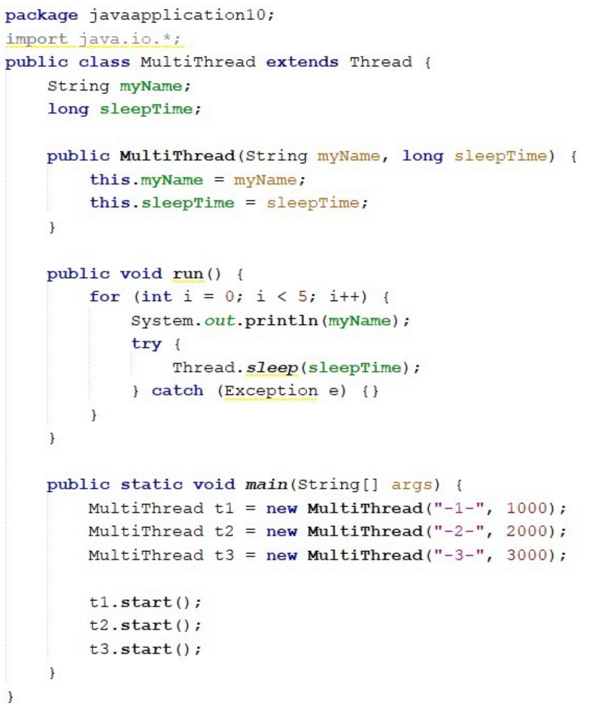
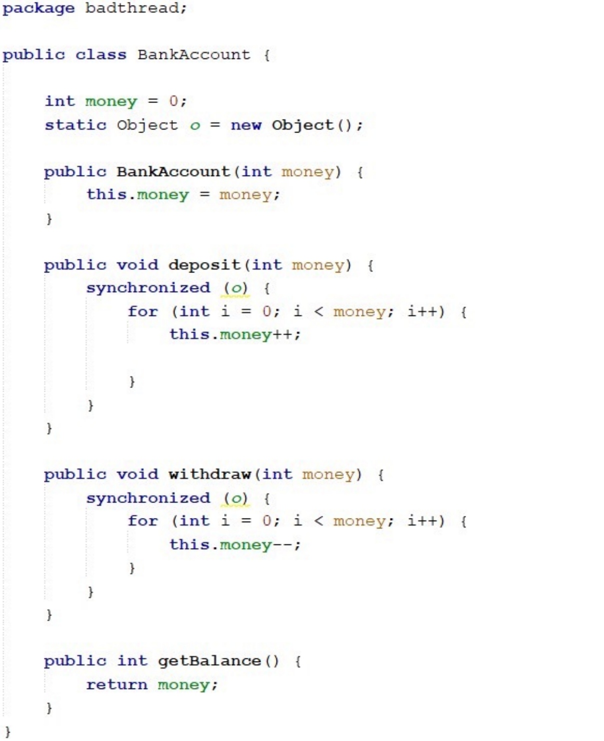
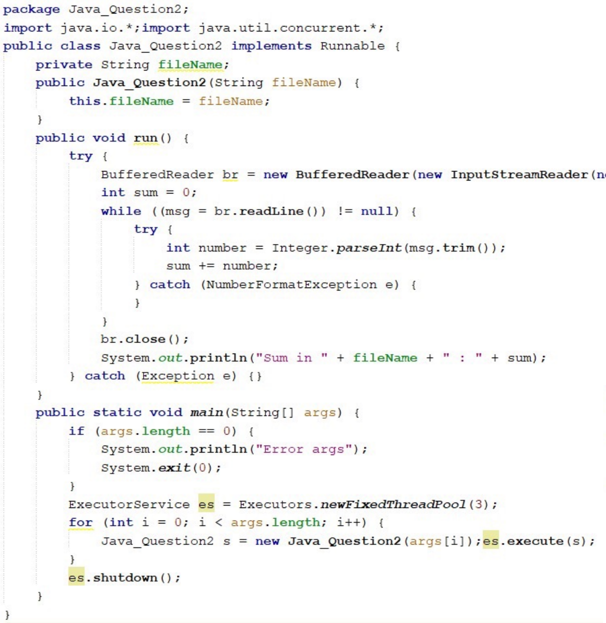


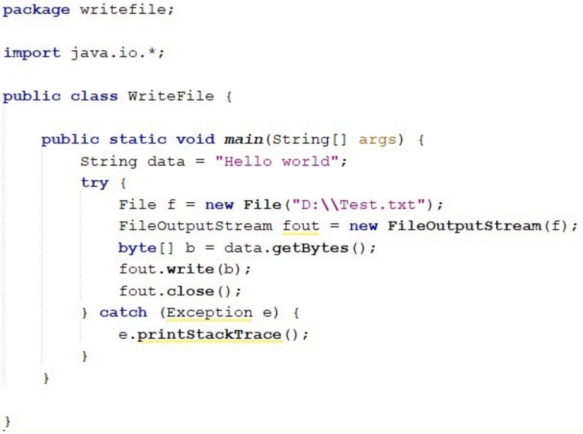
```java
package javaapplication10;
import java.io.*;
public class MultiThread extends Thread {
    String myName;
    long sleepTime;

    public MultiThread(String myName, long sleepTime) {
        this.myName = myName;
        this.sleepTime = sleepTime;
    }

    public void run() {
        for (int i = 0; i < 5; i++) {
            System.out.println(myName);
            try {
                Thread.sleep(sleepTime);
            } catch (Exception e) {}
        }
    }

    public static void main(String[] args) {
        MultiThread t1 = new MultiThread("-1-", 1000);
        MultiThread t2 = new MultiThread("-2-", 2000);
        MultiThread t3 = new MultiThread("-3-", 3000);

        t1.start();
        t2.start();
        t3.start();
    }
}
```



