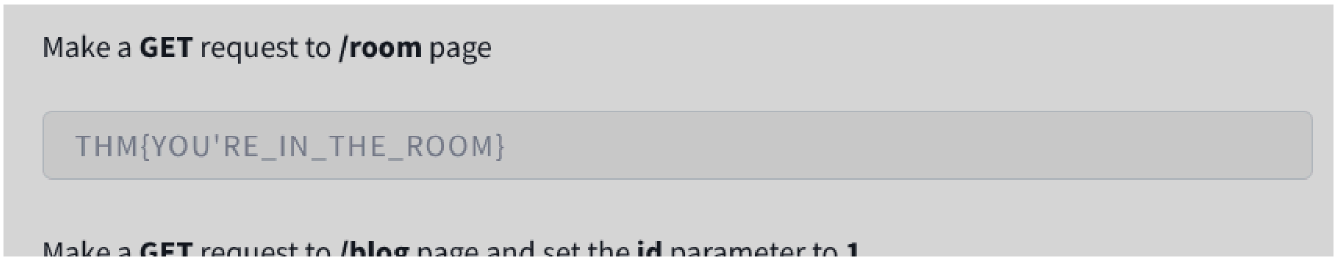
Task 6: Cookies

Cookies are saved when you receive a "Set-Cookie" header from a web server. Then every further request you make, you'll send the cookie data back to the web server. Because HTTP is stateless (doesn't keep track of your previous requests), cookies can be used to remind the web server who you are, some personal settings for the website or whether you've been to the website before.


Which header is used to save cookies to your computer?

