Nicolas METAIS

Compte Rendu de TP Java

Objectif

- Etudier et reproduire le comportement d'un serveur web
- Manipuler les sockets
- Manipuler les fichiers
- Créer une application multithread

CE N'EST PAS UNE CHAUSSETTE

Création des différentes classes:

WebServer.java :

```
public class WebServer {
    private void readRequest(Socket socket) {

        try {
            BufferedReader input = new BufferedReader(new InputStreamReader(socket.getInputStream()));
            String response = "";
            do {
                response = input.readLine();
                System.out.println(response);
            }while (!(response).isEmpty());
        }
        catch(Exception e){
            System.err.println(e.getMessage());
        }
    }

    private void sendResponse(Socket socket) {
        try {
            BufferedWriter output = new BufferedWriter(new OutputStreamWriter(socket.getOutputStream()
            output.write("HTTP/1.0 200 OK \n\n ");

            output.flush();
        } catch (Exception e) {
            System.err.println(e.getMessage());
        }
    }
    public void run(int portNumber) {
        try {
            ServerSocket serverSocket = new ServerSocket(portNumber);
```

```
            System.out.println("Starting server on port " + portNumber);
            while (true) {
                Socket clientSocket = serverSocket.accept();
                readRequest(clientSocket);
                sendResponse(clientSocket);
                clientSocket.close();
            }

        } catch (Exception e) {
            System.err.println(e.getMessage());
        }

    }
}
```

WebServerApplication.java :

```
public class WebServerApplication {
    public static void main(String[] args) {
        WebServer webServer = new WebServer();
        webServer.run(80);
    }
}
```

On obtient bien alors une page blanche sur le navigateur.

et sur le terminal on obtient :

```
Starting server on port 80
GET / HTTP/1.1
Host: localhost
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:124.0) Gecko/20100101 Firefox/124.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
Accept-Language: fr,fr-FR;q=0.8,en-US;q=0.5,en;q=0.3
Accept-Encoding: gzip, deflate, br
Connection: keep-alive
Upgrade-Insecure-Requests: 1
Sec-Fetch-Dest: document
Sec-Fetch-Mode: navigate
Sec-Fetch-Site: none
Sec-Fetch-User: ?1
```

La requete client contient :

- une requete GET / HTTP/1.1
- avec comme url : localhost
- le client accepte les fichiers :
  - text/html
  - application/xhtml+xml
  - application/xml;q=0.9
  - image/avif
  - image/webp
  - */*;q=0.8
- le champ connection en keep-alive traduit le fait que le client souhaite garder la connexion ouverte pour d'autres requetes

REORGANISATION

httpRequest.java :

```java
public class HttpRequest {
    private String method;
    private String url;
    private void readClientRequest(Socket socket){
        try {
            BufferedReader input = new BufferedReader(new InputStreamReader(socket.getInputStream()));
            String line = "";
            String response = "";
            do {
                line = input.readLine();
                response += line;
            }while (!line.isEmpty());
            String[] request = response.split(" ");
            this.method = request[0];
            this.url = request[1];
```

```
        }
        catch(Exception e){
            System.err.println(e.getMessage());
        }
    }
    public HttpRequest(Socket socket){
        readClientRequest(socket);
    }
    public String getMethod(){
        return method;
    }
    public String getUrl(){
        return url;
    }
}
```

httpResponse.java :

```
public class HttpResponse {
    private BufferedWriter output;

    public HttpResponse(Socket socket) {
        try {
            output = new BufferedWriter(new OutputStreamWriter(socket.getOutputStream()));
        } catch (Exception e) {
            System.err.println(e.getMessage());
        }
    }
    public void ok(String message){
        try {
            output.write("HTTP/1.0 200 " + message + " \n\n ");
            output.flush();
        } catch (Exception e) {
            System.err.println(e.getMessage());
        }
    }
    public void notFound(String message){
        try {
            output.write("HTTP/1.0 404 " + message + " \n\n ");

            output.flush();
        } catch (Exception e) {
            System.err.println(e.getMessage());
        }
    }
}
```

httpContext.java :

```
public class HttpContext {
    private Socket socket;
```

```
    private HttpRequest request;
    private HttpResponse response;

    public HttpContext(Socket socket) {
        this.socket = socket;
        request = new HttpRequest(socket);
        response = new HttpResponse(socket);
    }

    public HttpRequest getRequest() {
        return request;
    }

    public HttpResponse getResponse() {
        return response;
    }

    public void close() {
        try {
            socket.close();
        } catch (Exception e) {
            System.err.println(e.getMessage());
        }
    }
}
```

requestProcessor.java :