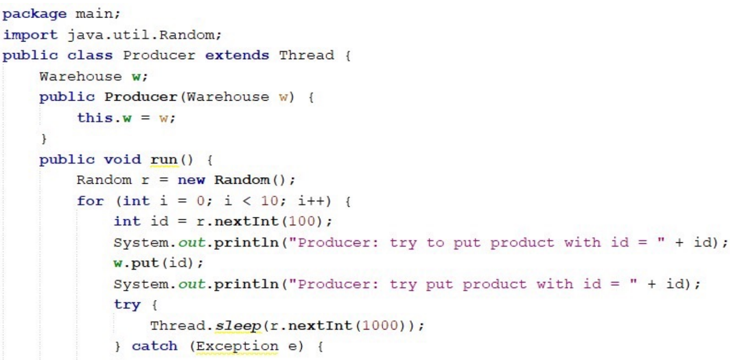
```java
package badthread;

public class BankAccount {

    int money = 0;
    static Object o = new Object();

    public BankAccount(int money) {
        this.money = money;
    }

    public void deposit(int money) {
        synchronized (o) {
            for (int i = 0; i < money; i++) {
                this.money++;

            }
        }
    }

    public void withdraw(int money) {
        synchronized (o) {
            for (int i = 0; i < money; i++) {
                this.money--;
            }
        }
    }

    public int getBalance() {
        return money;
    }
}
```



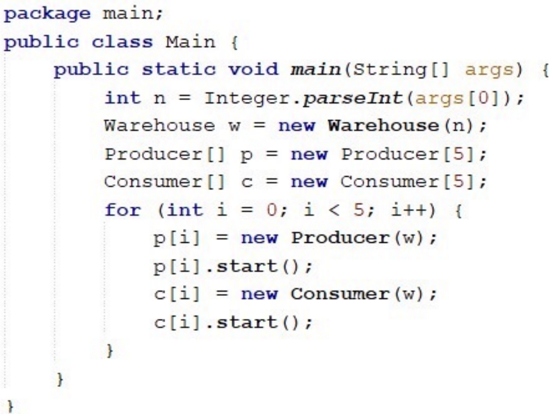
```java
package Java_Question2;
import java.io.*;import java.util.concurrent.*;
public class Java_Question2 implements Runnable {
    private String fileName;
    public Java_Question2(String fileName) {
        this.fileName = fileName;
    }
    public void run() {
        try {
            BufferedReader br = new BufferedReader(new InputStreamReader(new FileInputStream(fileName)));String msg;
            int sum = 0;
            while ((msg = br.readLine()) != null) {
                try {
                    int number = Integer.parseInt(msg.trim());
                    sum += number;
                } catch (NumberFormatException e) {
                }
            }
            br.close();
            System.out.println("Sum in " + fileName + " : " + sum);
        } catch (Exception e) {}
    }
    public static void main(String[] args) {
        if (args.length == 0) {
            System.out.println("Error args");
            System.exit(0);
        }
        ExecutorService es = Executors.newFixedThreadPool(3);
        for (int i = 0; i < args.length; i++) {
            Java_Question2 s = new Java_Question2(args[i]);es.execute(s);
        }
        es.shutdown();
    }
}
```



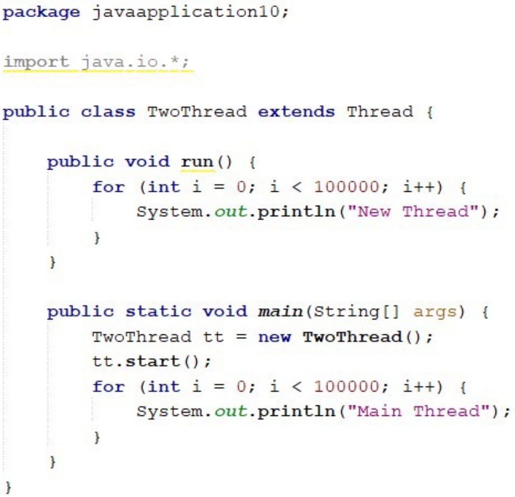
```java
package writefile;

import java.io.*;

public class WriteFile {

    public static void main(String[] args) {
        String data = "Hello world";
        try {
            File f = new File("D:\\Test.txt");
            FileOutputStream fout = new FileOutputStream(f);
            byte[] b = data.getBytes();
            fout.write(b);
            fout.close();
        } catch (Exception e) {
            e.printStackTrace();
        }
    }

}
```



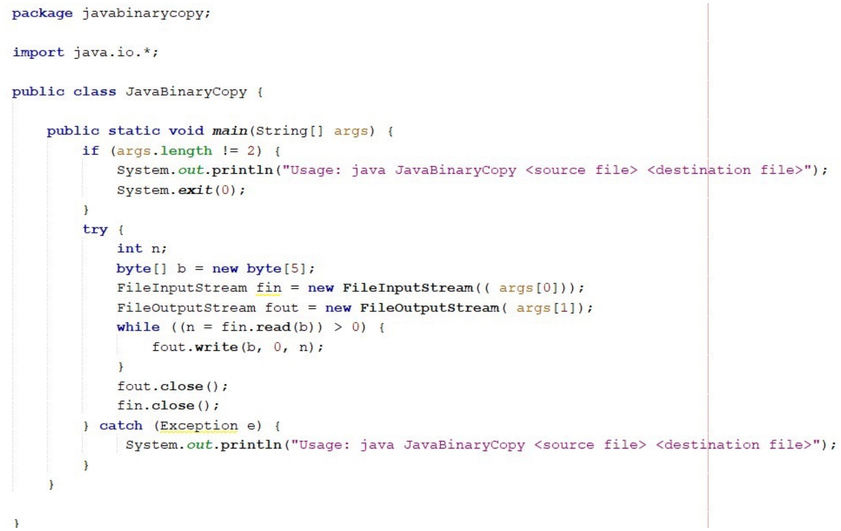
```
package main;
import java.util.Random;
public class Producer extends Thread {
    Warehouse w;
    public Producer(Warehouse w) {
        this.w = w;
    }
    public void run() {
        Random r = new Random();
        for (int i = 0; i < 10; i++) {
            int id = r.nextInt(100);
            System.out.println("Producer: try to put product with id = " + id);
            w.put(id);
            System.out.println("Producer: try put product with id = " + id);
            try {
                Thread.sleep(r.nextInt(1000));
            } catch (Exception e) {
            }
        }
    }
}
```