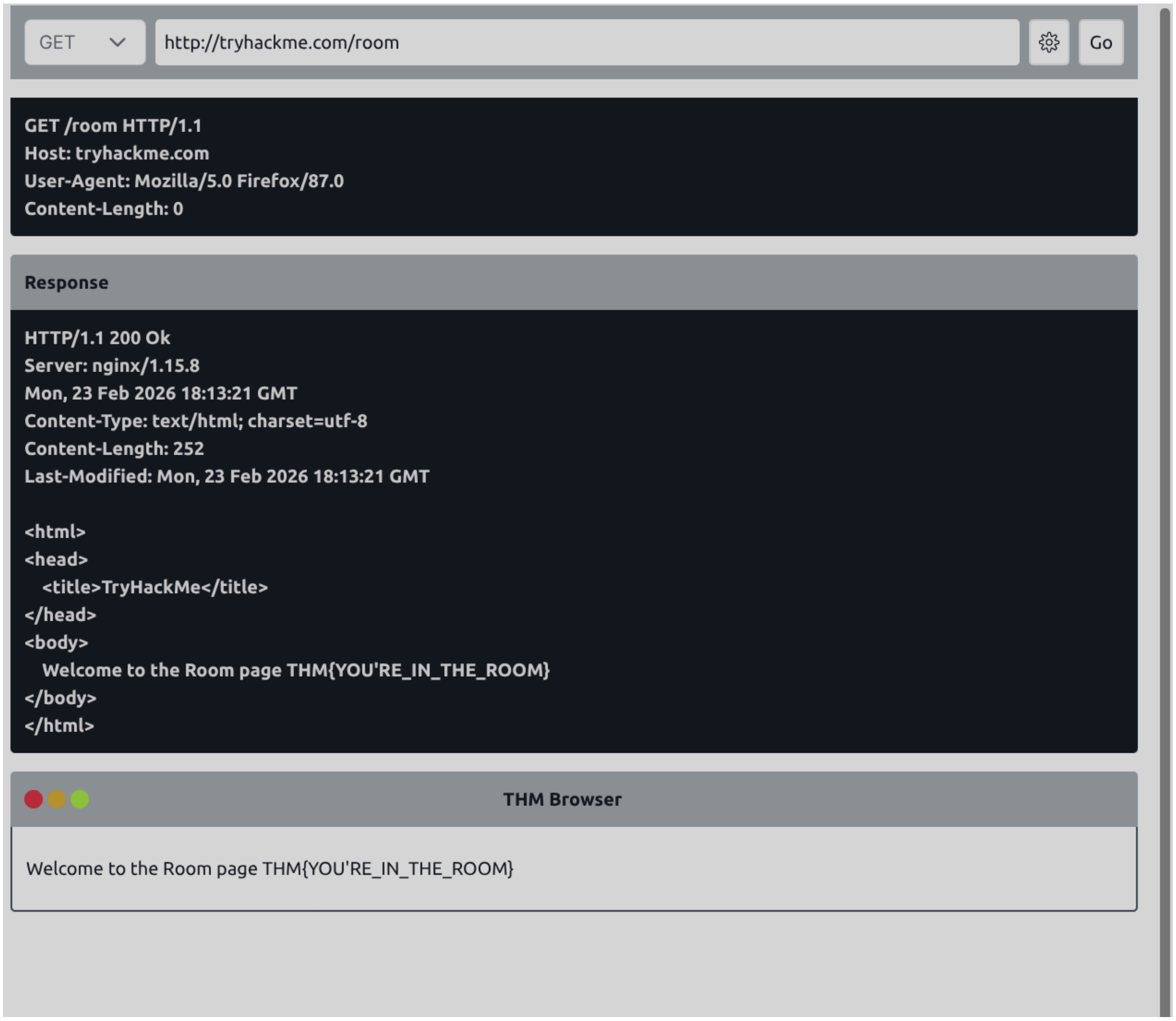
Set-Cookie

Task 7: Making Requests


Make a **GET** request to **/room** page

THM{YOU'RE_IN_THE_ROOM}

Make a **GET** request to **/blog** page and set the **id** parameter to **1**



http://tryhackme.com/room

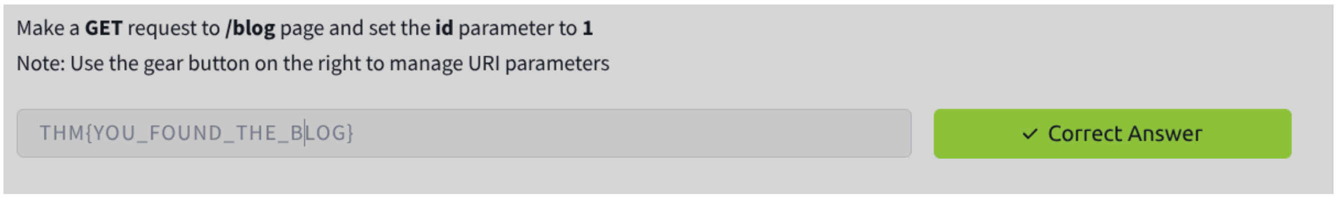
```
GET /room HTTP/1.1
Host: tryhackme.com
User-Agent: Mozilla/5.0 Firefox/87.0
Content-Length: 0
```

Response

```
HTTP/1.1 200 Ok
Server: nginx/1.15.8
Mon, 23 Feb 2026 18:13:21 GMT
Content-Type: text/html; charset=utf-8
Content-Length: 252
Last-Modified: Mon, 23 Feb 2026 18:13:21 GMT

<html>
<head>
  <title>TryHackMe</title>
</head>
<body>
  Welcome to the Room page THM{YOU'RE_IN_THE_ROOM}
</body>
</html>
```