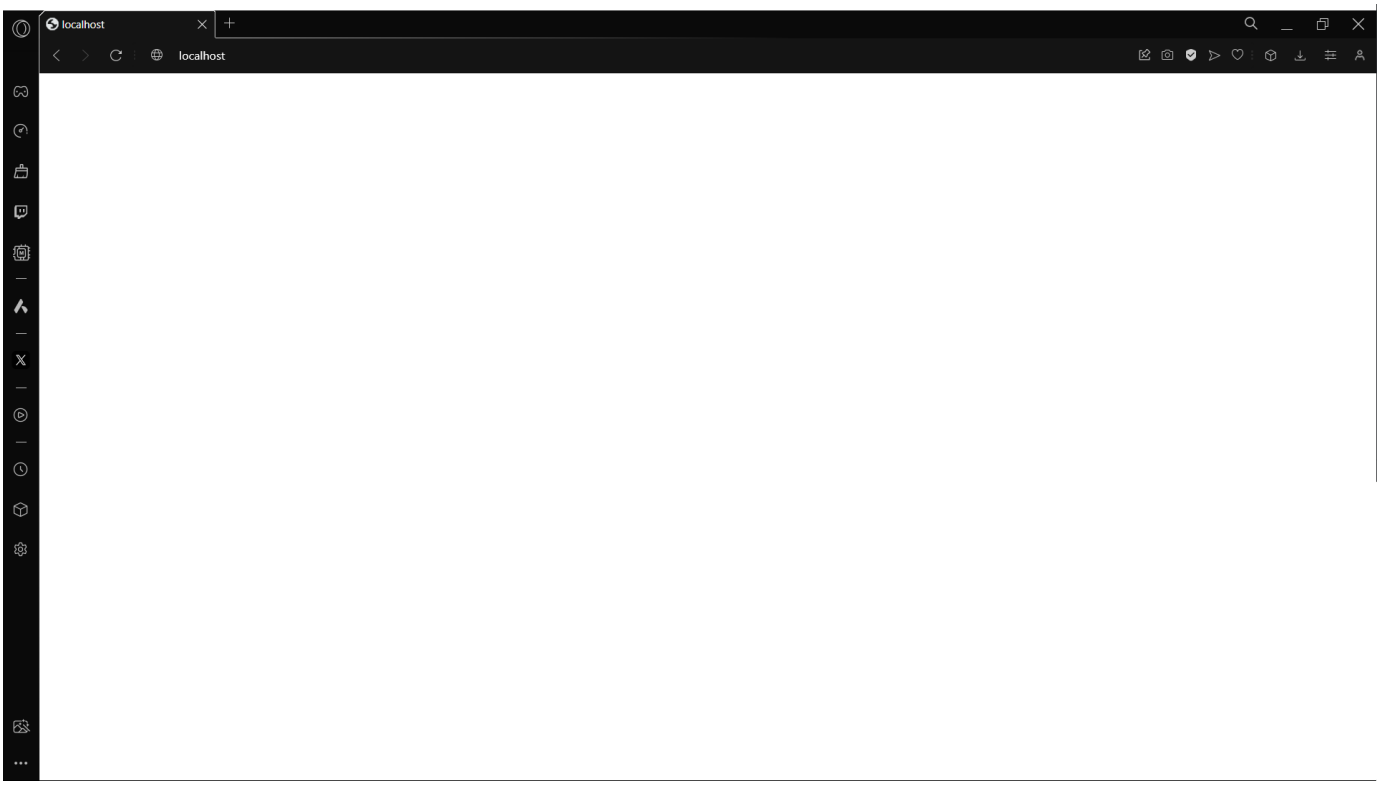
```
public class RequestProcessor {
    private HttpContext context;
    private void process(){
        if(context.getRequest().getUrl().equals("/")){
            context.getResponse().ok("OK");
        }
        else{
            context.getResponse().notFound("Not Found");
        }
        context.close();
    }
    public RequestProcessor(Socket socket) {
        context = new HttpContext(socket);
        process();
    }
}
```

