

JAVA PROGRAMMING II

Module 3: **java.io** package Lab Guide for Lab3

Session Objectives

In this session, you will be practicing with

- ➤ InputStream class and its subclasses
- OutputStream class and its subclasses
- ► File class
- **>** Buffered Streams

Part 1 - Getting started (30 minutes)

1. Using streams to read data from a file.

The following program reads a text file and displays data on the screen. Create ReadWriteFile. java file. Scan the code first, type the code, compile and run the program.

```
import java.io.File;
import java.io.BufferedReader;
import java.io.FileReader;
import java.io.IOException;
import java.io.FileNotFoundException;
public class ReadWriteFile {
   public void readData() {
        try {
            File f = new File("test.txt");
            FileInputStream fis = new FileInputStream(f);
            BufferedInputStream bis = new BufferedInputStream(fis);
            int i;
            while ((i = bis.read()) != -1) {
                System.out.print((char) i);
            System.out.println("");
            fis.close();
        } catch (Exception ex) {
            ex.printStackTrace();
   public void writeData(String str) {
```



```
//chuyen chuoi thanh byte
byte[] b = str.getBytes();
try {
    FileOutputStream fos = new FileOutputStream("test.txt");
    fos.write(b);
    fos.flush();
    fos.close();
} catch (Exception ex) {
    ex.printStackTrace();
}

public static void main(String[] args) {
    ReadWriteFile d = new ReadWriteFile();
    d.readData();
    d.writeData("hom nay hoc java.io");
}
```

Questions:

- How to copy data from one file to another? Hint: using <code>BufferedWriter.</code>
- 2. Listing the contents of a directory (in a file system).

Copy the code, compile and run the program.

```
import java.io.File;
public class Dir {
    static void listPath(File path) {
        // get all files (or directories) in File path
        File[] files = path.listFiles();
        for (int i = 0, i < files.length; i++) {
            System.out.println(files[i].toString());
        }
    }
    public static void main(String args[]) {
            listPath(new File("C:\\WINDOWS"));
    }
}</pre>
```

Questions:

- How to get all files in subdirectories of root Directory? Hint: using a recursive method.



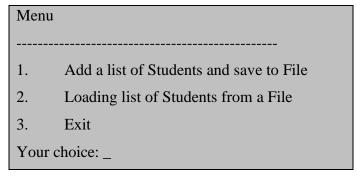
Part 2 - Workshops (30 minutes)

- Quickly look at Module 3's workshops for reviewing basic steps for using byte streams, writing and reading data from a file.
- Try to compile, run and observe the output of sample code provided for related workshops. Discuss with your class-mate and your instructor if needed.

Part 3- Do it yourself

Exercise 1. Write a program to read a text file and encrypt it by shifting every character forward (in the ASCII table): all characters 'a' replaced by 'd', 'b' replaced by 'e', 'c' replaced by 'f', and so on. Save the encrypted content to an output text file.

Exercise 2. Creating a class Student includes name, age, mark and necessary methods. Using *FileOutStream*, *FileInputStream* and *BufferedInputStream*, *BufferedOutputStream* to write a program that has functional menu:



- + Save to File: input information of several students and write that information into a text file, each student in a line (use tabs to separate the fields)
- + Read File: read and display information of students

Exercise 3. Write a program to imitate the "dir" program. The path of the directory is a parameter input from the keyboard. List all files and subdirectories with details as below figure.