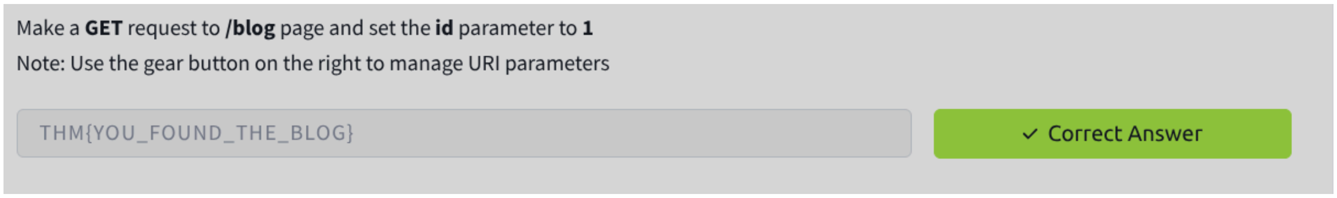
THM Browser

Welcome to the Room page THM{YOU'RE_IN_THE_ROOM}



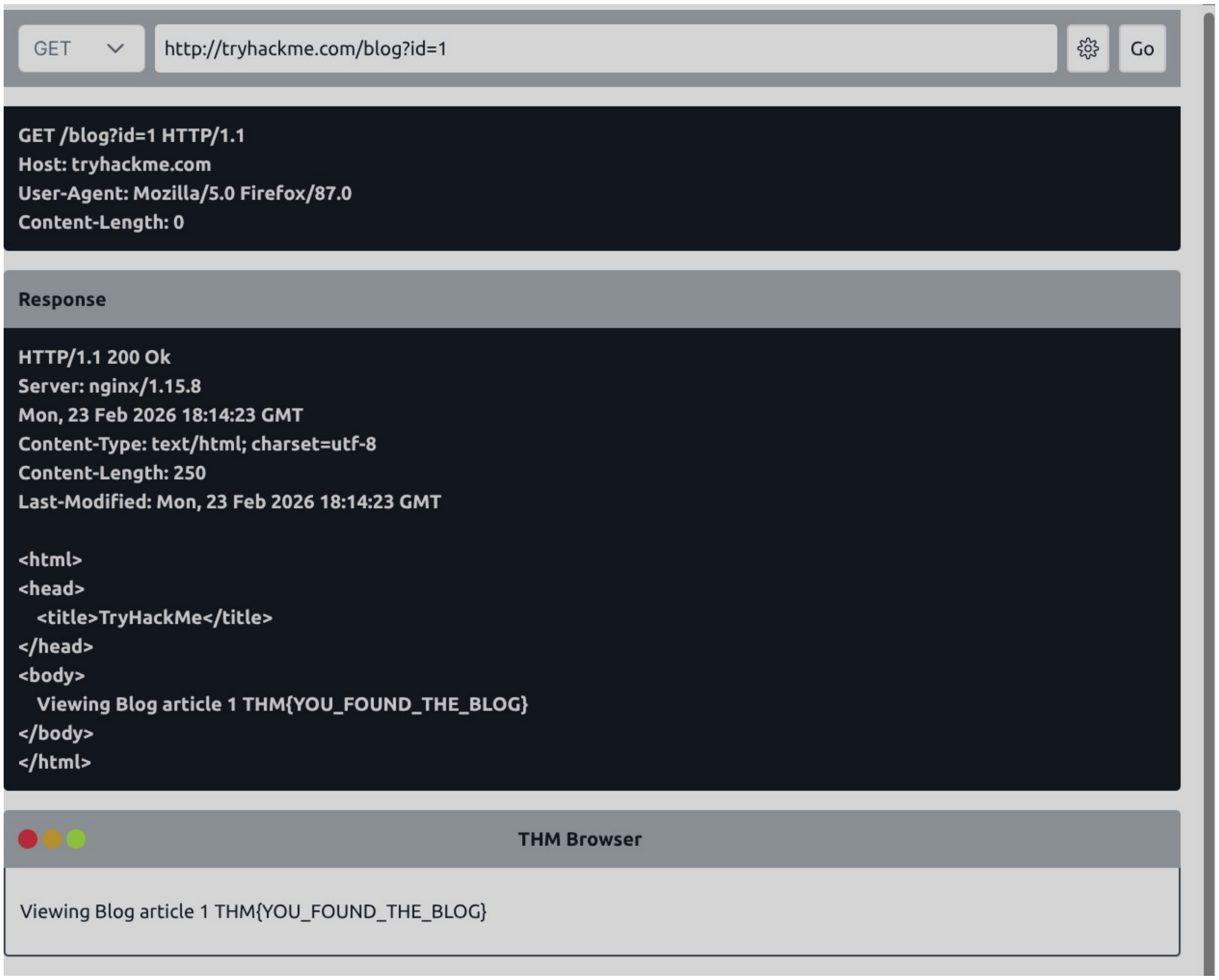
Make a **GET** request to **/blog** page and set the **id** parameter to **1**
Note: Use the gear button on the right to manage URI parameters