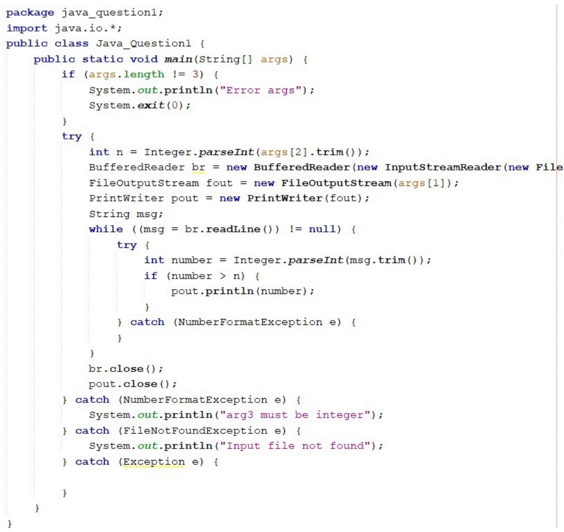
```
package main;
public class Main {
    public static void main(String[] args) {
        int n = Integer.parseInt(args[0]);
        Warehouse w = new Warehouse(n);
        Producer[] p = new Producer[5];
        Consumer[] c = new Consumer[5];
        for (int i = 0; i < 5; i++) {
            p[i] = new Producer(w);
            p[i].start();
            c[i] = new Consumer(w);
            c[i].start();
        }
    }
}
```



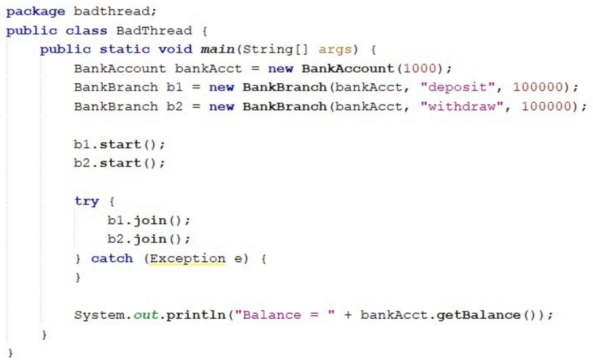
```
package javaapplication10;

import java.io.*;

public class TwoThread extends Thread {

    public void run() {
        for (int i = 0; i < 100000; i++) {
            System.out.println("New Thread");
        }
    }

    public static void main(String[] args) {
        TwoThread tt = new TwoThread();
        tt.start();
        for (int i = 0; i < 100000; i++) {
            System.out.println("Main Thread");
        }
    }
}
```



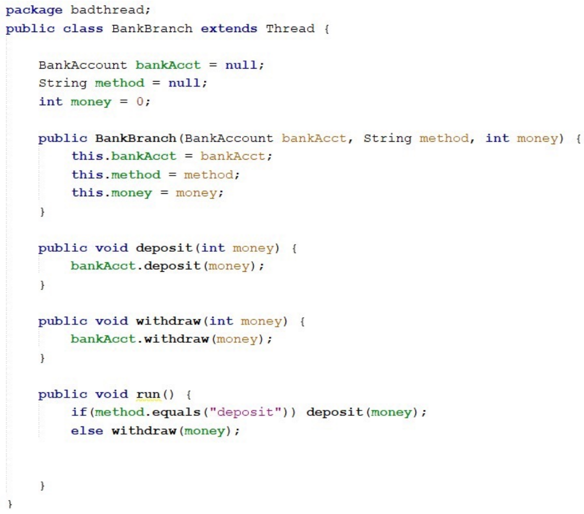
```
package javabinarycopy;

import java.io.*;

public class JavaBinaryCopy {

    public static void main(String[] args) {
        if (args.length != 2) {
            System.out.println("Usage: java JavaBinaryCopy <source file> <destination file>");
            System.exit(0);
        }
        try {
            int n;
            byte[] b = new byte[5];
            FileInputStream fin = new FileInputStream(( args[0]));
            FileOutputStream fout = new FileOutputStream( args[1]);
            while ((n = fin.read(b)) > 0) {
                fout.write(b, 0, n);
            }
            fout.close();
            fin.close();
        } catch (Exception e) {
             System.out.println("Usage: java JavaBinaryCopy <source file> <destination file>");
        }
    }

}
```