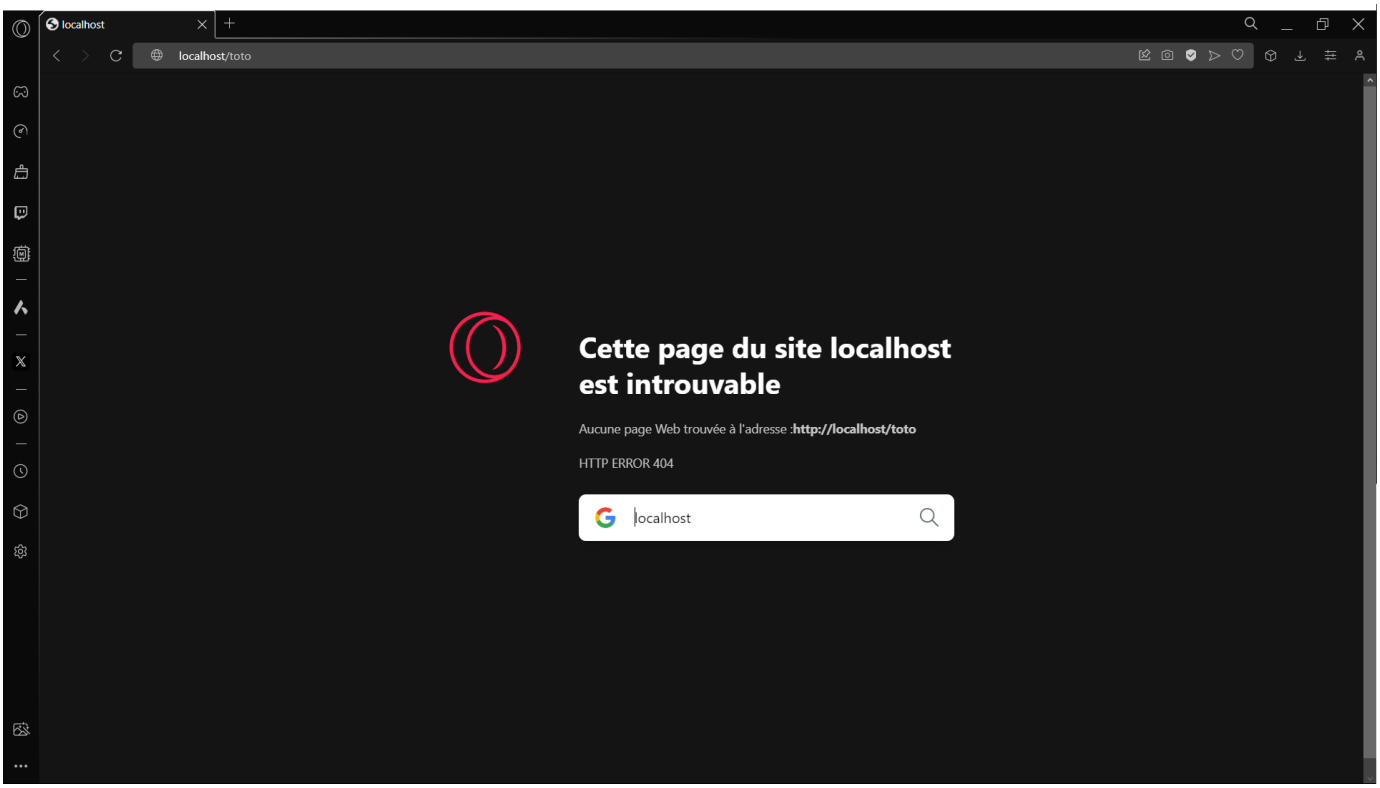
webServer.java :

```
public class WebServer {
    public void run(int portNumber) {
        try {
            ServerSocket serverSocket = new ServerSocket(portNumber);
```

```
            while (true) {
                Socket socket = serverSocket.accept();
                RequestProcessor requestProcessor = new RequestProcessor(socket);
            }
        } catch (Exception e) {
            System.err.println(e.getMessage());
        }
    }
}
```

RESULTATS





UN PEU DE CONTENNU

A LA MANO

AVEC DES FICHIER

LA FIN DU "CHACUN SON TOUR"