THM{YOU_FOUND_THE_BLOG}



Make a **GET** request to **/blog** page and set the **id** parameter to **1**
Note: Use the gear button on the right to manage URI parameters

THM{YOU_FOUND_THE_BLOG}



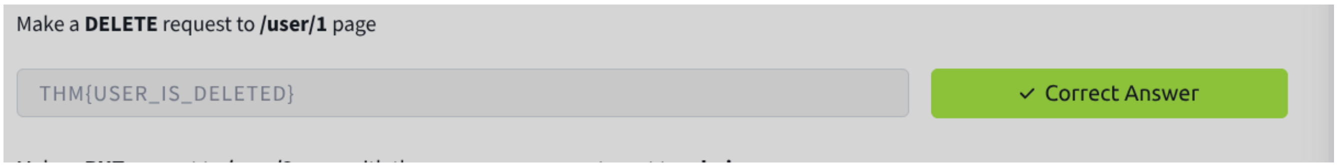
```
GET /blog?id=1 HTTP/1.1
Host: tryhackme.com
User-Agent: Mozilla/5.0 Firefox/87.0
Content-Length: 0
```

Response

```
HTTP/1.1 200 Ok
Server: nginx/1.15.8
Mon, 23 Feb 2026 18:14:23 GMT
Content-Type: text/html; charset=utf-8
Content-Length: 250
Last-Modified: Mon, 23 Feb 2026 18:14:23 GMT

<html>
<head>
  <title>TryHackMe</title>
</head>
<body>
  Viewing Blog article 1 THM{YOU_FOUND_THE_BLOG}
</body>
</html>
```