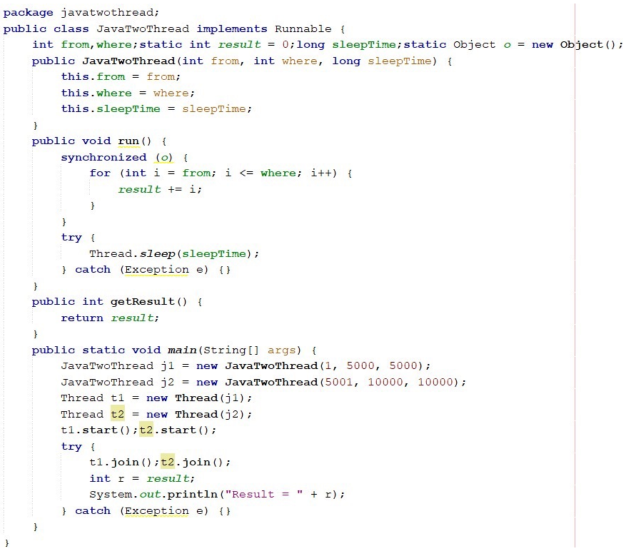
```java
package java_question1;
import java.io.*;
public class Java_Question1 {
    public static void main(String[] args) {
        if (args.length != 3) {
            System.out.println("Error args");
            System.exit(0);
        }
        try {
            int n = Integer.parseInt(args[2].trim());
            BufferedReader br = new BufferedReader(new InputStreamReader(new FileInputStream(args[0])));
            FileOutputStream fout = new FileOutputStream(args[1]);
            PrintWriter pout = new PrintWriter(fout);
            String msg;
            while ((msg = br.readLine()) != null) {
                try {
                    int number = Integer.parseInt(msg.trim());
                    if (number > n) {
                        pout.println(number);
                    }
                } catch (NumberFormatException e) {
                }
            }
            br.close();
            pout.close();
        } catch (NumberFormatException e) {
            System.out.println("arg3 must be integer");
        } catch (FileNotFoundException e) {
            System.out.println("Input file not found");
        } catch (Exception e) {

        }
    }
}
```



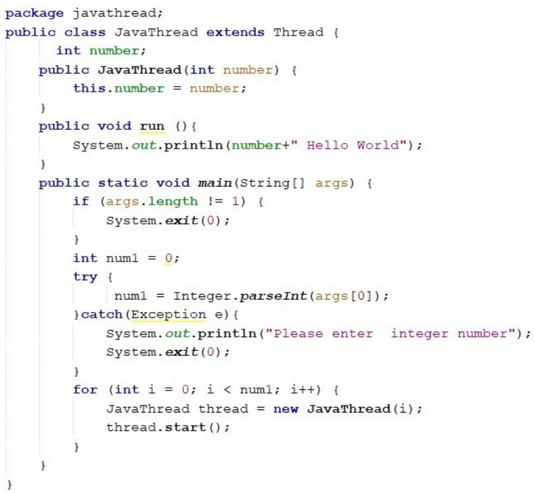
```java
package badthread;
public class BadThread {
    public static void main(String[] args) {
        BankAccount bankAcct = new BankAccount(1000);
        BankBranch b1 = new BankBranch(bankAcct, "deposit", 100000);
        BankBranch b2 = new BankBranch(bankAcct, "withdraw", 100000);

        b1.start();
        b2.start();

        try {
            b1.join();
            b2.join();
        } catch (Exception e) {
        }

        System.out.println("Balance = " + bankAcct.getBalance());
    }
}
```



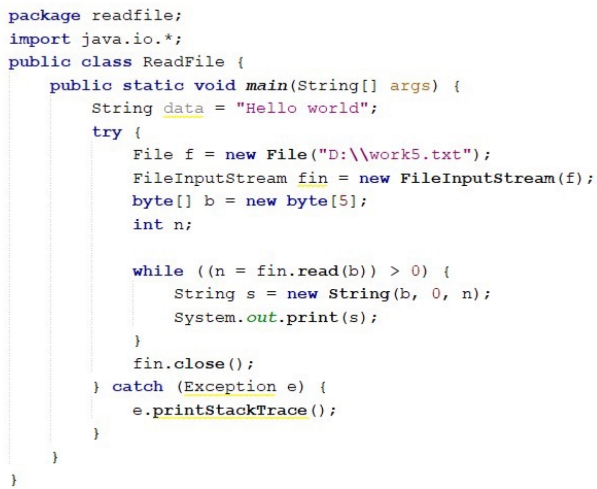
```java
package badthread;
public class BankBranch extends Thread {

    BankAccount bankAcct = null;
    String method = null;
    int money = 0;

    public BankBranch(BankAccount bankAcct, String method, int money) {
        this.bankAcct = bankAcct;
        this.method = method;
        this.money = money;
    }

    public void deposit(int money) {
        bankAcct.deposit(money);
    }

    public void withdraw(int money) {
        bankAcct.withdraw(money);
    }

    public void run() {
        if(method.equals("deposit")) deposit(money);
        else withdraw(money);


    }
}
```



