

プログラミングA 第10回・演習 回答

この資料や関係するコードをインターネットなどに公開することは著作権上、禁止されています。

1 演習 1

参考資料：CountdownThread.java

```
public class CountdownThread extends Thread {
    private int value = 0;

    public CountdownThread(int v) {
        value = v;
    }

    public void run() {
        for(int i = 10; i >= 0; i--) {
            try {
                Thread.sleep(i * value);
            } catch (InterruptedException ie) {}
        }
        System.out.println(Thread.currentThread() + ": " + i * value);
    }
}

public static void main(String[] args) {
    Thread[] threads = new Thread[10];
    for(int i = 0; i < 10; i++) {
        threads[i] = new CountdownThread(i + 1);
        threads[i].start();
    }
    try {
        for(int i = 0; i < 10; i++) {
            threads[i].join();
        }
    } catch (InterruptedException e) {}
    System.out.println("FINISHED.");
}
```

2 演習 2

参考資料：Mutex.java

```
public final class Mutex {
    private boolean busy = false;
```

```

public synchronized void lock() {
    while (busy) {
        try {
            wait();
        } catch (InterruptedException e) {
        }
    }
    busy = true;
}
public synchronized void unlock() {
    busy = false;
    notifyAll();
}
}

```

3 演習 3

参考資料：FileCopy.java

```

import java.io.*;
public class FileCopy {
    public static void main(String[] args) {
        int data = 0;
        InputStream is = null;
        OutputStream os = null;
        try {
            is = new BufferedInputStream(new FileInputStream(args[0]));
            os = new BufferedOutputStream(new FileOutputStream(args[1]));
            while((data = is.read()) != -1) {
                os.write(data);
            }
        } catch (Exception e) {
            e.printStackTrace();
            throw new RuntimeException(e);
        } finally {
            try {
                if(is != null)
                    is.close();
                if(os != null) os.close();
            } catch (IOException ioe) {
                ioe.printStackTrace();
            }
        }
    }
}

```

4 演習 4

参考資料：FileWriting.java

```
import java.io.*;
public class FileWriting {
    public static void main(String[] args) {
        String filename = args[0];
        BufferedReader reader = null;
        PrintWriter writer = null;
        try {
            reader = new BufferedReader(
                new InputStreamReader(System.in));
            writer = new PrintWriter(new FileWriter(filename));
            String line = null;
            while ((line = reader.readLine()) != null
                && !line.equals("END")) {
                writer.println(line);
                System.out.println(line);
            }
        } catch (IOException e) {}
    } finally {
        try {
            if(reader != null) reader.close();
            if(writer != null) writer.close();
        } catch(IOException ioe) {}
    }
}
```

5 演習 5

参考資料：CopyingFile.java

```
import java.io.*;
public class CopyingFile {
    public static void main(String[] args) {
        int data = 0;
        long previousTime = System.currentTimeMillis();
        InputStream is = null;
        OutputStream os = null;
        try {
            if(args[2].equals("true")) {
                is = new BufferedInputStream(new FileInputStream(args[0]));
                os = new BufferedOutputStream(new FileOutputStream(args[1]));
            }
        }
    }
}
```

```
    } else if(args[2].equals("false")) {
        is = new FileInputStream(args[0]);
        os = new FileOutputStream(args[1]);
    } else { System.exit(-1); }
    while((data = is.read()) != -1) os.write(data);
} catch(FileNotFoundException fnfe) {
} catch(IOException ioe) {
} finally {
    try {
        if(is != null) is.close();
        if(os != null) os.close();
    } catch(IOException ioe) { }
}
System.out.println(System.currentTimeMillis() - previousTime);
}
}
```