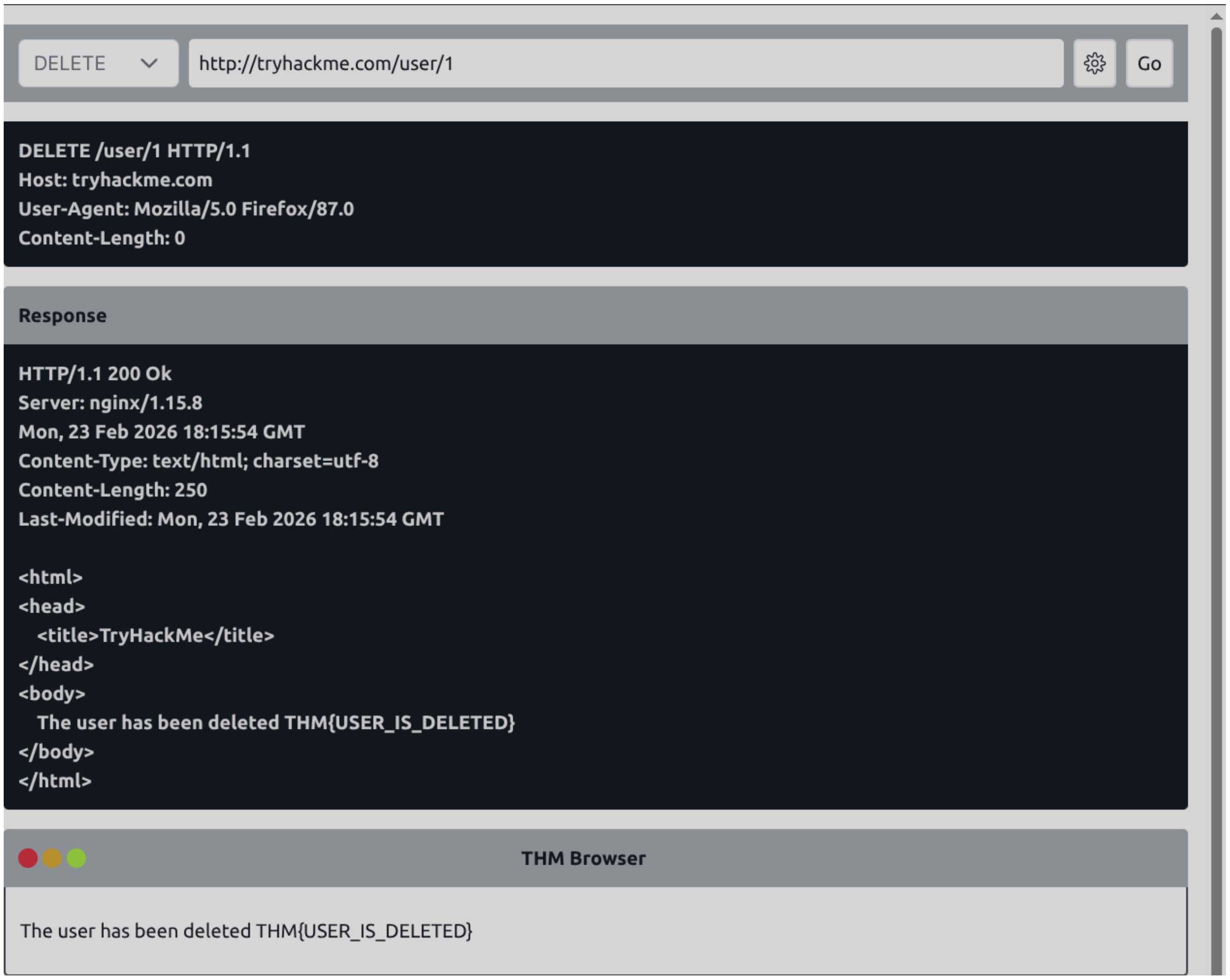
THM Browser

Viewing Blog article 1 THM{YOU_FOUND_THE_BLOG}



Make a **DELETE** request to **/user/1** page

THM{USER_IS_DELETED}



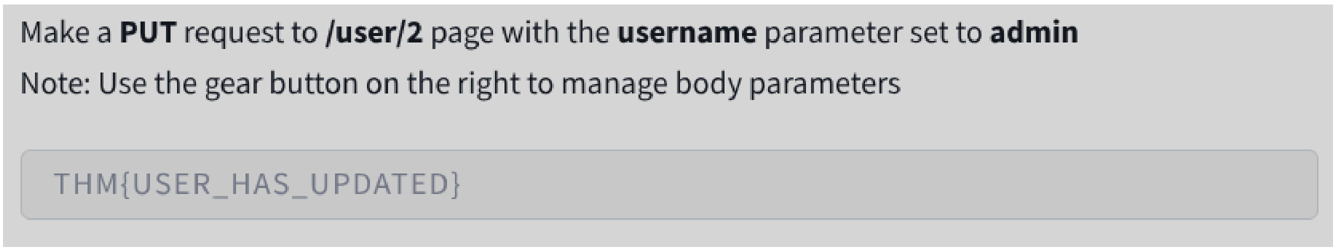
```
DELETE /user/1 HTTP/1.1
Host: tryhackme.com
User-Agent: Mozilla/5.0 Firefox/87.0
Content-Length: 0
```

Response

```
HTTP/1.1 200 Ok
Server: nginx/1.15.8
Mon, 23 Feb 2026 18:15:54 GMT
Content-Type: text/html; charset=utf-8
Content-Length: 250
Last-Modified: Mon, 23 Feb 2026 18:15:54 GMT

<html>
<head>
  <title>TryHackMe</title>
</head>
<body>
  The user has been deleted THM{USER_IS_DELETED}
</body>
</html>
```

