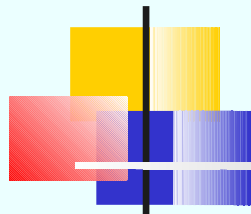




Lập trình mạng Vào ra với Java

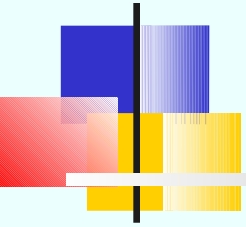
Giảng viên: TS. Nguyễn Mạnh Hùng
Học viện Công nghệ Bưu chính Viễn thông (PTIT)



Nội dung

- Scanner
- System.in/System.out
- InputStream/OutputStream
- BufferedInputStream/BufferedOutputStream
- DataInputStream/DataOutputStream
- BufferedReader/BufferedWriter
- InputStreamReader/OutputStreamWriter
- Bài tập

Scanner

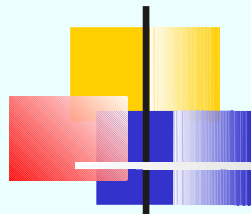




Scanner

Vào từ bàn phím:

```
Scanner sc = new Scanner(System.in);  
try {  
    String input = sc.nextLine();  
    int i = sc.nextInt();  
    float f = sc.nextFloat();  
} catch (IOException e) {  
    System.out.println(e);  
}
```



Scanner(2)

Vào từ file:

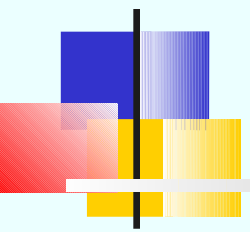
```
Scanner sc = new Scanner(new FileInputStream("input.txt"));  
try {  
    String input = sc.nextLine();  
    int i = sc.nextInt();  
    float f = sc.nextFloat();  
} catch (IOException e) {  
    System.out.println(e);  
}
```



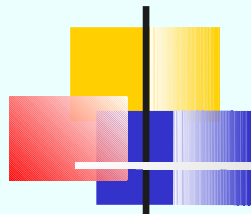
Scanner(3)

Vào từ socket:

```
try {  
    ServerSocket myServer = new ServerSocket(số cổng);  
    Socket clientSocket = myServer.accept();  
    Scanner sc = new  
Scanner(clientSocket.getInputStream());  
    String input = sc.nextLine();  
    int i = sc.nextInt();  
    float f = sc.nextFloat();  
} catch (IOException e) {  
    System.out.println(e);  
}
```



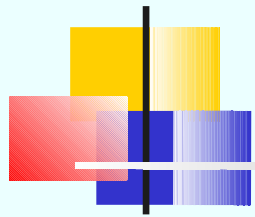
System.in/System.out



System.in

Vào từ bàn phím:

```
BufferedReader br = new  
    BufferedReader(new InputStreamReader(System.in));  
try {  
    String input = br.readLine();  
} catch (IOException e) {  
    System.out.println(e);  
}
```

System.out (1)

Ra màn hình:

```
System.out.println("some thing to say!");
```



System.out (2)

Ra file:

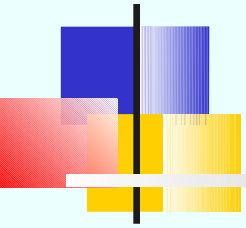
```
try{
    OutputStream output = new FileOutputStream("out.txt");
    PrintStream printOut = new PrintStream(output);
    System.setOut(printOut);
    System.out.println("some thing to say!");
}catch(IOException e){
    System.out.println(e);
}
```



System.out (3)

Ra socket:

```
ServerSocket myServer = new ServerSocket(số cổng);
try {
    Socket clientSocket = myServer.accept();
    PrintStream os = new
        PrintStream(clientSocket.getOutputStream());
    System.setOut(os);
    System.out.println("some thing to say!");
} catch (IOException e) {
    System.out.println(e);
}
```



InputStream/OutputStream



InputStream (1)

Vào từ bàn phím:

```
try{
    InputStream input = new InputStream(System.in);
    while((input.read()) != -1) {
        //do something with data...
    }
    input.close();
}catch(IOException e){
    System.out.println(e);
}
```



InputStream (2)

Vào từ file:

```
try{
    InputStream input = new FileInputStream("input.txt");
    while((input.read()) != -1) {
        //do something with data...
    }
    input.close();
}catch(IOException e){
    System.out.println(e);
}
```