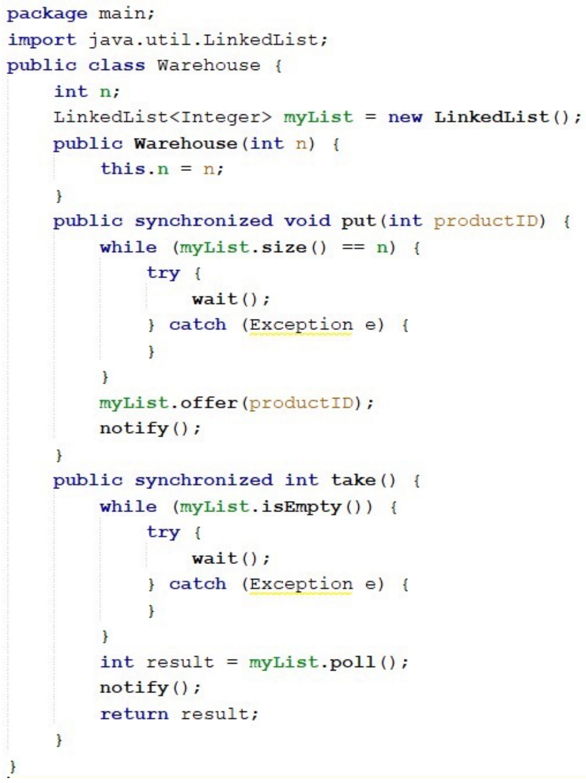
```java
package javatwothread;
public class JavaTwoThread implements Runnable {
    int from,where;static int result = 0;long sleepTime;static Object o = new Object();
    public JavaTwoThread(int from, int where, long sleepTime) {
        this.from = from;
        this.where = where;
        this.sleepTime = sleepTime;
    }
    public void run() {
        synchronized (o) {
            for (int i = from; i <= where; i++) {
                result += i;
            }
        }
        try {
            Thread.sleep(sleepTime);
        } catch (Exception e) {}
    }
    public int getResult() {
        return result;
    }
    public static void main(String[] args) {
        JavaTwoThread j1 = new JavaTwoThread(1, 5000, 5000);
        JavaTwoThread j2 = new JavaTwoThread(5001, 10000, 10000);
        Thread t1 = new Thread(j1);
        Thread t2 = new Thread(j2);
        t1.start();t2.start();
        try {
            t1.join();t2.join();
            int r = result;
            System.out.println("Result = " + r);
        } catch (Exception e) {}
    }
}
```



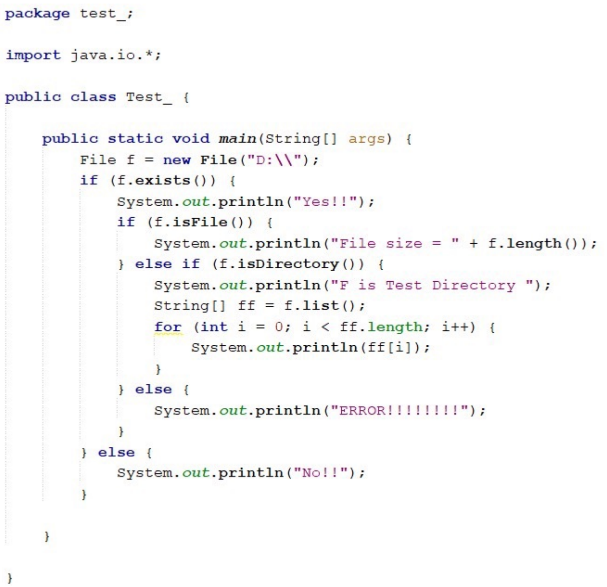
```java
package javathread;
public class JavaThread extends Thread {
     int number;
    public JavaThread(int number) {
        this.number = number;
    }
    public void run (){
        System.out.println(number+" Hello World");
    }
    public static void main(String[] args) {
        if (args.length != 1) {
            System.exit(0);
        }
        int num1 = 0;
        try {
             num1 = Integer.parseInt(args[0]);
        }catch(Exception e){
            System.out.println("Please enter  integer number");
            System.exit(0);
        }
        for (int i = 0; i < num1; i++) {
            JavaThread thread = new JavaThread(i);
            thread.start();
        }
    }
}
```