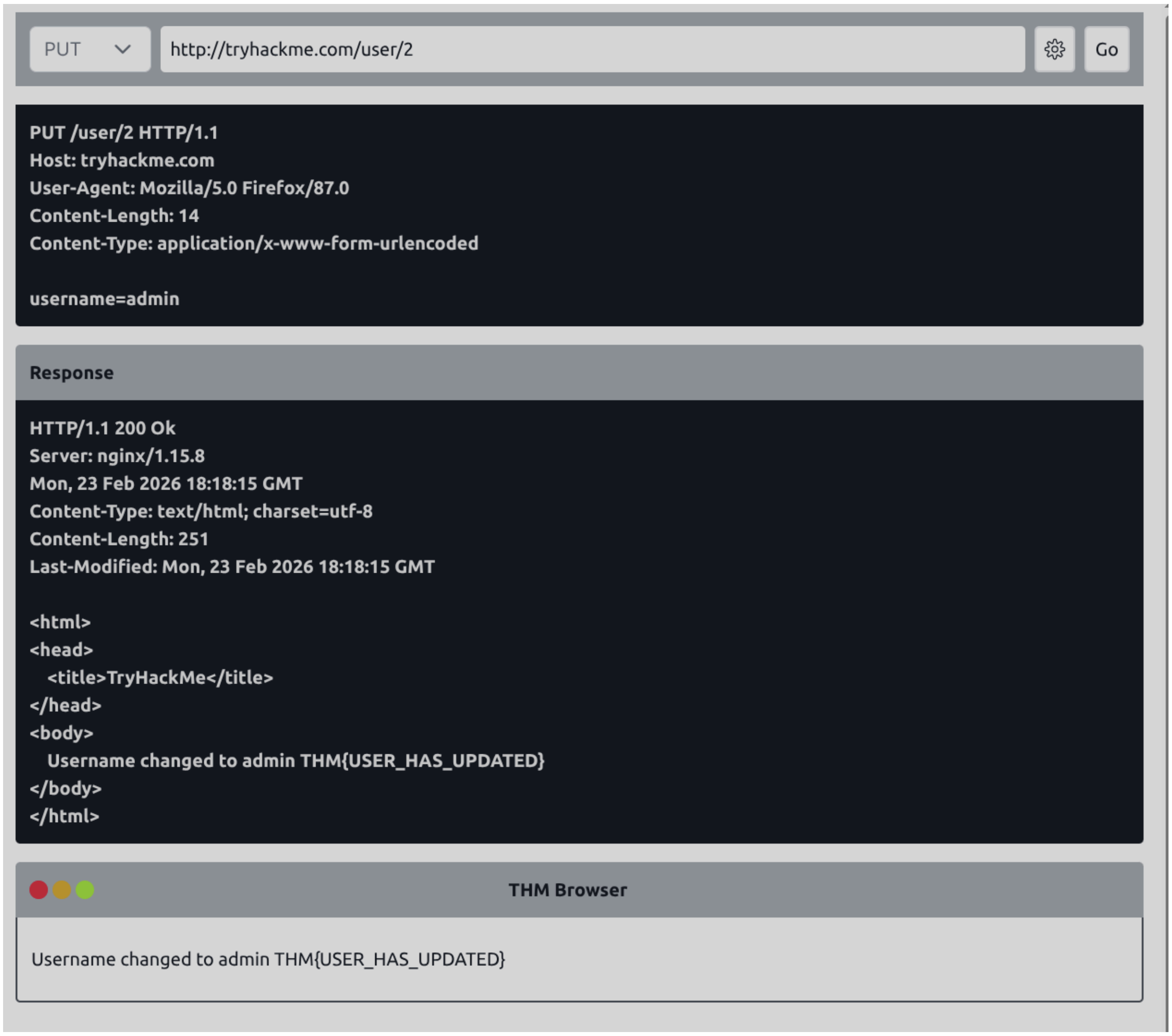
THM Browser

The user has been deleted THM{USER_IS_DELETED}


Make a **PUT** request to **/user/2** page with the **username** parameter set to **admin**