InputStream (3)

Vào từ socket:

```
try{
    ServerSocket myServer = new ServerSocket(số cổng);
    Socket clientSocket = myServer.accept();
    InputStream input = new
        DataInputStream(clientSocket.getInputStream());

    while((input.read()) != -1) {
        //do something with data...
    }
    input.close();
}catch(IOException e){
    System.out.println(e);
}
```



OutputStream (1)

Ra màn hình:

```
try{
    OutputStream output = new
        BufferedOutputStream(System.out) ;

    output.write(1111111) ;

    output.close() ;
}catch(IOException e){
    System.out.println(e) ;
}
```




OutputStream (2)

Ra file:

```
try{
    OutputStream output = new FileOutputStream("output.txt");

    output.write(1111111);

    output.close();
}catch(IOException e){
    System.out.println(e);
}
```



OutputStream (3)

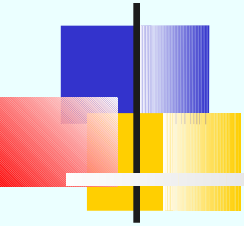
Ra socket:

```
try{
    ServerSocket myServer = new ServerSocket(155);
    Socket clientSocket = myServer.accept();
    OutputStream output = new
        DataOutputStream(clientSocket.getOutputStream());

    output.write(1111111);

    output.close();
}catch(IOException e){
    System.out.println(e);
}
```

BufferedInputStream/ BufferedOutputStream





BufferedInputStream (1)

Vào từ bàn phím:

```
try{
    BufferedInputStream input = new
        BufferedInputStream(System.in);

    byte[] in = new byte[1024];
    while((input.read(in)) != -1) {
        //do something with data...
    }
    input.close();
}catch(IOException e){
    System.out.println(e);
}
```



BufferedInputStream (2)

Vào từ file:

```
try{
    BufferedInputStream input = new
        BufferedInputStream(new FileInputStream("input.txt"));

    byte[] in = new byte[1024];
    while((input.read(in)) != -1) {
        //do something with data...
    }
    input.close();
}catch(IOException e){
    System.out.println(e);
}
```



BufferedInputStream (3)

Vào từ socket:

```
try{
    ServerSocket myServer = new ServerSocket(số cổng);
    Socket clientSocket = myServer.accept();
    BufferedInputStream input = new
        BufferedInputStream(clientSocket.getInputStream());

    byte[] in = new byte[1024];
    while((input.read(in)) != -1) {
        //do something with data...
    }
    input.close();
}catch(IOException e){
    System.out.println(e);
}
```



BufferedOutputStream (1)

Ra màn hình:

```
try{
    BufferedOutputStream output = new
        BufferedOutputStream(System.out);

    output.write(1111111);

    output.write(byte[] b, int off, int len);

    output.close();
}catch (IOException e){
    System.out.println(e);
}
```



BufferedOutputStream (2)

Ra file:

```
try{
    BufferedOutputStream output = new
        BufferedOutputStream(new FileOutputStream("output.txt"));

    output.write(1111111);

    output.write(byte[] b, int off, int len);

    output.close();
}catch(IOException e){
    System.out.println(e);
}
```




BufferedOutputStream (3)

Ra socket:

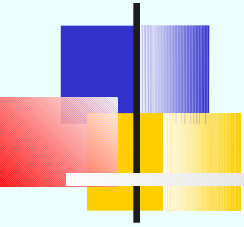
```
try{
    ServerSocket myServer = new ServerSocket(155);
    Socket clientSocket = myServer.accept();
    BufferedOutputStream output = new
        BufferedOutputStream(clientSocket.getOutputStream());

    output.write(1111111);

    output.write(byte[] b, int off, int len);

    output.close();
}catch(IOException e){
    System.out.println(e);
}
```

DataInputStream/ DataOutputStream





DataInputStream (1)

Vào từ bàn phím:

```
try{
    DataInputStream input = new
        DataInputStream(System.in) ;

    String in = input.readUTF() ;
    //do something with data...

    input.close() ;
}catch (IOException e) {
    System.out.println(e) ;
}
```



DataInputStream (2)

Vào từ file:

```
try{
    DataInputStream input = new
        DataInputStream(new FileInputStream("input.txt"));

    String in = input.readUTF();
    //do something with data...

    input.close();
}catch(IOException e){
    System.out.println(e);
}
```



DataInputStream (3)