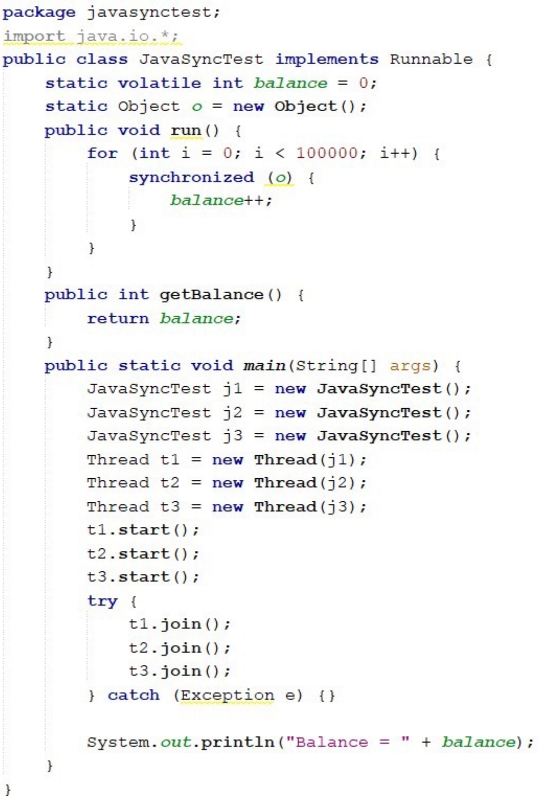
```java
package readfile;
import java.io.*;
public class ReadFile {
    public static void main(String[] args) {
        String data = "Hello world";
        try {
            File f = new File("D:\\work5.txt");
            FileInputStream fin = new FileInputStream(f);
            byte[] b = new byte[5];
            int n;

            while ((n = fin.read(b)) > 0) {
                String s = new String(b, 0, n);
                System.out.print(s);
            }
            fin.close();
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```



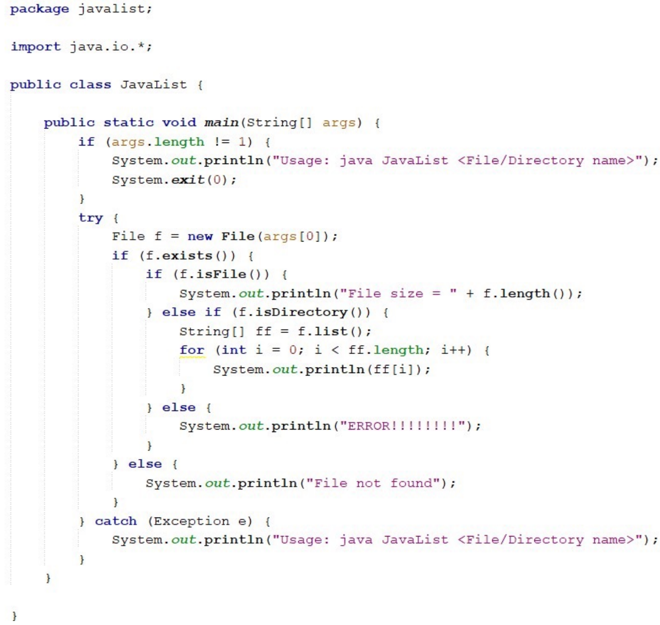
```java
package main;
import java.util.LinkedList;
public class Warehouse {
    int n;
    LinkedList<Integer> myList = new LinkedList();
    public Warehouse(int n) {
        this.n = n;
    }
    public synchronized void put(int productID) {
        while (myList.size() == n) {
            try {
                wait();
            } catch (Exception e) {
            }
        }
        myList.offer(productID);
        notify();
    }
    public synchronized int take() {
        while (myList.isEmpty()) {
            try {
                wait();
            } catch (Exception e) {
            }
        }
        int result = myList.poll();
        notify();
        return result;
    }
}
```



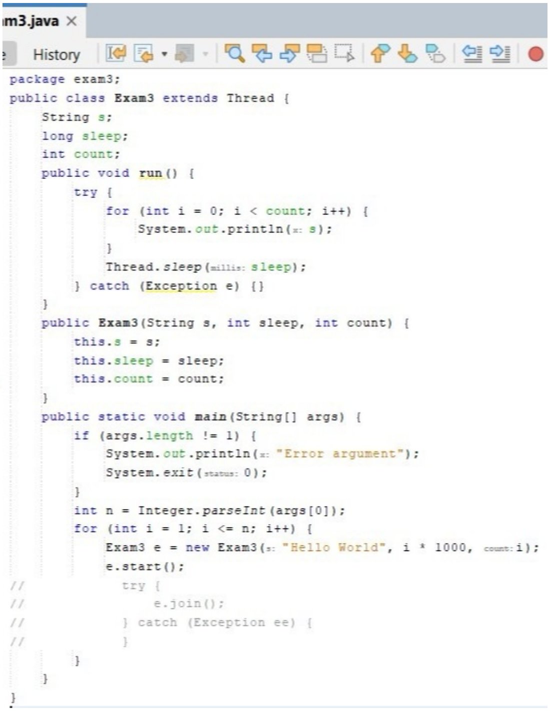
```java
package test_;

import java.io.*;

public class Test_ {

    public static void main(String[] args) {
        File f = new File("D:\\");
        if (f.exists()) {
            System.out.println("Yes!!");
            if (f.isFile()) {
                System.out.println("File size = " + f.length());
            } else if (f.isDirectory()) {
                System.out.println("F is Test Directory ");
                String[] ff = f.list();
                for (int i = 0; i < ff.length; i++) {
                    System.out.println(ff[i]);
                }
            } else {
                System.out.println("ERROR!!!!!!!!");
            }
        } else {
            System.out.println("No!!");
        }

    }


}
```



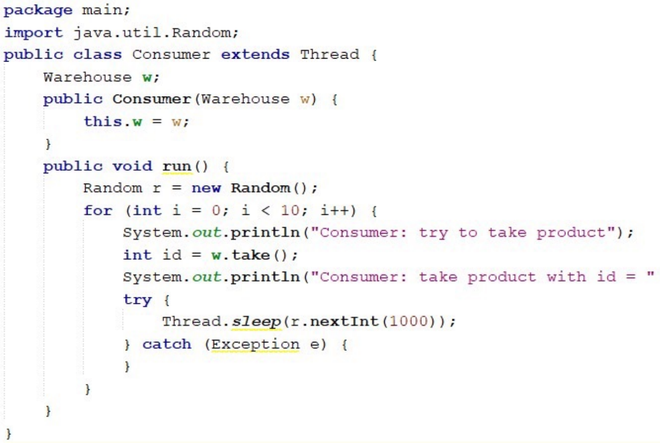
```java
package javasynctest;
import java.io.*;
public class JavaSyncTest implements Runnable {
    static volatile int balance = 0;
    static Object o = new Object();
    public void run() {
        for (int i = 0; i < 100000; i++) {
            synchronized (o) {
                balance++;
            }
        }
    }
    public int getBalance() {
        return balance;
    }
    public static void main(String[] args) {
        JavaSyncTest j1 = new JavaSyncTest();
        JavaSyncTest j2 = new JavaSyncTest();
        JavaSyncTest j3 = new JavaSyncTest();
        Thread t1 = new Thread(j1);
        Thread t2 = new Thread(j2);
        Thread t3 = new Thread(j3);
        t1.start();
        t2.start();
        t3.start();
        try {
            t1.join();
            t2.join();
            t3.join();
        } catch (Exception e) {}