Note: Use the gear button on the right to manage body parameters

THM{USER_HAS_UPDATED}



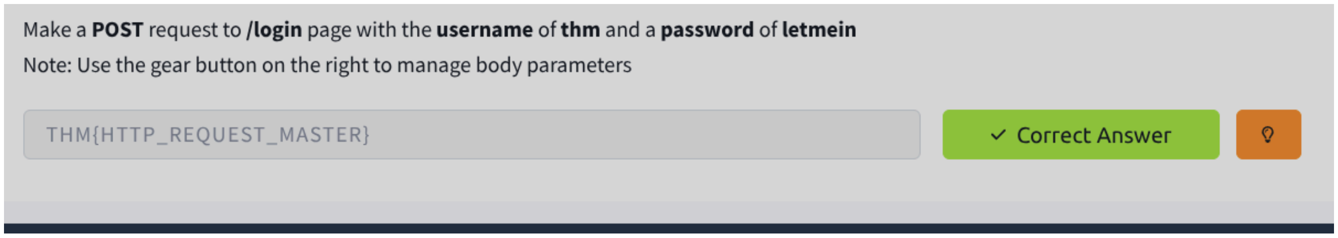
```
PUT /user/2 HTTP/1.1
Host: tryhackme.com
User-Agent: Mozilla/5.0 Firefox/87.0
Content-Length: 14
Content-Type: application/x-www-form-urlencoded

username=admin
```

Response

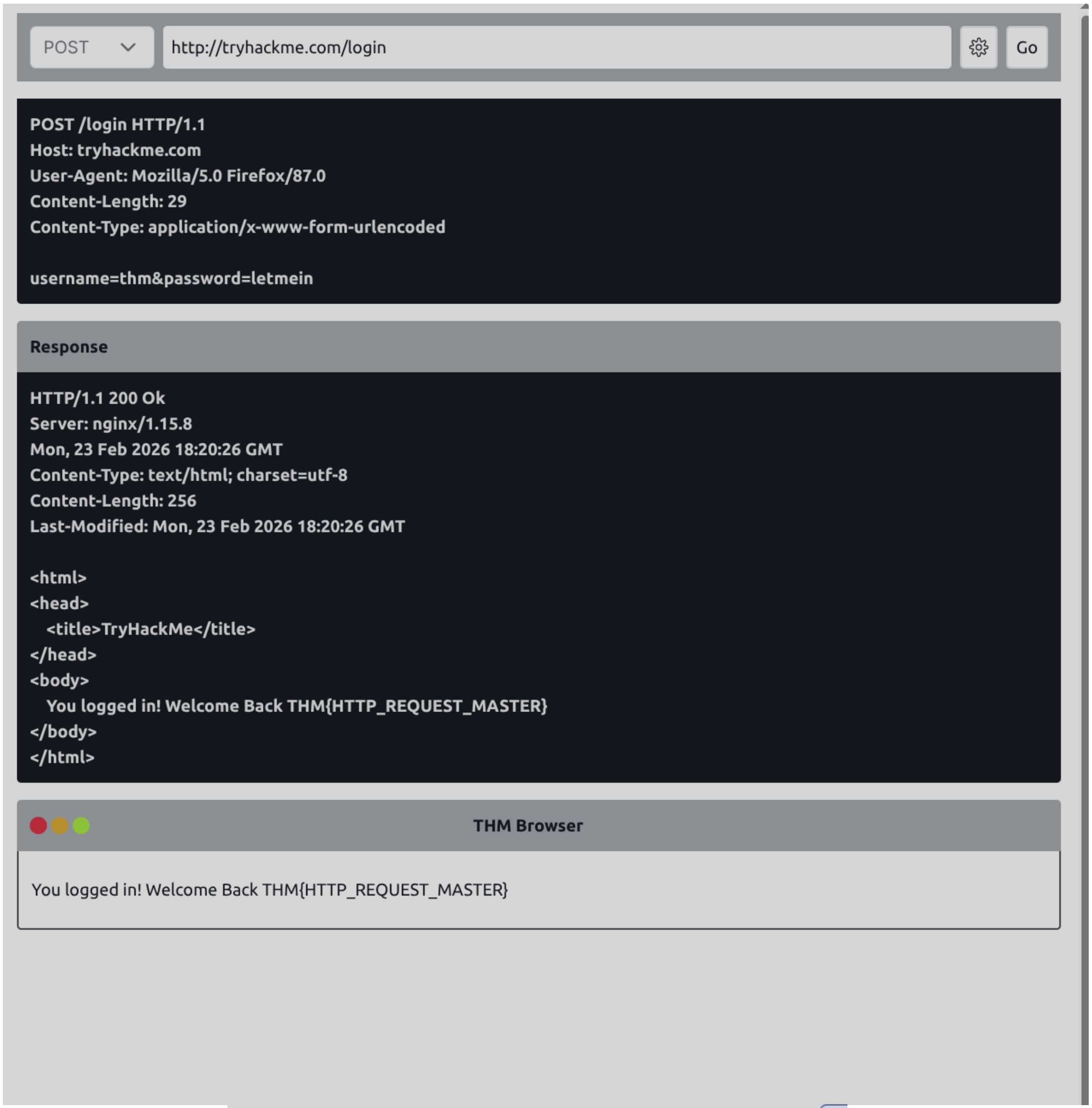
```
HTTP/1.1 200 Ok
Server: nginx/1.15.8
Mon, 23 Feb 2026 18:18:15 GMT
Content-Type: text/html; charset=utf-8
Content-Length: 251
Last-Modified: Mon, 23 Feb 2026 18:18:15 GMT

<html>
<head>
   <title>TryHackMe</title>
</head>
<body>
   Username changed to admin THM{USER_HAS_UPDATED}
</body>
</html>
```

