# Lab IO2: Character Streams

## Objectives

In this lab you will be copying a file byte by byte using FileInputStream and FileOutputStream

## Lab Setup

1. Create a Java Project with a package called iolab
2. Copy the sample data file from the lab resources into the root of the project directory. If you put it into any other location, your code will not be able to find it and will throw an IOException when an attempt is made to open it.
3. You can create your own file to use as sample input, but you should ensure that it is a UTF-8 file if you want to use it in the next lab
4. Note: that the output file will not be visible in the project explorer since it is not added to the list of files tracked by the project manifest when it is created. To see your output file, you should look at the project directory with the Windows file explore.
5. You can copy and rename the previous project and then make the modifications shown on the net page.

## Coding the Java Components

### Step 1: Modify the code

1. Make the modifications shown to the Byte Copy code as shown below.

Text

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**This output isn’t correct. If you get this output, it means that Java is using your platform default which in this case is ASCII.**

### Step 2: Modify the code to handle UTF-8

1. We can correct the error in the previous step by explicitly telling Java to consider the files as UTF-8 encoded no matter what the platform default is.
2. Notice that we now get the correct character count
3. This sort of explicit encoding is a best practice to be consistent with the idea of Write Once, Run Anywhere

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