Vào từ socket:

```
try{
    ServerSocket myServer = new ServerSocket(số cổng);
    Socket clientSocket = myServer.accept();
    DataInputStream input = new
        DataInputStream(clientSocket.getInputStream());

    String in = input.readUTF();
    //do something with data...

    input.close();
}catch(IOException e){
    System.out.println(e);
}
```



DataOutputStream (1)

Ra màn hình:

```
try{
    DataOutputStream output = new
        DataOutputStream(System.out);

    output.writeUTF("some thing to write");

    output.close();
}catch(IOException e){
    System.out.println(e);
}
```



DataOutputStream (2)

Ra file:

```
try{
    DataOutputStream output = new
        DataOutputStream(new FileOutputStream("output.txt"));

    output.writeUTF("some thing to write");

    output.close();
}catch(IOException e){
    System.out.println(e);
}
```



DataOutputStream (3)

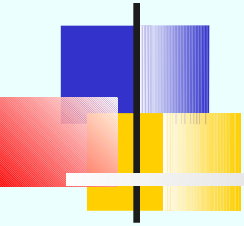
Ra socket:

```
try{
    ServerSocket myServer = new ServerSocket(155);
    Socket clientSocket = myServer.accept();
    DataOutputStream output = new
        DataOutputStream(clientSocket.getOutputStream());

    output.writeUTF("some thing to write");

    output.close();
}catch(IOException e){
    System.out.println(e);
}
```


BufferedReader/ BufferedWriter





BufferedReader

Vào từ bàn phím:

```
BufferedReader input = new BufferedReader(System.in);
```

Vào từ file:

```
BufferedReader input = new  
    BufferedReader(new FileInputStream("input.txt"));
```

Vào từ socket:

```
ServerSocket myServer = new ServerSocket(số cổng);  
Socket clientSocket = myServer.accept();  
BufferedReader input = new  
    BufferedReader(clientSocket.getInputStream());  
  
int in = input.read();  
//do something with data...
```



BufferedWriter

Ra màn hình:

```
BufferedWriter output = new BufferedWriter(System.out);
```

Ra file:

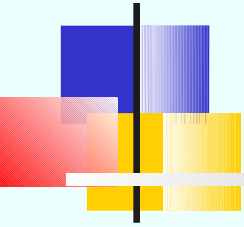
```
BufferedWriter output = new  
    BufferedWriter(new FileOutputStream("output.txt"));
```

Ra socket:

```
ServerSocket myServer = new ServerSocket(155);  
Socket clientSocket = myServer.accept();  
BufferedWriter output = new  
    BufferedWriter(clientSocket.getOutputStream());
```

```
output.write(1111111);
```

InputStreamReader/ OutputStreamWriter





InputStreamReader

Vào từ bàn phím:

```
InputStreamReader input = new  
    InputStreamReader(System.in);
```

Vào từ file:

```
InputStreamReader input = new  
    InputStreamReader(new FileInputStream("input.txt"));
```

Vào từ socket:

```
ServerSocket myServer = new ServerSocket(số cổng);  
Socket clientSocket = myServer.accept();  
InputStreamReader input = new  
    InputStreamReader(clientSocket.getInputStream());
```

```
String in = input.readUTF();  
//do something with data...
```



OutputStreamWriter

Ra màn hình:

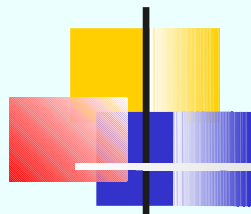
```
OutputStreamWriter output = new OutputStreamWriter(System.out);
```

Ra file:

```
OutputStreamWriter output = new  
    OutputStreamWriter(new FileOutputStream("output.txt"));
```

Ra socket:

```
ServerSocket myServer = new ServerSocket(155);  
Socket clientSocket = myServer.accept();  
OutputStreamWriter output = new  
    OutputStreamWriter(clientSocket.getOutputStream());  
  
output.writeUTF("some thing to write");
```



Bài tập

- Cài đặt một ứng dụng ghi và đọc file theo kiểu text
- Chỉ dùng cặp lệnh: `BufferedInputStream` và `BufferedOutputStream`
- Chỉ dùng cặp lệnh: `Scanner` và `PrintStream`
- Test chương trình với 3 trường hợp: file text dung lượng nhỏ, file ảnh dung lượng nhỏ, file phim dung lượng lớn hơn 4G.



Questions?