        System.out.println("Balance = " + balance);
    }
}
```



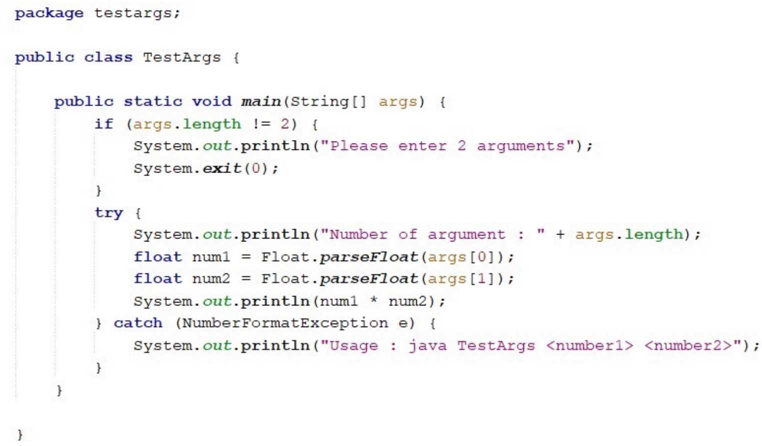
```
package javalist;

import java.io.*;

public class JavaList {

    public static void main(String[] args) {
        if (args.length != 1) {
            System.out.println("Usage: java JavaList <File/Directory name>");
            System.exit(0);
        }
        try {
            File f = new File(args[0]);
            if (f.exists()) {
                if (f.isFile()) {
                    System.out.println("File size = " + f.length());
                } else if (f.isDirectory()) {
                    String[] ff = f.list();
                    for (int i = 0; i < ff.length; i++) {
                        System.out.println(ff[i]);
                    }
                } else {
                    System.out.println("ERROR!!!!!!!!");
                }
            } else {
                System.out.println("File not found");
            }
        } catch (Exception e) {
            System.out.println("Usage: java JavaList <File/Directory name>");
        }
    }

}
```



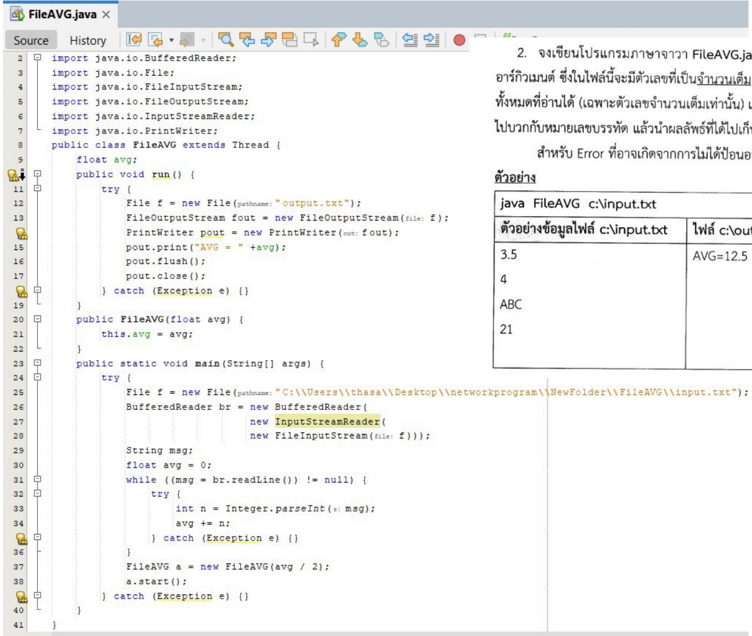
```
package exam3;
public class Exam3 extends Thread {
    String s;
    long sleep;
    int count;
    public void run() {
        try {
            for (int i = 0; i < count; i++) {
                System.out.println(x: s);
            }
            Thread.sleep(millis: sleep);
        } catch (Exception e) {}
    }
    public Exam3(String s, int sleep, int count) {
        this.s = s;
        this.sleep = sleep;
        this.count = count;
    }
    public static void main(String[] args) {
        if (args.length != 1) {
            System.out.println(x: "Error argument");
            System.exit(status: 0);
        }
        int n = Integer.parseInt(args[0]);
        for (int i = 1; i <= n; i++) {
            Exam3 e = new Exam3(s: "Hello World", i * 1000, count: i);
            e.start();
//              try {
//                  e.join();
//              } catch (Exception ee) {
//              }
        }
    }
}
```



```
package main;
import java.util.Random;
public class Consumer extends Thread {
    Warehouse w;
    public Consumer(Warehouse w) {
        this.w = w;
    }
    public void run() {
        Random r = new Random();
        for (int i = 0; i < 10; i++) {
            System.out.println("Consumer: try to take product");
            int id = w.take();
            System.out.println("Consumer: take product with id = " + id);
            try {
                Thread.sleep(r.nextInt(1000));
            } catch (Exception e) {
            }
        }
    }
}
```



```
package testargs;

public class TestArgs {

    public static void main(String[] args) {
        if (args.length != 2) {
            System.out.println("Please enter 2 arguments");
            System.exit(0);
        }
        try {
            System.out.println("Number of argument : " + args.length);
            float num1 = Float.parseFloat(args[0]);
            float num2 = Float.parseFloat(args[1]);
            System.out.println(num1 * num2);
        } catch (NumberFormatException e) {
            System.out.println("Usage : java TestArgs <number1> <number2>");
        }
    }