THM Browser

Username changed to admin THM{USER_HAS_UPDATED}



Make a **POST** request to **/login** page with the **username** of **thm** and a **password** of **letmein**
Note: Use the gear button on the right to manage body parameters



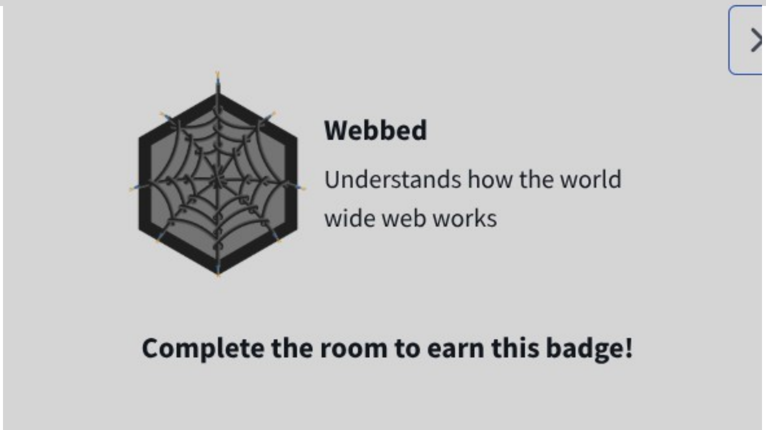
```
POST /login HTTP/1.1
Host: tryhackme.com
User-Agent: Mozilla/5.0 Firefox/87.0
Content-Length: 29
Content-Type: application/x-www-form-urlencoded

username=thm&password=letmein
```

Response

```
HTTP/1.1 200 Ok
Server: nginx/1.15.8
Mon, 23 Feb 2026 18:20:26 GMT
Content-Type: text/html; charset=utf-8
Content-Length: 256
Last-Modified: Mon, 23 Feb 2026 18:20:26 GMT

<html>
<head>
  <title>TryHackMe</title>
</head>
<body>
  You logged in! Welcome Back THM{HTTP_REQUEST_MASTER}
</body>
</html>
```

THM Browser

You logged in! Welcome Back THM{HTTP_REQUEST_MASTER}



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