}
```



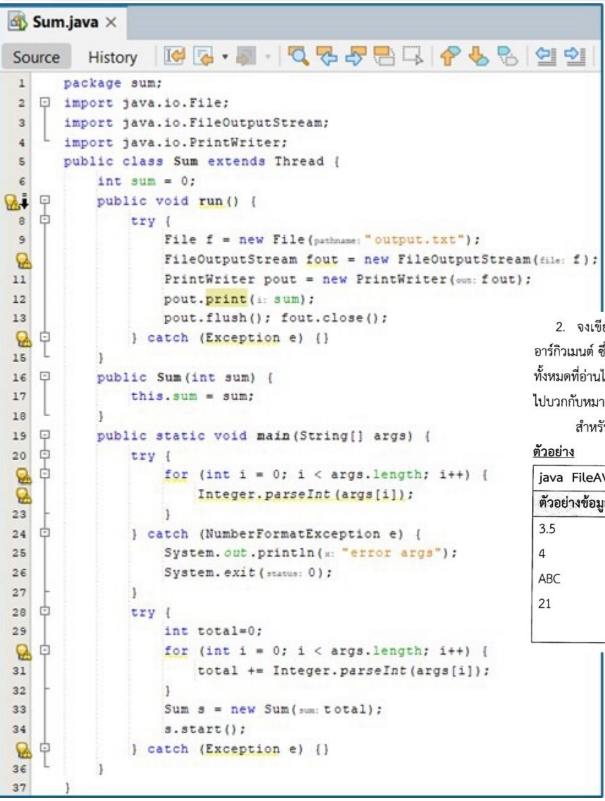
```java
import java.io.BufferedReader;
import java.io.File;
import java.io.FileInputStream;
import java.io.FileOutputStream;
import java.io.InputStreamReader;
import java.io.PrintWriter;
public class FileAVG extends Thread {
    float avg;
    public void run() {
        try {
            File f = new File(pathname: "output.txt");
            FileOutputStream fout = new FileOutputStream(file: f);
            PrintWriter pout = new PrintWriter(out: fout);
            pout.print("AVG = " +avg);
            pout.flush();
            pout.close();
        } catch (Exception e) {}
    }
    public FileAVG(float avg) {
        this.avg = avg;
    }
    public static void main(String[] args) {
        try {
            File f = new File(pathname: "C:\\Users\\thasa\\Desktop\\networkprogram\\NewFolder\\FileAVG\\input.txt");
            BufferedReader br = new BufferedReader(
                                new InputStreamReader(
                                new FileInputStream(file: f)));
            String msg;
            float avg = 0;
            while ((msg = br.readLine()) != null) {
                try {
                    int n = Integer.parseInt(s: msg);
                    avg += n;
                } catch (Exception e) {}
            }
            FileAVG a = new FileAVG(avg / 2);
            a.start();
        } catch (Exception e) {}
    }
}
```

2. จงเขียนโปรแกรมภาษาจาวา FileAVG.java โดยโปรแกรมจะอ่านข้อมูลจากชื่อไฟล์ที่ป้อนเข้ามาจากอาร์กิวเมนต์ ซึ่งในไฟล์นี้จะมีตัวเลขที่เป็นจำนวนเต็ม 1 ค่าต่อ 1 บรรทัด จากนั้นโปรแกรมจะหาค่าเฉลี่ยของตัวเลขทั้งหมดที่อ่านได้ (เฉพาะตัวเลขจำนวนเต็มเท่านั้น) แล้วบันทึกค่าเฉลี่ยนั้นลงในไฟล์ลงนำค่าที่อ่านได้แต่ละบรรทัดไปบวกกับหมายเลขบรรทัด แล้วนำผลลัพธ์ที่ได้ไปเก็บไว้ในไฟล์ชื่อ c:\average.txt

สำหรับ Error ที่อาจเกิดจากการไม่ได้ป้อนอาร์กิวเมนต์ให้ดักจับตามความเหมาะสม **(10 คะแนน)**

ตัวอย่าง

java FileAVG c:\input.txt		
ตัวอย่างข้อมูลไฟล์ c:\input.txt	**ไฟล์ c:\output.txt ที่โปรแกรมสร้าง**	**คำอธิบาย**
3.5 4 ABC 21	AVG=12.5	ในไฟล์ input.txt มีเพียงแค่บรรทัดที่มีเลข 4 และ 21 ที่เป็นจำนวนเต็ม การหาค่าเฉลี่ยก็คือ (4 + 21) / 2 = 12.5



```java
package sum;
import java.io.File;
import java.io.FileOutputStream;
import java.io.PrintWriter;
public class Sum extends Thread {
    int sum = 0;
    public void run() {
        try {
            File f = new File(pathname: "output.txt");
            FileOutputStream fout = new FileOutputStream(file: f);
            PrintWriter pout = new PrintWriter(out: fout);
            pout.print(i: sum);
            pout.flush(); fout.close();
        } catch (Exception e) {}
    }
    public Sum(int sum) {
        this.sum = sum;
    }
    public static void main(String[] args) {
        try {
            for (int i = 0; i < args.length; i++) {
                Integer.parseInt(args[i]);
            }
        } catch (NumberFormatException e) {
            System.out.println(x: "error args");
            System.exit(status: 0);
        }
        try {
            int total=0;
            for (int i = 0; i < args.length; i++) {
                total += Integer.parseInt(args[i]);
            }
            Sum s = new Sum(sum: total);
            s.start();
        } catch (Exception e) {}
    }
}
```

2. จงเขียนโปรแกรมภาษาจาวา FileAVG.java โดยโปรแกรมจะอ่านข้อมูลจากชื่อไฟล์ที่ป้อนเข้ามาจากอาร์กิวเมนต์ ซึ่งในไฟล์นี้จะมีตัวเลขที่เป็นจำนวนเต็ม 1 ค่าต่อ 1 บรรทัด จากนั้นโปรแกรมจะหาค่าเฉลี่ยของตัวเลขทั้งหมดที่อ่านได้ (เฉพาะตัวเลขจำนวนเต็มเท่านั้น) แล้วบันทึกค่าเฉลี่ยนั้นลงในไฟล์ลงนำค่าที่อ่านได้แต่ละบรรทัดไปบวกกับหมายเลขบรรทัด แล้วนำผลลัพธ์ที่ได้ไปเก็บไว้ในไฟล์ชื่อ c:\average.txt

สำหรับ Error ที่อาจเกิดจากการไม่ได้ป้อนอาร์กิวเมนต์ให้ดักจับตามความเหมาะสม **(10 คะแนน)**

ตัวอย่าง

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